

Residential proximity of nearest child and older adults' receipts of informal support transfers in Barbados

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ABSTRACT

This study assesses the probability that an older person in Bridgetown, Barbados receives financial, functional and/or material support from their adult children according to the proximity of their nearest child, adjusting for demographic and socio-economic factors. As in many countries of the developing world, older Barbadians receive much of their support from adult children. Population ageing, smaller family sizes and high rates of out-migration may be placing stress on systems of formal and informal support within the country. Yet, very little research has examined determinants of support within the Caribbean let alone Barbados, one of the most rapidly ageing countries in the region. Data (N=1,248) come from the 2000 Pan American Health Organization Survey on Health, Well-being and Ageing in Latin America and the Caribbean (SABE). Multivariate logistic regression analyses highlight the overwhelming importance of co-residence in the receipt of informal support transfers. Although there is a lower probability of receiving support as distance to nearest child increases, several indicators of vulnerability, such as having a disability, increases support probabilities among those whose nearest children live outside the neighbourhood. The results have implications for current and future cohorts of older adults in the region given the combination of declining fertility, persistent migration and population ageing within a broader context of social protection systems across the region.

KEY WORDS—ageing, Barbados, Caribbean, social support, intergenerational relations, migration, residential proximity.

Introduction

Like much of the world, population ageing, defined as an increase in the number and percentage of a population that is in older ages, is a primary demographic force occurring within the Caribbean. Population ageing is mostly a function of past and current declines in fertility although increasing

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longevity also plays a part (Zimmer 2006). Although there are variations in fertility decline and therefore the pace of population ageing across countries, Barbados, the focus of the current paper, is already classified as being at an advanced stage with the proportion of older persons increasing much faster than any other age group (Schkolnik *et al.* 2008). According to the United Nation's (UN) Population Division (UN 2010a), by 2050 roughly 26 per cent of the Caribbean population will be 60 years and over, but Barbados is expected to have the largest proportion of older persons in the English-speaking Caribbean.

Population ageing has implications for systems of formal and informal support. A growing elderly population combined with a reduction in fertility could place pressures on smaller numbers of family members for the provision of support, as well as on formal systems of health care. Moreover, Barbados is experiencing the concurrent phenomenon of high rates of internal and international migration, which raises a concern regarding the extent to which support is a function of proximity of family members, and more specifically, proximity of the nearest child. Do older adults with a co-resident child have a better chance of receiving support than those with their nearest child in a different community, city or country, and if so, how disadvantaged are those whose nearest child lives within or outside Barbados? We submit that these questions represent a legitimate place to begin a dialogue on the support of older people in a country like Barbados that has seen minimal research on the topic.

Background

Intergenerational support and proximity of nearest child

The pace of population ageing in many developing countries raises policy challenges regarding formal and informal care for growing proportions of older persons. There has been particular concern where social insurance systems do not provide adequate coverage or health infrastructures are not fully equipped to meet the needs of older people (Barrientos 2010; Lloyd-Sherlock 2000; Ribe, Robalino and Walker 2010). In many ways, this describes the Caribbean, where care of elders still operates primarily in the private arena of the family (Calvo and Williamson 2008; Rawlins 1999; Saad 2006). A decline in fertility coupled with high rates of migration compound these concerns since the demographic processes described above threaten family systems through a decreased availability of informal care-givers (Aboderin 2005). As such, the geographical proximity of adult children and the types of support that older adults receive as a function of their nearest child becomes increasingly important in regions characterised by both

ageing and mobile populations (Economic Commission for Latin America and the Caribbean 2004).

While theoretical perspectives on adult child proximity are not well developed within the gerontological literature, we can refer to and borrow from a combination of 'new home economics' and 'modified extended family' perspectives to help understand the impact of the location of nearest child on support (Litwak 1960; Stark and Bloom 1985). Proximity is important for both of these perspectives since they each suggest that distance enables or constrains exchange between parents and children. Close proximity, for instance, is an important factor in fostering personal or functional relationships between age groups. It may also influence psycho-social well-being (Lawton, Silverstein and Bengtson 1994; Lee, Netzer and Coward 1995). But, both perspectives suggest that geographic separation does not necessarily hinder certain types of exchanges. In developing regions where migration is often labour related, distance may induce material exchanges and older adults with children living away from the home may be in a good position to be receiving financial support. Indeed, migration may be an adaptive household strategy utilised for the economic benefit of all household members since internal and international migration can generate income, part of which is remitted to the household of origin (Stark and Bloom 1985; Stark and Lucas 1988).

