An Empirical Assessment of Old Age Support in sub-Saharan Africa: Evidence from Ghana

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AERC Research Paper 274
African Economic Research Consortium, Nairobi
June 2014
This Research Study was supported by a grant from the African Economic Research Consortium. The findings, opinions recommendations are those of the authors, however, and do not necessarily reflect the views of the Consortium, its individual members or the AERC Secretariat.

Published by: African Economic Research Consortium
P.O. Box 62882 – 00200
Nairobi, Kenya

Printed by: Signal Press (K) Ltd
Nairobi, Kenya


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Abstract

Empirical evidence in Africa has shown that old age poverty has been increasing, but there is a dearth of studies on the analysis of incidence of old age poverty and of the economic importance of old age support. In Africa, the absence of a broad-based pension system forces most elderly people to rely on support from their children. This study fills this gap by analysing the economic importance of net financial transfers, co-residency and elderly labour supply as major sources of old age support in Ghana. In doing this, we adopted the Cox (1987) theoretical framework containing altruistic and exchange motives for old age support using the Ghana Living Standards Survey 4 (GLSS) of 1998/1999. The study explains the economic importance of old age support based on reduced-form models. The determinants and importance of money and time transfers, net financial transfer and living arrangement of parents were analysed using the Maximum Likelihood Estimation technique. The determinants of elderly labour supply were also analysed using the Ordinary Least Square method. The empirical results showed that various forms of private transfers are important old age support mechanisms. Also, elderly labour supply is related to the characteristics of children, but with mixed effects. This suggests that the labour supply decision may be related to the overall household resources. The basic explanation that can be provided for this finding is that financial transfers are too unpredictable to be relied upon and too small to effect any change in elderly labour supply. Thus, we call for public provision of old age support in form of a pension scheme that is more reliable and predictable to complement the existing informal old age support. This is, therefore, an important issue for policy-makers in Ghana.
1. Introduction

Currently, populations are ageing much faster in developing countries than in developed countries. Old age is not a chronological definition, but the changing roles accompanying physical change and reduced capacity to contribute or maintain a livelihood (Heslop and Gorman, 2002). As the number of old people grows, systems of financial support for the old are in trouble worldwide. Both extended families and village support networks tend to break down under the pressures of urbanization, industrialization and increased mobility (World Bank, 1994). In the absence of policies, infrastructure, services and information, more people in developing countries are ageing in poverty.

There are three key features of chronic poverty in old age: it is strongly associated with reduced capacity to work; it is a condition from which few, if any, can be expected to escape; and it is both caused by and perpetuates chronic inter-generational poverty. Opportunities to use physical strength, often the most critical asset of poor people, are reduced in old age (Heslop and Gorman, 2002). The experience of developed countries, in the context of poverty among the elderly, is unlikely to be of much benefit to sub-Saharan African countries, because the policy context is different (Olayiwola, 2002). Unlike in developed countries, formal social security systems are virtually non-existent in sub-Saharan Africa, where family and informal arrangements provide the backbone of social insurance (Olayiwola, 2002). Moreover, private transfers play an important role in providing for the security of the elderly. Though the World Bank (2001) suggests positive effects of private transfers in enhancing social security, little is known about their importance and the motives behind such transfers. Cox and Fafchamps (2006) defined private transfers as monetary gifts and the money value of in-kind transfers given and received by households, and excluding inter-household loans.

Community-based informal arrangements, especially family, play an important role in providing for the security of the elderly. Empirical evidence supports the need for various arrangements of old age support as a means of alleviating old age poverty (see Okojie 2002; Engelhardt and Gruber, 2004). Specifically mentioned among these arrangements are private transfers, coresidency and elderly labour supply. Although the World Bank (2001) suggests the positive effects of these arrangements in enhancing social security, little is known about the link between them. Moreover, there is the need to contribute to social security discussion in sub-Saharan Africa by analysing how countries with limited resources can harness other social resources to better look after the security of the elderly. Therefore, we need to understand the relationship between these arrangements—that is, the extent to which they are complements or substitutes.
The basic challenge therefore is how to reform these forms of old age support within the “partnership based approach” (Schulz et al., 1998). Also, the effectiveness of these informal arrangements would be affected by the decision made by the elderly (Cameron and Cobb-Clark, 2001). In this paper, we examined the quantitative importance of private transfers, coresidency and elderly labour supply in Ghana to find out: the factors that determine private transfer behaviour in Ghana; what drives the labour supply decisions of the elderly in Ghana; the extent to which elderly parents use financial transfer from children to improve their welfare measured by their labour supply; and, finally, whether financial transfers are targeted in the sense of being responsive to the needs of parents and the ability of children to give.

Ghana, a low-income country in West Africa with a widely-used and comprehensive Living Standard Survey, offers an interesting setting for examining the effectiveness of these arrangements of old age support. This is because formal transfers are limited, and informal arrangements are believed to be important. More than 85% of the population live in the rural areas, and virtually all the rural population depend on rainfed agriculture as the basis for their livelihoods. Presumably, rainfall variability in conjunction with a very low income level creates a pressing need for insurance, which is met through informal arrangements. Private transfers, coresidency and labour supply are believed to be central elements of these social arrangements, and involve children, relatives and friends. They also encompass what may be viewed as exchange, altruistic and insurance motivated transfers. Furthermore, social norms prescribe the provision of support to the elderly and to the less fortunate kinship members, which in practice leads to altruistic transfers. Moreover, the living arrangements of the elderly indicate that 56% of them are household heads, and 88.3% live with children, grandchildren or other relatives. Moreover, about 76% of households reported having transferred money or goods, while 67% of them received transfers. Most of the transfers occur between parents and children. In particular, 50% were given to parents or children, 18% to brothers or sisters, and 23% to other relatives (GLSS 4, 1998/1999).

This paper contributes to the literature on private transfer in two ways. The first contribution lies in the focus on Ghana, where the issue of private transfer has received little attention. The paper adds a microeconomic dimension to the discussion of social determinants and importance of private transfers of La Ferrera (2007) in Ghana. The second contribution is the attempt to measure money and time transfers as quantitatively important forms of old age support for the elderly in Ghana. While these issues have been addressed separately in different countries, they must be addressed using a unique dataset that can throw more light on the economic importance of private transfers.

To address all these issues, we adopted the Cox (1987) theoretical framework containing both altruistic and exchange motives of old age support. Within the framework, the importance of old age supports is determined in two stages: the decision to give support, and given that the support occurs, the amount of the support. This finding implies that information on support decisions alone is insufficient to make inferences about their importance. We, therefore, developed a reduced form empirical model from the framework to investigate the private transfer behaviour among households and address the determinants of net financial transfers and living arrangement of parents. Also, we adopted the Ordinary Least Square method to estimate the determinants of
elderly labour supply according to gender in Ghana. Moreover, the availability of data from the Ghana Living Standard, Survey 4 (GLSS 4) made estimating empirical models possible. The analysis provides some insights into the motives for and assessment of private transfers, coresidency and elderly labour supply as old age support mechanisms in sub-Saharan Africa.

The findings show that private transfers measured by money transfer, net financial transfer and time transfer are quantitatively important forms of old age support for elderly people in Ghana. However, there appears to be a mixed result because coresidency is a result of a household structure or an explicit form of support. Also, parents receive from their children more than what children get from parents. Parents who have sufficient resources and altruism invest in their children’s human capital. Moreover, ample evidence exists supporting the old age security motive of transfer. The age of the parent has a significant effect on the amount of money received and whether money is provided by children. Also, private transfers are targeted at parents who are ill. The analysis of time transfers provided by children to parents indicated that children provide old age security for their parents because the probability of receiving time transfer rises with the age of the parents and their health status. Also, the elderly reduce their hours of work as the financial transfers become more generous, but this effect is relatively small.

The elderly labour supply is also related to the characteristics of their children, but with mixed effects. This suggests that the elderly labour supply decision may be related to the overall household resources. The basic explanation for this finding is that financial transfers are unpredictable and too small to effect any change in elderly labour supply. Thus, we call on the government to provide old age support in form of a pension scheme that is more reliable and predictable to complement the existing informal support. This is, therefore, an important issue for policy makers in developing countries, and especially in Ghana.

1.1: Objectives of the study

The basic objective of the study was to investigate the economic importance of various forms of old age support in sub-Saharan Africa. The specific objectives were to:

- Investigate private transfer behaviour in Ghana.
- Analyse the economic importance of net financial transfers, coresidency and elderly labour supply in Ghana.
- Examine the relationship between net financial transfers and the elderly labour supply as major sources of old age support in Ghana.
2. Background

2.1: Introduction

The United Nations (UN) defines older persons as those aged 60 and above. In many African settings, the UN definition is inappropriate. In Africa, formal retirement age ranges between 55 and 65 years, and about 10% of the working age population is employed in the formal sector. Moreover, in rural situations where birth registration is poor and even unknown, physical features are commonly used to estimate a person’s age.

The world population aged 60 and above is increasing rapidly, from 350 million in 1975 to 600 million in 1999. It is projected to increase to 1.2 billion by 2025. The older population of Africa, estimated to be slightly over 38 million, is projected to reach 212 million by 2050.

Another peculiar and important characteristic of the elderly is their living arrangement. As shown in Figure 1, more than 80% of the elderly in Africa live with their children or other relatives. This is higher than in Europe, where 30% live with children and other relatives. This increase in the number of older people, along with the living arrangement, provides a challenge for the continent of Africa as a whole, as well as for individual African countries.

