UNIVERSITY OF CAPE COAST

EFFECTS OF REMITTANCES ON CHILD POVERTY IN GHANA

FAUSTINA DADZIE

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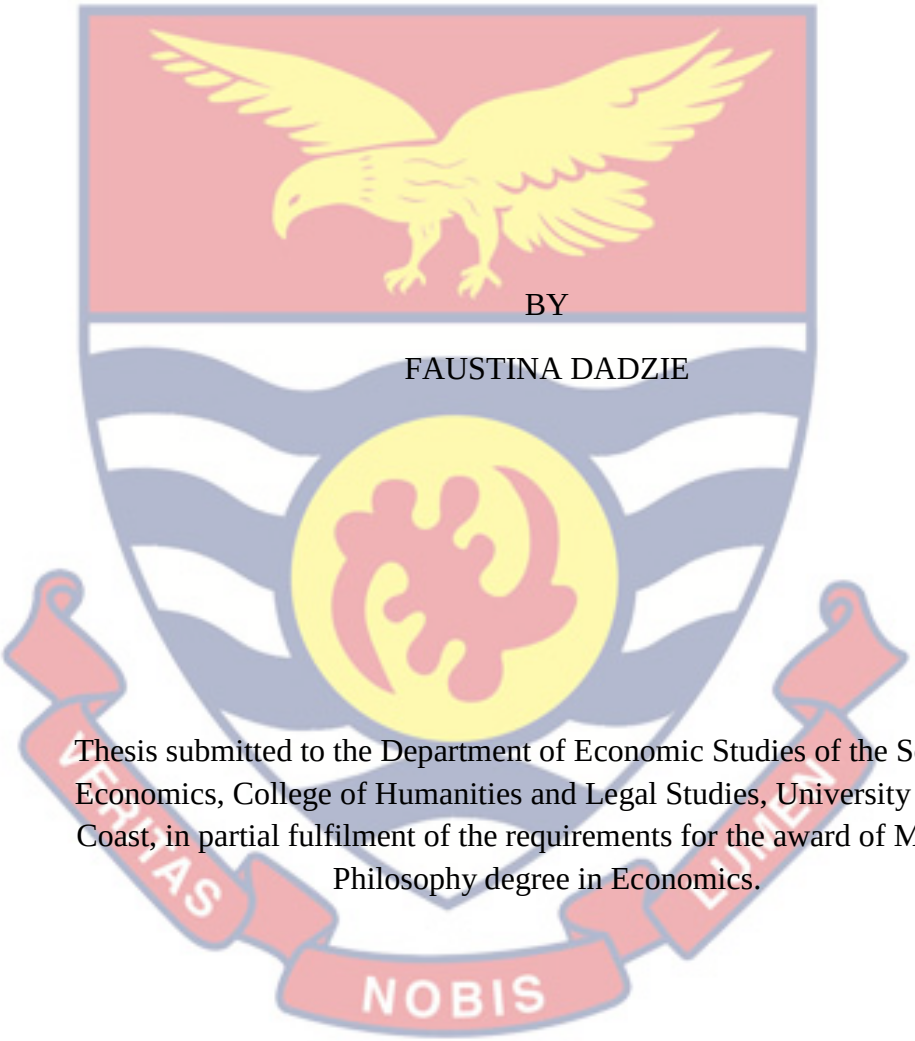

BY

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Thesis submitted to the Department of Economic Studies of the School of Economics, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfilment of the requirements for the award of Master of Philosophy degree in Economics.

JANUARY 2022

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature…… Date……

Name: Faustina Dadzie

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of the thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature…… Date……

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ABSTRACT

Assessing poverty at the level of the child helps to identify children who are at risk of prolonged or temporal deprivation. Scholarly works on how remittances affect various welfare indicators have been increasing lately. However, little attention has been given to how child poverty responds to remittances. The study examines the effect of remittances on child poverty using round seven of the Ghana Living Standard Survey. Specifically, the paper examines the amount of remittances needed to reduce child poverty and which dimensions of child poverty is most sensitive to remittances. Using Propensity Score Matching and Two Stage Least Square techniques, the study concludes on a negative and significant link between remittances and child poverty, hence, making children in remittance receiving households better off as compared to those who are not. For households that received food remittance, child poverty levels reduced by 3.4 percentage points whereas households that acknowledged receipt of cash remittance had child poverty levels reducing by 3.2 percentage points. With regards to which dimension is most sensitive to remittances, the findings confirm that child education is the most sensitive to food remittances and health dimension is most sensitive to cash remittances. Going forward, the Ministry of Gender, Children and Social Protection could be tasked to identify and direct government to the provision of education, health and sanitation facilities to include areas that are lacking.

KEY WORDS

Cash Remittance

Child Deprivations

Child Poverty

Food Remittance

Multidimensional Poverty Index

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DEDICATION

To Bingi and Emmanuel Dennis Dadzie.

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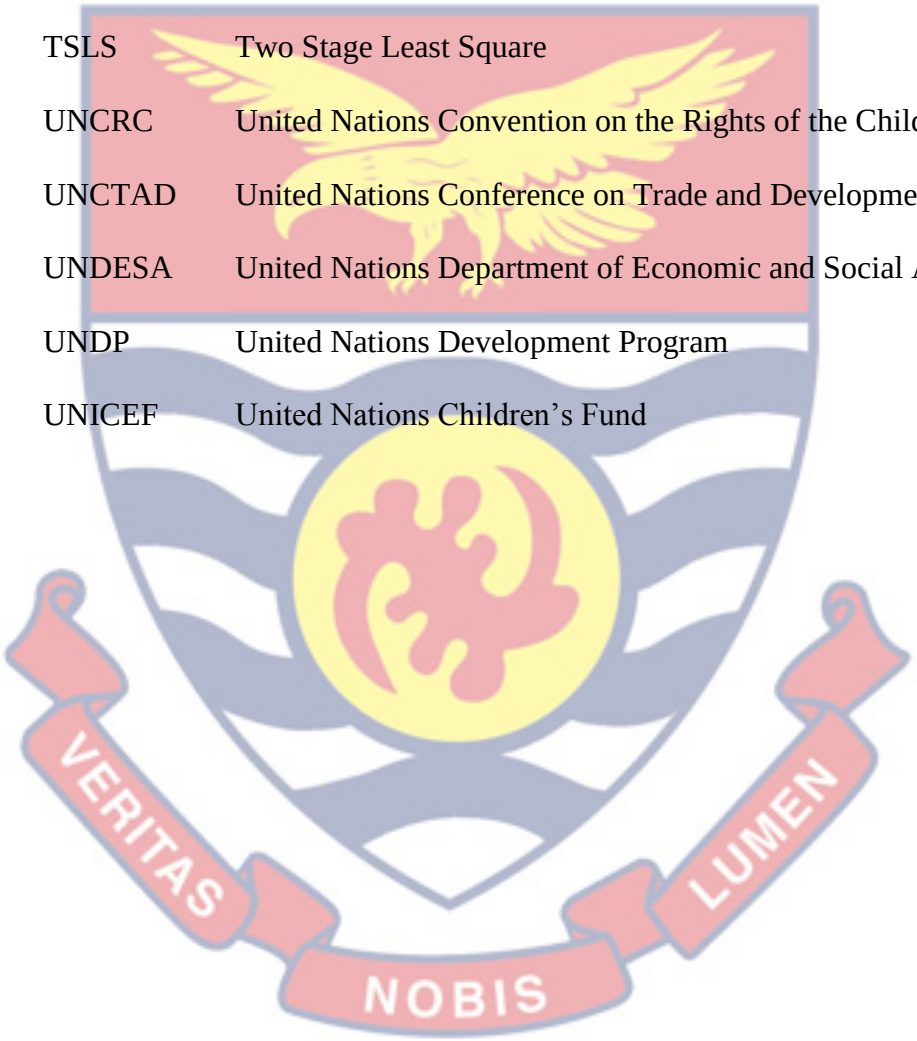
LIST OF ACRONYMS

ECOWAS	Economic Community of West African States
GDP	Gross Domestic Product
GSS	Ghana Statistical Service
IOM	International Organization for Migration
PSM	Propensity Score Matching
TSLS	Two Stage Least Square
UNCRC	United Nations Convention on the Rights of the Child
UNCTAD	United Nations Conference on Trade and Development
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund



CHAPTER ONE

INTRODUCTION

Background to the Study

Throughout the world, people move away from their homes to seek better economic conditions for their families and themselves. Once they are away from their homes, they remit back to the families that are left behind. In recent years, people moving within their countries and across other countries have been on the rise, especially through the advent of globalization. Data from the United Nations Department of Economic and Social Affairs reveals that since the year 2000, intra-African migration has risen (UNDESA, 2019). According to the International Organization for Migration (IOM), approximately 16 million Africans live in some other part of the continent., while another 16 million people dwell outside of the continent (IOM, 2017). The situation in Africa is such that the unceasing movement of people into and out of the continent has led to a characterization of changes in the population, as such, it has been considered as a means to sustain life and increase survival odds. In recent times, the implications of migration on the socio-demographic improvement and welfare of various households that have been outdistanced have sparked heated discussions among policy makers (Adjei et al., 2017). The migration conversation has piqued people's curiosity since it has been established that migrants can increase a home country's development through the inflow of remittances (Adu-Darko, 2019).

The International Organization for Migration (IOM) largely explains migrant remittances as all money transfers that migrants make to their homeland. That is to say, all financial flows that are associated with migration

(IOM, 2011). In a recent World Bank report, it was estimated that in 2020, remittances from all over the world was expected to experience a 2.4 percent reduction due to the Covid-19 pandemic. The value of all remittances received in 2020 stood at $702 billion; while that of 2019 stood at $719 billion (World Bank, 2020). Despite the slowdown of emigration in Ghana over the past five years, Ghana was noted as the second largest receiver of remittances after Nigeria, with the flow shooting from over $100 million in 2007 to $3.5 billion in 2018, allowing a large number of households in realizing decent incomes (World Bank, 2018). However, personal remittances received in the country suffered a decline in 2020, moving from $4.054 billion in 2019 to $3.565 billion in 2020.

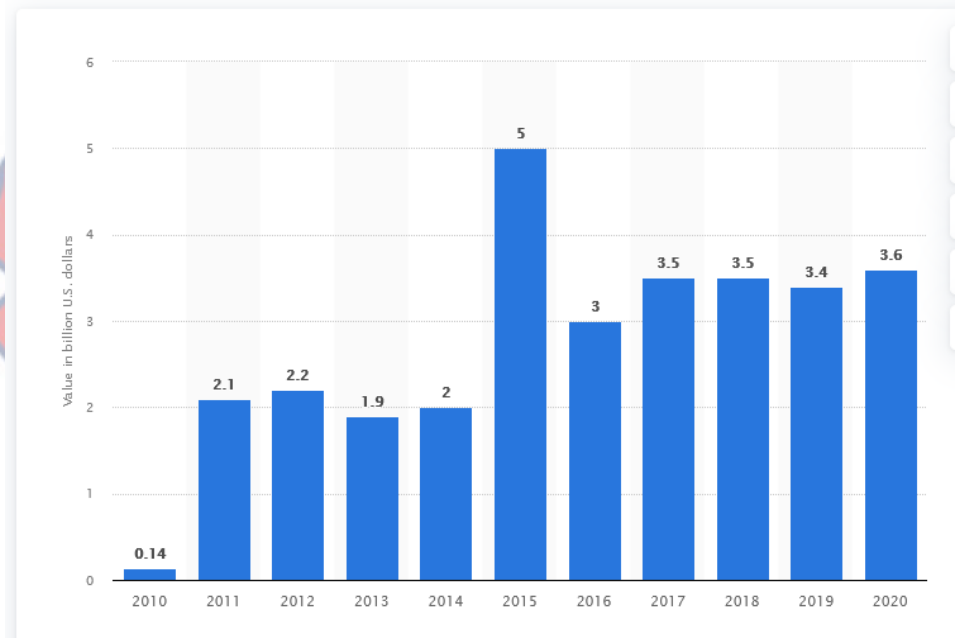


Figure 1: Personal Remittances Received (current US$)

Source: World Bank (2020)

With the debate over migration and remittances gaining a lot of attention lately, several researches targeted at determining the influence on numerous welfare outcomes have been conducted. Quartey (2006) conducted a

study to ascertain whether remittances had an impact on household welfare (poverty). Acosta et al (2006), Anyanwu and Erhijakpor (2010), Martey (2019), Mendola (2012) and Teye et al (2019) had a common indicator of interest; that is, poverty.

Although the poverty rates in Ghana's respective regions have been unequal, the poverty rate in Ghana has been lowered by about 30 percent in the last two decades accounting for a significant improvement in the general welfare of Ghanaians. The poverty incidence and gap has followed a varied pattern among regions over the past decade. Since 2006, the Greater Accra region has recorded the lowest poverty headcount with its poverty incidence in 2017 standing at 2.5 percent. Compared to the national average, it was 21 percentage points lower.

The situation has been quite different in the northern part of the country since 2006. In the Upper West, Upper East and Northern regions, the incidence of poverty has over the years been higher than the national average. Within 2014 and 2017, poverty rates reduced for half of the country with the exception of the Volta region, Western region and the three regions in the northern sector, with the Greater Accra region recording the least poverty rate and the northern region considered to have the greatest number of poor people (GSS, 2018).

In most developing countries, various researches that focus on issues of poverty make it evident that an important factor that contributes to poverty reduction and also serves as support to the poor is remittances received by households (Bouoiyour & Miftah, 2014). Masron and Subramaniam (2018) also observed that there exists an inverse relationship between remittances and

poverty. This is not different from the findings of Cuadros-Menac et al (2020). The authors established that remittance receiving households had their incomes increased and budgets relaxed.

That notwithstanding, though there has been meaningful progress on poverty reduction, about 14 million Ghanaians are tagged as multidimensionally poor due to deprivations in these three dimensions – health, education and living standards. More people in Ghana live in multidimensional poverty as compared to monetary poverty; that is, 45.6 percent and 23.4 percent respectively (Dagunga et al., 2020). It further shows that those in the urban areas were better off compared to their counterparts in the rural areas with the northern region having the greatest percentage (80 percent) of multidimensionally poor people.

Children are not an exception to multidimensional poverty. According to Hjelm et al (2016), they are a particularly vulnerable group in the world and are subjected to a variety of disadvantages with the extreme poverty rates standing at a double of that of adults. Parental unemployment and inadequate income are increasingly the leading causes of child poverty. Particularly in developing countries like Ghana, child poverty has received limited attention in poverty alleviation measures. Most researches have based child poverty measurements on indicators that are unidimensional, usually household income and consumption. The implication of this measurement is that, children are only considered poor if they are found in households that are not able to meet a certain consumption or income level. However, as opposed by Kofinti and Annim (2016), there is more to child poverty beyond monetary measurements since it does not take into consideration the lack of vital and

indispensable services such as improved sanitation, health and education implying that the concept of child poverty is multidimensional.

The missing link in all the studies that focus on the effects that remittances have on welfare indicators is how remittances affects child poverty. Given that remittance tend to aid in combatting poverty, it is of interest to measure how they affect child poverty.

Problem Statement

The 2030 sustainable development agenda of the United Nations makes known the fact that globally, the biggest challenge is the eradication of poverty. Goal 1.2 of the sustainable development goals emphasizes on reducing women and child poverty at least by half. In Ghana, the major indicators for the social objectives have made significant progress, but not at the rate necessary to meet the SDGs' objective by 2030. Overall, poverty, malnutrition, maternal mortality, and under-five mortality have decreased, while access to health services and school enrollment have increased, with gender parity achieved at the most basic level. Evidence from the GSS shows that within 1991 and 2017 there was a decline in the incidence of poverty in Ghana from 37.6 percent to 8.2 percent making the country able to reach the MDG target of halving extreme poverty in 2006 (GSS, 2018).

Remittances are a major source of income for families. Remittances help to increase income and smoothen consumption in many Ghanaian households and in the long run leads to welfare gains (Adu-Darko, 2019; Teye et al., 2019). A substantial body of empirical evidence also make similar conclusions that because remittances result in an increase in income, they have

significant effects on poverty reduction (Adams, 2006; Afful-Mensah & Ayisi, 2020; Antwi et al., 2013; Martey, 2019; Nyarko & Gyimah- Brempong, 2011).

However, the literature on migrant remittances and poverty has been over the years greatly biased towards adults. There is not much empirical evidence on the effects that these remittances have on children. Child poverty is multifaceted due to varying needs children may have as compared to adults, and higher poverty rates among children due to greater family dependency ratios. Children falling into poverty may last for a lifetime, implying that the consequences are not only individualistic but also a national one. The number of children living in poverty in Ghana are more than 3.5 million; that is about 28 percent of all children in the country (NDPC, 2020). When making a comparison, the probability of children being poor is 40 percent likely than that of adults; with children in rural areas (44 percent) being at a higher risk than their counterparts (10 percent) in the urban areas (GSS, 2018).

In 2019, the child poverty report of UNICEF showed that 73.4 percent of children in Ghana have been identified as multidimensionally poor. Very few children were without any deprivation (2.5 percent), or one deprivation (8.3 percent). The implication is that, children in Ghana experience significant deprivations in services, and denial of basic rights, therefore it is of utmost importance that appropriate policy actions are put in place and investments in children enhanced (UNICEF, 2020).

Various analysis on remittance are mostly narrowed to only cash. It is prudent to consider other forms of remittances since they are also considered as income to the households. Thus, the study includes the value of both cash and non-cash remittances (value of food). Also, child poverty is measured

using the Multidimensional Poverty Index using three dimensions; health, education and living standards. This index better appreciates the state of children. As a way of complementing the usual unidimensional and orthodox way of measuring poverty, the index takes into consideration the deprivation of children in education, health and living standards concurrently, guaranteeing that no child is left behind (Agyire-Tettey et al., 2020).

Research Objectives

Generally, the study seeks to analyze the effect of migrant remittances on child poverty in Ghana. The specific objectives are to:

i. Examine the effect of remittance recipient households on child poverty.
ii. Analyze the relationship between amount of remittances and child poverty.
iii. Determine which dimension of child poverty is more responsive to remittances.

Research Hypotheses

i. H_0: Remittance recipient households have higher child poverty.

   H_a: Remittance recipient households have lower child poverty.

ii. H_0: The amount of remittance is positively associated with child poverty.

   H_a: The amount of remittance is negatively associated with child poverty.

iii. H_0: Remittances have the same effects on the three dimensions (health, education, living conditions) of child poverty.

iv. H_a: Remittances have different effects on the three dimensions (health, education, living conditions) of child poverty.

Significance of the Study

There is increasing evidence from various literatures suggesting that, migration could be a deliberate plan to increase incomes of households and in turn be a response to extreme poverty. Out-migrants not willing to break family and community ties irrespective of the period of absence and distance involved, provide support through remittances. The offshoot of such decisions on children left behind in their households in terms of poverty constitutes the focus of this paper. And hence in as much as assessing the impact of remittance on poverty is necessary, it is even more essential to consider or evaluate how it affects child poverty and also how it drives policies since it can help reach the point where child poverty is reduced.

The study will add to the stock of knowledge on the effects of migrant remittances on child poverty in Ghana. It would enable policy makers to put in place effective policies on uses put to remittances from migrants. It would also serve as a catalyst for further research into the area of child poverty for the overall wellbeing of the nation. The results, which should be of interest to economic policy makers in Ghana, may have broader relevance to the remittances and development debate as well and also complement the body of comparative evidence available on the impact of remittances on child poverty aimed at reducing the incidence of multidimensional poverty among children in Ghana.

Delimitation of the Study

With emphasis on both cash and food remittance, the study examined the effects of remittance on child poverty using Propensity Score Matching technique. To correct endogeneity problem between remittance and child poverty, a TSLS estimation is employed to analyze the dimensions of child poverty that are most sensitive to remittances. The study used the nationally representative GLSS 7 dataset and a quantitative research design. The distribution of child deprivation and deprivation by remittance status was explored in all ten regions as well as rural urban locations.

Limitation of the Study

The GLSS provides information on whether food remittance was received from migrant in the past year and also the total value of food received in the past year. In most cases, it might be difficult for households to give accurate prices of food remittances received. If food received by households were measured in weights or volumes, a more appealing analysis could be made regarding how food remittance affects welfare indicators including child poverty.

Majority of the variables of interest in this study were related to the head of household. The profile of sender of remittance could be useful to this study; in that when the occupation of the sender is known, it could be used to analyze why certain households receive greater remittances as compared to others. Also, if sender is in agricultural sector, it is likely that households will receive more food remittance as compared to cash. This information could have helped throw more light on which of the remittances have a greater effect on child poverty.

Another limitation of this study is the estimation method. The study was unable to account for unobservable factors that may influence both remittances and child poverty at the same time.

Organization of the Study

This research is structured into five chapters. Relevant theories and review of literature is discussed in chapter two. Chapter three explains the research methods. It describes the data, how the data were obtained and defines the variables that are constructed from the raw data before developing the method to be used. Chapter four reports and analyzes the results that are generated from the study. The fifth and final chapter of the research is the conclusion. It summarizes the study's key findings, highlights the study's relevant policy implications, and provides recommendations and suggestions for future studies.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter reviews the various literature related to the study. This chapter is grouped into two main sections; first is theoretical framework and the second part entails a review of issues related to the concept of remittance, senders and receivers of remittance, benefits of remittance to households, child poverty in Ghana, determinants of child poverty, cash and non - cash transfers and the uses and impacts of remittances.

Theoretical Framework

Theories of Remittance

Pure Altruism

Giving without consideration to compensation or the privileges of acknowledgment and need is pure altruism (Becker, 1981). According to this theory, individuals remit because they are concerned about members of their household, or out of concern for the wellbeing of the family and associates in the home country. Migrants take pleasure in remitting because they are concerned about household consumption, (Lucas & Stark, 1985). Permanent migrants, according to Glytsos (2002), remit for altruistic reasons, whereas transient migrants remit mostly for investment and future consumption.

The model also suggests that, sending remittances gives satisfaction to the migrant's family. As a result, the migrant constantly becomes concerned about his or her family's poverty, shocks, and other difficulties, and hence sends remittances (Bashir, 2014). There are three basic assumptions underlying this motive. Firstly, remittance is a function of migrant income.