Latin American studies have shown that national and international remittances by children are generally contingent on the originating household's needs and are critical to the welfare of elders (De Vos, Solis and Montes de Oca 2004; Gomes 2007; Massey and Basem 1992). Evidence from Asia, where such research is more developed, shows that migrant children continue to support their elderly parents financially and emotionally by paying for major household expenses and maintaining frequent contact via telephone and return visits (Knodel *et al.* 2010; Zimmer *et al.* 2008). Thus, forms of support can change while function remains in place (Hoyert 1991; Litwak 1960; Smith 1998). Co-residence between an older adult and an adult child, a very typical living situation throughout the developing world, is not necessarily needed for mutual or specific support. On the one hand, elders may have other kin and/or children within close proximity to provide functional and emotional support in times of need, if one or other children leave the household. On the other hand, children who live further away from parents often provide material and other types of support through improved communication systems (Knodel *et al.* 2010).

Other factors play into the probability of support besides the location of the nearest adult child. Many of these relate to the needs of the older parent. A common finding in the literature in both developed and developing countries is that older parents tend to rely on their adult children for

assistance to live independently in times of frailty, decreased mobility and a decline in resources (Dowd 1980; Lin and Rogerson 1995; Rogerson, Burr and Lin 1998; Silverstein, Gans and Yang 2006). These factors tend to disproportionately characterise the experiences of female elderly parents, who also tend to be unmarried (UN 2005) and as such more reciprocity of intergenerational relations between mothers and their adult children is observed (Lawton, Silverstein and Bengston 1994; Silverstein, Gans and Yang 2006; Wolf and Soldo 1998). Studies in Asia show that migrant children are likely to return home to visit their parents if one or both has declining health (Zimmer and Knodel 2010). In some cases, the initial decision of the child to migrate is contingent on the health status of the parent and the availability of other siblings to care for the ill parent (Giles and Mu 2007). Other demographic factors such as the total number of living children, gender and marital status of the elder parent are important mediating factors in the informal support received by older adults.

The Barbados context

Prior research on intergenerational support exchanges in the Caribbean is scarce. Somewhat more literature exists on the greater Latin American region. The majority of the existing work has focused on economic and political consequences of migration (Thomas-Hope 2009). Some studies have assessed the intersection of migration and family dynamics with regard to parents facilitating the migration of their adult children (Chamberlain 2004, 2006) and the effects of parental separation due to migration on children's development (Jones, Sharpe and Sogren 2004; Pottinger 2005). Far less research has been conducted on the extent to which elderly parents receive support and care from migrant and other non-co-resident children. Furthermore, the impact of the location of any child or the nearest child on the support that elderly parents, in the origin, receive and the nature thereof is under-studied.

Barbados presents a compelling setting for an assessment of the impact of nearest child on support of older adults. It has a long history of internal, regional and international migration, and the family is recognised as the primary source of care-giving across the lifecourse. Although these socio-demographic characteristics can describe many developing countries, Barbados stands out among the English-speaking Caribbean countries because of its fertility and mortality decline and the subsequent aged population structure. As of 2009, 15 per cent of the Barbadian population was 60 years and over and this is projected to reach to 36 per cent by 2050 (UN 2010b). Women live longer, as is the case in nearly every country in the world. The UN Population Division documents that women aged 60 years

and over, during the 2005–10 period, can expect to have an additional 23 years of life while men 60 and over can expect to live an additional 18 years (UN 2010b). Longer years of life are associated with increased propensity to have chronic diseases. Among Barbadian elders, the principal causes of death are cardiovascular diseases and diabetes while the primary reasons for medical consultations are related to hypertension, cardiovascular and respiratory diseases, and diabetes, among others. Disability amongst the population 65 and over was recorded at 35 per cent in 2000 and it is more common amongst women, 21 per cent as opposed to 14 per cent of men (Pan American Health Organization (PAHO) 2007). These conditions place heavy demands on formal health-care provision including housing and primary health-care delivery.