Figure 1: Living arrangements of older persons by major area

2.2: Characteristics of the elderly in Ghana

The demographic profile of Ghana reveals that people aged 60 and above constitute about 7% of the population, and as a result of future fertility and decline in mortality, this proportion will rise to 15% by 2050 (United Nations, 2000). Also, there are more women than men among the elderly. In 2000, the number of female elderly was 418,356, compared to men who were 412,548. As revealed in Table 1, four out of every five older persons in Ghana have no formal education. This partly explains why more than 80% of them are engaged in agriculture or in the informal sector, and despite advancing age, they continue to work to support their families until they are physically unable to do so. In addition, they support their families by caring for children and managing the home. As documented in GLSS 4, 77.7% of the elderly are classified as economically active.

Additionally, the overall dependency ratio\(^1\) is projected to remain at 11.1% in 2050 and the aged dependency ratio\(^2\) will increase from 17% in 2000 to 33.2% in 2050. During the same period, the extreme aged dependency ratio\(^3\) will increase from 4.7% to 11.4%, and family support ratio\(^4\) will increase from 57.4% to 96.4%. As expected, older people are most vulnerable to illness and injury. More than a third of those aged 50 and over (37%) suffer from illness and injury. About 61% of them have stopped their usual activities due to the indisposition. These findings suggest that an overwhelming majority of the rural aged will need assistance, and support the proposition that ageing is “predominantly a rural phenomenon, and it is thus in the village that the consequences of ageing are likely to be felt” (Stloukal, 2001:19).

<table>
<thead>
<tr>
<th>Table 1: Percentage distribution of elderly by characteristics in Ghana, 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Characteristics</strong></td>
</tr>
<tr>
<td>Age Group</td>
</tr>
<tr>
<td>60 - 64</td>
</tr>
<tr>
<td>65 - 69</td>
</tr>
<tr>
<td>70 - 74</td>
</tr>
<tr>
<td>75 - 79</td>
</tr>
<tr>
<td>80+</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Continued next page
Also, 56% of the elderly are household heads. In the Ghanaian traditional system of reciprocal rights and obligations, it is the overriding responsibility of the household head to provide for all members of the household. In exchange, he is expected to be able to call on the labour of all individual members of the household in farming. Moreover, the living arrangement of the elderly indicates that large family size predominates. Figure 1 indicates that 82% of the elderly in Africa live with children, grandchildren or other relatives; this confirms the situation in Ghana too. As shown in Table 1, 88.3% of the elderly either live with their children or other relatives. Also, due to the impact of urbanisation and migration, older people are increasingly living alone or living with grandchildren.

### 2.3: Old age support mechanisms in Ghana

Older people in Ghana are supported in two major ways: private arrangements through family and private individuals, and public arrangements administered and financed by the government. In the context of the private arrangement, reciprocal support between the generations at family and community level plays a predominant role. As documented in Table 2, about 76% of households reported they had transferred money or goods, while 67% of them had received transfers. Most of the transfers occurred between parents and children. In particular, 50% were given to parents or children, 18% to brothers or sisters, and 23% to other relatives. Nearly all these transfers (96%) would not be repaid by the recipients. Regarding the frequency of transfers, 44% of all transfers received were made regularly, while 53% were made on an irregular basis. The total estimated value of transfers received was 792 billion cedis.
Table 2: Mean annual household expenditure on, and receipt from transfers and estimated total transfers by locality

<table>
<thead>
<tr>
<th>Locality</th>
<th>Annual expenditure on transfers</th>
<th>Annual receipt from transfers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HH who remitted (cedis)</td>
<td>By all HH (cedis)</td>
<td>Total expenditure (billion cedis)</td>
</tr>
<tr>
<td>Urban</td>
<td>325,000</td>
<td>138,000</td>
<td>205</td>
</tr>
<tr>
<td>Accra</td>
<td>400,000</td>
<td>184,000</td>
<td>77</td>
</tr>
<tr>
<td>Other urban</td>
<td>292,000</td>
<td>119,000</td>
<td>128</td>
</tr>
<tr>
<td>Rural</td>
<td>240,000</td>
<td>104,000</td>
<td>268</td>
</tr>
<tr>
<td>Rural Coastal</td>
<td>240,000</td>
<td>96,000</td>
<td>59</td>
</tr>
<tr>
<td>Rural forest</td>
<td>260,000</td>
<td>138,000</td>
<td>182</td>
</tr>
<tr>
<td>Rural savannah</td>
<td>157,000</td>
<td>410,000</td>
<td>27</td>
</tr>
<tr>
<td>Ghana</td>
<td>271,000</td>
<td>116,000</td>
<td>473</td>
</tr>
</tbody>
</table>

HH - Household Head
Source: GLSS 4.

As shown in Table 2, households that reported making transfers spent about 271,000 cedis annually, while those who received transfers received almost twice as much as in the form of income transfers. Transfers from urban households were higher than those from rural households. Overall, households in Ghana spent an average of 116,000 cedis a year on transfers, and in turn received 195,000 cedis in transfers. In terms of regularity of transfers, GLSS 4 revealed that 58.5% of households that received transfers claimed that they did not receive them regularly, and 17.3% of them received transfers annually. A total of 14% of the total sample received transfers quarterly. The high incidence of irregularity of transfers clearly indicates the widespread view that transfers are used to cope with unexpected situations.

The Government of Ghana arranges finance for old age support in form of social security. This is currently limited to the formal sector, and covers an estimated 12% of the population. It is operated under the Social Security Law of 1991 and is compulsory for all businesses and employer-employee relationships, which are registered under the company code. However, households reported receiving an average of 63,000 cedis a year and an annual income of about 256 billion cedis from social security payments, state pensions, retirement benefits or other government sources.
3. Review of theoretical and empirical issues

According to Lipton and Ravallion (1995), poverty analysis has three main tasks. First, is to define and describe poverty. Second, is to understand the causes of poverty, and the third is to inform policy on poverty alleviation. In Africa, several studies have defined and described old age poverty (Aigbokhan, 2000). Aigbokhan (2000) found that the age of the household head influences household welfare. According to the author, welfare rises with age as more human capital (education and working experience) is accumulated. He concluded that poverty tends to be more pronounced among the elderly. This is because earned income tends to fall after retirement, and in the absence of old age support, household income in the elderly headed family tends to fall. This is the reason why it is hypothesised that there is a negative correlation between income and the quadratic of age. But, while such characteristics may be a useful guide to policy, the poor themselves may have underlying determinants, which would need to be understood.

Olaniyan (2000) found the importance of the life cycle effect of the household head. He demonstrated increases in levels of poverty as the population moved up the age ladder. The study also found that the age of the household head influences household welfare and income. Welfare increases with age as individuals acquire more human capital. However, income falls at older age with retirement and declining productivity. A negative relationship is, therefore, hypothesised between income and the square of age. The critical gap in all these studies is that they did not focus on in-depth examination of the poverty incidence among the old age group. While these studies found that income is the most important contributor to the probability of being non-poor, the composition of this income was not adequately explored.

Old age poverty is differentiated from other groups of poor people in developing countries for two reasons. First, old age is the late part of the human life span which creates a framework of physical and mental capabilities that are or become more restricted than that of younger, generally fitter age groups. A HelpAge International study in rural Tanzania found that on-farm working hours fell by nearly half between the ages of 60 and 90. The World Bank (1994) also points out that few old people can fully support themselves through their current earnings. They obtain claims on output through other ways, such as informal group action like family transfer, savings and investment, and through such collective actions as public social security programmes. Barrientos (1998), however, found that reliance on sources of support other than their own labour renders older people and their households more vulnerable to unfavourable economic conditions, and increases the risk of long-term poverty.
The second distinguishing feature is the way in which old age poverty is the outcome of socio-economic change acting to undermine those social processes that protected status and material well-being in old age. All these issues are important in the analysis of old age poverty.

Despite a growing interest in the welfare of the elderly in developing countries and an established literature on retirement in developed countries, remarkably little has been written on the labour supply of the elderly in the developing world. The only study of elderly labour supply in a developing country of which we are aware is that of Cain (1991), which provides a descriptive account of the daily activities of a small sample of elderly individuals in rural Bangladesh. Adlakha and Rudolph (1994) provide some descriptive statistics of average hours worked by the Indonesian elderly, which show that two-thirds of older men and one-third of older women remain economically active. Cameron and Cobb-Clark (2005) show that in Indonesia, financial transfers from children do not replace the income provided by elderly parents’ own labour supply. In essence, familial transfer is not a significant determinant of elderly labour supply. In contrast, they found that support offered by coresidency is important as it allows the elderly parents to increase their leisure time. However, other forms of support, like coresidency and transfers, have been adequately explored in the literature.

In the second half of the nineteenth century, Le Play (1884) proposed that economic development was contributing to a decline in inter-generational coresidency. He argued that, traditionally, generations are bound together by property. With commercial and industrial growth in the nineteenth century, fewer families had property to hand down. As a consequence, more of the elderly began to reside separately from their children. Inter-generational coresidence was also undermined by growing wage labour opportunities, which provided incentives for the younger generation to leave the farms and move to urban areas (Burgess, 1960). DaVanzo and Chan (1994) found that coresidency responds to economic variables such as the parent’s income and housing prices. Cameron (2000) and Martin (1989) found only very small effects of economic variables on coresidency. Frankenburg et al. (1999), using panel data, also found that economic factors did not play a significant role in the transition to coresidency in Indonesia. Ruggles and Heggeness (2008) found that increasing inter-generational coresidence is strongly associated with housing shortages. Their study also showed that there is a significant positive relationship between inter-generational coresidence and the proportion of the population living in an urban area, despite the greater importance of agricultural inheritance in rural areas.