Secondly, the amount to remit depends on the income level of the migrant family and associates in country of origin. Finally, how the migrant is attached to his family relation back home (Oluwafemi & Ayandibu, 2014). The family attachment may decrease as migrant workers stay for a longer period and as such will find it worthwhile to bring their immediate family to join them which will reduce the amount of remittances sent home but the level of remittances will rise when the receiving economy is in distress. This means that remittances are countercyclical which rises in period of economic downturns and decline in period of high economic growth.

New Economics of Migration

Taking a separate approach, the New Economics of Migration (NEM), Stark and Bloom (1985) states that migration decisions are made by families or households rather than by individuals. People work together to increase wealth not only in absolute terms, but also in comparison to other households. It differs with neo-classical economic theory, which views migration as a result of wage disparities between the destination and arriving countries. According to this theory, decisions regarding migration are not finalized by only individuals in question. These decisions are taken by broader groups of individuals, usually families or households, who work together to optimize future income, reduce costs, and loosen restrictions associated with a number of market failures other than labor market failures. Although some members of the household may be allocated to local economic enterprises, some could be compelled to labor in overseas labor markets, where salaries and working conditions are higher compared to the local economy. Households might count

on migrant remittances for help if local conditions worsen (Fredericks et al., 2015).

Self- interest / Investment Motive

Unlike the altruism motive, the decision to remit under this motive is based on the migrant's own financial and economic self-interest. These motives of remittances are driven largely by investment and return on investments of migrants. Remittances are not only compensatory but also investment motivated. Sometimes, migrants have investments that need to be tendered by their family members as agents on their behalf during their exile and as such they remit for such purpose. The return on investment determines the motivation and the amount to remit. More will be remitted when return on their investments is high and vice versa. Family members will only agree to act on migrant's behalf when they expect a higher utility than the situation when they do not perform such service (Rapoport & Docquier, 2006). The advocates of self-interest motive of remittances see the family as a business unit as well as a bond of contract which permits members of the family to engage in pareto optimizing exchanges (Chami, 2005).

The Pareto-improving exchanges can manifest itself in various situations such as managing assets belonging to the migrant at home and where migrant remits to exhibit creditable conduct or with the aspiration to inherit (Hagen-Zanker & Siegel, 2007). This motive maintains that remittances rise with the asset and income of the household, the probability of inheriting, the wealth and income of the migrant and also decline with risk aversion. Under this motive, remittances are pro-cyclical. The worth of bequest rises during a favorable economic condition motivating migrant to

remit more in such situation. According to the self-interest motive, when migrant believes that the home country has become attractive for future investment plans; they remit more to take advantage of such opportunity. Where remittances are out of self-interest motives especially for investment purposes, macroeconomic factors such as interest rate, infrastructure situation, government policies in the home country turn to influence the decision and amount to remit (Leon-Ledesma & Piracha, 2004; World Bank, 2006). Adams (2008), in his paper, makes clear empirical evidence establishing that self-interest is a motive of remitting after investigating the nexus between per capita GDP at home and remittances. He indicated that remittances rise as per capita GDP of home country increases meaning self-interest motive is likely to play a major role in the choice to remit.

Implicit Family Contract: Repayment of Loan

This is a theory that provides a discussion on the remittances process that deals with the family as the main unit of analysis rather than the individual. The theory assumes that families tend to develop a contract among their members who stay abroad, and those at home (Owiafe, 2008). The contract includes elements of investment as well as repayment. The investment feature of the theory is where the family invests in the emigrant's education and caters for his costs of migration that is paid for his travel and subsistence in the country of destination. However, once the migrant is completely settled in the host nation and over time begins to experience a rise in income, he or she commences the repayment of the loan to the family, in the form of remittances. This loan comprises the principal with interests. The family begins to invest in the high-income earning migrant. The income

profile of the migrant will influence the amount to be remitted under this theory.

Implicit Family Contract: Co-Insurance

The theory according to implicit Family Contract II is that many risks are undiversified due to unavailability of financial assets that can be utilized to hedge them since capital and insurance markets are incomplete in the real world. The model suggests that it is necessary to diversify the economic risk by sending educated members abroad. The migrant serves as an insurer and the family plays the role of an insured. For instance, in times of family distress, the migrant provides support for the family and similarly, the family also serves as a form of insurance for the migrant during hard times. The family gains an opportunity to smoothen its consumption and undertake investment opportunities after receiving the remittances. According to the model, while emigration becomes a co-insurance strategy, remittances serve as an insurance claim.

Theories of Poverty

Bradshaw (2007) presented five theoretical poverty explanations while citing various arguments made by a number of scholars. The five categories are (i) individual deficiencies, (ii) cumulative and cyclical interdependencies, (iii) geographical disparities, (iv) political economic distortions and (v) cultural belief systems that reinforce subcultures of poverty.

The theory of individual deficiencies maintains that individuals are solely accountable for their own poverty and this is usually as a result of their attitudes and terrible decisions. Bradshaw believes that it is the lack of intelligence which stems from genetics that leads to this situation. As affirmed

by Sameti et al (2012), individualism means an individual taking full control and being responsible for their own basic needs. In the case where the individual lacks any of the basic needs, the situation is attributed to a lack of motivation and hard work.

The cumulative and cyclical interdependencies theory also known as the cyclical theory of poverty occurs when natural disasters cause households to be unable to provide their basic needs. This theory treats personal circumstances and resources found in their neighbourhood as interconnected. Bradshaw again states that unsatisfactory working results in insufficient earnings, which translates to decreased expenditure and savings. Secondly, due to lack of resources, the poor are unable to invest in the education of their children, causing them to attend low-quality schools and fall farther behind when they enter the labor market. They are also susceptible to disease and inadequate medical treatment. Lastly, this theory also states that lack of employment causes depression and low self-esteem and psychological problems.

The geographical disparities theory implies the accumulation of poverty in certain areas or localities. Bradshaw asserts that this kind of poverty encompasses poverty in ghettos, rural communities, as well as urban areas. The theory emphasizes the reality that agencies as well as people are without tangible assets necessary to provide income and the capacity to demand redistribution. As implied by Bradshaw, there are different geographical locations with different benefits and drawbacks, and poverty is concentrated in specific areas.

Bradshaw (2007) argues that scholars who subscribe to this theory of political economic distortions ascribe poverty to the socio-economic and political systems, which limit people's possibilities and resources for achieving profit and happiness. Sameti et al (2012) argues that no matter the structure of the economy, it is the presence of capitalism that creates a number of conditions leading to poverty notwithstanding individual competencies and hard work.

Lastly, the cultural belief systems emphasize on the mentality of individuals towards themselves as well as in the labour market. It basically deals with values that poor people cling to. These values are not positive and are far from reaching success. They include mindsets that poverty is a generational problem (Bradshaw, 2007). The individuals are responsible for this line of poverty because the pattern of norms for the poor and the rich vary. Sameti et al (2012) believes that the poor do not plan their future and so bear off springs that eventually grow to uphold values related to poverty.

Concept of Remittance

For many Ghanaians, remittances from migrant workers have been a major foundation for livelihood, especially during times of macroeconomic instability (Quartey, 2006). Remittances, according to Sander (2005), are funds transmitted from one person or household to another. Remittances transferred from migrants not residing in their home or native countries are known as international remittances whereas remittances transferred by migrants in their home countries but outside of their native residence is termed as internal or domestic remittances (Abdul-Mumuni, 2017).

In the International Monetary Fund handbook, Balance of Payments Statistics, which is the primary source of remittances from abroad, described remittances as having two key elements namely employee compensation and personal transfer. Employee compensation referred to incomes paid to temporary or permanent migrant workers in the host country, and it includes wages paid to staff of groups, international organisations, and international companies. Personal transfers on the other hand refer to any form of cash and non-cash transfers made to persons in other countries or received from persons in other residences. The senders of these transfers could be migrants or non-migrants (IMF, 2009).

Over the years, the remittance from migrants has been a great support from the home country as it impacts on such countries cannot be underestimated (Bansak et al., 2015). But sometimes due to its informal nature that some of them may take, and the inadequate data recording systems to properly organize the data, the flows arising from remittances transfers in the developing countries are under reported (Sander & Maimbo, 2005). Globally, according to World Bank data, remittances were anticipated to hit $702 billion in 2020, down from $719 billion in 2019 thus 2.4 percent decrease due to the impact of COVID 19. An amount of $540 billion, down from $548 billion, is estimated to have flowed into low and middle-income nations (-1.6 percent) and this would be followed by a further decline of 7.5 percent, to $470 billion in 2021 (World Economic Forum, 2020). India, China, Mexico, the Philippines, and Egypt were the top five receiving nations for remittances inflows in 2020. The amounts in USD were 83 billion, 60 billion, 43 billion, 35 billion and 30 billion respectively (World Bank, 2021).

Remittances to Lower Middle-Income Countries (LMICs) have been consistently greater than official development assistance (ODA) and private loan and portfolio equity since 1990 (World Bank, 2020). Remittances are a substantial way of generating income in most countries, accounting for more than 20% of Gross Domestic Product (GDP) in many of the countries (Orzell, 2013). In Africa, Nigeria alone receives the highest form of remittances almost every year. In 2020, the World Bank Report indicated that Nigeria had remittance inflows of US$17.208 billion and this was a decline in 2019 to US$23.809 billion.

Remittances to Ghana has seen a significant unstable growth due to the unpredictable nature of the economy. Statistics according to World Bank shows the following patterns with regards to remittances to Ghana: 2015 (US$4.982 billion), 2016 (US$2.9 billion), 2017 (US$3.536 billion), 2018 (US$3.521 billion), 2019 (US$4.054 billion), and 2020 (US$3.565 billion) (World Bank, 2020). According to the World Bank's 2021 Migration and Development report, despite the worldwide economic effect of Covid-19, remittances worth US$3.6 billion to Ghana was ranked as the second highest to the sub-region apart from Nigeria (Yeboah, 2021).

Remittance inflows contribute much to Ghana’s GDP. According to World Bank collection of development indicators, remittances accounted for 6% of Ghana’s GDP in 2017. According to a study from the UN DESA (2019), Ghanaian migrants' remittances totaled US$3.7 billion in 2019, and this accounted for 5.5 percent of the country's GDP in 2019. According to that research, about 970,000 Ghanaians presently live and work outside their home country, constituting a fast-expanding segment of the Ghanaian population

that contributes significantly to the country's GDP. It was therefore suggested that if migration remittances are properly managed, it could be of massive economic value for growth.

Senders and Receivers of Remittance

According to Carling (2005), there are four types of senders of remittances; (i) those that remit by means of personal deposits as well as investments, donations to charity and transfers within their families (ii) those who remit to their home countries by way of aiding developmental initiatives through their organizations (iii) those that transfer retirement benefits from social security coming from their employers once they relocate to their home countries and (iv) social security or income support benefits paid by previous employers and organizations responsible for pension funds.

Approximately over ten million Latin American immigrants in the United States now send money to their family back home on a monthly basis (Center & Fund, 2003). In each year, total remittances from the United States to Latin America and the Caribbean might approach $30 billion, making it the world's largest single remittance channel. These monies now contribute a substantial percentage of the population as shown that 18% of all adults in Mexico and 28% in El Salvador send remittance to their home country (Suro, 2003).

Carling (2005) also classifies receivers of remittance as members of the family in home countries who receive remittances on a frequent basis, or when they face hardships or when there are exceptional events such as religious events; receivers who accept gifts or payments from migrant groups for development initiatives in their communities or for relief from crisis; and

governments as receivers of remittances through the collection of taxes from migrant workers. As stated by Carling, transfers made by migrants to members of the family who are in the home countries are by far the most significant flow of monies the families receive.

According to the Inter-American Development Bank women in Latin America are more likely than men to receive remittances in practically every country analyzed. For instance, women accounted for more than half of remittance recipients in Brazil, Ecuador, and Mexico. Remittances are received by large segments of the adult populations in all countries. In a study, it was found that remittances were 14% in Ecuador, 23% in Central America, and 18% in Mexico. The majority of remittance recipients in all of the nations surveyed are women, which is one feature that clearly separates them from the overall population (Suro, 2003).

Child Poverty in Ghana

Stemming from the United Nations Convention on the Rights of the Child (UNCRC), the United Nations Children's Fund (UNICEF) defines a child as everyone below eighteen years of age. The SDG objective 1.2 encourages all nations to "lower by at least half the proportion of men, women, and children of all ages living in poverty in all of its dimensions, as defined by national standards". Child's poverty is worsened by declining home earnings and or the lack of appropriate social safety nets (UNICEF, 2020).

There are basically two measures of child poverty. A unidimensional or monetary approach which is based on a child's access to financial resources and a multidimensional approach. The unidimensional measure, also known as income poverty measure of child poverty makes use of a poverty line under

which any child whose consumption expenditure falls is considered poor. Also, once a child is found in a household considered as financially disadvantaged, he or she is said to be poor (NDPC, 2020). The multidimensional approach to child poverty uses a multidimensional poverty index and allows for a more detailed measure of poverty other than by a single metric. This measure of poverty takes into account the diverse deprivations that children are bound to face (Carraro & Ferrone, 2020). It considers areas such as health, education and living conditions of the child. However, these indicators are country specific as they are dependent on the needs of each country (OPHI, 2018).

A study done in Indonesia by Landiyanto (2019) was aimed at comparing several child poverty levels in order to explore the nature as well as the magnitude of child poverty. The purpose of the study was achieved by analyzing secondary data using the family life survey in Indonesia and the Indonesian family life survey (IFLS) East, which were performed in 2014 and 2012, respectively. This study created, tested, and compared monetary and multidimensional measures of child poverty, thus absolute and relative deprivation. The monetary poverty study measured the poverty levels by comparing spending to absolute and relative poverty. To select categories and indicators for the measurement of absolute deprivation, a methodology that acknowledges human rights was employed. The measurement of relative deprivation compiled an introductory schema based on indicators prior to Indonesian research, then chose items that were trustworthy, valid, and additive for the study. The study found that, over 8 million (10.4 percent) children in Indonesia are in absolute monetary poverty, over 14 million

representing 17.3 percent are in complete deprivation. Children in relative deprivation were over 21.5 million which constitutes 25.7 percent. It was also established that children who suffered all kinds of poverty were only 3.2 million, constituting only 3.9 percent, despite the fact that 28.4 million children (34%) were poor.

The report of the NDPC (2019), using the 2017 Multiple Indicator Cluster Survey and the seventh round of the GLSS, established that child deprivation is dominant in households that are poor. The report further shows that very few children (2.5 percent) are without any deprivation with the majority of children facing multiple deprivations. The key finding from a study by UNICEF (2020) revealed that nutritional deficiency affects 38.7% of children under the age of five in Ghana. Around 57 percent of infants under the age of six months are not exclusively breastfed, and 87.6% of children from six to twenty-three months do not fulfill the World Health Organization's dietary frequency and diversity requirements. In addition, 12.6 percent of children under the age of five are underweight.

According to GLSS 7, more than 3.5 million children in Ghana live in poverty, and this accounted for 28.2 percent of all children (GSS, 2018). In Ghana, children are over 40% more likely than adults to be poor, compared to only 15% in the 1990s. One child in every ten lives in poverty. 73.4 percent of Ghanaian youngsters are classified as multidimensionally poor (UNICEF, 2020). Only 2.5 percent of youngsters have never experienced any hardship or have experienced only one deprivation representing 8.3 percent. The great majority of youngsters suffer from a variety of disadvantages (UNICEF, 2020).

On a multidimensional poverty profile of Ghana, a recent document by UNICEF (2020) revealed that children in rural areas in Ghana have a larger proportion of multidimensionally impoverished children than children in regional capitals. It was discovered that the Upper East, Northern (now Northern, Savanna, and North East), and Volta (now Volta and Oti) areas have considerably greater percentages of children who are multidimensionally poor than other geographical regions. Again, it was found that children who have been stunted (0-4 years) have considerably greater rates of being multidimensionally poor than children who have not been stunted. Children of all ages have lower multidimensional poverty rates when their mother or household head has a higher education level. Children who live in families with five or more children and seven or more household members have greater rates of multidimensional deprivation. Multidimensional poverty affects a higher proportion of children living in families with dependency ratios more than 2 than children living in households with dependency ratios equal to or less than 2 (UNICEF, 2020).

Health deprivation affects 48.6% of children under the age of five, 36.7 percent of children aged five to eleven, 39.2 percent of children aged twelve to fourteen, and 39.6 percent of children aged fifteen to seventeen. 63.5 percent of children under the age of five suffer from deprivation in the Child Protection component. More than half of children aged 5 to 14 are subjected to harsh physical punishment (56.2 percent of children aged 5-11 years and 50.9 percent aged 12-14 years). Learning and Development disadvantage affects 52.6 percent of children aged 0-4 years, 16.8 percent of children aged 5-11

years, 45.7 percent of children aged 12-14 years, and 83.3 percent of adolescents aged 15-17 years (NDPC, 2020).

To get the clear picture of child poverty in Ghana, a study by Agyire-Tettey et al (2021) helped in that regard. The study assessed the Multidimensional Child Poverty in Ghana; particularly its measurements, determinants and inequalities. The researchers quantified the prevalence and origins of childhood deprivation in Ghana and also looked at subgroup differences in child poverty making use of two rounds of data from Ghana Demographic and Health Survey. They also examined what causes the disparities in the rural areas and urban areas with respect to child poverty. Their findings showed that despite the falling incidence of multidimensional child poverty as well as its intensity, there is still the existence of considerable disparities happening among subgroups in Ghana. Other findings revealed that standard of living was a major cause to multidimensional child poverty in Ghana. Again, their result shows that there was a substantial causal link between child quality and quantity in Ghana, and that the number of children in Ghana and the severity of child poverty in Ghana are positively related. Lastly, they discover that variations in observed maternity and household variables across rural and urban regions are responsible for multidimensional child poverty in Ghana.

Determinants of Child Poverty

Children make up a substantial proportion of every country's population though they form the largest minority group. Owing to this, children in poverty will usually have their individual futures greatly affected and in the long run, have an implication on the wellbeing of their home

countries. Child welfare then becomes a crucial part of every nation's general welfare (White et al., 2003)

The level of education of parents has been a very important factor in determining child poverty since it is very critical to the child being successful academically (Yang, 2017). Lee (2002) in his research on mothers and children aged two to eight in Canada showed that, the mother's highest educational level had a direct effect on the educational realization of the child leading to a reduction of child poverty. Good educational standing of parents suggests good links for children to achieve a higher educational level and have a better chance of acquiring high-paying jobs; this is because the education of parents move children intrinsically and offers them with a strong stimulation to chase their own academic goals. The implication of this is that, in the long run, children will be able to contribute meaningfully to the society. Some studies also confirm the assertion that the higher educational level of parents has an effect on child poverty because it enables them to earn higher wages to be able to cater for their children's needs (Bastos et al., 2009; Olagunju et al., 2018; Popoola & Adeoti, 2016).

Males are generally expected to be financially stable than women. As such children who are in households headed by males have a relatively lower chance of being poor (Yang, 2017). The author also reveals that a child is more vulnerable in a home where the head is widowed due to a high level of hardship. His findings also showed that children who found themselves in households where parents are divorced (single parents) were not likely to be poor but rather those found in married households were poor. In another study,

Sun et al (2020) arrived at the same conclusion that children found in households where parents are together or still married were also poor.

Households with a larger number in terms of size tend to have children that are poorer. Sowunmi (2016) suggests that such households have children who are most prone to poverty as compared to households with smaller sizes or numbers. The reason being that every additional member of the household joins in a competition for the family's scarce resources (Olagunju et al., 2018). In another study, the author also agrees that household size portrays expected positive regression coefficients; as such, the greater the group, the fewer resources are accessible to each individual (Makhalima, 2020).

The employment status of heads of households plays a crucial part in determining the poverty status of the children. Children found in households where the heads are unemployed are more likely to be poor than those in households where heads are employed (Olagunju et al., 2018; Zizzamia et al., 2019). Teka et al (2019) and Makhalima (2020) found expected relationship between the income of household heads and child poverty. The implication is that the lesser the income of the household head, the higher the chances of the child being poor and vice versa.

Cash and Non-Cash Transfers

Globally, migration is a major factor in population change (Castles et al., 2012). The 2011 policy brief by the International Development Economics Associates (IDEAs) made known that cash transfers are direct transfer of money to people and as such can be conditional or unconditional. Cash transfers have recently acquired traction as a favored approach for poverty

alleviation in several regions of the world. Cash and non-cash transfers have been related to the fall in children's poverty as well as their vulnerability.

Song and Imai (2019) investigated the impact of Kenya's hunger safety net program on the country's multidimensional poverty index using difference in difference and propensity score matching approaches. They discovered that participating in this cash transfer scheme considerably decreased the index of multidimensional poverty in Kenya. According to the report, the hunger safety net program lowers multidimensional poverty in treatment households (4.6 percent) as compared to control households.

A study by Apatinga et al (2021), which was aimed at investigating the flow of non-cash remittances in Ghana's Kassena-Nankana District, revealed the following: non-cash remittances to that district were discovered to be in the form of food stuffs and electrical gadgets, and they were utilised for a variety of reasons. According to respondents' opinions and experiences, these transfers make a substantial contribution to boosting household wellbeing.

Remittances, their Uses and Impacts

Remittances have been shown in studies to help poor people in their home countries. Remittances have a positive influence on household health, according to Koc and Onan (2001), who studied the effects that remittances have on the quality of life of families that were left behind in Turkey. Their research suggests that there are both direct and indirect consequences on remittances, which may have significant implications for production, income inequality, and poverty, at least locally. Their research also found that 12% of households used about 80% of remittances to raise their quality of life, despite

the fact that it is claimed that reliance on the remittances makes households vulnerable to shifts in migration cycles.