At the same time, the government of Barbados is committed to improving the conditions of vulnerable groups, which include older people, and in some ways Barbados may be more advanced with respect to formal provision of care than other countries in the region. Older people have unconditional access to primary and secondary health-care services provided by the polyclinics and the national hospital. There are also five geriatric/district hospitals, which provide inpatient care. The National Assistance Board of Barbados provides and manages a wide range of social assistance and recreational services to older people. These include a senior citizen's home and a village that cater to two sub-groups of older people, those who can live independently and those who need assisted living, and a home care programme designed to provide food and assistance with instrumental activities of daily living (The National Assistance Board 2011). These services, provided by the national government, are typically free of charge at the point of delivery but private health-care services are also available and used by those who can afford it (PAHO 2007). Regarding pensions, over 92 per cent of Barbadians 65 years and over receive pensions, which are funded by a combination of contributory and non-contributory pension systems. Furthermore, Barbados is recognised as the only country in the English-speaking Caribbean that adjusts pension distributions to account for changes in the costs of living (Pettinato and Diaz Cassou 2005). These provisions are bound to have a prevailing impact on support from children, especially those living farther away. If parents have formal systems of support, the need for support provided from a distance may not be as great as in other developing nations with weaker systems.

Still, the wide availability of formal health care may not negate demands placed on the family to provide care, and the family remains the most common source of support (Rawlins 1999). Only 4 per cent of older people live in institutions (PAHO 2007). Demographic changes such as declining fertility and out-migration of younger cohorts raise concerns about the

availability of younger family members to provide care. Therefore, Barbados presents an interesting contrast; it is a country with somewhat better formal systems of support in place for older persons than in many developing countries, yet norms still dictate that older adults receive the bulk of their support within the family.

Current study and hypotheses

The above discussion highlights both theory and research which suggest that older adults are likely to receive support from children but that the probability of receiving a particular form of support may be a function of where a child lives and the needs of the parent. Those whose children live nearby may be providing both functional and financial support, while those living out of the country may be likely to be providing financial support but are very unlikely to be providing functional support. For older parents, this means that having a nearest child nearby is favourable for potentially receiving both types of support. But, those with a nearest child out of the country may be receiving only financial support. This study examines the impact of this on the overall probability that an older adult receives various types of support, with reference to the following hypotheses:

- 1 The closer the location of the nearest child the higher the probability that the older adult receives all forms of support.
- 2 Although their chances of receiving financial support for those whose nearest child lives far away will not be as great as those whose nearest child is nearby, the disadvantage with respect to financial support will be less than for functional. Put another way, greater distance disadvantages older parents less when it comes to financial as opposed to functional support.
- 3 The effect of proximity will be contingent on the needs of the elderly parent such as availability of additional people in the household, gender, health, income, disability and marital status.

Methods

Data

This study draws upon the Survey on Health, Well-Being and Ageing (SABE) in Latin America and the Caribbean (Pelaez *et al.* 2000). This multi-centre study was conducted between October 1999 and December 2000 in seven urban cities in Latin America and the Caribbean, including Bridgetown, Barbados, under the auspices of the PAHO with additional support provided by the Center for Demography and Ecology at the University of Wisconsin (Durate, Lebrao and Dias de Lima 2005; Glaser *et al.* 2006; Trujillo, Mroz

and Angeles 2007). The University of the West Indies in Barbados provided assistance with the data collection. The sample of households was randomly drawn from the national election registry. A total of 1,878 households with persons aged 60 years and over were selected. One random individual, age 60 and over, in the household was interviewed. An 80 per cent response rate yielded a total of 1,508 interviews. The analytic sample includes 1,248 elderly persons who have at least one living child 15 years and over. Sample weights were constructed using the Census age categories to reflect the population of older people in Barbados in each age and sex category during the 2000 Census (Nam 2009). Results are weighted to assure representativeness.

Measures

The receipt of support is examined across three dimensions: financial, material and functional. Elderly respondents were asked the following question of each child: 'I would like to ask if (NAME) helps you in any way with (a) money, (b) services like transportation, (c) giving you things that you need like food and clothes and other items.' We call these financial, functional and material supports, respectively. The responses are dichotomised as either yes they receive help from at least one child or not.

Proximity of nearest child is measured by using information on the location of each child recorded at time of interview. Four categories of proximity are considered: co-resident; in the neighbourhood; outside the neighbourhood but in the country; and abroad. Obviously, parents can have children in multiple locations but our primary interest in this paper is to examine the probability of receiving each form of support based on the location of the nearest child rather than on receipt of support from specific children.