Most literature on coresidency assumes that inter-generational coresidence is common in traditional agricultural societies and diminishes with industrialization, migration and economic expansion (Aykan and Wolf, 2000; Bongaarts and Zimmer, 2002). Mason (1992) believed that in the patrilineal joint-family and stem-family systems, wealth, property and power are concentrated in the hands of the older generation. In such families, the younger generation depends on the older one, relying on elders for housing, employment, and the prospect of eventual inheritance. Much of the literature on living arrangements of the elderly, however, is motivated by concern about maintaining old age support as populations age and the household structure simplifies (Hermalin, 2002). Schroder-Butterfill (2004) shows that elderly coresident parents typically depend on their children for both economic support and care.
Schoeni (1997) shows that coresidency is motivated by the implications of demographic change for old age dependency ratio. The implications of demographic change are not confined to dependency ratio alone, but also have a direct effect on the availability of kin for inter-generational coresidence.

But, in the analysis of the causes of old age poverty, the broader aspects of poverty such as vulnerability, physical weakness, physical and social isolation, powerlessness, insecurity and low self-esteem, have emerged from explanations of poverty as defined by poor communities and individuals themselves. According to Bobb (1999), the strength of this approach for the study of chronic poverty is not in counting but rather in understanding hidden dimensions of poverty and analysing causality and processes by which people fall into and out of poverty. Lloyd-Sherlock (2000) concluded, in the absence of appropriate data sets, that it is not possible to generalize about the extent of poverty among older people compared to other age groups.

However, a reduced capacity for income generation and a growing risk of serious illness are likely to increase the vulnerability of elders to fall into poverty, regardless of their original economic status. Low levels of support were attributed to endemic poverty within the family. Despite the lack of capacity of poorer households to provide long-term support for older parents, the evidence demonstrates that the family is the main source of support for poor older people. Kato (1988) highlighted the risk associated with family support. He found that in Cambodia, the absence of adult children affects the nature of family support. Gist and Velkoff (1997) showed that older people, without adult children and widowed, are more vulnerable to chronic poverty.

On the third task of informing policy on poverty alleviation, some studies have shown that because of the problems associated with family support, social pension has been found to provide a measure of income security. Le Roux (1995) found that in South Africa, the universal means tested social pension provides a measure of income security. Also, pension income plays a major role in supporting poorer households and communities. Evidence also suggests that the demand upon the sole source of household income can threaten rather than guarantee the security of older people. Moreover, the impact of the pension on older people’s welfare is weakened by the absence of complementary structures and policies that could provide access to health services, and financial and marketing opportunities.

The literature on inter-generational transfer behaviour in developing countries is much more developed. The main focus is on differentiating between various theories of transfer behaviour and examining whether public pensions crowd out private transfers. Cox and Fafchamps (2006) examined the logic of private transfers, and summarized its importance into three main reasons: to seek parsimony, to seek the counter-intuitive and to seek the falsifiable. Several hypotheses have been advanced concerning the motivation for transfers, and given the motivation, the observable relationships one might expect to see between variables characterizing family members who give and receive transfers. Within the old age security theory, individuals are hypothesised to rely on transfers from their children for old age security. Children provide security in several forms, including monetary transfers, help with housework, and care if the parent is frail or ill (Willis, 1980).

In the Becker and Tomes (1976) parental repayment theory, children’s earning
capacity as adults depends on the amount of investment they received during childhood in the form of parental time and expenditure devoted to their health and education. The theory of risk and insurance by Kotlikoff and Spivak (1981) shows that intra-family transfers help smooth consumption across uncertain states of the world by offering family members implicit insurance. The altruism theory (Becker 1974, 1993) advanced the hypothesis that family members have altruistic feelings toward one another as a key ingredient in explaining many aspects of family behaviour.

Cox (19871), in the theory of exchange motive for transfers, argues that if parental transfers to children represent implicit payment for services children provide to parents, and these services are demanded inelastically, parents would tend to transfer more to their relatively high-income children. The bargaining power theory of Thomas (1990) also examined how the composition of household consumption is influenced by the spouse’s control of resources. The basic idea is that the spouse with more bargaining power will command a larger share of household consumption. The attempts to empirically differentiate between these theories have been met with limited success. Lillard and Willis (1997) found strong evidence of the parental repayment hypothesis in the Malaysian data, but weak evidence of all of the other motives. Hoddinott (1992) found evidence that transfers are consistent with the exchange motive in China and Kenya.

This study, although shedding some light on this debate, does not aim to differentiate between possible motives for inter-generational transfers. Instead, the aim is to contribute to our understanding of support that is available to the elderly in Africa by analysing private transfer, coresidency and labour supply. Furthermore, previous researchers have treated labour supply and coresidency decisions of the elderly parent as exogenous to the transfers’ decision. This realistic scenario is one in which transfers are a function of the labour market earnings and living arrangements of the recipient. The level of transfers, in turn, affect these two decisions.

On the third task of informing policy on alleviating old age poverty, Cox and Fafchamps (2006) studied private inter-household transfers in 11 developing countries for which the Living Standards Measurement Surveys (LSMS) were available. They defined private transfers as monetary gifts and the money value of in-kind transfers given and received by households; inter-household loans were excluded. In this study, four countries had involvement rates of 40%, and eight countries had a range between 30% and 50%. It was found that private transfers acted like means-tested public transfers.

Cox (2002), using Vietnam Living Standards Surveys (VLSS), describes patterns of money transfers between households. He found that private transfers appear to function like means-tested public transfers, flowing from better-off to worse-off households and providing old age support in retirement. However, changes in private transfers appear responsive to changes in household pre-transfer income, demographic changes and life course events. Engelhardt and Gruber (2004) also assessed the role of the social security programme in reducing elderly poverty. Using an instrumental variable approach with population surveys, the authors found that in all elderly families, the elasticity of poverty to benefits is roughly unitary. This suggests that reductions in social security benefits would significantly alter the poverty of the elderly.
Studies in Columbia, Kenya and Peru have found that inter-household transfers are important for the poorest households as they represent nearly half of the household income (World Bank, 2001). Barberia et al. (1998) documented that in Russia and Ukraine, between 21% and 76% of households give or receive income transfers through private networks. Cameron and Cobb-Clark (2001) also used a cooperative bargaining model and the Indonesia Family Life Survey (IFLS) to show that men continue to work well into old age even if they are living with their adult children. Moreover, little evidence exists that transfers are a substitute for the income support provided by the elderly parents’ own labour supply, and they are associated with a decline in hours of work only for non-residing mothers. Therefore, it can be concluded that transfers are not strongly related to parental need or the ability of the child to give. Grigorian and Melkoyan (2008), in their study of remittances as a means of old age support in Armenia, using an overlapping generations model, found that it is beneficial for relatives to cooperate and maximize the joint utility of the household remittance.

Maitra and Ray (2003) also found corroborating evidence that public pensions in South Africa appear to crowd out private transfers among poor households, whereas the two forms of transfer appear to complement each other for the non-poor. Cox and Fafchamps (2006) also documented the importance of demographic covariates as important determinants of private transfers. For example, Cox, Galasso and Jimenez (2006) found that transfers from young to old exceed those going from old to young in Latin American countries, whereas the opposite is true for Bulgaria and Russia. Private transfers tend to be targeted at female-headed households (for Botswana, see also Lucas and Stark, 1985). The main reason for this is that mothers are expected to behave more altruistically towards children than fathers (see Strauss and Thomas, 1995). Another important demographic variable is education (Cox, 1990).

Moreover, abundant evidence indicates that private transfers appear responsive to adverse shocks experienced by households. Fafchamps and Lund (2003) found, for a sample of Filipino households, that gifts and informal loans were highly responsive to certain shocks to income and expenditure, such as the unemployment of the household head or spouse, or funeral expenses. Knodel (2005) and Knodel and Wassana (2004), in their studies of parents losing their adult children to AIDS in Thailand, showed that though parents paid funeral costs for their child, they also benefited immensely from funeral society membership and customary contributions from those attending. Schoeni and McGarry (2000) also found that coresidency living arrangements respond positively to the loss of income.

Despite the importance of these transfers, there is the need to understand more about how they work and how to see them as complementary to, and not a substitute for, public transfers. Moreover, there has been very little discussion about an appropriate framework for studying old age support in developing countries (World Bank, 2001). What is needed is a conceptual framework rooted in theories of economic and social development, and tools for the evaluation of an effective and sustainable policy intervention.
4. The theoretical framework

Following Cox (1987), we adopted a theoretical framework containing both altruistic and exchange motives for old age support with special emphasis on private transfers. Consider two individuals, a transfer donor (say the parent) and a transfer recipient (the child). The parent cares about the well-being of the child, while the child provides services to the parent.

The parent’s utility function is:

\[ U^p = U^p(c^p, s, V(c^k, s)) \]

where

- \( U^p \) = parent’s level of well-being,
- \( c^p \) = parent consumption,
- \( s \) = services provided by the child to the parent,
- \( V \) = child’s level of well-being, and
- \( c^k \) = child’s consumption.

The sign of each partial derivative is shown beneath each argument in the utility function. The parent is altruistic so that \( \frac{\partial U^p}{\partial V} > 0 \). Both parent and child consumption are assumed to be normal goods. Assume that the child dislikes providing services so that \( \frac{\partial V}{\partial s} = V_s < 0 \).

The budget constraints for this problem are:

\[ c^p \leq E^p - T \]
and

\[ c^k \leq E^k + T \]  \hspace{1cm} (3)

where \( E, i = p, k \) denotes parent and child incomes, and \( T \) denotes transfers from parent to child.