Remittances that were sent to Ghana increased from 1999 to 2002 (Gyimah-Brempong & Asiedu, 2009). However, in 2009, it fell to US$114.0 million, before rising to US$119.0 million in 2010. They demonstrated that foreign remittances helped Ghanaian households raise their living conditions to the point where they were able to keep out of poverty. In their study, they employed three income reduction indices: the headcount index, poverty gap, and poverty gap squared. The study found that international remittances assisted various families in keeping away from poverty and improving their living conditions in the short term. Remittances have also been shown to assist recipient households in accumulating appreciable levels of physical capital, as well as some form of investment aimed at promoting businesses. In the long run, these types of remittance usage can help recipient households escape poverty. This is in line with Quartey (2006) who's finding also affirmed that remittances from migrant workers are a valuable source of income for households, especially during periods of shocks including hikes in the price of fuel and removal of agricultural incentives.

Ellyne and Mahlalela (2017) investigated the impact of remittances on poverty in 32 African countries from 1981 to 2012. They discovered that remittances significantly alleviate poverty in Africa. The study used Ravillion and Chen growth-poverty model and a dataset from the World Bank's PovcalNet which releases estimates of global poverty from 1981 to 2012. They modelled poverty as a function of income, income inequality, remittances, export and ODA, and the income group was used as a dummy

variable. They used a standard OLS model for the poverty headcount and the poverty gap. Their research showed that remittances have a greater impact on poverty than exports and ODA. This is due to the fact that exports and ODA were shown to be insignificant in decreasing poverty in the 32 African countries studied.

Adams (2011), Brito et al (2014), Gyimah-Brempong and Asiedu (2015), Zhunio et al (2012) are all studies that established a positive statistical relationship between expenditure on education and remittances. Poor and rural households have a much stronger effect of remittances. Relating to gender issues, Bansak and Chezum (2009), Vogel and Korinek (2012) found that boys are generally favoured at the expense of girls with regards to education funding through the use of remittances.

Another study by Pickbourn (2016) showed that once a woman is the primary recipient of remittances, that household spends twice what would have been spent if men were the main recipients of remittances on education. In cases where there is a negative effect, researchers assert that this is due to the absence of supervision at home prior to the emigration of adults. As such there is no proper regulation of remittances received (Docquier et al., 2012). Karamba et al (2011) examined the link between food consumption patterns and migration in Ghana. Using the 2006 GLSS data and an instrumental variable technique, they found out that, the effects that migration had on the patterns of food expenditure was minimal; as such, concluded that the impact of migrant remittances on total food expenditures was not too significant. Applying the Tobit model and using GLSS V, Saani (2014) researched on external migrant remittances and household patterns in Ghana. Taking into

consideration very important investment and consumption variables including food, housing, health and education in assessing how households behave with regards to remittance receipts, it was evident that household who were recipients of remittances increased their expenditure on housing but decreased consumption expenditure.

In a study examining the impact of remittances paid to workers on the reduction of poverty in Ghana, and using an ARDL framework, the study results of Antwi et al (2013) revealed that the effects of remittance on reduction of poverty is highly significant and positive. This happens through the smoothing of consumption and increasing incomes. A study by Hammond (2020), on remittance and household expenditure behaviour in Ghana, using round six of household data from the GLSS, also revealed that household that receive remittances have a decline in expenses made on food, but an increase in education and health expenditure as compared to household that do not receive remittances. Exploring the effects of international remittances on household's expenditure patterns in sub-Saharan Africa, Ajefu and Ogebe (2021) analyze the subject matter using an instrumental variable quantile approach. They discover that household expenditure increases in line with receipt of international remittances, specifically, the expenditure on food, education, durables and health.

Remittances have also been empirically studied in terms of their effect on savings and investment, as well as consumption and poverty. First of all, remittances directly affect poverty by increasing the income of the recipient household (World Bank, 2006). A large number of case studies present evidence that remittances reduce poverty, although this reduction is small.

Teye et al (2019) conducted a quasi-experimental impact evaluation study on the influence of migration on the well-being of rural Ghanaian households. The authors used the difference-in-difference and propensity score matching estimation techniques to carry out this research. Their findings show that in the rural areas of Ghana, migration has contributed to bettering the welfare of households that are disadvantaged; specifically, those that are characterised by low consumption.

Abdul-Mumuni (2017), using instrumental variable 2SLS technique and Poisson regression model, explored the effects that remittances have on Ghanaian children's welfare. The author's study was specifically designed to examine the following objectives: (1) the consequence of remittances and gender on child labour; (2) the effect of remittances on child welfare clinic attendance and (3) the impact of remittances on child education in Ghana. The research findings showed that remittances income is inversely related to child labour, regardless of who is the head of the household. However, for male-headed households, the negative effect was significantly greater than for female-headed households. Again, it was observed that remittances have a favourable and considerable impact on the attendance of child welfare clinics, resulting in improved child health. It was therefore concluded that children's education is greatly influenced by remittances.

Using cross section data and pseudo-panel data from GLSS, Gyimah-Brempong and Asiedu (2009) investigated the effects of international remittances on poverty incidence and severity in Ghana. As per their findings, it was discovered remittances from abroad reduce the likelihood that a household becomes poor. Also, it was found that the effect that foreign

remittances have on poverty reduction is considerably greater than the impact of local remittances. They also discovered that remittances increase the number of school going children in a household, implying that remittances from abroad contribute to the development of human capital.

Similarly, Adams et al (2008) examined the influence of internal remittances (from Ghana) and international remittances (from other African and other countries) on poverty and inequality in Ghana using a new nationally representative household survey conducted in 2005/06. The study employed a two-stage multinomial logic model with instrumental variables to account for selection and endogeneity, with the focus on differences in migration networks and remittances across Ghana's diverse ethno-religious groupings. The study found that internal and international remittances were shown to lower the degree, depth, and severity of poverty in Ghana. It was discovered that the magnitude of the poverty reduction, however, is determined on the kind of remittances received. The authors established that in general, international remittances improve poverty in Ghana more than internal (domestic) remittances. It was found that poverty reduces by 88.1 percent for households receiving foreign remittances and by 69.4 percent for those getting internal remittances. In addition, both forms of remittances promote economic inequality in Ghana.

Adu-Darko (2019), used ordinary least square regression to show that remittances have a positive relationship with the consumption of food and housing in Ghana. He also ratifies that households spend significantly on housing and food on the receipt of remittances; that is out of each cedi, households allocate 42 pesewas to food and 76 pesewas to housing. The study

also found that male household heads were more likely to receive remittances. It was also established that when compared to those in rural regions, households in urban areas are more likely to get remittances. To boost overall household consumption, measures to minimize the cost of remitting to and within the nation must be adopted.

Using the nationally representative household survey, Joseph and Plaza (2010), explored how remittances influence or affect child labour in Ghana. In their study, they investigated whether foreign remittance receiving families act in a way that can be deemed as different from households that receive domestic remittances and those who do not receive remittances as all when it comes to deciding whether or not to engage their children in any form of work. The researchers also explored the impact of remittances on the number of hours' children work each year. They found that regardless of the sources of remittances of the remittance receiving home country, it decreases the likelihood of children entering the labour market by about 2 percent. Also, child work was clearly reduced by foreign remittances. And this was evident as the number of likelihoods of child labour was reduced by 6 percent if a household receives international remittances. Domestic remittances, on the other hand, appear to have no statistically significant impact on the choice to send children to work. When it comes to the number of hours' children labour, they found that children who live in families who get international remittances work less hours than children who live in households that do not receive any remittances. In all, their findings, it showed that overseas remittances have a beneficial influence on child labour reduction, whereas domestic remittances are part of a larger household coping strategy.

Examining the effect of remittances and investment in education using data from Ghana, Gyimah-Brempong and Asiedu (2015), employed both cross-section and pseudo-panel data. They revealed that remittances greatly enhance the likelihood of families enrolling their children in basic and secondary schools, implying that remittances improve human capital creation through education. International remittances were found to have a particularly high influence on the likelihood of elementary and secondary school attendance. Furthermore, households that received remittances but were headed by females were shown to enhance education investment more than their male counterparts whose households' received remittances.

Kofinti and Anim (2016) undertook a study on child deprivation and income poverty across four distinct geographical areas in Ghana using the first order dominance methodology. The study chose five welfare indicators; water, education, sanitation, information and shelter. The authors discovered that for the two periods compared, children within ages seven and seventeen were worse off in sanitation than any other welfare indicator showing that no more than five out of ten children have access to improved sanitation at the national level. The fifth and sixth rounds of the GLSS were used in this study.

Cebotari (2020) conducted a longitudinal study on migration, remittances, and child education in Ghana. The study sought to investigate from African contexts, evidence on the time-varying impacts of migration, remittances, and child schooling. This research used panel data to look at the educational outcomes – school enrolment and class ranking of children whose parents migrated domestically or internationally and received in-kind, monetary, or other kinds of remittances. Data was gathered on a panel of

school-aged children and youths aged 12 to 21 in two Ghanaian cities with high out-migration rates: Kumasi and Sunyani (N=741). The findings showed that migrant parents' preferences for sending both in-kind and monetary remittances have converged over time, with internal and international migrant parents preferring to send both in-kind and monetary remittances. In all it was concluded that receiving both in-kind and monetary remittances benefits children's education. When remittances are invested directly in children's education, the positive effects increase.

Conclusion

This chapter reviewed both theoretical and empirical literature related to the study. Theoretical framework touched on the theories remittance and poverty. The empirical review focused on senders and receivers of remittances, measurements of poverty and the impacts of remittance on welfare indicators. The study addressed these gaps: Limiting of poverty measurement to unidimensional measures, scanty literature on remittance-poverty nexus.

CHAPTER THREE

RESEARCH METHODS

Introduction

This section presents the methods used in answering the research questions of the study. The research design, source of data, the model specification and justification, the measurement of variables, estimation techniques and post estimation tests are discussed in this chapter.

Research Design

To effectively address the problem of the research, there should be an overarching plan that is adopted to allow for the integration of all aspects of the research in a way that is systematic and consistent. This plan gives a layout of the framework for analysis of data – this is the research design (De Vaus, 2006). Found in the positivist's theory, this study employs a descriptive and quantitative research design and is cross-sectional. Phipps et al (2011) emphasize that the positivist philosophy's essential assumptions are that because knowledge is precise from the outside, researchers take absolutely impartial and objective views toward the subject under inquiry, ensuring that the researcher's own prejudices do not alter the study's findings.

Source of Data and Description

This study employs secondary data for its analysis, with the main source of data being the seventh round (2016/17) of the Ghana Living Standards Survey (GLSS), from the Ghana Statistical Service (GSS). Round 7 of GLSS comprises of valuable information on the various welfare indicators in Ghana. As a household-based survey, its focus is on the provision of valuable information on the overall wellbeing and vital socio-economic

features of various households in the country. The focus of the study is on children within the ages of 0 to 17, hence the child is taken as the unit of analysis allowing for the selection of indicators to capture deprivations according to stages in the lives of children. This nationally representative household dataset contains information on key demographic characteristics of households that children live in. This includes health, education, housing, assets, migration and remittances, income, expenditure, employment, peace and security, among others. With a 93.3 percent response rate, the survey consists of about 14,000 households across all ten regions in Ghana. Various files that contain all indicators and key variables of the study were merged. After missing variables were accounted for, the final sample was 19051.

Sampling Procedure

The GLSS7 is a national survey that uses the same sampling methodology and questionnaires as previous studies. The survey used a stratified two-stage design. At the first stage, 1200 enumeration areas (EAs) were chosen to form the primary sampling points (PSUs), which were further classified into urban and rural localities of residence. The 8,700 PSUs were assigned to the ten regions using probability proportional population size (PPPs). Following that, a complete list of the households in the selected PSUs was compiled to form the secondary sampling points (SSUs). At stage two, 15 households were randomly selected from each PSU, for a total sample size of 18,000 across the country.

Measurement and Justification of Variables

In this paper, the variable of interest is child poverty. This is measured using the multidimensional poverty index with three dimensions, that is,

education, health and living conditions. Ten indicators are put together to form the index. The index better appreciates state of children. As a way of complementing the usual unidimensional and orthodox way of measuring poverty, the index takes into consideration the deprivation of children in education, health and living standards concurrently, guaranteeing that no child is left behind (Agyire-Tettey et al., 2021).

Measurement of Child Poverty

The multidimensional measure of child poverty in this research stems from the Alkire and Foster (2007) method developed under the Oxford Poverty and Human Development Initiative (OPHI). This measure includes an identification method where series of deprivations that children suffer determine who is poor and who is not; and an aggregation method capable of targeting which dimensions that the poor are most deprived. At the identification stage, two cut offs are used to detect who is poor. The first cut off determines whether in each specified indicator, a child is deprived while the second cut off deals with the equal or different weighting of dimensions to allow for the assessment of multidimensional poverty. Using three dimensions and ten indicators to create the Multidimensional Poverty index (MPI), child poverty is measured in this study.

The deprivation profile of children and respective deprivation cut offs is mathematically expressed as:

$$\alpha_i = w_i l_1 + w_2 l_2 \ldots + w_n l_n \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Where;

α_i represents child deprivation scores

$l_1 = 1$ if the child is deprived in indicator i and $l_1 = 0$ if otherwise

w_i represents weights attached to indicator i with $\sum_i^d w_i = 1$

Table 1: Multidimensional Child Poverty Index

Dimension	Indicator	Cut-off definitions	Weights
Living conditions			
	Cooking fuel	The child is deprived if household of dwelling is cooking with solid fuels and not cooking outside the house.	0.047
	Water	The child is deprived if the household gets drinking water from unhygienic source. Example exposed well, springs that haven't been safeguarded, provision from a tanker or vendor, dug outs, rivers or streams OR it takes 30 minutes or more to collect water, round trip.	0.047
	Information	The child is deprived if household of dwelling does not have television or radio.	0.047
	Housing	The child is deprived if household of dwelling uses insufficient flooring. Example floors made of mud and walls made of palm fronds, mud or grass or other.	0.047
	Electricity	The child is deprived if household of dwelling does not have access to electricity.	0.047
	Toilet	The child is deprived if there are no toilet facilities in the household but rather uses public toilet, buckets or pans OR toilet facility is shared outside the house.	0.047

	Overcrowding	The child is deprived if on average, there are more than three people in a sleeping room in the household.	0.047
Education			
	School attendance	The child is deprived if aged 6-17 years and does not attend school.	0.333
Health			
	Nutrition	The child is deprived if under 5 and is undernourished. That is stunted or underweight.	0.165
	Health insurance	Deprived if child is not registered under the national health insurance scheme.	0.165

Source: Dadzie (2021)

Health deprivation

Health is part of the three dimensions used in constructing the child poverty index. Thus, health deprivation in this study was measured as a dummy variable, taking on the value 1 if child has no access to health insurance or undernourished, and 0 if otherwise.

Educational deprivation

Access to education is one of the most important factors in a child's development. It provides with the skills and training necessary to function in society. Thus, educational deprivation forms part of the dimensions of child poverty. Education deprivation was measured as a dummy variable in the current study, with a value of 1 if the child is aged 6-17 years and does not attend school, and a value of 0 if otherwise.

Living condition deprivation

In this study, living condition deprivation was measured as a dummy variable, taking on the value 1 if child was deprived in any of the living condition indicators (cooking fuel, water, toilet, electricity, information, housing, overcrowding), and 0 otherwise.

Independent variables

Cash remittance

Cash remittance is one of the two independent variables investigated in this study. Money that is sent or transferred to another party is referred to as cash remittance. In this study, how cash remittances received by households affect child poverty is examined. Cash remittance was measured as a dummy with value 1 for cash-receiving household head and 0 for non-receiving household head, and the study included the total amount of cash received by households in Ghana cedis over the previous year. Cash remittances have been shown to increase households' expenditure on basic needs (Adu-Darko, 2019). As a result, the study hypothesized that an increase in cash remittance would reduce child poverty.

Food remittance

Food remittance is the study's other remittance variable. Food remittances, like cash remittances, is an important resource that can be used to meet the needs of households. Food remittance was measured as a dummy in this study, with value 1 for households that receive food and 0 for non-recipient households, and the total amount of food received by households over the last year was expressed in Ghana cedis. Food remittances have been shown to improve food security and reduce food insecurity in vulnerable

households (Crush & Caesar, 2018; Frayne & Crush, 2011). As a result, the study hypothesized that increasing food remittances would aid in the reduction of child poverty.

Age of household head

The age of the household head is one of the study's control variables. Several empirical studies have looked into the relationship between household age and child poverty. Unfortunately, the verdict is not clear because some empirical studies show a negative relationship (Babatunde et al., 2007; Kuwornu et al., 2013) while others show a positive relationship. Some empirical studies have recently proposed a non-linear relationship between the age of the household head and child poverty. In this study, the age of the household head is continuous, and a non-linear relationship between age and child poverty is hypothesized, which is consistent with current thinking.

Gender of the household head

The gender of the household head was also included in the study as a control variable. Several empirical studies have revealed that women face discrimination in terms of job opportunities and access to resources in society (Fletschner & Kenney, 2014; Ladhari & Leclerc, 2013). In comparison to male-headed households, this may limit their ability to care for their children. Gender of the household head was measured in this study using dummy variables, where 0 represents female and 1 represents male.

Educational attainment of household head

In this study, the educational attainment of the household head is also included as a control variable. The relationship between educational attainment and child poverty is based on the fact that higher education enables

the household head to pursue higher-paying job opportunities and thus provide for the child's needs (Bruening et al., 2017). Some empirical studies have confirmed the relationship between household head educational attainment and child poverty. This includes Ranjith and Rupasingha (2012) study on the social and cultural determinants of child poverty in the United States. Educational attainment is measured as a categorical variable in the present study. It is coded as 0 = no education, 1 = primary/secondary education, and 2 = tertiary education.

Poverty status

The study also controls for poverty status. Poverty has been asserted as one of the main determinants of many socially undesirable outcomes including child poverty (Agyire-Tettey et al., 2021; Ranjith & Rupasingha, 2012). Poverty status of the household is coded as 0 = poor, 1 = non poor.

Marital Status of household head

The marital status of the household head is another control variable in our model. Lerman (1996) found a positive link between marriage and responsibility. Based on this premise, it is anticipated that married households will be more concerned with and provide for the needs of their children than unmarried households. In terms of measurement, we adhere to the accepted practice in the literature. It is coded 0 as married/living together, 1 as never married, 2 as divorced/separated, and 3 as widowed. To account for regional differences, the ten regions were divided into three zones: 0 = coastal, 1 = middle, and 2 = north.

Gender of child

In the context of African countries, gender is a significant determinant of resource allocation, with males receiving preferential treatment over females. According a study by Tawodzera (2012), the disparity in resource allocation against women is because some parents view investments in girls as waste of resources as any future benefits may accrue to the spouse and not the household. The extant literature shows that household heads that are married or previously married have less child poverty (Agyire-Tettey et al., 2021; Ogwumike & Ozughalu 2018). In terms of its measurement, the standard approach is followed by denoting male as 1and female as 0.

Household Size

Household size was also included as a control variable in the study just as in other empirical studies (Ogwumike & Ozughalu, 2018; Ranjith & Rupasingha, 2012). In terms of measurement, household size was measured on a continuous scale. Having a large household is expected to increase stress on household resources which may limit expenditure on child's needs. Consequently, it is hypothesized that increase in household's size will increase child poverty.

Empirical Model Specification and Estimation Techniques

As indicated earlier, the first objective of the study is to assess the effect of remittance on child poverty. To establish a causal association between remittance recipient households and child poverty, the study relies on the Propensity Score Matching (PSM) procedure. In the absence of experimental design, the matching technique allows for the development of the counterfactual using cross-sectional data by matching treatment and

control points. The idea behind the PSM is to match recipients and non-recipients based on their projected propensity to receive treatment and to set up a randomised trial to determine the causal effect as in a controlled experiment (Heckman et al., 1998; Rosenbaum & Rubin, 1984; Wooldridge, 2015).

Using the PSM estimation approach involves first estimating the propensity score for receiving treatment for each observation (Mendola, 2007). According to Rosenbaum and Rubin (1984), the propensity scores may be calculated using the logistic regression or the classification and regression tree analysis. In the context of this research, a logistic regression approach is adopted, hence the model for the predicting the propensity score is stated as equation 1.

$$Prob(z) = Prob[L = 1|Z = z] \ldots\ldots \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(1)$$

Where $L = 1$ is the observable treatment (households that received remittance) and 0 otherwise; Z is a vector of pre-participation characteristics comprised of demographic and socioeconomic characteristics. After estimating the propensity score of receiving remittance for every observation in the data, participants that received remittance are matched to participants that have the same/similar propensity score but did not receive treatment. There are different matching algorithms which literature suggests to match the treated and the control groups. The techniques include: Nearest Neighbor Matching (NNM), Kernel Based Matching (KBM) and Common Matching techniques. According to Kirui et al (2013), none of the algorithms is superior over the

others. However, each has its strength and weaknesses. Thus, to ensure, the robustness of findings, both Kernel and Common matching processes is done.

The average treatment effect on the treated (ATT) estimates the treatment effects for only the individuals who participated in the intervention. In the context of the ATT, the treatment group for which the researcher has data constitutes the entire population of interest.

The ATT is expressed as:

$$\theta ATT = E(Y(1) - Y(0)|Ri = 1) \quad \text{..... (2)}$$

$$\theta ATT = E[E(Y(1) - Y(0)|Ri = 1, P(X))] \quad \text{..... (3)}$$

$$\theta ATT = E[E\{Y(1)|Ri = 1, P(X)\} - E\{Y(0)|Ri = 1, P(X)\}] \quad \text{..... (4)}$$

The outcome of recipients is expressed as $E\{Y(1)|R = 1\}$ and that of those who did not receive, $E\{Y(0)|R = 1\}$. Equation (4) is the difference between the expected child poverty outcome with or without remittance transfers, for those who actually received remittance.

Post estimations for PSM

The credibility of the propensity scores matching technique's results is critically dependent on having a good model fit for the matching process (i.e., high common support) and also passing the balancing property assumption. The study uses the common approach of visualizing the distribution of propensity scores for both the treated and untreated groups to check for common support. Also, the omnibus test was conducted to assess whether the balancing property assumption was met (Hansen & Bowers, 2008). The Rubin's B and Rubin's R criteria are used to determine whether the propensity scores pass the omnibus test for balance. The Rubin's B is the standardized difference of means of the linear index of the propensity score in the treated

and control group and should be below 25. Rubin's R is the ratio of treated to control variances of the propensity score and should be between 0.5 and 2.0.