Demographic characteristics of the older respondents that are considered as covariates include *age*, coded as a categorical variable with the youngest group, 60–64 years, as the reference group. These categories were created to match those used by the Barbados National Census 2000. This was necessary to obtain a sample distribution of respondents aged 60 and above to mirror the population distribution of older people by age and sex for the year 2000. *Gender* is categorical with women as the reference group. *Union status* is categorical and elderly persons in a union are the reference group. The unmarried or not in union category is a combination of persons identified as separated, divorced or widowed or in free union. *Number of living children* is treated as a continuous variable. *Residual household size* is included as a measure of other persons in the household, other than the respondent's spouse and/or co-resident child who are already accounted for in other measures. *Residual household assistance* is a measure of the respondent's

receipt of intra-household transfers from residual household members. It captures elderly persons who indicate receiving at least one form of financial, material or functional assistance from at least one other household member regardless of the relationship to the respondent.

Socio-economic characteristics include *employment status*, with persons not working at the time of the survey as the reference group. We also include a measure of *yearly income* from the following sources: job, pension, bank or rental, welfare and other sources. Within each source, weekly, biweekly and monthly income values were converted to yearly income. Yearly income was then categorised into quintiles and respondents with no income from these sources were chosen as the reference category. Highest *education attained* is categorical with primary education as the reference group.

Health status is examined through three measures. *Self-rated health* is a categorical variable. The respondent was asked the following question: 'Would you say that your health is excellent, very good, good, fair or poor?' We collapsed excellent health and very good health into one category because of the small numbers of respondents indicating excellent health and this is the reference category. Similarly we collapsed fair health and poor health. Respondents' *disabilities* were assessed with their indications of having difficulty with at least one activity of daily living (ADL) and instrumental activity of daily living (IADL). The former includes bathing, dressing, eating, getting in and out of bed, walking across a room and using the bathroom. IADLs include preparing a hot meal, shopping, doing light housework, doing heavy housework, managing finances and taking medication.

Analysis

Presented first are descriptive analyses of the analytical sample and variations in support received based on proximity. Multivariate analyses follow. Separate dichotomous logistic regression models are used to predict the probability of older Barbadians' receipt of financial, material and functional support as a function of the location of their nearest child controlling for the other variables in the model. The main effects of proximity of children on the odds of receiving each form of support are estimated, followed by a model that tests for interactions with age, gender, health and income status to assess if and how support from adult children may be contingent on parental vulnerabilities.

Results

Table 1 shows the sample characteristics by presenting the distribution of social, demographic, economic and health variables for men and women.

TABLE 1. *Characteristics of older adults by sex, showing means for continuous variables and percentages for categorical variables*

Characteristics of parents	Men (n=489)	Women (n=759)
Receipt of assistance (%):		
Received help with money	30.3	62.6
Received help with services	26.6	49.0
Received help with other material things	27.1	54.0
Location of nearest child (%):		
Same household	41.4	55.5
Same neighbourhood	13.8	9.5
Outside neighbourhood	32.9	23.6
Abroad	11.9	11.4
Children:		
Mean number of living children (SD)	4.0 (2.5)	4.6 (3.0)
Residual household size:		
Mean (SD)	0.9 (1.4)	1.2 (1.7)
Residual household assistance (%):		
Receiving at least one form of assistance	19.9	14.3
Age (%):		
60–64	24.8	22.5
65–69	22.5	21.1
70–74	20.3	19.9
75–59	13.8	15.0
80–84	10.5	11.4
85 and older	8.1	10.2
Marital status (%):		
Not married	47.9	76.8
Education (%):		
Primary	77.6	79.4
Employment status (%):		
Currently not working	74.7	79.0
Currently working	25.3	13.9
No information on work	–	7.2
Yearly income (%):		
No income	27.6	23.8
\$130–3,768	10.9	19.4
\$3,840–5,100	11.9	21.2
\$5,110–13,111.93	17.4	16.7
\$13,200 and over	24.7	12.4
Missing income	7.6	6.4
Health status (self-rated) (%):		
Very good	20.4	13.0
Good	38.9	34.0
Poor	40.7	53.0
Difficulty with ADL (%):		
Difficulty with at least one ADL	9.7	16.2
Difficulty with IADL (%):		
Difficulty with at least one IADL	16.4	27.0

Notes: SD: standard deviation. ADL: activity of daily living. IADL: instrumental activity of daily living.