A final constraint must be introduced into the parent’s maximization problem. The change in child utility from entering into the transfer-services relationship with the parent must be non-negative. The child’s “threat point” utility level is:

\[ V_0(E^k, 0) \]  \hspace{1cm} (4)

This is the level of utility associated with providing no services and spending one’s own income. The non-negativity constraint is:

\[ V(c^k, s) \geq V_0(E^k, 0) \]  \hspace{1cm} (5)

Assume that the constraints in Equations 2 and 3 are binding. When these constraints are substituted into Equation 1, the Langrangian for the parent’s maximization problem is:

\[ L = U_p(E^p - T, s; V(E^k + T, s) + \lambda (V(E^k + T, s) - V_0(E^k, 0)) \]  \hspace{1cm} (6)

The parent’s problem consists of choosing \( s \) and \( T \) to maximize Equation 6. The Kuhn-Tucker conditions are:

\[ \frac{\partial L}{\partial T} = -U^c + U^s V^s + \lambda V^c \leq 0, \ T \frac{\partial L}{\partial T} = 0 \]  \hspace{1cm} (7)

\[ \frac{\partial L}{\partial s} = -U^s + U^c V^c + \lambda V^s \leq 0, \ T \frac{\partial L}{\partial s} = 0 \]  \hspace{1cm} (8)

\[ \frac{\partial L}{\partial \lambda} = V(E^k + T, s) - V_0(E^k, 0) \geq \lambda, \ \frac{\partial L}{\partial \lambda} = 0 \]  \hspace{1cm} (9)
In the altruistic regime, in which the constraint in Equation 5 is not binding, the child is more than compensated for providing services: the parent is effectively altruistic. The comparative static properties of the model in the altruistic regime are as follows:

$$\partial T/\partial E^k < 0, \partial s/\partial E^k < 0$$

$$\partial T/\partial E^p > 0, \partial s/\partial E^p > 0, \partial s/\partial E^p = \partial s/\partial E^k$$  \hspace{1cm} (10)

The term of primary interest is the first, \(\partial T/\partial E^k\). It can be rewritten as:

$$\partial T/\partial E^k = -1 + \partial T/\partial E^p$$  \hspace{1cm} (11)

Equation 11 contains two components. First, with family income held constant, an increase in the child’s income implies a reduction in the transfers he receives. Also parental demand for services depends on aggregate family income, not on the distribution of its component.

Moreover, in the exchange regime when Equation 5 is binding, the last transfer from parent to child does not equalize marginal utilities of consumption. The comparative static for this regime can be interpreted by expressing transfers as the product of services and an implicit average price of service (\(p\)).

$$T = ps$$  \hspace{1cm} (12)

In addition, assume that the parent’s utility function is additively separable. The comparative static results are as follows:

$$\partial T/\partial E^k < 0, \partial s/\partial E^k < 0 \partial p/\partial E^k < 0$$

$$\partial T/\partial E^p > 0, \partial s/\partial E^p > 0, \partial p/\partial E^p > 0$$  \hspace{1cm} (13)

The most important results are those related to the child’s income. Unlike the altruism case, transfers need not necessarily decline with increases in the child’s income. An increase in the child’s income causes a decline in the quantity of services transacted, and the sign of the expression

$$\partial T/\partial E^k = \partial s/\partial E^k p + \partial p/\partial E^k s$$  \hspace{1cm} (14)
will determine whether an increase in the child’s income causes a rise or fall in transfers received. This analysis indicates that private transfers are determined in two stages: the decision to make a transfer, and if the transfer occurs, the transfer amount. Moreover, despite the difference in transfer motives, the comparative static results for the transfer decision are the same, whether transfers are motivated by altruistic or exchange considerations. This finding implies that information on transfer decisions alone is insufficient for making inferences about transfer motives.
5. Empirical models

5.1: Model 1

The first model is used to investigate transfer behaviour according to direction: transfer flowing from old to young (downward transfer) and transfers from young to old (reverse transfers) (Lillard and Willis, 1997; Cox et al. 1998). This becomes feasible as the GLSS 4 survey respondents were asked to report the main sources of transfers received and the destination of transfers given. A set of questions was asked about money (A), food and other goods (B) provided to the household. The answers to these questions translated into transfer equations described as follows. From the perspective of parents as respondents, information on transfers included money and time both to and from their eligible children as a group.

1. Any money to children and log amount if positive

A probit function indicates whether there was a positive transfer of money (A or B) to children (MTC):

\[
MTC = 1 \text{ if } \mu_{mtc} X + v_{mtc} > 0 \\
0 \text{ otherwise,}
\]  

(15)

where X is a vector of household covariates including parents’ characteristics \(Z_p\) and children’s characteristics \(Z_c\) that may influence the probability of receiving and giving transfer. Variables to measure these characteristics are documented on Table 3.

The log amount of money (A and B) is given by:

\[
\ln A_{mtc} = \beta_{mtc} X + u_{mtc}
\]  

(16)

2. Any money from children and log amount if positive

A probit function indicates whether there was a positive transfer of money (A or B) from children (MFC),
MFC = 1 if \( \mu_{mfc} X + v_{mfc} > 0 \) \\
0 otherwise,

and if so, the log amount of money (A and B) is given by:

\[
\ln A_{mfc} = \beta_{mfc} X + u_{mfc}
\]

3. Any housework time from children

A probit function indicates whether there was a transfer (TFC),

\[
TFC = 1 \text{ if } \mu_{tfc} X + v_{tfc} > 0 \text{ otherwise}
\]

From Equations 15 to 19, there are no exclusion restrictions to identify selection into positive transfers, so the probit and log amount equations will be estimated separately. This will allow us to find evidence of correlation in the propensities to give and receive, or in the amounts given and received. All stochastic terms are assumed to be distributed normally. The first part of the model is estimated by probit, while the equations on transfer amounts are estimated by maximum likelihood using Heckman’s (1979) generalized Tobit technique.

5.2: Model II

This model is used to analyse decisions regarding net financial transfers between parents and children, living arrangements of parents, and elderly labour supply.

Following Cox et al. (1998) and Cameron and Cobb-Clark (2005), the provision of transfers is likely to be motivated by concerns about parental welfare—which in turn depends on the parents’ ability to work. We may be unable to find an exclusion restriction that would allow us to identify the structural parameters of the transfer equations. Instead, we estimated net financial transfer with the following reduced form equation:

\[
NTR_i = \max(\pi_{0n} + \pi_{in} Z_i^c + \pi_{2n} Z_i^p + \mu_{1i})
\]

Here, NTR is net transfer. Since the GLSS 4 provides information on transfers to children from parents, the NTR is measured by subtracting transfers to children from parents from transfers from children to parents, and thereby using a net measure of transfers in the estimation. We used children’s characteristics to act as a proxy for resources from children because GLSS4 does not differentiate between children
living with parents and those not living with parents. The net transfers is modelled as being a function of the household resources and parents’ characteristics ($Z^p$) and the characteristics of children ($Z^c$).

The coresidency equation is a reduced form derived from the structural equation. When elderly parents choose whether or not to coreside, they compare the utility derived from living alone to that received from living separately. This involves consideration of both transfers from children and own labour supply. Hence, the propensity to coreside ($C^*$) is modelled as a function as follows:

$$C_i^* = \eta_0 + \eta_1 Z^p + \eta_2 Z^c + \eta_3 H_i + \nu_i$$  \hspace{1cm} (21)

$$C_i = 1 \text{ if } C_i^* > 0$$
$$= 0 \text{ if } C_i^* \leq 0$$  \hspace{1cm} (21b)

where $i$ indexes individuals, $Z^p$ is a vector of household resources and parental characteristics, and $Z^c$ is a vector of all children’s characteristics. Also, we controlled for the transaction costs associated with switching between residency states by including $H_i$, which is average rental price.

Following Kochar (2000) and Cameron and Cobb-Clark (2005), the elderly labour supply is assumed to depend on both market and reservation wages in the standard way, and is examined by taking into account parental resources and characteristics as well as children’s characteristics. Elderly people who have children may make household, rather than individual, labour supply decisions and thus, it is important to take the characteristics of children into account. Consequently, the elderly labour supply ($LS^p_i$) is given by:

$$LS_i = \beta_{0n} + \beta_{1r} Z^p_i + \beta_{1r} Z^c_i + \varepsilon_{2i}$$  \hspace{1cm} (22)

where Equation 22 is the labour supply equation of the parents. $Z^p$ is a vector of household resources and parental characteristics associated with market and reservation wages, and the characteristics of children are given by $Z^c$.

Specifically, in estimating Equations 20 to 21, we controlled for the parents’ characteristics, non-labour income, assets levels, health status, and previous work status, and the number of children in each marital status and education category, age and gender. This system of estimating equations is estimated by maximum likelihood using the Heckman (1979) generalized Tobit technique (Cox, 1987; Cox and Fafchamps, 2006; Cameron and Cobb-Clark, 2005), while Equation 22 is estimated using the Ordinary Least Square method. The variables used for the empirical analysis are documented in Appendix 1.
6. Empirical analysis

The first estimation strategy focuses on two basic questions: What is the connection between variables measuring individual characteristics and decision to make transfer?; and what are the determinants of the transfer amounts received? The first question is estimated by probit, while the second one is estimated by maximum likelihood using Heckman’s (1979) generalized Tobit technique.

6.1: Data and descriptive analysis

In GLSS 4, there are five critical questions, among others, that are very important to this study. Information from five critical questions, among others, was used to consider transfers from the perspective of the parent:
(a) Is there anyone else who is not a household member to whom this household has sent money or goods in the past 12 months?
(b) During the past 12 months, has this household received or collected money or goods from any other individual?
(c) If not a household member, what is the relationship to the household head and what is their sex?
(d) What was the total amount of cash, food and other goods sent or given to this individual during the past 12 months?
(e) Other important questions are related to housekeeping activities in the household by the children.