The second objective is to examine the amount of food and cash remittance needed to reduce child poverty. An OLS model is first estimated.

$$Child\_Poverty_i = \pi_0 + Foodremit + \pi_2 ChildGender_i + \pi_3 HHGender_i + \pi_4 HHheadedu_i + \pi_5 PovertyStat_i + \pi_6 LogInco + \pi_7 MaritalStat_i + \pi_8 hhsize_i + \pi_9 AgeHH_i + \pi_{10} AgeSquHH + \pi_{11} EcoloZone_i + \omega_i \quad \ldots\ldots (5)$$

$$Child\_Poverty_i = \pi_0 + Cashremit + \pi_2 ChildGender_i + \pi_3 HHGender_i + \pi_4 HHheadedu_i + \pi_5 PovertyStat_i + \pi_6 LogInco + \pi_7 MaritalStat_i + \pi_8 hhsize_i + \pi_9 AgeHH_i + \pi_{10} AgeSquHH + \pi_{11} EcoloZone_i + \omega_i \quad \ldots\ldots (6)$$

From equation (5) and (6), $food\_remit$ is the amount of food in Ghana cedis received by a household, $cash\_remit$ is the amount of cash in Ghana cedis received by a household, $ChildGender$, the sex of child is coded 0 = male and 1 = female. $HHheadedu$ is the educational level of household head and is measured as the highest level of education attained by the head of household. It is coded as: 0 = no education, 1 = primary/secondary education, 2 = tertiary education. $gender\_hhhead$ and $locationHHhead$ denotes the sex and location of the household head respectively. Head of household gender is coded 0 = male and 1 = female. Location is coded 0 if household head lives in an urban area and 1 if in a rural area. Income of the household head is continuous variable denoted $logincome$ and $hhsize$ is the size of

household. $PovertyStat$ is the poverty status of the household; this is coded as 0 = poor, 1 = non poor. The code for marital status of household head is 0 = married/living together, 1 = never married, 2 = divorced/separated, 3 = widowed. In order to take regional variances into account, the ten regions were grouped into three zones; 0 = coastal, 1 = middle and 2 = north.

Post Estimation for OLS

Post estimation tests were conducted to determine whether assumptions underlining the OLS model are satisfied. This includes the VIF test to check for multicollinearity and Ramsey RESET to check for omission of variables from the model. To compensate for heteroskedasticity, STATA by default assumes homoscedastic standard errors that are adjusted using heteroscedasticity-robust standard errors.

Instrumental Variable Estimation

If cash transfers and food transfers are exogenous to changes in child poverty, Equations (5) and (6) will produce consistent estimates. However, because remittance might be influenced by other factors that may equally influence child poverty, the exogeneity criteria may be violated. As a result, the remittance variable in the child poverty outcome equation may be improperly defined. Another cause of endogeneity is attenuation bias, which can occur when erroneous information about the amount of currency and food received is provided, especially when food is converted into Ghana cedis. In the presence of endogeneity, OLS estimates are inconsistent (Wooldridge, 2015). As a result, to get consistent findings in the presence of endogeneity, the study employed two stage least squares regression. The first stage of the two-stage least-squares regression computes estimated values of food and cash

remittances, which are subsequently used to form a linear regression model of the dependent variable (the second stage). The first and second stage regression models to be estimated are specified below.

$$food\_remit = \beta_0 + \beta_1 Child\_Gender_i + \beta_2 GenderHH_i + \beta_3 HHEdu_i + \beta_4 HHMarStat_i + \beta_5 PovertyStat_i + \beta_6 LogIncomeHH_i + \beta_7 HHSize_i + \beta_8 AgeHH_i + \beta_9 AgeSqHH_i + \beta_{10} EcologicalZoneHH_i + \beta_{11} Bank\_Acc_i + \mu i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (7)$$

Where;

$$cov\ (food\_remit_i\ bank\_account) \neq 0 \quad (a)$$

$$cov\ (bank\_account\ \mu i) = 0 \quad (b)$$

$$cash\_remit = \beta_0 + \beta_1 Child\_Gender_i + \beta_2 GenderHH_i + \beta_3 HHEdu_i + \beta_4 HHMarStat_i + \beta_5 PovertyStat_i + \beta_6 LogIncomeHH_i + \beta_7 HHSize_i + \beta_8 AgeHH_i + \beta_9 AgeSqHH_i + \beta_{10} EcologicalZoneHH_i + \beta_{11} Bank\_Acc_i + \mu i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (8)$$

Where;

$$cov\ (cash\_remit_i\ bank\_account) \neq 0 \quad (c)$$

$$cov\ (bank\_account\ \mu i) = 0 \quad (d)$$

Given equations (7) and (8) the second stage model is given as follows;

$$Child\_Poverty_i = \beta_0 + \beta_1 food\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i + \beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i + \mu i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (9)$$

The cash specific model is given as;

$$Child\_Poverty_i = \beta_0 + \beta_1 Cash\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i +$$

$\beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i + \mu i$ ..... (10)

Post estimations were conducted to ensure the consistency of estimates generated using the 2SLS. This includes the Anderson LM test, and the F-test from the first stage to check the relevance of the instruments used in the IV model.

The third objective is to determine which of the dimensions of child poverty is most sensitive to remittances. An IV Probit model is estimated. The IV-probit regression is a two-step regression. The first stage regression involves using an appropriate instrument that satisfies both the validity and reliability assumption to predict the problematic variable and inputting the predicted values in the second stage regression. The estimates generated using this approach is consistent in the presence of endogeneity. The first and second stage regressions to be estimated are specified below

$food\_remit = \beta_0 + \beta_1 Child\_Gender_i + \beta_2 GenderHH_i + \beta_3 HHEdu_i + \beta_4 HHMarStat_i + \beta_5 PovertyStat_i + \beta_6 LogIncomeHH_i + \beta_7 HHSize_i + \beta_8 AgeHH_i + \beta_9 AgeSqHH_i + \beta_{10} EcologicalZoneHH_i + \beta_{11} Bank\_Acc_i + \mu i$ ..... (11)

Where;

$cov\ (food\_remit_i\ bank\_account) \neq 0$ (e)

$cov\ (bank\_account\ \mu i) = 0$ (f)

The second stage model is given as follows;

$Health\_DEp_i = \beta_0 + \beta_1 food\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i +$

$\beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i +$

$\beta_{11} EcologicalZoneHH_i + \mu i$ ..... (12)

$Edu\_DEp_i =$

$\beta_0 + \beta_1 food\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i +$

$\beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i + \beta_7 LogIncomeHH_i +$

$\beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i +$

μi ..... (13)

$LivCon\_DEp_i = \beta_0 + \beta_1 food\_remit_i + \beta_2 Child\_Gender_i +$

$\beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i +$

$\beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i +$

$\beta_{11} EcologicalZoneHH_i + \mu i$ ..... (14)

The following represent the first and second stage equations for cash remittance on health, education and living condition deprivation.

$Cash\_remit = \beta_0 + \beta_1 Child\_Gender_i + \beta_2 GenderHH_i + \beta_3 HHEdu_i +$

$\beta_4 HHMarStat_i + \beta_5 PovertyStat_i + \beta_6 LogIncomeHH_i + \beta_7 HHSize_i +$

$\beta_8 AgeHH_i + \beta_9 AgeSqHH_i + \beta_{10} EcologicalZoneHH_i + \beta_{11} Bank\_Acc_i +$

μi ..... (15)

Where;

$cov\ (cash\_remit_i\ bank\_account) \neq 0$ (g)

$cov\ (bank\_account\ \mu i) = 0$ (h)

The second stage model is given as follows;

$Health\_DEp_i = \beta_0 + \beta_1 cash\_remit_i + \beta_2 Child\_Gender_i +$

$\beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i +$

$\beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i + \mu i$ ..... (16)

$Edu\_DEp_i = \beta_0 + \beta_1 cash\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i + \beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i + \mu i$ ..... (17)

$LivCon\_DEp_i = \beta_0 + \beta_1 cash\_remit_i + \beta_2 Child\_Gender_i + \beta_3 GenderHH_i + \beta_4 HHEdu_i + \beta_5 HHMarStat_i + \beta_6 PovertyStat_i + \beta_7 LogIncomeHH_i + \beta_8 HHSize_i + \beta_9 AgeHH_i + \beta_{10} AgeSqHH_i + \beta_{11} EcologicalZoneHH_i + \mu i$ ..... (18)

Justification of Instrument

For all forms of remittances received, ownership of bank account was used as an instrument. Ownership of a bank account has been found to have an effect on one's participation in the financial markets and hence his/her access to remittances. However, its effect on child poverty is only possible through receipt of remittances. Key studies that have used the same instrument in the link between financial service and household welfare include (Fitzpatrick, 2013; Grohmann et al., 2018). The validity condition requires that the endogenous variable should have a direct link with the instrument but not with the dependent variable. The instrument (ownership of bank account) fulfils these two conditions. The reason being that, it has a direct relationship with remittances. In that the ownership of a bank account is associated with ease of remittance transfer from senders to receivers. On the other hand, having a bank account only affects child poverty through its influence on remittances.

Intuitively, though parents can open bank accounts in the name of their children, the child cannot directly do so without attaining 18 years and above as there would have to be the presence of the parent. Thus, this instrument, though it affects the child, it does so indirectly.

Conclusion

This chapter presents the methods employed to fulfil the objectives of the study. A propensity score matching and two stage least square technique is estimated to address endogeneity problem associated with child poverty and remittances. The model is used to examine the effect of remittance on child poverty in Ghana and also to determine which of the child poverty dimensions is most sensitive to remittances.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

Introduction

This chapter discusses results from the statistical analysis set out in this study. Results have been organised in the form of tables and figures for better understanding of the values and direction of relationships between variables. It begins with the descriptive statistical results, which are presented in the form of graphs for better understanding. The chapter also contains the regression results and discussions for objectives of the study.

Descriptive Statistics

This section discusses descriptive statistics of variables included in the study. Here, the average tendencies and distributions of variables in the samples and how they compare with the population are discussed. Table 2 below shows some descriptive statistics of continuous variables included in the study. Starting with the child poverty index, the average child poverty index was 0.306 with a standard deviation of 0.205. Children in the sample had ages ranging from 0 to 17 years. The average child age was 8.584. The average annual income earned by households in the sample was GHC 1,5847.699, with a minimum and maximum of GHC 2.359 and GHC 3,364,605.30 respectively. Also, the mean amount of cash remittance received by the households was GH¢288.98 whiles the mean food remittance received by households was worth GH¢36.08.

Table 2: Summary Statistics of Continuous variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Child Poverty	19051	0.311	0.205	0	1
Child Age (Years)	19051	8.609	5.143	0	17
$ChildAge^2$	19051	100.561	89.893	0	289
Income	19051	15847.690	89864.005	2.359	3364605.3
Age of Head (Years)	19051	47.139	13.807	15	99
Age of $Head^2$	19051	221.667	377.002	0.188	3298.584
Food remittance (GH¢)	19051	36.079	198.0415	0	5400
Cash Remittance (GH¢)	19051	288.980	1443.483	0	94000

Source: Dadzie (2021)

Table 3 beneath contains descriptive statistics for categorical variables. Of the total sample, 6002 children, representing 31.50 percent came from households that received remittances whiles the remaining 13,049 children representing 68.50 percent were from households that did not receive remittances. Also, majority of the children in the sample are from homes with male household heads (75.34%) and poor (53.48%). Also, 38.97 percent of household heads had no formal education, 23.87 percent had only primary education, 26.93 percent had attained secondary education, and 6.48 percent had attained tertiary education. The percentage of household heads with no religious affiliations against those with religious affiliations was 6.62 percent and 93.38 percent respectively. This result is not surprising since Ghana is a highly religious country. The descriptive statistics presented in table also show that approximately 6.35 percent of household heads are divorced or separated,

1.91 percent are single parents with majority of them living together with spouse (83.4 percent).

Table 3: Descriptive Statistics of Categorical Variables

Variable	Categories	Frequency	Percentage
Household received remittance	Yes	6002	31.50
	No	13049	68.50
Gender of Household Head	Male	14353	75.34
	Female	4698	24.66
Poverty Status of Household Head	Very Poor	4203	22.06
	Poor	4660	24.46
	Non-Poor	10188	53.48
Location of Household	Urban	4599	24.14
	Rural	14452	75.86
Educational Attainment of HH_HEAD	No Formal Educ.	7424	38.97
	Primary Educ.	4548	23.87
	Secondary Educ.	5130	26.93
	Tertiary Educ.	1324	6.48
	Adult Educ.	714	3.75
Religious Status of Household head	No religion	1261	6.62
	Religious	17790	93.38
Zones	Coastal	2104	11.04
	Middle	6964	36.55
	North	9983	52.40
Marital Status	Married/living together	15626	83.47

	Never married	364	1.91
	Divorced /Separated	1209	6.35
	Widowed	1852	9.72
Child gender	Male	9890	51.91
	Female	9161	48.09
Employment status of HH Head	Employed	15746	82.65
	Unemployed	3305	17.35

Source: Dadzie (2021)

Descriptive Analysis of Child Deprivation Score Indicators

Figure 2 below depicts the extent of deprivation in each of the indicators used in creating the child deprivation score. Toilet facility was the highest deprived indicator. To be precise, 92 percent of the children sampled do not have access to toilet facilities or use buckets and pans. This is a very worrying development particularly given the known adverse health implications. Over-crowding came second as 59 percent of the sample indicated that they were living in overcrowded homes. 47 percent of the children were found in households that had inadequate flooring and 20 percent were undernourished. Access to electricity was also a challenge to one-fifth of the children. 20 percent of the children had no health insurance. It can be observed that children are worse off per the following indicators; toilet facilities, overcrowding and housing.

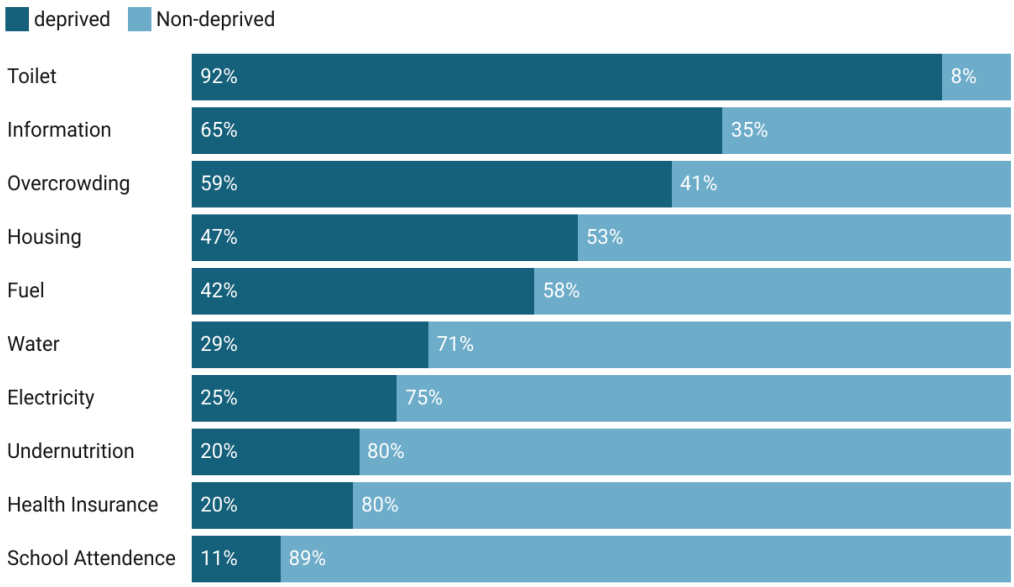


Figure 2: Distribution of Child Deprivation in Ghana

Source*:* Dadzie (2021)

Poverty Score by Region and Ecological Zone

Figure 3 and 4 represent child poverty scores across regions and ecological zones respectively. From Figure 3, it is evident that there are differences in child poverty incidence across the regions. A one-way ANOVA test indicates that these differences are indeed significant (p-value of test = 0.0012). The Northern region had the highest mean child poverty score as expected, followed by Western region, Upper East and Upper West regions. The implication of this result is that a child tagged poor in Northern region will need more resources to be able live above the poverty line and or out of poverty. This is in line with findings of Mba et al (2010) in a study to assess child poverty disparities in Ghana. The authors established that the regions situated in the northern part of Ghana experienced higher deprivations. This situation in the above-mentioned regions could also be linked to the incidence of poverty reported in the regions. The Ghana Statistical Service reported that the poverty levels in the Upper East, Upper West and Northern regions have

been incessantly higher than the national average since 2005 (GSS, 2018). Greater Accra recorded the lowest mean poverty score. This is also expected since the region has a lower incidence of poverty and is considered more economically and socially viable (GSS, 2018).

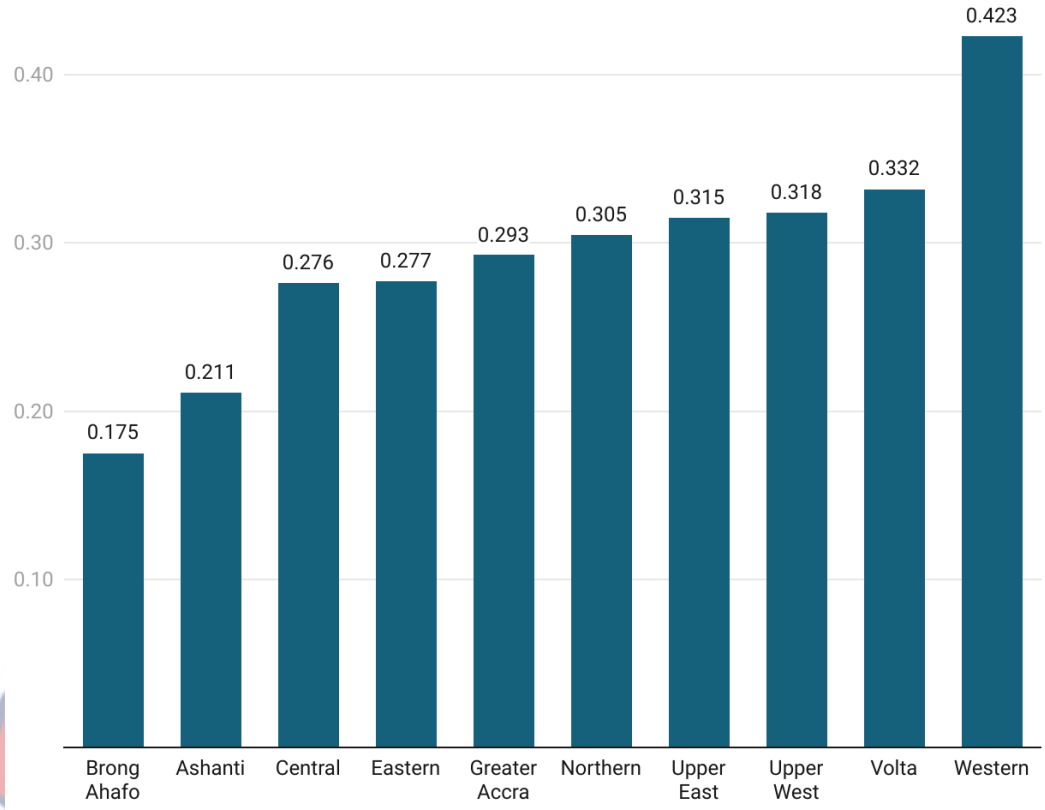


Figure 3: Mean child poverty scores across regions

Source: Dadzie (2021)

Figure 4 below shows an analysis of poverty score across the three ecological zones, i.e. coastal, middle and northern belt. The northern zone recorded the highest mean child poverty score. This is not suprising since most of the very poor regions in Ghana are situated in this zone. The middle zone reported the second highest mean child poverty score. However, compared to the coastal zone, the difference was marginal. A one-way ANOVA test was conducted to verify if these differences are significant. It is seen that the significance level is 0.0004 ($p = 0.0004$), which is below 0.050 therefore, there

is a statistically significant difference in the mean child poverty scores between the three different groups of the independent variable, ecological zone (coastal, middle and northern).

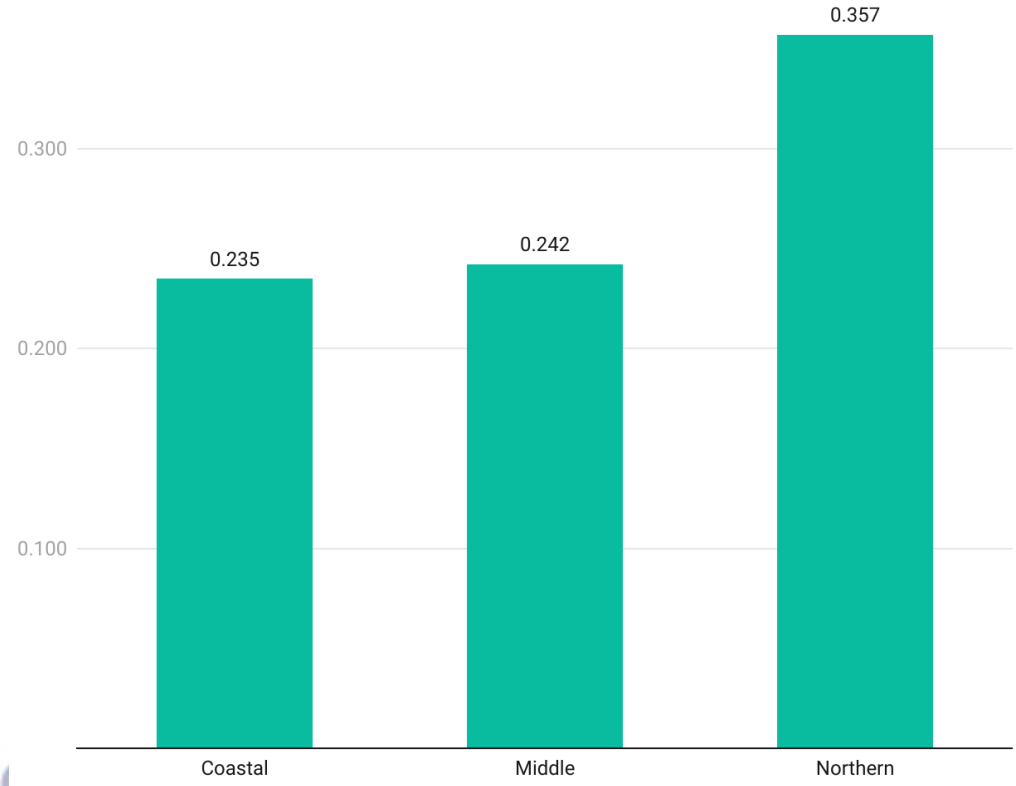


Figure 4: Mean Child Poverty Scores across Ecological Zones.