TABLE 2. *Support received by proximity of nearest child*

Location of nearest child	Total cases	Financial	Functional	Material
			<i>Percentages</i>	
Household/co-resident	617	70.0	61.9	60.5
Same neighbourhood	142	31.6	27.4	25.8
Outside the neighbourhood	342	32.2	20.2	24.2
Abroad	147	21.6	4.7	24.6
Total	1,248			

In alignment with global trends in population ageing, the sample contains a greater number of women than men. Women are more likely to have a child living in the household. They tend to be older, are more likely to have more children and larger households, be unmarried, and be in poorer health and have disabilities. Descriptive analyses, not shown here, indicate that the unmarried sub-group of older women are disproportionately widowed (44 per cent). One-quarter of the sample of widows indicated receipt of yearly income from non-familial sources, within the range of \$130–3,768. In addition to this, 57 per cent of widows indicate that they are economically insecure. This suggests that older widows in Barbados are likely to be financially disadvantaged. As for assistance, elderly women are much more likely to receive all three types of support and more likely to receive support from other members of their household beside their spouse and co-resident child.

Table 2 shows the percentage receiving various types of support by the location of the nearest child. Older Barbadians whose nearest child is co-resident are far more likely to receive every dimension of support. The likelihood of receiving financial support is highest for those whose nearest child is co-resident and lowest for ones with the nearest child outside the country. For functional support, there is a sharp reduction in the likelihood of support received with increasing distance. Material support is most likely received when the nearest child is co-resident, but there is little difference in the percentage receiving material support across other distances. On balance, the descriptive results indicate that the likelihood of elderly parents receiving different types of support varies by the proximity between them and their children.

The effect of selected covariates on the probabilities of elderly Barbadians receiving three dimensions of support from their children is presented in Table 3. These effects generally correspond with the bivariate results presented in Table 2. Controlling for other factors, the likelihood of receiving support generally declines with increasing distance, and it is clear that those with co-resident children, the comparison group, are substantially more

TABLE 3. *Logistic regression results for informal support received showing log odds ratios (comparison category in parentheses) (N = 1,248)*

Characteristics of parents	Financial	Functional	Material
Location of nearest child (co-resident):			
Same neighbourhood	-1.56 (0.22)***	-1.48(0.23)***	-1.45(0.24)***
Outside neighbourhood	-1.43 (0.17)***	-1.77(0.18)***	-1.31(0.17)***
Abroad	-2.04 (0.24)***	-3.52(0.41)***	-1.48(0.24)***
Covariates:			
Living children	0.09 (0.03)**	0.07 (0.03)*	0.07 (0.03)**
Residual household size	0.04 (0.06)	0.04 (0.05)	0.09 (0.05)
Residual household assistance (no assistance):			
Any assistance from auxiliary household member	0.44 (0.20)*	0.41 (0.20)*	0.16 (0.19)
Age (60–64):			
65–69	0.04 (0.22)	0.30 (0.22)	0.18 (0.21)
70–74	-0.16 (0.23)	0.59 (0.23)**	0.49 (0.22)*
75–79	-0.19 (0.26)	0.66 (0.26)**	0.40 (0.25)
80–84	0.39 (0.28)	0.71 (0.31)*	0.84 (0.29)**
85 and older	0.24 (0.31)	0.83 (0.32)**	0.84 (0.30)**
Gender (women):			
Men	-1.30 (0.15)***	-0.83(0.16)***	-1.06(0.15)***
Marital status (married):			
Unmarried	0.08 (0.15)	0.13 (0.16)	0.07 (0.15)
Education (Primary):			
Above Primary	-0.20 (0.17)	0.17 (0.18)	-0.15 (0.16)
Employment (unemployed):			
Employed	-0.37 (0.20)	0.15 (0.20)	-0.14 (0.21)
No information on work	0.37 (0.37)	0.12 (0.29)	-0.41 (0.32)
Yearly income (no income):			
\$130–3,768	0.35 (0.22)	0.04 (0.24)	-0.07 (0.22)
\$3,840–5,100	0.12 (0.23)	-0.10 (0.23)	-0.33 (0.22)
\$5,110–13,111.93	-0.01 (0.22)	-0.11 (0.22)	-0.57 (0.22)**
\$13,200 and over	0.03 (0.22)	-0.29 (0.24)	-0.28 (0.22)
Missing income	0.36 (0.28)	0.27 (0.29)	-0.19 (0.28)
Health status (very good):			
Good	0.05 (0.20)	0.22 (0.22)	0.44 (0.20)*
Poor	0.19 (0.20)	0.37 (0.22)	0.48 (0.20)**
Disability:			
At least one ADL	-0.02 (0.23)	0.22 (0.23)	0.08 (0.23)
At least one IADL	0.03 (0.18)	0.12 (0.19)	0.23 (0.18)
Constant	0.58 (0.30)	-0.49 (0.31)	-0.212 (0.29)
Pseudo R ²	0.2158	0.2314	0.1747
Chi ²	261.6***	271.79***	224.63***

Notes: Standard errors are given in parentheses. ADL: activity of daily living. IADL: instrumental activity of daily living.