Also, GLSS 4 contains two types of observations. The first unit of observation is the household, defined as a person living alone or any group of persons staying together and sharing the same catering arrangements. The other criterion is that a person must have been living in the household for at least nine out of the last 12 months. The survey contains information for 5,998 households. The second type of observation is that the person and the survey covers 25,855 persons. Though information on transfers was collected on a household basis, a private transfer takes place when money or goods are transferred from one person to another. Therefore, observations in the file are arranged by person unit. The perspective from the parents’ viewpoint considers the total transfers given to or received from all the children. A basic requirement for private transfers between parents and their adult children is that there must be at least one eligible adult child. Table 3 shows that there are 1,895 households with eligible adult children in the sample, and also displays some descriptive statistics on transfers to and from children.
Table 3: Sample sizes and description of transfers

<table>
<thead>
<tr>
<th>Parent perspective: Transfers with all children over age 18</th>
<th>Percentage</th>
<th>Amount (billion cedis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money to children</td>
<td>16.5</td>
<td>63.52</td>
</tr>
<tr>
<td>Money from children</td>
<td>72.3</td>
<td>278.36</td>
</tr>
<tr>
<td>Time transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housework to children</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>Housework from children</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>Childcare to children</td>
<td>42.5</td>
<td></td>
</tr>
<tr>
<td>HH with eligible children</td>
<td>1,895</td>
<td></td>
</tr>
</tbody>
</table>

HH - House Hold
Source: Calculated from GLSS 4.

Parents receive money transfers from children more than they give money to children. The patterns of transfer behaviour show that the direction of monetary transfers is predominantly from the younger to the older generation in Ghana.

Table 4: Description of net transfers

<table>
<thead>
<tr>
<th>Parent perspective: Transfers with all children over age 18</th>
<th>Probability</th>
<th>Amount (cedis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money to children</td>
<td>0.05</td>
<td>16,748</td>
</tr>
<tr>
<td>Money from children</td>
<td>0.18</td>
<td>27,176</td>
</tr>
<tr>
<td>Time transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housework to children</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>Housework from children</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Childcare to children</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>HH with eligible children</td>
<td>1,895</td>
<td></td>
</tr>
</tbody>
</table>

HH - House Hold
Source: Calculated from GLSS 4.

Table 4 describes household net transfer behaviour. The probability of receiving net transfers is defined as a positive difference between the transfers sent to children and the transfers received from the children at different levels of disaggregation (La Ferrera, 2007). Parents are more likely to be net transfer recipients than children. This is true because the probability of transfers from children, at 18%, is greater than the probability of net transfer to children, which is 5%. The net amount of transfers also reflects the same pattern as transfers to parents (27,176 cedis) are more than net transfers to children (16,748 cedis). This pattern is consistent with the old age security hypothesis in the sense that it shows that the dominant direction of monetary transfers within families is from the younger to the older generation. The pattern clearly illustrates the tendency to transfer to children early in the life cycle, and to receive from children later in the life cycle.
6.2: Transfer of money to children

The first analysis deals with the determinants of money transfer to children within households. We carried out multivariate analysis to examine transfer choices of parents and children. The parents’ resources are important determinants of transfer to children. As documented in Table 5, the amount, but not the probability of transfer is positively related to parental resources, especially assets and other income. If the other income is high, the parents are likely to make transfers to their children. The pattern that the amount of positive transfer to children increases with assets may be interpreted in light of the “wealth model” (Kazianga, 2004). Parents who have sufficiently high resources and altruism invest in their children’s human capital. This finding may be consistent with the idea that monetary transfers are repayments for educational investments rather than that education increases one’s preferences for helping one’s children.

The educational status of parents has highly significant effects on the probability of making transfers to children. Parents with secondary and tertiary education have a higher probability of making monetary transfers to children than those with primary education. This suggests that one way in which parental education has an effect on their children’s education is to increase their willingness to encourage the children with money transfers when in school. The probability of receiving transfers is related positively and significantly to the educational attainment of the parent.

Table 5: Money transfers to all children

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Any money (MTC)</th>
<th>Log amount (lnA_mtc)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-statistics</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.121</td>
<td>-1.643</td>
</tr>
<tr>
<td>Parental resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset</td>
<td>0.112</td>
<td>(0.146)</td>
</tr>
<tr>
<td>Other income</td>
<td>0.102**</td>
<td>(1.9012)</td>
</tr>
<tr>
<td>Rural</td>
<td>0.252**</td>
<td>(2.195)</td>
</tr>
<tr>
<td>Primary education</td>
<td>0.043</td>
<td>(1.423)</td>
</tr>
<tr>
<td>Secondary education</td>
<td>0.439**</td>
<td>(2.009)</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>0.506*</td>
<td>(2.363)</td>
</tr>
<tr>
<td>Children's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children in primary school</td>
<td>0.814**</td>
<td>(3.149)</td>
</tr>
<tr>
<td>Number of children in secondary school</td>
<td>0.881*</td>
<td>(2.112)</td>
</tr>
<tr>
<td>Number of children in universities and colleges</td>
<td>0.913*</td>
<td>(3.842)</td>
</tr>
</tbody>
</table>

Continued next page
This finding is supported by the fact that the most significant predictor of any transfer and of the amount of transfer to children is the number of children enrolled in secondary school and tertiary institutions. The probabilities that parents will transfer money to children attending secondary and tertiary institutions are 88% and 99%, respectively. The positive coefficient of this variable on the actual amount transfer is as high as 70%. Though a lot of transfers also go to children in secondary school, their probability is lower than that of children in tertiary institutions. Education attainment is on average higher for the group of adult children receiving transfers.

6.3: Money and time transfer from children

In the analysis of determinants of money transfers to parents from children, household ownership of assets does not seem to affect the probability of receiving money transfers from children. As shown in Table 6, households’ other income is negatively and significantly related to the probability of receiving transfers and the amount of transfer received. Prima facie, these results are consistent with an explanation in which transfers respond to parents’ needs. A possible caveat on this interpretation comes from probit estimates, which indicate that private transfers are targeted at parents stricken with illness. Both variables measuring mothers’ and fathers’ ill health are significant in terms of probability of giving transfer and in terms of the amount. Illness raises the probability of transfer receipt by 92% in terms of mother’s health, and 74% in case of father’s health. This finding is consistent with pure altruism.

Table 6: Money and time transfers from children

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Any money (MFC)</th>
<th>Log amount (ln A_{mtc})</th>
<th>Any time TFC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-statistics</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Constant</td>
<td>2.421</td>
<td>(1.764)</td>
<td>3.184</td>
</tr>
<tr>
<td>Other income</td>
<td>-0.482</td>
<td>-(1.912)</td>
<td>1.053*</td>
</tr>
<tr>
<td>Assets</td>
<td>0.192</td>
<td>(0.004)</td>
<td>1.104</td>
</tr>
</tbody>
</table>

Note: t-statistics are in the parentheses; * significant at the 1% level; ** significant at the 5% level; *** significant at the 10% level.
### Table 6 continued

<table>
<thead>
<tr>
<th>Parental characteristics</th>
<th>Rural</th>
<th>Primary education</th>
<th>Secondary education</th>
<th>Tertiary education</th>
<th>Marital status</th>
<th>Mother's health poor</th>
<th>Father's health poor</th>
<th>Mother's age</th>
<th>Father's age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.252** (2.195)</td>
<td>0.910** (1.295)</td>
<td>0.104 (0.823)</td>
<td>0.296 (0.423)</td>
<td>0.117 (0.432)</td>
<td>-0.059** (1.231)</td>
<td>-0.154*** (2.876)</td>
<td>0.456* (3.121)</td>
<td>0.121 (0.031)</td>
</tr>
<tr>
<td></td>
<td>0.239 (2.309)</td>
<td>0.153* (2.769)</td>
<td>0.234** (1.863)</td>
<td>0.106 (0.242)</td>
<td>0.153* (2.769)</td>
<td>-0.154*** (2.876)</td>
<td>0.234** (1.863)</td>
<td>0.456* (3.067)</td>
<td>0.121 (0.031)</td>
</tr>
<tr>
<td></td>
<td>0.456* (2.863)</td>
<td>0.234** (1.863)</td>
<td>0.106 (0.242)</td>
<td>0.153* (2.769)</td>
<td>0.234** (1.863)</td>
<td>0.106 (0.242)</td>
<td>0.234** (1.863)</td>
<td>0.121 (0.031)</td>
<td>0.231** (2.109)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Children characteristics</th>
<th>Number of children with primary education</th>
<th>Number of children with tertiary education</th>
<th>Number of married children</th>
<th>Number of not married children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.081 (0.922)</td>
<td>-0.334 (0.823)</td>
<td>0.887* (3.082)</td>
<td>1.113* (3.621)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of observations</th>
<th>1,824</th>
<th>1,824</th>
<th>1,824</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.21</td>
<td>0.24</td>
<td>0.28</td>
</tr>
<tr>
<td>F-Statistics (probability)</td>
<td>6.34</td>
<td>6.22</td>
<td>6.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent variable Mean</th>
<th>0.45</th>
<th>0.39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log-likelihood</td>
<td>-113.7</td>
<td>-67.4</td>
</tr>
</tbody>
</table>

**Note:** t-statistics are in the parentheses; * significant at the 1% level; ** significant at the 5% level; *** significant at the 10% level.

Additional evidence consistent with pure altruism is the significance of a mother’s age compared to a father’s age, which is insignificant. The age of a mother, a potentially vulnerable parent, increases the probability of receiving a transfer by nearly 46 percentage points. The inverse relationship between marital status and the probability of receiving monetary transfers from children is more difficult to explain in the context of the altruistic motive. This is because marriage is supposed to increase the probability of transfer receipts.