Source: Dadzie (2021)

Remittance Status and Child Poverty

This section contains an analysis of the remittance status of household and child poverty score. They are further subdivided into ten regions, three ecological zones, and rural urban localities.

Figure 5 depicts the mean child poverty score in remittance and non-remittance received households. The average poverty score for children in remittance-receiving households is 0.273, while it is 0.281 in non-remittance receiving households. The t-test has a significance level of 0.032, which is less

than 0.050. As a result, the average poverty score differs significantly between households that received remittances and those that did not.

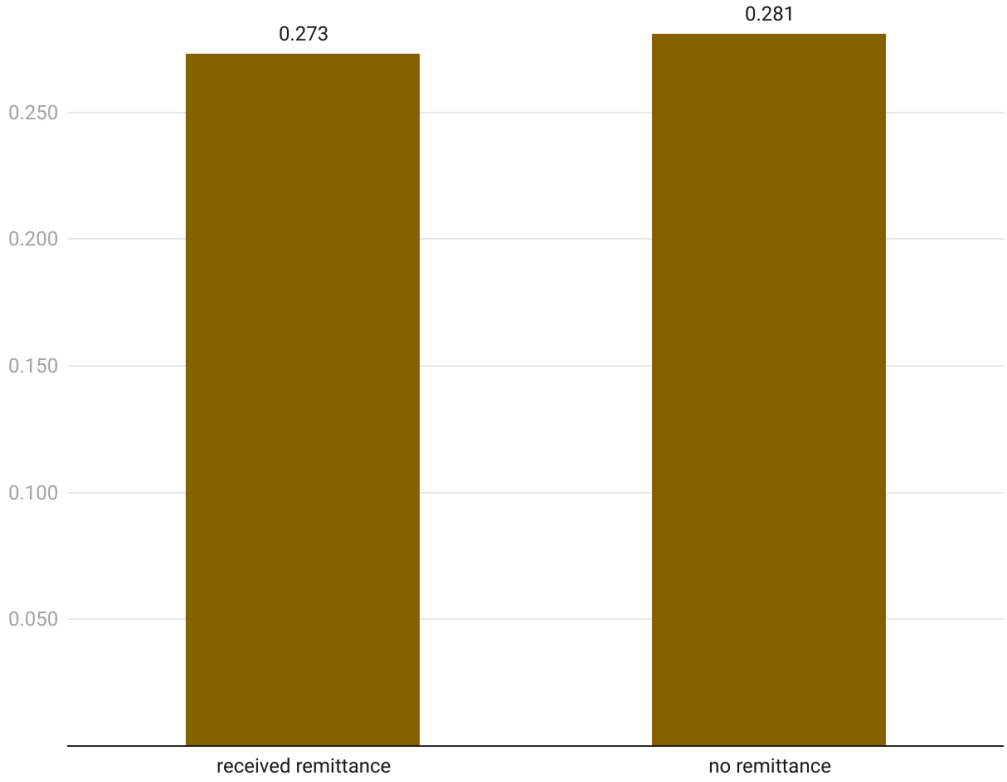


Figure 5: Mean Child Poverty Score by Remittance Status

Source: Dadzie (2021)

Child Poverty Score and Remittance Receiving Status Across 10 Regions

Figure 6 shows bivariate analysis of the child poverty score across the ten regions. With the exception of the Greater Accra and Upper East regions, children in remittance-receiving households had lower average child poverty scores than those in non-remittance-receiving households. The differences, however, were minor. The Pearson correlation test results show that the observed differences are not significant.

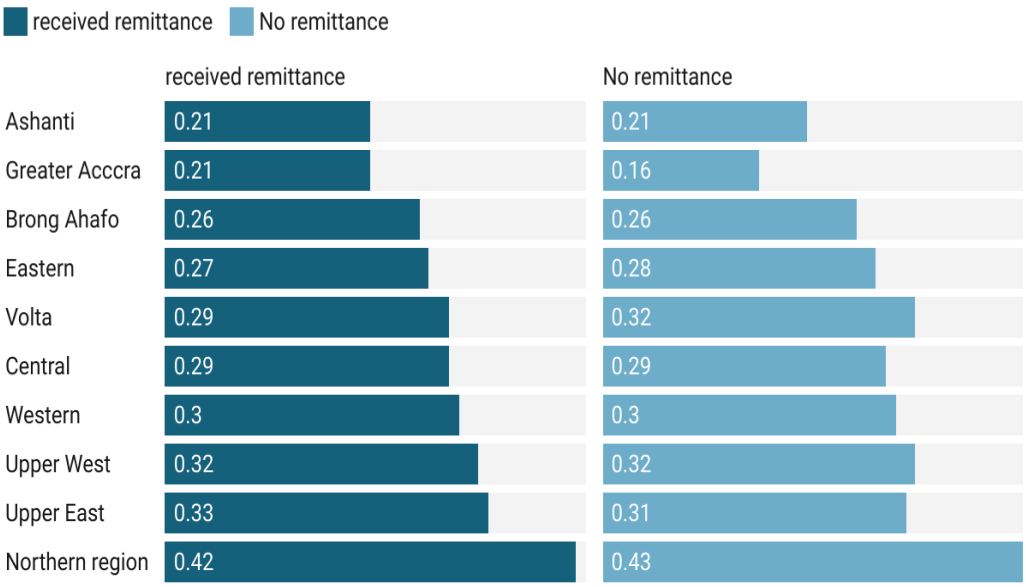


Figure 6: Deprivation by Remittance Status (All regions)

Source: Dadzie (2021)

Child Poverty Score and Remittance Receiving Status Across Locality

Figure 7 also shows the average child poverty levels by remittance status in rural and urban areas. The average child poverty score for children living in households that received remittance is 0.339 for rural dwellers, while the average child poverty score for children living in households that did not receive remittance is 0.353. This demonstrates that in rural areas, children living in remittance-receiving households have a lower poverty score than those who do not. For urban children, however, the opposite was observed. The mean child poverty score for children living in remittance-receiving households was 0.186, while the mean child poverty score for children living in non-remittance-receiving households was 0.179. This is contrary to findings of Ackah and Medvedev (2012) where the authors find that generally, members of households in urban areas become better off when migrants remit back to them.

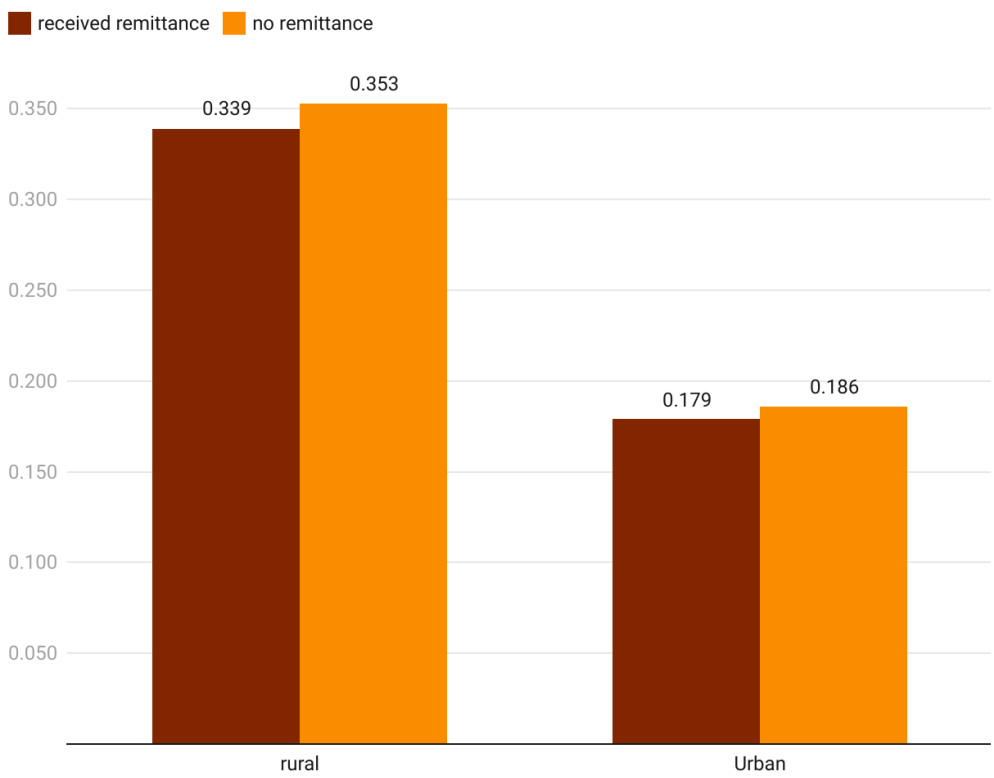


Figure 7: Deprivation by Remittance Status (Locality)

Source: Dadzie (2021)

Child Poverty Scores and Remittance Receiving Status across Ecological Zones

Child poverty scores and remittance receiving status of household across the three ecological zones was also examined in figure 8. For the coastal zone, it is found that the average child poverty for children in households that received remittances was 0.271 which is higher than the average child poverty score for children in households that did not receive remittance (0.2418). Also, for children living in the middle belt, the average child poverty score for children living in households that received remittance was 0.258 whiles the poverty scores for children living in households that did not receive remittance was 0.2666. A similar trend is identified for children in the northern belt. For children living in households that received remittance,

the average child poverty score was 0.349 which is lower than the average child poverty score of children living in households that did not receive remittance.

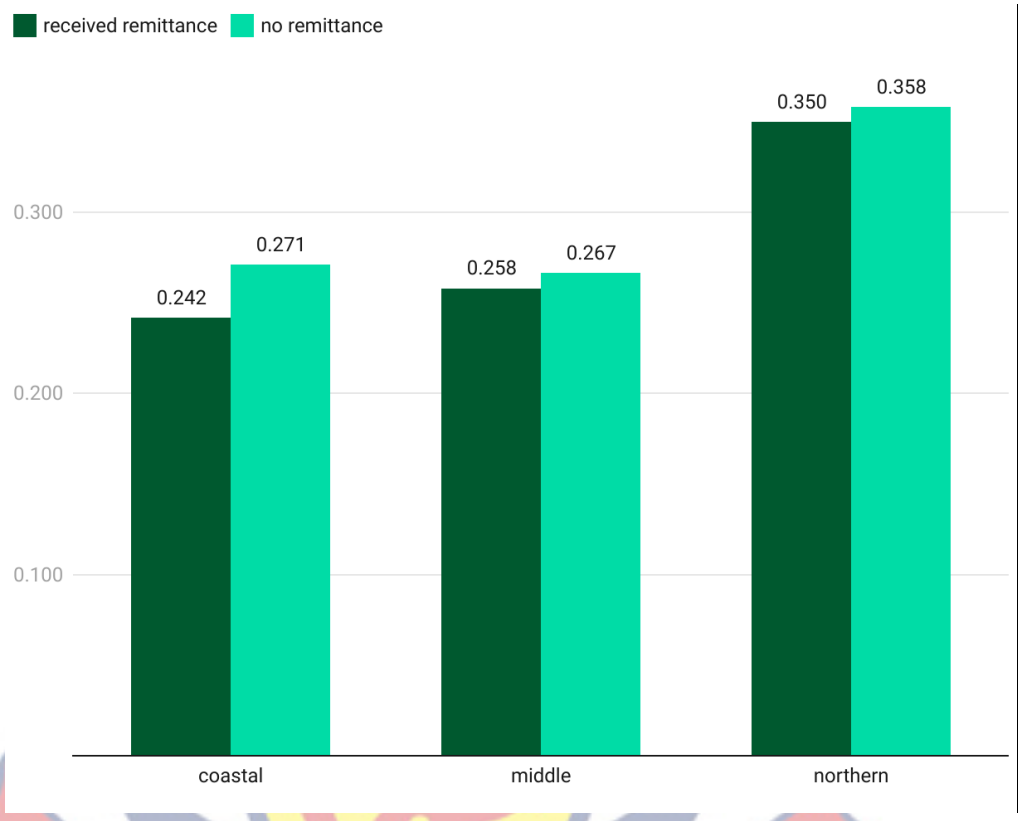


Figure 8: Deprivation by Remittance Status (Ecological Zones)

Source: Dadzie (2021)

Comparing the magnitude of remittances received by households across locality, the findings in figure 9 indicate that the average amount of remittance received by households in rural areas was higher than the amount received by households in urban areas. Specifically, the average amount of remittance received by households in urban areas was GHC 1, 650.48 whereas the average amount of remittance received by households in rural areas GHC 5,037.26. A t-test was further conducted to verify that these differences are significant. The significance level is 0.0011, which is below 0.050. and,

therefore, there is a statistically significant difference in the average remittance scores between the urban and rural dwellers.

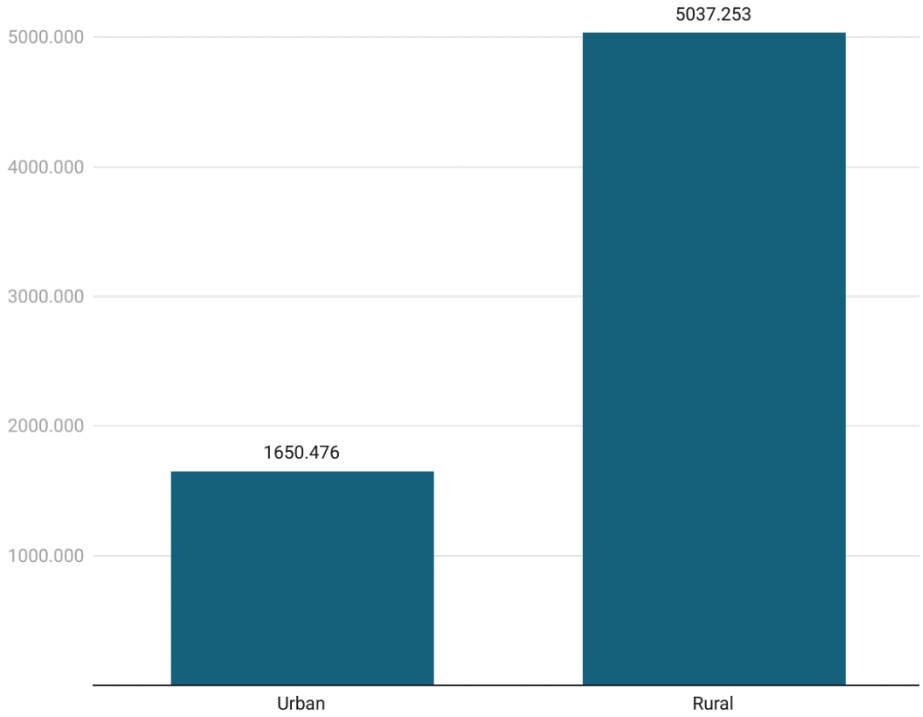


Figure 9: Average Remittances Received by Households across Locality

Source: Dadzie (2021)

Remittance Receiving Status by Zones

Figure 10 depicts the average amount of remittance received by households across ecological zones. The findings indicate that the average amount of remittance received by households increases as one moves interior. Specifically, the average amount of remittance received by households living along the coastal areas was GHC 922.096, whiles that for households living in the middle and northern zones were GHC1, 466.02 and GHC7, 162.35 respectively. A one-way anova test was conducted to verify if these differences are significant. The significance level is 0.0000, therefore, there is

a statistically significant difference in the average remittance scores between the three different groups of the ecological zones.

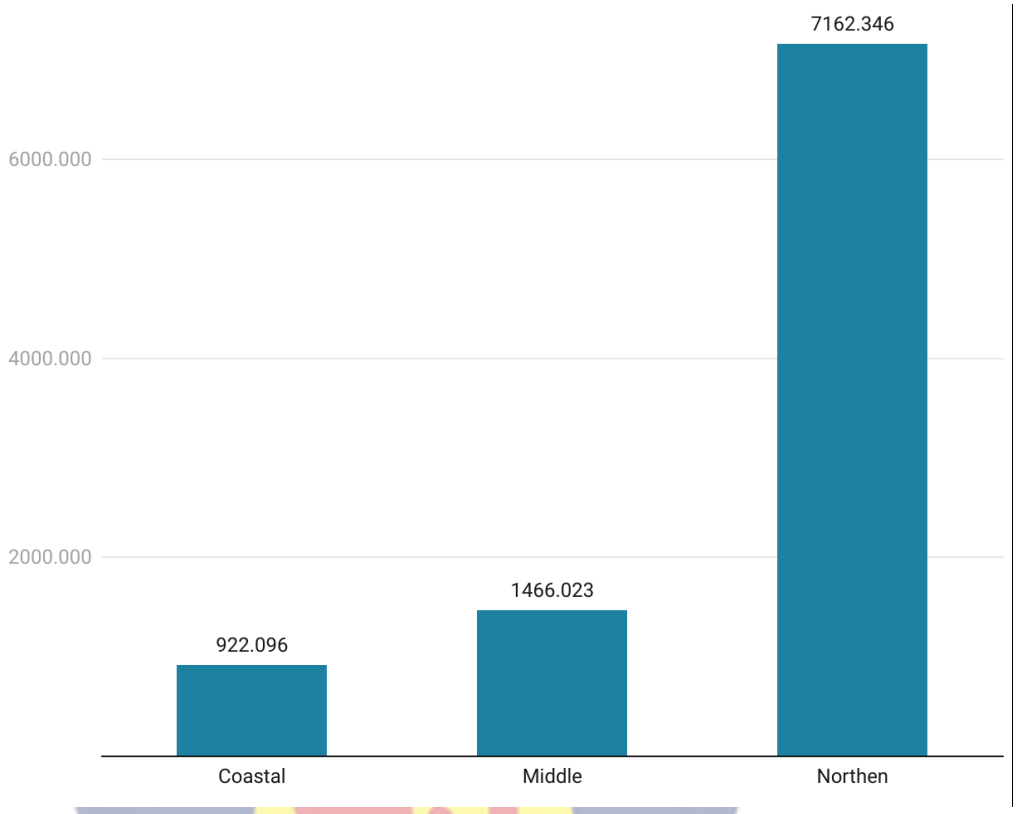


Figure 10: Average Remittance Received Across Three Zones

Source: Dadzie (2021)

Effect of Remittance on Child Poverty in Ghana

The propensity score matching approach was used to generate the counter factual group. Prior to interpreting the results from the propensity score matching, it was vital to ensure that both the common support and balance property are satisfied. The common support assumption was tested by assessing the distribution of propensity scores for both treated (received remittance) and untreated (no remittance) after matching (See Appendix A). The upper half of the graph shows the propensity score for individuals that received remittance whiles the lower half shows the propensity score for individuals that did not receive remittance. From the graph, it can be seen that

common support is achieved as both the lower and upper half have similar distribution. Also, according to Rubin (2004), the balancing property is vital and PSM should only be discussed after meeting this assumption. Thus, the treatment evaluation results are not interpreted before checking if the model has balanced covariates. This test checks if the distribution of the conditioning variables (pre-treatment characteristics) is not different across the treated and the counterfactual group in the matched samples. More so, this test helps to check if the selection bias (due to observable characteristics) has been eliminated. The results of the test are presented in Appendix B. From the results as presented in appendix B, after matching, the standard bias among the covariates for cash and food remittance was reduced to about 6.6 percent and 3.2 percent respectively. More importantly, both the Rubin's B and R statistics were blow the 25% and 2.0 recommended thresholds. Thus, indicating that the balance property was satisfied.

Having satisfied the balance condition, the results of the PSM model are presented and discussed. In consonance with the objective, it is evident that the poverty score for children living in households that received food remittance was lesser than that of those living in households that did not receive remittance. Based on the Kernel matching, the ATT for food remittance is 0.03418. Using the common matching yields a smaller ATT (0.00633). This conclusion supports findings of Crush and Caesar (2018), who established that food remittance compensates households for unfavorable coping behaviours including skipping meals. Similarly, food remittance, according to Frayne et al (2010), helps to alleviate household food insecurity. On cash remittance, the ATT is significant. Based on the Kernel matching, the

ATT for cash remittance is -0.032918. Using the common matching yields a smaller ATT (-0.012637).

Table 4: Effect of Remittance on Child Poverty

ATE	Matching Algorithms	Receivers	Non-receivers	ATT	P-Value
Food Only	Kernel Matching	0.266	0.300	-0.034***	9.273
	Common Matching	0.266	0.272	-0.006	0.956
Cash Only	Kernel Matching	0.266	0.299	-0.032***	9.093
	Common Matching	0.266	0.279	-0.012**	1.935

Source: Dadzie (2021)

Remittance Needed to Reduce Child Poverty

Changing the measurement of the remittance variable from dummy to continuous variable, the amount of remittance needed to reduce child poverty is assessed. The results for the OLS model and the second stage of the 2SLS estimation are presented in Table 5. As with any instrumental variable estimation technique, there was the need to identify an appropriate instrument (ownership of bank account) that passes both the validity and relevance assumption. The results in columns 1 and 3 are OLS results. Columns 2 and 4 contain results for 2SLS regression. The results of the post estimation tests show that the instrument passes the relevance assumptions as the p-value of the Anderson LM statistic is significant. The results of the endogeneity test also show that the remittance variables are indeed endogenous.

Both the food and cash remittance coefficients are negative and significant from Table 5. This finding suggests that receiving either food or cash remittances leads to a reduction in child poverty. To be precise, a cedi increase in cash remittance reduces child poverty by 0.0211 points, while a cedi increase in food remittance reduces child poverty by 0.0423 points. This finding is consistent with the findings of the propensity score matching estimation approach, as well as previous studies that found a significant effect of remittances on child poverty. Receiving remittances can provide additional resources to households, which can be used to meet the needs of children and aid in their development (Cruz & Rees, 2020). In this paper, the authors establish that the form of assistance that households receive from migrants can help reduce poverty and in the long run, be a very essential support for children's development. More importantly, the results also show that food remittance has more effect on child poverty compared to cash remittance. This finding is entirely plausible since children may not get any significant direct benefit from cash remittance relative to food remittance.

The findings also show that the gender of the household head has a significant impact on child poverty. To be more specific, children in male-headed households have a poverty score that is 0.291 to 0.341 points lower than those in female-headed households. This finding could be attributed to income disparities between men and women in Ghana. Male household heads earn significantly more than female household heads, as shown in figure 8. As a result, they can better provide for their children than female household heads. Makhalima (2020), in a study to examine the determinants of child poverty in a South African township, reported a similar finding and attributed

the result to the disparities in access to economic opportunities for males against females in their study area.

The household head's poverty status has a significant impact on child poverty. Children from poor households have a poverty score that is 0.0668 points higher than children from non-poor households. Household income is closely related to the issue of poverty and has a significant impact on child poverty. To be more specific, every cedi increase in household income reduces child poverty by 0.2 point. Again, this result is not unique to this study; similar findings have been reported in other empirical studies (Adetola & Olufemi, 2012; Chen & Corak, 2005).

Another significant variable in the model is the marital status of the household head. This variable was measured as a categorical variable with never married as the base. The child poverty scores for children living with married household heads is 0.106 points lesser than children with never married household heads. Similarly, the poverty score for children in divorced households is around 0.104 points to 0.140points lesser than that of children in never married households. Also, the poverty score for children living with household heads who are widowed is 0.140 points lesser than those living with never married households. The finding is in consonance with findings of Zhang (2019) who reported that children living in single-mother homes have continuously had the greatest child poverty rates, while children living in married-couple families have had the lowest rates.

The findings also show that the ecological zone in which a household resides has a significant impact on child poverty. Children in the northern zone have a poverty score that is 0.0661 to 0.0957 points higher than children in the

coastal zone. This is not surprising given that the northern region of Ghana has higher poverty rates and a higher incidence of poverty than the national average (GSS, 2018; World Bank, 2020).

The results also confirm the results of previous studies that reported a significant u-shaped relationship between age of household head and child poverty score. The net-effect analysis indicates that before age 45 any increase in age by a year leads to a 0.4 points reduction in child poverty but once the household head crosses age 45 any addition in age increases child poverty by 0.2 points. Increased household size has a significant positive relationship with child poverty. Adding one more person to a household raises child poverty by 0.005 points. This finding supports findings of (Meyer & Nishimwe-Niyimbanira, 2016). In their study, they looked at the impact of household size on poverty in South Africa. The authors revealed that as household size increased, so did poverty levels, though they acknowledged that their findings contradicted those of other African countries.

Table 5: Amount of cash and food remittance needed to reduce child poverty

VARIABLES	OLS Child Poverty	IV Child Poverty	OLS Child Poverty	IV Child Poverty
Cash Remittance	0.001	-0.211***		
	(0.001)	(0.036)		
Food Remittance			0.001	-0.423**
			(0.830)	(0.171)
Gender of child (Base=Female)				
Male	0.015***	0.009	0.015***	0.014
	(0.003)	(0.012)	(0.003)	(0.015)
Gender of HH_Head (Base=Female)				
Male	0.033***	-0.373***	0.033***	-0.291**
	(0.005)	(0.074)	(0.005)	(0.134)
Educational Attainment				

of HH_Head				
Basic Edu.	-0.067***	0.030	-0.066***	-0.018
	(0.005)	(0.023)	(0.005)	(0.026)
Tertiary Edu.	-0.149***	-0.022	-0.148***	-0.041
	(0.006)	(0.036)	(0.006)	(0.055)
Logincome	-0.014***	0.0044	-0.014***	-0.002*
	(0.001)	(0.005)	(0.001)	(0.006)
Poverty Status (Nonpoor)				
Poor	0.073***	0.006	0.073***	0.0667***
	(0.005)	(0.018)	(0.005)	(0.016)
Household Size	0.004	0.005**	0.004***	-0.000
	(0.001)	(0.001)	(0.001)	(0.003)
Marital Status (Never Married)				
Married	-0.004	-0.106*	-0.003	-0.030
	(0.011)	(0.064)	(0.011)	(0.075)
Divorced	0.012	-0.140***	0.012	-0.104*
	(0.008)	(0.039)	(0.008)	(0.061)
Widowed	0.006	-0.140***	0.005	-0.018
	(0.008)	(0.040)	(0.008)	(0.043)
age_of_household_head	-0.003***	0.000	-0.003***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.001)
Agecentersq	0.000***	0.000280***	0.000***	0.000286***
	(0.000)	(0.0000451)	(0.000)	(0.000970)
Ecological Zones*(Base=Coastal)*				
Middle	0.002	0.00514	0.002	0.00800
	(0.005)	(0.0178)	(0.005)	(0.0219)
North	0.033***	0.0957***	0.033***	0.0661**
	(0.005)	(0.0222)	(0.005)	(0.0260)
Constant	0.481***	0.756***	0.481***	0.826***
	(0.015)	(0.0688)	(0.014)	(0.162)
Observations	19,051	19,051	19,051	19,051
R-squared	0.20	-8.242	0.19	-11.949
Anderson canon. corr. LM statistic)		Chi-sq(2) P-val = 0.0000		Chi-sq(2) P-val 0.0206
Endogeneity Test		Chi-sq(1) P-val = 0.0000		P-val = 0.0000
Sargan Test (P-value)		1.624 (0.2025)		1.171 (0.2791)

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Dadzie (2021)

Dimensions of Child Poverty Sensitive to Remittance.

For this objective, the study used the IV Probit technique to estimate the models. The results for the second stage (Table 6) are discussed. The first column contains the results on the effect of food remittance on the heath dimension of child poverty. The second and third columns contain the results for the effect of food remittance on education and living conditions respectively. From the results, it is evident that the coefficient of food remittance in health and education models are significant and negative. This means that food remittance reduces the likelihood for children to suffer health or education deprivation. An increase in food remittance reduces the likelihood of child health deprivation by 0.0154 percentage points and education deprivation by 0.0257 percentage points. This means that among the three dimensions, child education deprivation is most sensitive to changes in food remittance than the other child poverty dimension. Abdul-Mumuni and Koomson (2019) conducted a study to examine household remittance inflows and child education in Ghana. Their central finding indicated that; inflows of remittances serve an important role in supplementing families' efforts to educate their children. This backs finding of this study and shows that households prioritize education of children on the receipt of remittances.

Results in Table 6 also show that the gender of the child has significant effect on child health deprivation. To be precise, the likelihood for a female child to suffer any health deprivation is 0.137 percentage points higher than that of a male child. This finding is not surprising when one considers the socioeconomic disparities that girls face relative to boys in Ghana. The gender of household head also has significant influence on health and education

dimensions of child poverty. Compared to children in female headed households, the likelihood for children in male headed households is 0.126 percent more likely to suffer any health deprivation, and 0.348 percent more likely to suffer any educational deprivation. It can therefore be inferred that the gender of the household head has the highest effect on educational deprivation. Indeed, this finding is very plausible as some interventions have been made by governments in Ghana over the years to ease access to education and health for children. This therefore has limited the effect of income disparities based on household head gender on child's access to education and health.

The educational level of the household head has significant influence on all dimensions of child poverty. For instance, compared to a child whose household has no formal education, a child whose household head has attained basic education is 16.5 percentage points less likely to suffer any health deprivation, 39.6 percentage points less likely to suffer educational deprivation, and 40.9 percent less likely to suffer any living condition deprivation. Likewise, children from tertiary educated household heads are 45.0 percentage points less likely to suffer health deprivation, 92.1 percentage points less likely to suffer any educational deprivation, and 12.20 percentage points less likely to suffer from any living condition deprivation. It can be inferred from these results that among the three dimensions, child educational deprivation is more sensitive to household educational attainment than any other child poverty dimension. Consistent with findings of Kpoor (2019), the high sensitivity of households with tertiary education to child education is

attributable to the fact that once parents achieve higher education, they ensure that their children also attain higher levels in education.

The poverty status of the household head also has significant influence on all the dimensions. Compared to children from non-poor households, children from poor household are 13.1 percent more likely to suffer health deprivation, 42.1 percentage points more likely to suffer from educational deprivation and 66.0 percentage points more likely to suffer from living condition deprivation. It can be inferred from this that among the three dimensions, living condition deprivation is most sensitive to the poverty status of the household.

Table 6 also indicates that the marital status of household heads has significant influence on the education and living condition dimensions of child poverty. Compared to children from single parents, children from married households are 38.5 percentage points less likely to suffer from any education deprivation, and 67.5 percentage points less likely to suffer from any living condition deprivation. Likewise, children living with separated parents are 2.17 percent less likely to suffer educational deprivation and 81.1 percent less likely to suffer living condition deprivation. In addition, children living with widows are 29.1 percentage points less likely to suffer from education deprivation and 42.9 percentage points less likely to suffer from living condition deprivation than those living with never married parents. The income level of the household is also a significant determinant of all deprivations. For every cedi increase in income, the likelihood that a child suffers from health, education and living conditions deprivation is reduced by 4.05 percentage points, 10.9 percentage points and 8.65 percentage points

respectively. This is in line with findings of Cooper and Stewart (2021) where they examined the effect of household income on child outcomes. They came to a conclusion that there were positive effects of income on a number of child outcomes, though intermediate. Again, findings of Le Menestral and Duncan (2019) agree to the assertion that for children who grow up in households with lower incomes, they suffer and experience worst outcomes in almost every dimension ranging from educational attainment as well as physical and mental health.

Table 6 also indicate that the ecological zone in which the household resides also has significant influence on the various dimensions of child poverty. To be precise, compared to a child living in the coastal area, a child living in the middle zone is 27.7 percentage points less likely to suffer health deprivation, and 26.7 percentage points more likely to suffer living condition deprivation. Likewise, a child living in the northern zone is 48.6 percentage points less likely to suffer health deprivation, but 38.7 percentage points more likely to suffer educational deprivation, and 69.8 percentage points more likely to suffer living condition deprivation. These findings indicate that children in the coastal and northern zone are more likely to suffer health deprivation than persons in the coastal areas. However, the reverse is true for education deprivation. The results indicate that children in the middle and northern zone are more likely to suffer education deprivation than those in the coastal areas. Both supply and demand side challenges in the middle and northern zone relative to the coastal zone may account for the observed difference. This is not surprising as the northern part of Ghana is known to record higher poverty

rates with higher incidence of poverty above national levels (GSS, 2018; World Bank, 2020).

Table 6: Dimensions of Child Poverty Sensitive to Food Remittance

VARIABLES	Health	Education	Living Conditions
Total Food remittance	-0.0154**	-0.0257***	-0.0144
	(0.00773)	(0.00768)	(0.0182)
Gender of Child *(Base=Female)*			
Male	0.137***	0.0404	0.0747
	(0.0255)	(0.0262)	(0.0618)
HH Head Gender *(Base=Female)*			
Male	0.126***	-0.348***	0.110
	(0.0401)	(0.0400)	(0.0953)
Head Educational attainment *(Base=No Education)*			
Basic	-0.165***	-0.396***	-0.409***
	(0.0322)	(0.0331)	(0.0778)
Tertiary	-0.450***	-0.921***	-1.220***
	(0.0612)	(0.0779)	(0.0925)
Logincome	-0.0405***	-0.109***	-0.0865***
	(0.00887)	(0.00911)	(0.0280)
Poverty Status(Base= Poor	0.131***	0.421***	0.660***
	(0.0305)	(0.0314)	(0.119)
HH Size	0.0141***	-0.000914	-0.0305***
	(0.00396)	(0.00418)	(0.0106)
Marital Status*(Base=Never Married)*			
Married	0.0886	-0.385***	-0.675***
	(0.0925)	(0.0927)	(0.200)
Separated	0.128	-0.0217	-0.811***
	(0.101)	(0.102)	(0.213)
Widowed	0.119	-0.291***	-0.429**
	(0.102)	(0.102)	(0.217)
Age of HH Head	-0.0122***	-0.00314**	-0.0105***
	(0.00151)	(0.00156)	(0.00326)
AgeSquare	0.000315***	0.0000834	-0.000338***
	(0.0000502)	(0.0000527)	(0.000108)

Ecological Zone*(Base=Coastal)*			
Middle	-0.277***	-0.0250	0.267***
	(0.0376)	(0.0407)	(0.0763)
North	-0.486***	0.387***	0.689***
	(0.0403)	(0.0423)	(0.0986)
Constant	0.525***	1.152***	4.189***
	(0.123)	(0.124)	(0.318)
Observations	19,051	19,051	19,051

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Dadzie (2021)

In Table 7, results on which dimension of child poverty is the most sensitive to cash remittance are also presented and discussed. The first column contains the results on the effect of cash remittance on the health dimension of child poverty. The second and third columns contains the results for the effect of cash remittance on child education and living conditions respectively.

The coefficient of cash remittance in all models are significant and negative. This means that cash remittance reduces all dimensions of child poverty. For every cedi increase in cash remittance to households, living condition deprivation reduces by 6.44 percentage points, education deprivation reduces by 3.60 percentage points and health deprivation reduces by 15.0 percentage points. This is no different from findings of Cruz and Rees (2020), where the authors established that remittances alleviate household poverty and that serve as a crucial support for the development of children. The most sensitive dimension to cash remittance is health.

Gender of the child has significant effect on child health deprivation. The likelihood for a male child to suffer any health deprivation is 12.6 percentage points higher than that of a female child. The gender of household head also significantly influences health and education dimensions of child poverty. Compared to children in households headed by females, children in households headed by males are 14.9 percentage points less likely to suffer any health deprivation, and 37.8 percentage points less likely to suffer any educational deprivation. This is in line with findings of Kpoor (2019). He conducted research on assets and livelihoods of male and female headed households in Ghana. He established that households headed by males have greater asset endowments as well as improved livelihood outcomes. As such, it makes them better off as compared to females. The implication is that children in male headed households will also be affected by improved livelihood outcomes making them better off as well.

All dimensions of child poverty are significantly influenced by educational levels of household heads. Compared to a child whose household has no formal education, a child whose household head has attained basic education is 8.6 percentage points less likely to suffer any health deprivation, 37.8 percentage points less likely to suffer education deprivation, and 38.7 percentage points less likely to suffer any living condition deprivation. Likewise, children from households whose heads have attained tertiary education are 33.3 percentage points less likely to suffer health deprivation, 89.4 percentage points less likely to suffer any educational deprivation, and 1.77 percentage points less likely to suffer from any living condition

deprivation. Despite all three dimensions having reducing effects, it is quite greater for household heads that have attained tertiary education.

The poverty status of the household head also has significant influence on all the dimensions. Compared to children from non-poor households, children from poor household are 7.6 percentage points more likely to suffer health deprivation, 40.8 percentage points more likely to suffer from educational deprivation and 62.4 percentage points more likely to suffer from living condition deprivation. This makes living condition the most sensitive dimension to the poverty status of the household. This finding conforms to a-priori expectations since most of the items required to prevent living condition deprivation requires expending with money.

The income level of the household is a significant determinant of all dimensions. For every cedi increase in income, the likelihood that a child suffers from health, education and living conditions deprivation is reduced by 2.6 percentage points, 10.9 percentage points and 8.2 percentage points respectively. In a study by Cooper and Stewart (2021), the authors assessed the effect of household income on child outcomes. They concluded that although it was transitional, income levels of household heads had positive effects on child outcomes including health and socio-behavioural outcomes. This assertion confirms findings of this study.

Ecological zones where children reside also influences the various child poverty dimensions. Compared to children living in the coastal areas, those in the middle zone are 25.6 percentage points less likely to suffer health deprivation, and 25.8 percentage points more likely to suffer living condition deprivation. Likewise, a child living in the northern zone is less likely to suffer

health deprivation by 41.3 percentage points, but 39.7 percentage points more likely to suffer educational deprivation, and 66.8 percentage points more likely to suffer living condition deprivation. These findings indicate that children in the coastal and northern zone more likely to suffer health deprivation than persons in the coastal areas. However, the reverse is true for education deprivation. The results indicate that children in the middle and northern zone are more likely to suffer education deprivation than those in the coastal areas. These results are not different from findings in the report of the World Bank. They reported that the northern part of Ghana has been known to record consistently, higher poverty levels as well as incidence of poverty levels that are above national levels (World Bank, 2020).

Table 7: Dimensions of Child Poverty Sensitive to Cash Remittance

VARIABLES	Health	Education	Living Conditions
Cash remittance	-0.150***	-0.0360***	-0.0644***
	(0.0238)	(0.00466)	(0.0102)
Gender of Child (Base=Male)			
Female	0.126***	0.0409	0.0725
	(0.0251)	(0.0262)	(0.0608)
HH Head Gender (Base=Female)			
Male	-0.149**	-0.378***	0.0129
	(0.0647)	(0.0407)	(0.0935)
Head Educational attainment (Base=No Education)			
Basic	-0.0858**	-0.378***	-0.387***
	(0.0350)	(0.0333)	(0.0764)
Tertiary Educ.	-0.333***	-0.894***	-1.177***
	(0.0659)	(0.0775)	(0.0912)
LogIncome	-0.0260***	-0.109***	-0.0819***
	(0.00930)	(0.00911)	(0.0275)

Poverty Status(Base=			
Poor	0.0761**	0.408***	0.624***
	(0.0311)	(0.0314)	(0.117)
HH Size	0.0145***	0.0145***	0.0145***
	(0.00389)	(0.00389)	(0.00389)
Marital Status(Base=Never Married)			
Married	0.0448	-0.376***	-0.638***
	(0.101)	(0.0937)	(0.179)
Separated	-0.0145	-0.0192	-0.800***
	(0.114)	(0.103)	(0.192)
Widow	-0.0194	-0.289***	-0.428**
Age of HH Head	-0.00941***	-0.00279*	-0.00986***
	(0.00164)	(0.00156)	(0.00322)
AgeSquare	0.000449***	0.000112**	-0.000267**
	(0.000526)	(0.000527)	(0.000108)
Ecological Zone(Base=Coastal)			
Middle	-0.256***	-0.0169	0.258***
	(0.0368)	(0.0408)	(0.0743)
North	-0.413***	0.397***	0.688***
	(0.0454)	(0.0423)	(0.0971)
Constant	0.716***	1.156***	4.200***
	(0.127)	(0.124)	(0.302)
Observations	19,051	19,051	19,051

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Dadzie (2021)

Conclusion

This chapter presented the discussion of the results. It began with the descriptive statistics, and followed through by discussing the bivariate analysis of the various variables analysed in the study. The chapter concludes on estimating the effect of remittance on child poverty in Ghana.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter of the study throws light on the summary of the study, conclusions made and recommendations to stakeholders based on the results and outcomes. Finally, it outlines suggestions for further studies. The study generally explores what effects remittances have on child poverty. Specifically, it discovers the amount of remittance is needed to reduce child poverty and which dimension of child poverty is most sensitive to remittances.

Summary of the Study

The study sought to examine the effects of remittances on child poverty in Ghana. First, the focus was to assess the effects of remittances on child poverty. Second, the study determined the relationship between amount of remittances and child poverty and lastly determined which dimension of child poverty is most sensitive to remittances. This study reviewed both theoretical and empirical literature that are related to the remittances and child poverty. The study used the seventh round of the GLSS for its analysis. Subject to available data, child poverty was measured using an index (multidimensional poverty index) owing to the fact that child poverty is multifaceted. Three dimensions (health, education and living conditions) and ten indicators were used in creating the MPI. The study employed the Propensity Score Matching and Two Stage Least Square estimation techniques in addressing the objectives.

Following the results obtained from the estimations, a number of suppositions can be observed. From the findings, the following conclusions can be drawn: In all ten regions, child poverty was higher in households that did not receive remittances compared to households that received remittances. When broken down into rural and urban localities, children in rural areas suffered higher poverty levels than their counterparts in urban areas. Of all the indicators, children were worse off in "toilet facility" than any other indicator. This was followed by "overcrowding" and "undernourishment". The lowest occurrence of deprivations was recorded in "school attendance".

Child poverty was the highest in the Northern region of Ghana. Western region, Upper East and Upper West regions followed closely with the Greater Accra region recording the lowest incidence of child poverty. When grouped into ecological zones, the northern sector, consisting of the Upper East region, Northern region and Upper West region recorded the highest child poverty levels. The middle zone (Brong Ahafo, Ashanti and Eastern) followed suit with the regions in the coastal areas (Greater Accra, Volta, Western, Central) altogether recording the least child poverty level. Households that did not receive any form of remittance had high child poverty levels than households that did not. Comparing poverty levels for location of residence, though children in remittance receiving households in both rural and urban areas had low poverty levels those in remittance receiving households in rural areas recorded the highest. Also, the percentage of households that did not receive remittances in rural areas was higher than households that did not receive remittances in urban areas although the average amount of remittances received by households in rural areas was greater than what was received by

households in urban areas. Averagely, the regions in the northern sector recorded the highest amount of remittances received.

The results also showed that households that acknowledged receipt of cash remittance and food remittance recorded lower child poverty levels though the poverty alleviating effect was higher for households that received food remittances. Assessing the dimensions of child poverty, the coefficient of total remittance in all the models was significant and negative. This means that remittances have reducing effects on all dimensions of child poverty with child education dimension being the most sensitive to changes in food remittances and health dimension being the most sensitive to changes in cash remittance.

Conclusions

For some time now, inflow of remittances to Ghanaian households have been on the rise ($3.6 billion in 2020). As such, their contribution to the welfare of these households cannot be pushed under the carpet. While previous studies have ignored the child in the poverty argument, this study focuses on the child and how remittances affect their poverty status. Additionally, it breaks the norm of many studies analyzing the impact of remittances on various welfare indicators while focusing on only cash remittances to include food remittances. The receipt of food and cash remittance was revealed to have significant impact in welfare of children in the household. Child poverty levels were reduced in households who received transfers from migrants. The implication is that remittances received serve as an extra source of income and family support in catering for needs of children ranging from health, education, sanitation among others. This research

contributes to the remittance and child poverty literature by establishing that though education and health is the most sensitive dimension of child poverty to food remittances and cash remittance respectively, the receipt of remittances reduces all dimensions (health, education and living conditions).