Parents who are university-educated receive larger transfers than their less
An empiricAl Assessment of old Age support in sub-sAhArAn AfricA: evidence from ghAnA

educated counterparts. The finding fits the idea that transfers respond to liquidity constraints. More schooling raises permanent income and desired consumption. Education also tends to boost reverse-transfer receipts, though having qualifications beyond secondary education does not increase the probability of receiving a reverse transfer. A possible caveat on this interpretation comes from a positive coefficient on education. Parents with more education are more likely to receive money transfers. Note that this should not be due to an unobserved correlation between the parents’ and children’s education as information on the non-resident children is also included among the independent variables.

As for the characteristics of the sender, one of the variables that positively and significantly affects the likelihood of sending money to parents is the children’s educational attainment. The probability of receiving transfers increases with the number of children with higher educational attainment. Furthermore, the amount of money transfer to parents also increases with the children’s level of education. If the level of education is used as a proxy for children’s resources, one can conclude that the financial strength of children determines the probability and amount of money transfer to parents. Moreover, ample evidence suggests that the age of the parent has a significant effect on the amount of money received, or whether money is provided by children. This is supportive of the old age security motive of transfer.

The analysis of time transfers provided by children to parents yields the evidence that children provide old age security for their parents. The probability of receiving time transfers rises with the parents’ age and their health status, while their education is not significant. The likelihood of a transfer of housework help to parents is greater if a parent is in poor health, but is influenced by little else. The insignificant coefficient of marital status indicates that there is no effect of being either married or widowed. Other significant determinants of time transfer by children are the number of children not married and children with primary education. The probability of unmarried children transferring time to their parents is 45%, compared to 22% for married children.

6.4: Net financial transfer between parents and children

The analysis of net financial transfer equation provides some clues as to why financial transfer is an important old age support mechanism. Parents with more economic resources received significantly more financial transfers from their children. As documented in Table 7, the positive and significant coefficient of assets and other income in both male-headed and female-headed households clearly attests to this fact. In support of the findings of Secondi (1997), there is ample evidence that financial transfer is targeted at the elderly. As shown in Table 7, the net financial transfer is not only related to parental need measured by the parent’s own characteristics, but also to children’s resources. Moreover, there is a positive relationship between net financial transfers and parental education, especially in a male-headed household. While the coefficients of parents with secondary and tertiary education are positive and significant, the coefficient of parents with primary education, though positive, is not significant.
It is only among female-headed households that net financial transfer is targeted towards less educated and more disadvantaged parents. A female household head would receive higher financial transfers than their male counterparts even with low education. In the case of male-headed households, the coefficient of parents with primary education is both negative and insignificant.

Table 7: Determinants of net financial transfer to household head

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Net financial transfer</th>
<th>Male-headed HH</th>
<th>Female headed HH</th>
<th>Marginal effect</th>
<th>t-statistics</th>
<th>Marginal effect</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>334.72</td>
<td>109.03</td>
<td>2.43</td>
<td>5.44</td>
<td>687</td>
<td>684</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>887</td>
<td>684</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other income</td>
<td>55.12**</td>
<td>(1.902)</td>
<td>37.06*</td>
<td>(3.290)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td>10.94**</td>
<td>(1.723)</td>
<td>0.272**</td>
<td>(1.792)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>125.2**</td>
<td>(1.515)</td>
<td>11.91**</td>
<td>(1.625)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>-0.03</td>
<td>(0.823)</td>
<td>17.36*</td>
<td>(2.423)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary education</td>
<td>6.039**</td>
<td>(1.839)</td>
<td>21.61*</td>
<td>(2.309)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tertiary education</td>
<td>0.560*</td>
<td>(0.063)</td>
<td>5.641*</td>
<td>(2.163)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>-3.214</td>
<td>(3.045)</td>
<td>15.42</td>
<td>(3.214)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father’s health poor</td>
<td>-34.91</td>
<td>(2.056)</td>
<td>-7.321</td>
<td>(2.321)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother’s health poor</td>
<td>15.68*</td>
<td>(0.009)</td>
<td>32.22**</td>
<td>(1.423)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of father</td>
<td>-11.42</td>
<td>(2.942)</td>
<td>-9.887</td>
<td>(1.765)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of mother</td>
<td>-3.421*</td>
<td>(0.066)</td>
<td>-8.822*</td>
<td>(3.287)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children’s characteristics</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children with tertiary education</td>
<td>67.84**</td>
<td>(1.849)</td>
<td>77.84*</td>
<td>(2.849)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children with secondary education</td>
<td>-0.281*</td>
<td>(2.612)</td>
<td>2.281*</td>
<td>(2.412)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children with primary education</td>
<td>0.191</td>
<td>(0.842)</td>
<td>1.141</td>
<td>(0.842)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of married children +</td>
<td>0.87</td>
<td>(0.324)</td>
<td>12.87*</td>
<td>(3.324)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of not married children+</td>
<td>221.7**</td>
<td>(1.876)</td>
<td>21.7**</td>
<td>(3.876)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of observations</td>
<td>887</td>
<td>684</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.26</td>
<td>0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-Statistics</td>
<td>7.34</td>
<td>8.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: + indicates that these variables were introduced into the model after educational status of children were dropped from the model.
Sick and older parents do not receive any more in transfers than their able-bodied and younger parents. This is shown by the fact that the net financial transfer is inversely related to the age of parents and illness. Although the health status of mothers is positively and significantly related to net financial transfer, the situation is not the same with health status of fathers.

For male-headed households, net financial transfer responds to number and education level of the children. The coefficient of children with primary education is not significant, and the coefficient of parents with secondary education is negative and significant. The situation changes with respect to children with tertiary education as the coefficient is both positive and significant. If the level of education is used as a measure of availability of resources, the result is a clear indication that children with more resources are willing to give more to their parents. In the case of unmarried children, the net financial transfers to their parents is lower than that of married children. In fact, if children are married, it is more likely that the parents will receive higher financial transfers.

In the case of female-headed households, net financial transfers appear to be only related to the ability of children to give. There is a positive relationship between children’s education levels and the net financial transfers. The coefficients on the variables indicating the number of both secondary-educated and tertiary-educated children are significant and positive, but the number of primary-educated children is never significant. The children in the female-headed households transfer more to their parents than those in male-headed households. This finding is partially inconsistent with the findings of Lillard and Willis (1997) in the case of Malaysia.

### 6.5: Living arrangements of parents

In the analysis of living arrangements of parents, for ease of interpretation, we focused on the resulting marginal effect calculated at the means rather than the coefficient estimates. As shown in Table 8, the analysis of the results of this estimation gives mixed results concerning the fact that coresidency seems to be determined by the household structure that evolves over the life cycle, rather than an explicit form of old age support. There is a significant and negative effect of age on the probability that parents coreside. Both the coefficients of age of father and mother are significantly negative. The situation is not the same if the health of the parents is poor. There is a significant and positive effect of both the coefficients of fathers’ poor health and mothers’ poor health on the probability that parents coreside. Assets and income which can be used to measure the parents’ ability to buy privacy are both insignificant and negatively related to their probability of coresiding, though the effect is very small.

The fact that the characteristics of children play a greater role in determining coresidency than the parents’ characteristics further suggest that coresidency is not an explicit form of old age support. Children’s educational status plays an important role in determining coresidency in Ghana. The probability that parents will coreside is significantly and positively related to the number of children with secondary and tertiary education than with children with a primary education.
This could indicate that coresidency may respond to children’s income and children with higher education will have the ability and can also afford to have their parents living with them. This result is in contrast to that of Cameron (2000), where no evidence was found to support the fact that parents tend to live with wealthier children. This result also does not support that of Frankenberg et al. (1999), who found that the interests of the younger generation rather than those of the older generation are often the primary motivation behind coresidence.

Table 8: The determinants of coresidency for parents in Ghana (Probit marginal effects and t-statistics)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Probit marginal effect</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other income</td>
<td>-0.102</td>
<td>(-2.291)</td>
</tr>
<tr>
<td>Assets</td>
<td>0.091</td>
<td>(-2.723)</td>
</tr>
<tr>
<td>Rural</td>
<td>0.052**</td>
<td>(-2.195)</td>
</tr>
<tr>
<td>Primary education</td>
<td>0.043</td>
<td>(2.423)</td>
</tr>
<tr>
<td>Secondary education</td>
<td>0.439**</td>
<td>(2.309)</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>0.506*</td>
<td>(3.063)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father’s health poor</td>
<td>0.065*</td>
<td>(3.212)</td>
</tr>
<tr>
<td>Mother’s health poor</td>
<td>0.234*</td>
<td>(3.112)</td>
</tr>
<tr>
<td>Age of father</td>
<td>-0.009**</td>
<td>(-2.861)</td>
</tr>
<tr>
<td>Age of mother</td>
<td>-0.119*</td>
<td>(-3.192)</td>
</tr>
<tr>
<td>All children’s characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children with tertiary education</td>
<td>0.140*</td>
<td>(3.049)</td>
</tr>
<tr>
<td>Number of children with secondary education</td>
<td>0.018*</td>
<td>(3.112)</td>
</tr>
<tr>
<td>Number of children with primary education</td>
<td>0.003*</td>
<td>(3.842)</td>
</tr>
<tr>
<td>Number of married children+</td>
<td>0.007***</td>
<td>(1.476)</td>
</tr>
<tr>
<td>Number of not married children+</td>
<td>-0.150**</td>
<td>(1.321)</td>
</tr>
<tr>
<td>Average rent</td>
<td>0.054***</td>
<td>(0.921)</td>
</tr>
<tr>
<td>N</td>
<td>1,571</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.23</td>
<td></td>
</tr>
</tbody>
</table>

Note: + indicates that these variables were introduced into the model after educational status of children was dropped from the model.