Policy Recommendations

A significant conclusion that can be drawn from the study is that, the inflow of remittances to households cannot be overlooked as it plays an essential role in augmenting household income, which in turn inarguably affects the poverty status of the child. As a result, the following are recommended:

- Authorities of the banking system and regulators of the financial system should establish effective interventions to address underlying problems that the remittance transfer process may encounter, such as relaxing exchange and capital controls and reduction of high costs of sending and receiving remittances.
- The connection between food remittance and child poverty shows that remitting food to households helps in alleviating poverty faced by children in households and so, it should be considered as a complimentary step to reducing child poverty levels. As such, mechanisms that will make transfer of food remittance to households easier should be prioritized by the government.
- Adaptation strategies should be put in place to orient and enlighten prospective migrants prior to their departure in an attempt to optimize their health, security and welfare to enable the flow of remittance to families left behind.

- Per findings of this study, living standards (lack of access to toilet facilities and improved fuel for cooking and overcrowding in homes) has been a key contributor of multidimensional child poverty in Ghana since deprivations in this dimension recorded high child poverty mean scores. When providing social amenities, government and assemblies should strategize in a way that priority is given to availability and accessibility of toilet facilities. This will help reduce number of children who do not have access to the facility. Equal attention should also be given to areas in the northern sector of Ghana especially those in rural areas when these facilities are being provided.
- In earlier years, government put a number of measures in place to promote the use of clean cooking fuels. To further intensify these regulations, public education campaigns targeted especially in rural areas should be done to make dangers of unclean cooking fuels known to the public. There should also be the inclusion of private sectors in the quest to provide clean but inexpensive cooking fuels to households.
- The deprivation disparities across regions, zones and localities (rural-urban) could be linked to the inequalities in the distribution of socio-economic infrastructure. Going forward, Ministry of Gender and Social Protection could be tasked to identify and direct government to provision of education, health and sanitation facilities to include areas that are lacking. Government should also make child poverty a precedence in budgetary allocations in order to increase expenditure on child poverty alleviation activities.

Suggestions for Future Studies

In order to give a clearer picture of the child poverty situation in the country, multiple rounds of the GLSS data can be scrutinized in future studies to know its trend. Again, a wide range of other differential effects can be investigated. Further studies could analyse strictly based on regional or zonal levels. The head of household variations (male headed against female headed) can also be looked at to provide policy makers with more detailed policy information. Also, issues of child labour and streetism are important issues to consider in creating a measure of child deprivation and so it is recommended for future studies. From the above, it can be concluded that there is a chunk of issues to discuss regarding the remittance and child poverty debate.

REFERENCES

Abdih, Y., Chami, R., Dagher, J., & Montiel, P. (2012). Remittances and institutions: Are remittances a curse? *World Development*, *40*(4), 657-666.

Abdul-Mumuni, A. (2017). *Effect of remittances on child welfare in Ghana* (Doctoral dissertation, University of Cape Coast).

Abdul-Mumuni, A., & Koomson, I. (2019). Household remittance inflows and child education in Ghana: Exploring the gender and locational dimensions. *Available at SSRN 3448287*.

Ackah, C., & Medvedev, D. (2012). Internal migration in Ghana: Determinants and welfare impacts. *International Journal of Social Economics*.

Acosta, P., Calderón, C., Fajnzylber, P., & López, H. (2006). Remittances and development in Latin America. *World Economy*, *29*(7), 957-987.

Acosta, P., Fajnzylber, P., & Lopez, J. H. (2007). *The impact of remittances on poverty and human capital: evidence from Latin American household surveys* (Vol. 4247). World Bank Publications.

Adams Jr, R. H. (2011). Evaluating the economic impact of international remittances on developing countries using household surveys: A literature review. *Journal of Development Studies*, *47*(6), 809-828.

Adams Jr, R. H., Cuecuecha, A., & Page, J. (2008). The impact of remittances on poverty and inequality in Ghana. *World Bank Policy Research Working Paper*, (4732).

Adams, R. H. (2006). *Remittances and poverty in Ghana* (Vol. 3838). World Bank Publications.

Adetola, A., & Olufemi, P. (2012). Determinants of child poverty in rural Nigeria: A Multidimensional Approach. *Global Journal of Human Social Science Arts & Humanities*, 12(12), 38-52.

Adjei, P. O. W., Serbeh, R., & Adjei, J. O. (2017). Internal migration, poverty reduction and livelihood sustainability: differential impact of rural and urban destinations. *Global Social Welfare*, *4*(4), 167-177.

Adu-Darko, E. (2019). *The impact of remittances on consumption in Ghana* (Master's thesis, Norwegian University of Life Sciences, Ås).

Afful-Mensah, G., & Ayisi, R. K. (2020). Poverty as a rural phenomenon in Ghana: the role of remittance income and child dependency. *Ghanaian Journal of Economics*, *8*(1), 61-82.

Agyire-Tettey, F., Asuman, D., Ackah, C. G., & Tsiboe-Darko, A. (2021). Multidimensional Child Poverty in Ghana: Measurements, Determinants, and Inequalities. *Child Indicators Research*, *14*(3), 957-979.

Ajefu, J. B., & Ogebe, J. O. (2021). The effects of international remittances on expenditure patterns of the left- behind households in Sub- Saharan Africa. *Review of Development Economics*, *25*(1), 405-429.

Alkire, S. and J. Foster (2007) Counting and Multidimensional Poverty Measurement. OPHI Working Paper No. 7. Oxford, University of Oxford. http://www.ophi.org.uk/pubs/OPHI_WP7.pdf

Anarfi, J., Quartey P. and J. Agyei (2010). *Key determinants of migration among health professionals in Ghana. Development Research Centre on Migration*, Globalisation and Poverty (University of Sussex), Brighton, United Kingdom

Antwi, S., Mills, E. F. E. A., & Zhao, X. (2013). Remittances and the poverty nexus: Evidence from Ghana. *International Journal of Academic Research in Economics and Management Sciences*, *2*(1), 206.

Antwi-Bosiakoh, T. (2011). Nigerian Migration to Ghana: History, Motivations and Associational Forms. LAP Lambert Academic Publishing, Saarbrücken, Germany.

Anyanwu, J. C., & Erhijakpor, A. E. (2010). Do international remittances affect poverty in Africa? *African Development Review*, *22*(1), 51-91.

Apatinga, G. A., Asiedu, A. B., & Obeng, F. A. (2021). The contribution of non-cash remittances to the welfare of households in the Kassena-Nankana District, Ghana. *African Geographical Review*, 1-12.

Babatunde, R. O., Omotesho, O. A., & Sholotan, O. S. (2007). Socio-economic characteristics and food security status of farming households in Kwara State, North-Central Nigeria. Pakistan *Journal of Nutrition*, 6(1), 49-58.

Banga, R., & Sahu, P. K. (2013). Impact of remittances on poverty in India: empirical evidence. In *Human Capital and Development* (pp. 77-101). Springer, India.

Bansak, C., & Chezum, B. (2009). How do remittances affect human capital formation of school-age boys and girls? *American Economic Review*, *99*(2), 145-48.

Bansak, C., Chezum, B., & Giri, A. (2015). Remittances, school quality, and household education expenditures in Nepal. *IZA Journal of Migration*, *4*(1), 1-19.

Bashir, N. (2014). The drivers and impacts of family obligations and overseas remittances practices: a case study of Pakistani-origin individuals in the UK. *Social Policy and Society, 13*(2), 177-188.

Bastos, A., Casaca, S. F., Nunes, F., & Pereirinha, J. (2009). Women and poverty: A gender-sensitive approach. *The Journal of Socio-Economics, 38*(5), 764-778.

Bauer, T., & Zimmermann, K. F. (1999). *Assessment of possible migration pressure and its labour market impact following EU enlargement to Central and Eastern Europe* (Vol. 3). Bonn: iza.

Becker, G. S. (1981). Altruism in the Family and Selfishness in the Market Place. *Economica, 48*(189), 1-15.

Borjas, G. J. (Ed.). (2008). *Issues in the Economics of Immigration*. University of Chicago Press.

Bose-Duker, T., Henry, M., & Strobl, E. (2020). Children's Resource Shares: Male Versus Female-Headed Households. *Journal of Family and Economic Issues*, 1-13.

Bouoiyour, J., & Miftah, A. (2014). The effects of remittances on poverty and inequality: Evidence from rural southern Morocco.

Bradshaw, T. K. (2007). Theories of poverty and anti-poverty programs in community development. *Community Development, 38*(1), 7-25.

Brito, S., Corbacho, A., & Osorio, R. (2014). *Remittances and the Impact on Crime in Mexico* (No. IDB-WP-514). IDB Working Paper Series.

Bruening, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: A systematic review of food insecurity on

postsecondary education campuses. *Journal of the Academy of Nutrition and Dietetics*, 117(11), 1767-1791.

Bui, S., & Kugler, A. (2012). *Are Remittances in the Hands of Women more Effective? Evidence from Vietnam*. mimeo.

Cantillon, B., Chzhen, Y., Handa, S., & Nolan, B. (Eds.). (2017). *Children of austerity: Impact of the great recession on child poverty in rich countries*. Oxford University Press.

Carling, J. (2005). Gender dimensions of international migration. *Global migration perspectives*, *35*(1), 1-26.

Carraro, A., & Ferrone, L. (2020). How Effective are Cash Transfers in Mitigating Shocks for Vulnerable Children? Evidence on the impact of the Lesotho Child Grant Programme on multidimensional deprivation.

Castles, F. G., Leibfried, S., Lewis, J., Obinger, H., & Pierson, C. (Eds.). (2012). *The Oxford handbook of the welfare state*. OUP Oxford.

Cebotari, V. (2020). Migration, remittances, and child education in Ghana: Evidence from a longitudinal study. In *Migration, Remittances, and Sustainable Development in Africa* (pp. 99-116). Routledge.

Center, P. H., & Fund, M. I. (2003). Remittance senders and receivers: Tracking the transnational channels. *Washington, DC Disponible en http://pewhispanic. org/files/reports/23. pdf*.

Çetin, T., Kılcan, B., Güneş, C., & Çepni, O. (2015). Examining secondary school students' perceptions of the concept of migration: A Qualitative study. *International Journal of Education*, *7*(3), 97-120.

Chami, R., Fullenkamp, C., & Jahjah, S. (2005). Are immigrant remittance flows a source of capital for development? *IMF Staff Papers*, *52*(1), 55-81.

Chaudry, A., & Wimer, C. (2016). Poverty is not just an indicator: the relationship between income, poverty, and child well-being. *Academic Pediatrics*, 16(3), S23-S29.

Chen, W. H., & Corak, M. (2005). Child poverty and changes in child poverty in rich countries since 1990. *Available at SSRN 708202*.

Chevalier, A., Harmon, C., O'Sullivan, V., & Walker, I. (2013). The impact of parental income and education on the schooling of their children. *IZA Journal of Labor Economics*, 2(1), 1-22.

Cooke, E., Hague, S., & McKay, A. (2016). The Ghana poverty and inequality report: Using the 6th Ghana living standards survey. *University of Sussex*, 1-43.

Cooper, K., Stewart, K. (2021). Does Household Income Affect Children's Outcomes? A Systematic Review of the Evidence. *Child Indicators Research* 14, 981–1005. https://doi.org/10.1007/s12187-020-09782-0

Crush, J. S., & Caesar, M. S. (2018). Food remittances and food security: a review. *Migration and Development*, 7(2), 180-200.

Cruz, G., Z., Rees, G., (2020). A Lifeline at Risk: COVID-19, Remittances and Children, Miscellanea

Cuadros-Menac, A., Aguirre, I., & Borja, I. (2020). International Remittances and Child Welfare: A Case Study on Cali Colombia. *Revista Desarrolloy Sociedad*, (86), 73-103.

Dagunga, G., Ayamga, M., & Danso-Abbeam, G. (2021). A Re-Look at Poverty through the Lens of the Sustainable Development Goals in Ghana: Drivers and Policy Implications. *Journal of Poverty*, 25(6), 499-519

De La Garza, R. (2010). Migration, development and children left behind: A multidimensional perspective. *Social and Economic Policy Working Paper*, 1-37.

De Vaus, D. A. *Research Design in Social Research*. London: SAGE, 2001; Trochim, William M.K. Research Methods Knowledge Base. 2006

Démurger, S., & Wang, X. (2016). Remittances and expenditure patterns of the left behinds in rural China. *China Economic Review*, *37*, 177-190.

DESA (2021). Migrants' remittances contribute 5.5% to GDP. Retrieved from https://thebftonline.com/22/12/2020/migrants-remittances-contribute-5-5-to-gdp/#respond. Accessed: August 8, 2021

DESA, U. N. (2019). World population prospects 2019: Highlights. *New York, NY: United Nations Department for Economic and Social Affairs*.

Docquier, F., & H. Rapoport (2012). Globalization, brain drain, and development. *Journal of Economic Literature*. 681–730.

Docquier, F., Lohest, O., & Marfouk, A. (2005). Brain drain in developing regions (1990-2000).

Docquier, F., Rapoport, H., & Salomone, S. (2012). Remittances, migrants' education and immigration policy: Theory and evidence from bilateral data. *Regional Science and Urban Economics*, *42*(5), 817-828.

Ellyne, M., & Mahlalela, N. (2017, May). The impact of remittances on poverty in Africa: A cross-country empirical analysis. In *The Paper Presented at the 14th African Finance Journal Conference* (pp. 17-18).

Fitzpatrick, K. (2013). Use of Alternative Financial Services and Childhood Food Insecurity.

Fletschner, D., & Kenney, L. (2014). Rural women's access to financial services: credit, savings, and insurance. *Gender in agriculture*, 187-208.

Frayne, G. B., & Crush, J. S. (2011). Urban food insecurity and the new international food security agenda. *Development Southern Africa*, 28(4), 527-544.

Funkhouser, E. (1995). Remittances from international migration: A comparison of El Salvador and Nicaragua. *The Review of Economics and Statistics*, 137-146.

Ghana Immigration Service (2017). *Ghana Immigration Service Legal Handbook*. Accra

Ghana Immigration Service (2018). *Ghana Immigration Service Annual Report 2017*. Accra.

Ghana Immigration Service (2018). *Ghana Immigration Service Annual Report 2018*. Accra.

Ghana Immigration Service (2019). *Ghana Immigration Service Annual Report 2019*. Accra.

Ghana Statistical Service (2007). Pattern and Trends of Poverty, 1991–2006. Accra: Ghana Statistical Services.

Ghana Statistical Service (2015). Domestic and Outbound Tourism Statistics in Ghana. Accra. Retrieved from Tourism report from 2015 Labour Force Survey_Final.pdf (statsghana.gov.gh). Accessed: August 13, 2021

Ghana Statistical Service (2016). *Ghana Immigration Service Legal Handbook*. Accra. Retrieved from LFS REPORT_fianl_21-3-17.pdf (statsghana.gov.gh). Accessed: August 13, 2021

Ghana Statistical Service (2018). 'Ghana Living Standards Survey Round 7 (GLSS-7 Poverty Profile Report 2005–2017'. Available at: http://www2.statsghana.gov.gh/docfiles/publications/GLSS7/Poverty%20Profile%20Report_2005%20-%202017.pdf

Ghana Statistical Service (2018). Ghana Living Standards Survey Round 7 (GLSS 7). Poverty trends in Ghana 2005-2017. Retrieved from https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/Poverty%20Profile%20Report_2005%20-%202017.pdf. Accessed: August 12, 2021

Glytsos, N. P. (2002). The role of migrant remittances in development: Evidence from Mediterranean countries. *International migration*, *40*(1), 5-26.

Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. *World Development*, 111, 84-96.

GSS (2018). Poverty Trends in Ghana 2005 – 2017.

Gyimah-Brempong, K., & Asiedu, E. (2009, November). Remittances and poverty in Ghana. In *4th African Economic Conference, Addis Ababa, Ethiopia*.

Gyimah-Brempong, K., & Asiedu, E. (2015). Remittances and investment in education: Evidence from Ghana. *The journal of international trade & economic development*, *24*(2), 173-200.

Hagen- Zanker, J., & Siegel, M. (2007). The determinants of remittances: A comparison between Albania and Moldova. *3rd International Student Conference Empirical Models in Social Sciences* (pp. 13-14).

Hammond, D. (2020). *Remittance and Household Expenditure Behaviour in Ghana* (Doctoral dissertation, University of Ghana).

Hansen, B. B., & Bowers, J. (2008). Covariate balance in simple, stratified and clustered comparative studies. *Statistical Science*, 219-236.

Heckman, J. J., Ichimura, H., & Todd, P. (1998). Matching as an econometric evaluation estimator. *The Review of Economic Studies*, 65(2), 261-294.

Hjelm, L., Ferrone, L., Handa, S., & Chzhen, Y. (2016). Comparing approaches to the measurement of multidimensional child poverty.

International Dialogue on Migration 2015: Conference on Migrants and Cities. Available from www.iom.int/sites/default/files/our_work/ICP/IDM/RB]-25-CMC-Report_web-final.pdf.

International Organization for Migration. (2011). *World Migration Report 2011. Communicating Effectively About Migration*. Geneva: IOM.

IOM (2017). *Migration, environment and climate change in Ghana. Policy Brief Series*, Issue 3, Vol. 3. Available at https://environmental

migration. iom.int/policy-brief-series-issue-3-vol-3. Accessed: August 12, 2021

Joseph, G., & Plaza, S. (2010). Impact of remittances on child labor in Ghana. *Policy Research Working Paper Series*.

Karamba, W. R., Quiñones, E. J., & Winters, P. (2011). Migration and food consumption patterns in Ghana. *Food Policy*, *36*(1), 41-53.

Khadan, J., Strobl, E., & Tuffour, T. (2020). *Poverty and intra-household resource allocation in Surinamese households* (No. IDB-WP-01045). IDB Working Paper Series.

Koc, I., & Onan, I. (2001). The impact of remittances of international migrants on the standard of living of the left-behind families in Turkey. *Hacettepe University Institute of Population Studies*, *6100*.

Kofinti, R. E., & Annim, S. K. (2016). Child deprivation and income poverty in Ghana. *Measuring Poverty and Wellbeing in Developing Countries*, *178*.

Kpoor, A. (2019). Assets and Livelihoods of Male-and Female-Headed Households in Ghana. *Journal of Family Issues*, *40*(18), 2974-2996.

Kuwornu, J. K., Suleyman, D. M., & Amegashie, D. P. (2013). Comparative analysis of food security status of farming households in the coastal and the forest communities of Central Region of Ghana. *Asian Journal of Empirical Research*, 3(1), 39-61.

Ladhari, R., & Leclerc, A. (2013). Building loyalty with online financial services customers: Is there a gender difference? *Journal of Retailing and Consumer Services*, 20(6), 560-569.

Landiyanto, E. A. (2019). *Comparison of different child poverty measures: empirical evidence from Indonesia* (Doctoral dissertation, University of Bristol).

Le Menestrel, S., & Duncan, G. (2019). A Roadmap to Reducing Child Poverty.

León Ledesma, M., & Piracha, M. (2004). International migration and the role of remittances in Eastern Europe. *International Migration*, *42*(4), 65-83.

Lerman, R. I. (1996). The impact of the changing US family structure on child poverty and income inequality. *Economica*, S119-S139.

Lewis, W. A. (1954). Economic development with unlimited supplies of labour.

Lodigiani, E. (2016). *The effect of emigration on home-country political institutions.* IZA World of Labor 2016: 307 doi: 10.15185/izawol.307

Lucas, R. E., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy*, *93*(5), 901-918.

Makhalima, J. L. (2020). An analysis of the determinants of child poverty in South Africa. *International Journal of Economics and Finance*, *12*(2).

Martey, D. M. (2019). *Remittance Use and Wellbeing: Evidence from Ghana's Experience* (Doctoral dissertation, University of Ghana).

Masron, T. A., & Subramaniam, Y. (2018). Remittance and poverty in developing countries. *International Journal of Development Issues*, 17(3), 305-325.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A., & Taylor, J. E. (1993). Theories of international migration: A review and appraisal. *Population and development review*, 431-466.

Mba, C.J., and D.M. Badasu (2010). 'Deprivations Among Children in Ghana: Evidence from the 2006 Multiple Indicator Cluster Survey'. *Social Sciences*, 5(5): 440–45.

Mendola, M. (2007). Agricultural technology adoption and poverty reduction: A propensity-score matching analysis for rural Bangladesh. *Food policy*, 32(3), 372-393.

Mendola, M. (2012). Rural out- migration and economic development at origin: A review of the evidence. *Journal of International Development*, *24*(1), 102-122.

Meyer, D. F., & Nishimwe-Niyimbanira, R. (2016). The impact of household size on poverty: An analysis of various low-income townships in the Northern Free State region. *South Africa*.

National Development Planning Commission (NDPC) (2020), *Multidimensional Child Poverty in Ghana. Accra: national development planning commission"*, available at: www.ndpc.gov.gh (accessed 20 September 2020)

Nyarko, Y., & Gyimah-Brempong, K. (2011). Social safety nets: the role of education, remittances and migration. *European University Institute Working Papers* (No. 2011/26)

Olagunju, K. O., Ogunniyi, A., & Olufadewa, M. S. (2018). *Spatial Analysis of Structural Determinants of Child Poverty Incidence in Nigeria* (No. 2058-2018-5304).

Oluwafemi, A., & Ayandibu, A. O. (2014). Impact of remittances on development in Nigeria: Challenges and prospects. *Journal of Sociology and Social Anthropology*, *5*(3), 311-318.

OPHI. (2018). *Global Multidimensional Poverty Index 2018: The Most Detailed Picture to Date of the World's Poorest People.* Report. Oxford Poverty and Human Development Initiative (OPHI), University of Oxford. ISBN 978-1-912291-12-0.

Orzell, S. (2013). *Influence of Remittances on Poverty in Developing Nations* (Doctoral dissertation, Georgetown University).

Owiafe, G. (2008). *The Impact of external Remittances on Poverty reduction in Ghana* (Doctoral dissertation).

Ozughalu, U. M., & Ogwumike, F. O. (2019). Extreme energy poverty incidence and determinants in Nigeria: A multidimensional approach. *Social Indicators Research*, 142(3), 997-1014.