Elderly parents are more likely to be living with married children than with unmarried children. While the number of married children is positively and significantly related to coresidency, the coefficient of the number of unmarried children is negative and never significant. The average house price in the parents’ locality is significantly and positively related to the probability of coresidence. This is an indication that the transaction cost associated with moving out of the parental home would serve as a disincentive to children trying to move out of their parents’ house.
6.6: Determinants of elderly labour supply in Ghana

In this part of the study, we analysed the determinants of the labour supply decisions of elderly people in Ghana by considering their gender. We also analysed the extent of financial transfers from children measured by the characteristics of children’s influence on the labour supply of elderly people in the household. Table 9 documents the results of the elderly labour supply equation. It shows that household resources measured by asset levels appear to play a significant role in labour supply decisions of the elderly.

Elderly people with higher asset levels enjoy significantly more leisure in their old age. In the case of elderly males, other income has a significant positive impact on labour supply, but asset level has a significant negative coefficient. The implication of this result is that the presence of household assets tends to reduce monthly hours of work of elderly males in the household while other income increases it. The contrast is the case of elderly females, as only household asset level, which has a very low significant positive impact on monthly hours of work, is a major and significant determinant.

Table 9: Determinants of elderly labour supply in Ghana

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Monthly hour labour supply</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient</td>
<td>t-statistics</td>
<td>Coefficient</td>
<td>t-statistics</td>
</tr>
<tr>
<td>Constant</td>
<td>34.72</td>
<td>1.43</td>
<td>87.03</td>
</tr>
<tr>
<td>N</td>
<td>887</td>
<td>684</td>
<td></td>
</tr>
<tr>
<td>Other income</td>
<td>5.12**</td>
<td>(1.802)</td>
<td>7.06</td>
</tr>
<tr>
<td>Assets</td>
<td>-8.94**</td>
<td>-(1.783)</td>
<td>0.022*</td>
</tr>
<tr>
<td>Rural</td>
<td>15.2**</td>
<td>(1.515)</td>
<td>9.91**</td>
</tr>
<tr>
<td>Primary education</td>
<td>4.013**</td>
<td>(1.713)</td>
<td>-11.16*</td>
</tr>
<tr>
<td>Secondary education</td>
<td>2.319**</td>
<td>(1.639)</td>
<td>-7.32*</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>0.560</td>
<td>(0.063)</td>
<td>-0.641</td>
</tr>
<tr>
<td>Marital status</td>
<td>1.314**</td>
<td>(1.845)</td>
<td>1.542**</td>
</tr>
<tr>
<td>Father health poor</td>
<td>-14.22*</td>
<td>-(3.056)</td>
<td>-7.321*</td>
</tr>
<tr>
<td>Mother health poor</td>
<td>-18.68*</td>
<td>-(3.329)</td>
<td>-21.22**</td>
</tr>
<tr>
<td>Age of father</td>
<td>-8.42**</td>
<td>-(2.041)</td>
<td>-7.92**</td>
</tr>
<tr>
<td>Age of mother</td>
<td>-13.12*</td>
<td>-(3.066)</td>
<td>-9.421**</td>
</tr>
<tr>
<td>Number of children with tertiary education</td>
<td>7.84**</td>
<td>(1.849)</td>
<td>-67.84*</td>
</tr>
<tr>
<td>Number of children with secondary education</td>
<td>-0.181*</td>
<td>-(3.612)</td>
<td>-0.381*</td>
</tr>
<tr>
<td>Number of children with primary education</td>
<td>0.411</td>
<td>(0.742)</td>
<td>0.091</td>
</tr>
<tr>
<td>Number of married children+</td>
<td>-2.87*</td>
<td>-(3.324)</td>
<td>-14.87*</td>
</tr>
<tr>
<td>Number of not married children+</td>
<td>2.47**</td>
<td>(2.876)</td>
<td>5.17**</td>
</tr>
<tr>
<td>R²</td>
<td>0.27</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>F-Statistics</td>
<td>21.75</td>
<td>22.30</td>
<td></td>
</tr>
</tbody>
</table>

Note: + indicates that these variables were introduced into the model after educational status of children were dropped from the model.
Other covariates considered are related to the elderly characteristics in the household. The labour supply behaviour of the elderly is related to their capacity as the monthly hour of work is inversely related to age. The gender difference with respect to the impact of age on labour supply suggests a convergence in the monthly hours of work of parents as they age. The age of mothers is highly significant in determining labour supply compared to that of the father. The mother’s age has a negative coefficient of 13.12 compared to that of father which is 8.42. Also, parents with poor health worked fewer hours per month. Both the fathers’ and mothers’ health are inversely related to labour supply. This can be attributed to the reduced capacity to work when they are sick.

At the same time, the negative relationship of higher level of education and monthly hours of work among elderly females implies that those individuals facing the lowest returns to market work continue to work into their old age. Specifically, elderly females with primary education work more hours per month than their counterparts with at least secondary education. In contrast, the monthly hours of work for elderly males do not vary significantly with education, as the coefficient of parents with tertiary education is not a significant determinant of monthly hours of work.

The characteristics of children provide a mixed effect on the number of hours elderly people in the household work in a month. In the case of elderly males, children with secondary education have a negative and significant relationship with the monthly hours worked. However, the variable of children with primary education is not a significant determinant of elderly labour supply, while children with higher education tend to reduce the leisure of people in old age because of a positive and significant coefficient of children with tertiary education. This suggests that overall household resources are unrelated to the labour supply decisions of parents. Controlling for the number of married and unmarried children, elderly females with many married children who are relatively better educated or have higher earnings work less in their old age than elderly males. The presence of unmarried children in the household increases the number of hours worked by both the male and female elderly, but the number of married children has a highly significant negative relationship with hours of work for elderly females compared to their male counterparts.
7. Concluding remarks and recommendations

In this study, we analysed private transfer behaviour, the relationship and the economic importance of net financial transfers, coresidency and elderly labour supply as major sources of old age support in Ghana. The maximum likelihood using Heckman’s (1979) generalized Tobit technique was used to estimate the private transfer equation, net financial transfer and coresidency. We also estimated the determinants of elderly labour supply by considering parental and children’s characteristics using the Ordinary Least Square method of analysis.

The analysis indicated that various forms of private transfers are important old age support mechanisms. There is ample evidence that financial transfer is targeted at the elderly, but not generally related to parental need measured by the parents’ own characteristics. However, there appears to be mixed results on whether coresidency is a result of household structure or an explicit form of support. The characteristics of the children seem to play a greater role in determining coresidency than the parents’ characteristics. Assets and income which can be used to measure the parents’ ability to buy privacy are both insignificantly and negatively related to their probability of coresiding, though the effect is very small.

The financial transfers from children do not appear to be a substitute for the income support provided by the elderly people’s own labour. Only elderly females significantly reduce their hours of work as the financial transfers become more generous, but this effect is relatively small among elderly males. The labour supply of elderly males is also related to the characteristics of children, but with mixed effects. This suggests that the labour supply decision of parents may not be related to the overall household resources. The basic explanation that can be provided for this finding is that financial transfers are too unpredictable to be relied upon, and also too small to effect any change in parents’ labour supply.

There is a little evidence to suggest that the pressure for elderly parents to continue to work to support themselves in Ghana will decrease in future. As the size of the elderly population increases, the resources needed to support them also increases. Therefore, it would be a wrong policy prescription to bank on traditional family support mechanisms to take the strain, thus negating the need for public pension schemes. Some countries like Singapore and Malaysia are giving children tax incentives to shore up these forms of support. However, our results suggest that this support is not a total substitute for parents’ own earnings. Thus, we call for public provision of old age support in form of a pension scheme that is more reliable and predictable to complement the existing informal arrangements in Ghana. This is, therefore, an important issue for policymakers in developing countries.
This study cannot claim to have covered all issues of old age support in sub-Saharan Africa. Many issues still remain unresolved. First, the issue of income effects need intensified scrutiny of demographic changes. For example, there may be need to provide better understanding of the underlying factors why inter-generational transfers are used primarily for old age support in sub-Saharan African countries, whereas in developed countries, they are targeted primarily at younger households. This issue has implications for economic growth. The more resources are directed toward the younger generation in the form of human capital investment, the better the prospects for growth.