Phipps, A., Lebine, G. S., & Levine, G. (2011). What is language pedagogy for critical and intercultural theory and language pedagogy (2011): 1-14.

Pickbourn, L. (2016). Remittances and household expenditures on education in Ghana's northern region: why gender matters. *Feminist Economics*, *22*(3), 74-100.

Popoola, O. A., & Adeoti, A. (2016). Child welfare deprivation in rural Nigeria: a counting approach. *Child Development Research 2016*, 40-46

Qi, D., & Wu, Y. (2015). A multidimensional child poverty index in China. *Children and Youth Services Review*, *57*, 159-170.

Quartey, P. (2006). Migrant remittances and household welfare in times of macro-volatility: The case of Ghana (Vol. 69). *Institute of Statistical, Social & Economic Research.* University of Ghana, Legon.

Ranjith, S., & Rupasingha, A. (2012). Social and cultural determinants of child poverty in the United States. *Journal of Economic Issues*, 46(1), 119-142.

Rapoport, H., & Docquier, F. (2006). The economics of migrants' remittances. *Handbook of the economics of giving, altruism and reciprocity*, *2*, 1135-1198.

Ratha, D. (2013). The impact of remittances on economic growth and poverty reduction. *Migration Policy Brief*, *8*(1), 1-13.

Ratha, D., & Mohapatra, S. (2007). Increasing the macroeconomic impact of remittances on development. *World Bank*, 16(3), 16-20.

Rosenbaum, P. R., & Rubin, D. B. (1984). Reducing bias in observational studies using sub-classification on the propensity score. *Journal of the American Statistical Association*, 79(387), 516-524.

Rubin, D.B (2004), On Principles for Modeling Propensity Scores in Medical Research. *Pharmaco-epidemiology and Drug Safety*, 13, 855-857.

Saani, M. R. (2014). *External migrant remittances and household expenditure patterns in Ghana* (Doctoral dissertation, University of Ghana).

Sameti, M., Esfahani, R. D., & Haghighi, H. K. (2012). Theories of poverty: A comparative analysis. *Kuwait chapter of Arabian journal of business and management review*, *1*(6), 45-56.

Sander, C., & Maimbo, S. M. (2005). Migrant remittances in Africa: A regional perspective. *Remittances Development Impact and Future Prospects, The World Bank, Washington*, 53-81.

Sander, C., & Mainbo, S. M. (2003). Migrant labor remittances in Africa: Reducing obstacles to developmental contributions.

Sasu D. D. (2021). International poverty rate in Ghana 2017-2022. Retrieved from https://www.statista.com/statistics/1222084/international-poverty-rate-in-ghana/. Accessed: August 12, 2021.

Song, S., & Imai, K. S. (2019). Does the hunger safety net programme reduce multidimensional poverty? Evidence from Kenya. *Development Studies Research*, 6(1), 47-61.

Sophie Song & Katsushi S. Imai (2019) Does the Hunger Safety Net Programme reduce multidimensional poverty? Evidence from Kenya, Development Studies Research, 6:1, 47-61, DOI: 10.1080/21665095.2019.1582347

Sowunmi, F. A. (2016). Spatial Analysis of Hotspots and Coldspots of Poverty in Nigeria. *Journal of Geographic Information System*, *8*(02), 301.

Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *American Economic Review*, *75*(2), 173-178.

Sun, H., Li, X. and Li, W. (2020) 'The Nexus between Credit Channels and Farm Household Vulnerability to Poverty: Evidence from Rural China', Sustainabililty, 12(3019), 1–18

Suro, R. (2003). *Remittance Senders and Receivers*. Retrieved from https://www.pewresearch.org/hispanic/2003/11/24/remittance-senders-and-receivers/. Accessed: August 10, 2021

Tawodzera, G. (2012). Urban household survival and resilience to food insecurity in crisis conditions: The case of Epworth in Harare, Zimbabwe. *Journal of Hunger & Environmental Nutrition*, 7(2-3), 293-320.

Teka, A.M., Woldu, G.T and Fre, Z. (2019). Status and determinants of poverty and income inequality in pastoral and agro-pastoral communities: Household-based evidence from Afar Regional State Ethiopia. *World Development Perspectives*, 15, 100123.

Teye, J. K., Boakye-Yiadom, L., Asiedu, E., Awumbila, M., & Appiah Kubi, J. W. (2019). Changing Patterns of Migration and Remittances: A Case Study of Rural Ghana. *Migrating Out of Poverty Working Paper 58.* University of Sussex.

Teye, J. K., Boakye-Yiadom, L., Asiedu, E., Litchfield, J., Appiah Kubi, J. W., & Awumbila, M. (2019). The impact of migration on the welfare of households left behind in rural Ghana: A quasi-experimental impact evaluation. *Migrating Out of Poverty Working Paper 62.* University of Sussex

Todaro, M. P. (1976). Urban job expansion, induced migration and rising unemployment: a formulation and simplified empirical test for LDCs. *Journal of Development Economics*, *3*(3), 211-225.

Tung, L. T. (2018). Impact of remittance inflows on trade balance in developing countries. *Economics & Sociology*, *11*(4), 80-95.

UN DESA (2019). *International Migrant Stock 2019*. Data set. United Nations, New York. Available at www.un.org/en/development/ desa/population/ migration/data/estimates2/estimates19.asp.

UNHCR (2018). Population Statistics Database. Geneva. Retrieved from UNHCR - Refugee Statistics. Accessed: December 13, 2020

UNICEF (2020). *Multidimensional Child Poverty in Ghana*. Retrieved from https://www.unicef.org/ghana/media/2676/file/Multi-Dimensional%20Child%20Poverty%20Report.pdf. Accessed: August 12, 2021.

Vogel, A., & Korinek, K. (2012). Passing by the girls? Remittance allocation for educational expenditures and social inequality in Nepal's households 2003–2004. *International Migration Review*, *46*(1), 61-100.

White, H., Leavy, J., & Masters, A. (2003). Comparative perspectives on child poverty: A review of poverty measures. *Journal of Human Development*, *4*(3), 379-396.

Wooldridge, J. M. (2015). Control function methods in applied econometrics. *Journal of Human Resources*, 50(2), 420-445.

World Bank (2011). *Tackling Poverty in Northern Ghana. World Bank.* Retrieved from https://openknowledge.worldbank.org/handle/10986/2755 License: *CC BY 3.0 IGO.".* Accessed: August 12, 2021

World Bank (2020). *Migration and Development Brief 34. Resilience: COVID-19 Crisis Through a Migration Lens*, October 2020. World Bank, Washington, DC.

World Bank (2021). *Migration and Development Brief 33.* Retrieved from https://www.worldbank.org/en/topic/socialprotectionandjobs/publication/migration-and-development-brief-33. Accessed: August 8, 2021

World Bank (2021). *Migration and Development Brief 34. Resilience: COVID-19 Crisis Through a Migration Lens, October 2020*. World Bank, Washington, DC.

World Bank Group (2018). Migration and Remittances, April 2018: Recent Developments and Outlook. Migration and development brief,no. 29;; Migration and Development Brief;No. 29. World Bank, Washington, DC. © World Bank. https://openknowledge. worldbank.org/handle/ 10986/ 30280 License: CC BY 3.0 IGO.

World Bank. (2006). *The World Bank Annual Report 2006*. The World Bank.

World Bank. 2020. Ghana Poverty Assessment. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/ handle/ 10986/34804 License: CC BY 3.0 IGO.

World Economic Forum (2020). *These countries are the world's top remittance recipients*. Retrieved from https://www.weforum.org/agenda/2021/05/ infographic-what-are-the-world-s-top-remittance-recipients/.Accessed: August 6, 2021.

World Economic Forum. (2020). The Future of Jobs Report 2020. Geneva: World Economic Forum.

Yang, J., & Mukhopadhaya, P. (2017). Disparities in the level of poverty in China: Evidence from China family panel studies 2010. *Social Indicators Research*, *132*(1), 411-450.

Yeboah C. N. (2021). Remittances to Ghana shoots up to $3.6bn in 2020. Retrieved from https://www.myjoyonline.com/remittances-to-ghana-shoots-up-to-3-6bn-in-2020/. Access: August 8, 2021

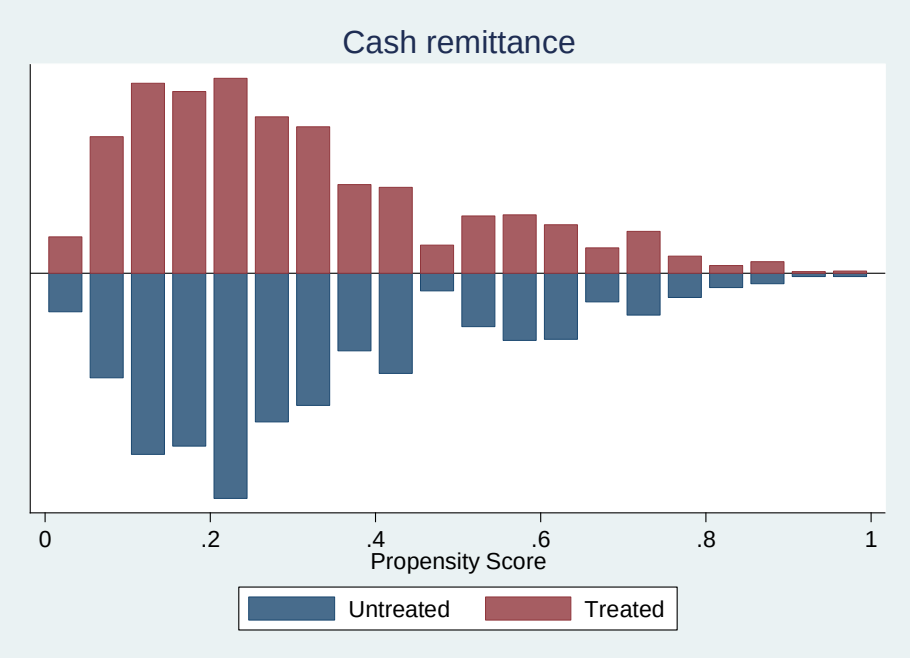
Zhang, Xiaoyan, (2019). "Child Poverty Has Been Declining in Single-Mother Families, but the Gap Remains Large". *Lerner Center for Public Health Promotion: Population Health Research Brief Series*. 76. https://surface.syr.edu/lerner/76

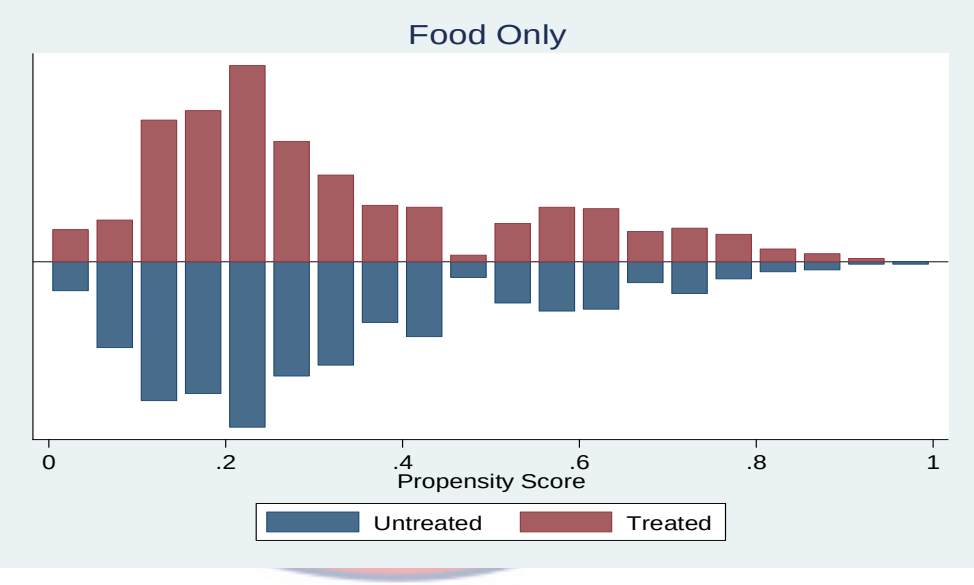
Zhunio, M. C., Vishwasrao, S., & Chiang, E. P. (2012). The influence of remittances on education and health outcomes: a cross country study. *Applied Economics*, *44*(35), 4605-4616.

Zizzamia, R., Schotte, S., & Leibbrandt, M. (2019). Snakes and Ladders and Loaded Dice: Poverty dynamics and inequality in South Africa between 2008-2017

APPENDICES

APPENDIX A: Propensity Score Matching





APPENDIX B: Balancing Information for Propensity Scores

VARIABLES	First Stage	First Stage
Food remittance		
Cash remittance		
Gender of child(Base=Female)	-0.00136	-0.022
	(0.0344)	(0.0542)
Gender of HH_Head(Base=Female)	-0.755***	-1.915***
	(0.0802)	(0.101)
Primary Education	0.116***	0.420***
	(0.0378)	(0.0685)
Secondary Education	0.250***	0.440***
	(0.0861)	(0.134)
logincome	0.0283***	0.0725***
	(0.00999)	(0.0189)
Poverty Status (Non_poor)	-0.0116	-0.263***
	(0.0362)	(0.0618)
HHsize	-0.0112**	0.00449
	(0.00454)	(0.00844)
Married	-0.0626	0.529*
	(0.178)	(0.298)
Divorced	-0.273***	-0.735***
	(0.0924)	(0.136)
Widowed	-0.0565	-0.686***
	(0.099)	(0.137)
age_of_household_head	-0.00106	0.0151***
	(0.00261)	(0.00322)
agecentersq	0.000518***	0.00104***
	(9.11E-05)	(0.00012)
Middle	0.0124	0.0127
	(0.051)	(0.0813)
North	0.077	0.317***
	(0.0535)	(0.0888)
bank_account	-0.00572	0.294***
	(0.0397)	(0.0614)
Constant	0.697***	0.968***
	(0.186)	(0.238)
Observations	19,051	19,051
R-squared	0.05	0.104

		Food	Cash
Mean Absolute Bias	Unmatched	11.6	5.4
	Matched	6.6	3.3
Pseudo R^2	Matched	0.085	0.019
P-value	Matched	0.000	0.000
Rubins B	Matched	24.3	23.4
Rubin R	Matched	1.09	1.19

APPENDIX C: First Stage Results for Two Stage Least Square

VARIABLES	health	Total cash	athrho	lnsigma	education	Total cash	athrho	lnsigma	Living condition	Total cash	athrho	lnsigma
Total Cash remittance	-0.150***				-0.0360***				-0.0644***			
	(0.0238)				(0.00466)				(0.0102)			
Gender of Child *(Base=Male)*												
male	0.126***	-0.0156			0.0409	-0.0257			0.0725	-0.0249		
	(0.0251)	(0.0543)			(0.0262)	(0.0542)			(0.0608)	(0.0542)		
HH Head Gender *(Base=Female)*												
Male	-0.149**	-1.902***			-0.378***	-1.912***			0.0129	-1.915***		
	(0.0647)	(0.100)			(0.0407)	(0.101)			(0.0935)	(0.101)		
Head Educational attainment *(Base=No Education)*												
Primary	-0.0858**	0.405***			-0.378***	0.399***			-0.387***	0.410***		
	(0.0350)	(0.0685)			(0.0333)	(0.0685)			(0.0764)	(0.0684)		
Secondary Educ.	-0.333***	0.377***			-0.894***	0.395***			-1.177***	0.423***		
	(0.0659)	(0.135)			(0.0775)	(0.134)			(0.0912)	(0.134)		
logincome	-0.0260***	0.0640***			-0.107***	0.0669***			-0.0819***	0.0680***		
	(0.00930)	(0.0190)			(0.00908)	(0.0189)			(0.0275)	(0.0189)		
Poverty Status(Base= Poor	0.0761**	-0.240***			0.408***	-0.256***			0.624***	-0.264***		
	(0.0311)	(0.0618)			(0.0314)	(0.0617)			(0.117)	(0.0617)		
HH Size	0.0145***	0.00591			-9.64e-06	0.00371			-0.0293***	0.00455		
	(0.00389)	(0.00847)			(0.00413)	(0.00844)			(0.0105)	(0.00844)		

Marital Status*(Base=Never Married)*												
Married	0.0448	-0.540*			-0.376***	-0.607**			-0.638***	-0.579*		
	(0.101)	(0.302)			(0.0937)	(0.300)			(0.179)	(0.299)		
Separated	-0.0145	-1.276***			-0.0192	-1.342***			-0.800***	-1.314***		
	(0.114)	(0.316)			(0.103)	(0.314)			(0.192)	(0.313)		
Widow	-0.0194	-1.215***			-0.289***	-1.289***			-0.428**	-1.263***		
	(0.115)	(0.315)			(0.103)	(0.313)			(0.198)	(0.312)		
Age of HH Head	-0.00941***	0.0146***			-0.00279*	0.0152***			-0.00986***	0.0150***		
	(0.00164)	(0.00323)			(0.00156)	(0.00322)			(0.00322)	(0.00322)		
AgeSquare	0.000449***	0.00107***			0.000112**	0.00103***			-0.000267**	0.00104***		
	(5.26e-05)	(0.000118)			(5.27e-05)	(0.000118)			(0.000108)	(0.000118)		
Ecological Zone*(Base=Coastal)*												
Middle	-0.256***	0.0142			-0.0169	-0.00107			0.258***	0.00660		
	(0.0368)	(0.0815)			(0.0408)	(0.0814)			(0.0743)	(0.0813)		
2.zones	-0.413***	0.324***			0.397***	0.304***			0.688***	0.310***		
	(0.0454)	(0.0887)			(0.0423)	(0.0888)			(0.0971)	(0.0888)		
bank_account		0.428***				0.364***				0.321***		
		(0.0629)				(0.0610)				(0.0611)		
Constant	0.716***	1.465***	0.439***	1.012***	1.156***	1.609***	0.127	1.012***	4.200***	1.590***	0.205	1.012***
	(0.127)	(0.322)	(0.0791)	(0.00612)	(0.124)	(0.321)	(0)	(0.00605)	(0.302)	(0.320)	(0)	(0.00605)
Observations	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051

APPENDIX D: Full Model of Dimensions Sensitive to Remittance

VARIABLES	health	Total food	athrho	lnsigma	education	Total food	athrho	lnsigma	Living condition	Total food	athrho	lnsigma
Total Food remittance	-0.0154**				-0.0257***				-0.0144			
	(0.00773)				(0.00768)				(0.0182)			
Gender of Child *(Base=Male)*												
male	0.137***	-0.00224			0.0404	-0.00209			0.0747	-0.00194		
	(0.0255)	(0.0344)			(0.0262)	(0.0344)			(0.0618)	(0.0344)		
HH Head Gender *(Base=Female)*												
Male	0.126***	-0.752***			-0.348***	-0.752***			0.110	-0.750***		
	(0.0401)	(0.0802)			(0.0400)	(0.0802)			(0.0953)	(0.0802)		
Head Educational attainment *(Base=No Education)*												
Primary	-0.165***	0.114***			-0.396***	0.114***			-0.409***	0.118***		
	(0.0322)	(0.0378)			(0.0331)	(0.0378)			(0.0778)	(0.0378)		
Secondary Educ.	-0.450***	0.246***			-0.921***	0.246***			-1.220***	0.253***		
	(0.0612)	(0.0860)			(0.0779)	(0.0860)			(0.0925)	(0.0860)		
logincome	-0.0405***	0.0248**			-0.109***	0.0241**			-0.0865***	0.0231**		
	(0.00887)	(0.00999)			(0.00911)	(0.00999)			(0.0280)	(0.00999)		
Poverty Status(Base= Poor	0.131***	-0.0138			0.421***	-0.0134			0.660***	-0.0154		

	(0.0305)	(0.0362)			(0.0314)	(0.0362)			(0.119)	(0.0362)		
HH Size	0.0141***	-0.0114**			-0.000914	-0.0114**			-0.0305***	-0.0115**		
	(0.00396)	(0.00453)			(0.00418)	(0.00453)			(0.0106)	(0.00453)		
Marital Status*(Base=Never Married)*												
Married	0.0886	0.0224			-0.385***	0.0151			-0.675***	0.00454		
	(0.0925)	(0.178)			(0.0927)	(0.178)			(0.200)	(0.178)		
Separated	0.128	-0.251			-0.0217	-0.259			-0.811***	-0.269		
	(0.101)	(0.166)			(0.102)	(0.166)			(0.213)	(0.166)		
Widow	0.119	-0.0357			-0.291***	-0.0442			-0.429**	-0.0558		
	(0.102)	(0.170)			(0.102)	(0.170)			(0.217)	(0.170)		
Age of HH Head	-0.0122***	-0.000617			-0.00314**	-0.000416			-0.0105***	-8.11e-05		
	(0.00151)	(0.00260)			(0.00156)	(0.00260)			(0.00326)	(0.00260)		
AgeSquare	0.000315***	0.000505***			8.34e-05	0.000500***			-0.000338***	0.000491***		
	(5.02e-05)	(9.09e-05)			(5.27e-05)	(9.08e-05)			(0.000108)	(9.08e-05)		
Ecological Zone*(Base=Coastal)*												
Middle	-0.277***	0.00969			-0.0250	0.00978			0.267***	0.0104		
	(0.0376)	(0.0510)			(0.0407)	(0.0510)			(0.0763)	(0.0510)		
North	-0.486***	0.0738			0.387***	0.0746			0.689***	0.0755		
	(0.0403)	(0.0535)			(0.0423)	(0.0535)			(0.0986)	(0.0535)		
bank_account		0.000418				0.00474				-0.00379		
		(0.0397)				(0.0398)				(0.0397)		
continextfood1	-0.0154**				-0.0257***				-0.0144			
	(0.00773)				(0.00768)				(0.0182)			
Constant	0.525***	0.690***	0.0252	0.502***	1.152***	0.692***	0.0261	0.502***	4.189***	0.697***	0.00619	0.502***
	(0.123)	(0.204)	(0)	(0.0148)	(0.124)	(0.204)	(0)	(0.0148)	(0.318)	(0.204)	(0)	(0.0148)
Observations	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051	19,051