Second, there is also need to provide a better understanding of gender differences in kinship relations and support. Our model and analysis are populated with generic parents and children. This modelling choice is in the nature of economics, but evolutionary biology has much to say about gender issues. Combining insights from that discipline to refine the notion of familial utility function can further open new doors for understanding demographic influences on inter-household transfers. Third, the issue of whether private transfer crowds out public transfer is not adequately explored. This issue should also be seen as both a policy concern and an intellectual problem.
Notes

1. This is the ratio of people who are economically dependent on those who provide for them, either by earning income or paying taxes. The high ratio means that those of working age and the overall economy face a greater burden in supporting the dependant population.
2. This is the proportion of those aged between 50 and 65 years to all those of other ages.
3. This is the proportion of those aged over 65 years to all other ages.
4. This ratio is defined as the ratio of the population aged 18–54 years to that aged 55 and over. It is used to indicate the support base available to carry the burden of the older member of the family. The ratio is based on the assumption that members aged 18–54 are working whereas those over 55 years are not.
5. The main issues and empirical findings about old age support in the literature are summarized in Appendix II.
References


### Appendix 1: Variable definitions

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Signs</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coresidency</td>
<td>C</td>
<td>Equal to 1 if parents live with a child aged over 18, equals 0 otherwise</td>
</tr>
<tr>
<td>Net transfers</td>
<td>NTR</td>
<td>The net value of subtracting transfers to children from parents from transfers to parents from children in the past 12 months.</td>
</tr>
<tr>
<td>Labour supply</td>
<td>LS</td>
<td>Normal monthly hours (including wage and non-wage income).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parental characteristics</strong></td>
</tr>
<tr>
<td>Other income</td>
</tr>
<tr>
<td>Assets</td>
</tr>
<tr>
<td>Mother’s age</td>
</tr>
<tr>
<td>Father’s age</td>
</tr>
<tr>
<td>Marital status</td>
</tr>
<tr>
<td>Mother’s health poor</td>
</tr>
<tr>
<td>Father’s health poor</td>
</tr>
<tr>
<td>Education categories</td>
</tr>
<tr>
<td>Rural</td>
</tr>
<tr>
<td>Outside province</td>
</tr>
</tbody>
</table>

*Continued next page*
### Appendix I continued

<table>
<thead>
<tr>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average house price</td>
<td>Average house price as reported by the survey.</td>
</tr>
<tr>
<td>Children characteristics</td>
<td>Z C</td>
</tr>
<tr>
<td>Married</td>
<td>The number of children who are currently married.</td>
</tr>
<tr>
<td>Not married</td>
<td>No. of children who have never been married, are separated, divorced or widowed.</td>
</tr>
<tr>
<td>Education categories</td>
<td>The number of children in education categories. For example, secondary = no. of children whose highest level of education attended is secondary school. Omitted category is no of children with no education.</td>
</tr>
<tr>
<td>Age</td>
<td>Age in years at the time of survey.</td>
</tr>
<tr>
<td>Gender</td>
<td>= 1 if female and 0 if male.</td>
</tr>
</tbody>
</table>
Appendix II: Summary of economic arguments analysing old age supports in various countries

<table>
<thead>
<tr>
<th>Economic issues</th>
<th>Empirical findings</th>
<th>Country of focus</th>
<th>Sources</th>
<th>Gaps in the literature/main focus of our analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources of old age poverty</td>
<td>Age of household head influences household welfare.</td>
<td>Nigeria</td>
<td>Aigbokhan (2000)</td>
<td>The poor themselves may have underlying determinants, which would need to be understood.</td>
</tr>
<tr>
<td></td>
<td>Poverty tends to be more pronounced among the elderly because earned income falls after retirement, and in the absence of old age support, household income tends to fall.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ageing of the household head increases the probability of being poor.</td>
<td>Nigeria</td>
<td>Olaniyan (2000)</td>
<td>The composition of this income was not adequately explored.</td>
</tr>
<tr>
<td></td>
<td>Levels of poverty increase as the population ages. Income falls at older age, with retirement and declining productivity. A negative relationship is hypothesised between income and the square of age.</td>
<td>Nigeria</td>
<td>Okojie (2002)</td>
<td>The study fails to carry out an in-depth examination of the poverty incidence among the old age group.</td>
</tr>
<tr>
<td></td>
<td>Old age is part of the human life, and creates a framework of physical and mental capabilities that are or become more restricted.</td>
<td>Tanzania</td>
<td>Heslop and Gorman (2002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Few old people can fully support themselves through current earnings. They obtain claims on output through family transfer, savings and investment, and public social security.</td>
<td>Developing countries</td>
<td>World Bank (2001)</td>
<td></td>
</tr>
</tbody>
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Continued next page
Reliance on sources of support other than their own labour renders older people more vulnerable to the risk of poverty.

Vulnerability, physical weakness, physical and social isolation, powerlessness, insecurity and low self-esteem are basic explanations for old age poverty.

A reduced capacity for income generation and a growing risk of serious illness increases the vulnerability to poverty.

Low levels of support are attributed to endemic poverty within the family.

Despite the lack of capacity of poorer households to provide support for older parents, family is the main source of support for older people.

The strength of this approach for the study of chronic poverty is not in counting but rather in understanding hidden dimensions of poverty and analysing causality and the processes by which people fall into and out of poverty.

Developing countries

Barrientos and Lloyd Sherlock (2000)
Gorman (2000)
Bobb (1999)
Lloyd-Sherlock (2000)

Very little has been written on the labour supply of the elderly in the developing world.

Forms and importance of old age support

Elderly labour supply

Two-thirds of older men and one-third of older women remain economically active.

Indonesia
Bangladesh

Adlakha and Rudolph (1994)
Cain (1991)

Coresidency

Coresidency responds to economic variables such as the parent’s income and housing prices, There are minor effects of economic variables. Economic factors do not play a significant role in the transition to coresidency.

Indonesia
Fiji, Korea, Malaysia and the Philippines

Cameron (2000)
Martin (1989)
Frankenburg et al. (1999)
DaVanzo and Chan (1994)
### Private transfers

Is defined as monetary gifts and the money value of in-kind transfers given and received by households and loans are excluded.

Poorer households lack the capacity to provide long-term support for older parents.

The family is the main source of support for poor older people.

Literature on transfer behaviour focuses on differentiating between theories and examining whether public pensions crowd out private transfers.

The logic of private transfers is to seek parsimony, to seek the counter-intuitive, and to seek the falsifiable.

<table>
<thead>
<tr>
<th>Developing countries</th>
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<tbody>
<tr>
<td>Kato (1998)</td>
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<tr>
<td>Gist and Velkoff (1997)</td>
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<tr>
<td>Cox and Fafchamps (2006)</td>
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</tbody>
</table>

### Theories of inter-generational transfers

Several hypotheses have been advanced concerning the motivation for transfers, and the observable relationships one might expect to see between variables characterizing family members who give and receive transfers.

<table>
<thead>
<tr>
<th>China, Kenya, Malaysia, Indonesia</th>
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<tbody>
<tr>
<td>Lillard and Willis (1997)</td>
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<td>Secondi (1997)</td>
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<td>Hoddinott (1992)</td>
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</tbody>
</table>

The attempts to empirically differentiate between these theories have met with limited success.

### Old age security theory

Individuals are hypothesized to rely on transfers from their children for old age security.

Children provide security in forms of monetary transfers, help with housework, and care if the parent is frail or ill.

<p>| Willis (1980) |</p>
<table>
<thead>
<tr>
<th>Theory</th>
<th>Description</th>
<th>References</th>
</tr>
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<tbody>
<tr>
<td>Parental repayment theory</td>
<td>Children’s earning capacity as adults depends on the amount of investment they received during childhood in the form of parental time and expenditure devoted to their health and education.</td>
<td>Becker and Tomes (1976)</td>
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<tr>
<td>Theory of risk and insurance</td>
<td>Intra-family transfers help smooth consumption across uncertain states of the world by offering family members implicit insurance.</td>
<td>Kotlikoff and Spivak (1981)</td>
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<tr>
<td>The altruism theory</td>
<td>Family members have altruistic feelings toward one another as a key ingredient in explaining many aspects of family behaviour.</td>
<td>Becker (1974, 1993)</td>
</tr>
<tr>
<td>The theory of exchange motive for transfers</td>
<td>If parental transfers to children represent implicit payment for services children provide to parents, and these services are demanded inelastically, parents will tend to transfer more to their relatively high-income children.</td>
<td>Cox (1987)</td>
</tr>
<tr>
<td>The bargaining power theory</td>
<td>Thomas (1990)</td>
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<td>The composition of household consumption is influenced by the spouse’s control of resources. The basic idea is that the spouse with more bargaining power will command a larger share of household consumption.</td>
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<tr>
<td>Empirical analysis of old age support</td>
<td>Cox, Galasso and Jimenez (2006)</td>
<td></td>
</tr>
<tr>
<td>Living Standards Measurement Surveys (LSMS) are appropriate for the empirical analysis of old age support. In this study, four countries had involvement rates of 40%, eight countries had a range between 30% and 50%. It was found that private transfers act like means-tested public transfers flowing from better-off to worse-off households and providing old age support in retirement. Changes in private transfers appear responsive to changes in household pre-transfer income, demographic changes and life course events. Reductions in social security benefits significantly alter the poverty of the elderly. Inter-household transfers are important for the poorest households as they represent nearly half the household income. Between 21% and 76% of households give or receive income transfers through private networks.</td>
<td></td>
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<tr>
<td>Cox (2002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engelhardt and Gruber (2004)</td>
<td></td>
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</tr>
<tr>
<td>World Bank, (2001)</td>
<td></td>
<td></td>
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<tr>
<td>Barberia et al. (1998)</td>
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</table>
### Relationship between various forms of old age support

Analysis using a cooperative bargaining model and the Indonesia Family Life Survey (IFLS) shows that men continue to work well into old age, even if they are living with their adult children.

Moreover, there is little evidence that transfers are a substitute for the income support provided by the elderly parents' own labour supply, and they are associated with a decline in hours of work only for non-residing mothers. Therefore, it can be concluded that transfers are not strongly related to parental need or the ability of the child to give.

Public pensions appear to crowd out private transfers among poor households, whereas the two forms of transfer appear to complement each other for the non-poor.

Gifts and informal loans are highly responsive to certain shocks to income and expenditures, such as the unemployment of the household head or spouse, or funeral expenses.

Studies of parents losing their adult children to AIDS show that though parents pay the funeral costs for their child, they also benefit immensely from funeral society membership and customary contributions from those attending. Coreidency living arrangements respond positively to the loss of income.

<table>
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<tr>
<th>Indonesia</th>
<th>South Africa</th>
<th>Philippines</th>
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There is a need to understand a lot more about how various forms of support work and how to see them as complementary to, and not a substitute for, public transfers.

Moreover, there has been very little discussion about an appropriate framework for studying old age support in developing countries.

What is needed is a conceptual framework rooted in theories of economic and social development, and tools for the evaluation of an effective and sustainable policy intervention.

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