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

likely to receive support across all dimensions than those with a nearest child anywhere else. Indeed, older people who have children not living in the same household are disadvantaged even if the nearest child is in the same neighbourhood. Elderly with their nearest child abroad, in contrast to one of our hypotheses, are quite disadvantaged even with respect to financial support.

Men are less likely to receive all forms of support relative to women and the likelihood of receiving functional and material support increases with age. There is a positive association between the number of children and probability of receiving functional and material support. Although there is no apparent association with the residual household size, the availability of intra-household transfers from residual household members bears a positive association with the probability of receiving financial and functional support from children. While this result may be surprising since it means that those who receive support from auxiliary household members are also more likely to get support from children, there are a few possibilities that may help to contextualise this result. It may suggest that some older people have an unmeasured need for which they require additional support. But there are a number of other possible explanations for this positive association. It may reflect situations where older adults exercise power in their households that allow them to garner resources from a wide range of individuals, that auxiliary household members provide assistance when co-resident children are unable to, or even that children provide support both directly and indirectly through others in the household, such as a grandchild. Health status is also important. The probability of receiving support increases if the parents' self-assessed health is good or fair/poor in comparison to very good/excellent. Notably, the economic standing of the older adult is negatively associated with the receipt of material support but has no association with other dimensions of support.

Hypothesis (3) proposed that even among those whose nearest child is co-resident, the likelihood of receiving support will be contingent on the needs of the elderly parent. To determine if this hypothesis finds support in our data, interactions were tested. [Table 4](#) presents models with significant interactions. Only the main and interaction coefficients are shown, although each model controls for the other characteristics in the previous table.

Residual household size, economic activity and ADL difficulty interact with proximity in various ways. Residual household size combined with having a nearest child outside the neighbourhood increases the probability of financial support. One possible explanation here is that this finding reflects remittances to those caring for grandchildren when adult children are working further from home but not abroad. Economic activity interacts with proximity to influence financial support and material support such that

TABLE 4. *Logistic regression coefficients for informal support transfers received showing interactions effects (comparison category in parentheses) (N = 1,248)*

Characteristics of parents	Financial	Functional	Material
Location of nearest child (co-resident):			
Neighbourhood	-1.55 (0.27)***	-1.49 (0.25)***	-1.49 (0.25)***
Outside neighbourhood	-1.85 (0.21)***	-1.93 (0.20)***	-1.53 (0.19)***
Abroad	-1.96 (0.27)***	-3.37 (0.41)***	-1.59 (0.26)***
Residual household size	0.02 (0.06)	0.04 (0.05)	0.10 (0.06)*
Employment (unemployed):			
Employed	-0.50 (0.25)*	0.15 (0.21)	-0.48 (0.25)*
No info on work	-0.07 (0.43)	0.15 (0.29)	-0.50 (0.38)
Disability:			
At least one ADL	0.02 (0.24)	-0.04 (0.29)	0.09 (0.23)
Interactions:			
Proximity × Residual household size:			
Neighbourhood × Residual household	-0.11 (0.29)		
Outside neighbourhood × Residual household size	0.41 (0.15)**		
Abroad × Residual household size	-0.33 (0.25)		
Proximity × Working:			
Neighbourhood × Employed	-0.59 (0.73)		0.41 (0.70)
Outside neighbourhood × Employed	0.95 (0.42)*		1.27 (0.42)**
Abroad × Employed	0.71 (1.10)		0.14 (0.79)
Neighbourhood × No info on work	na		na
Outside neighbourhood × No info on work	0.74 (0.70)		-0.08 (0.79)
Abroad × no info on work	1.57 (1.54)		2.04 (1.46)
Proximity × ADL:			
Neighbourhood × ADL		0.15 (0.63)	
Outside neighbourhood × ADL		0.94 (0.43)*	
Abroad × ADL		na	
Change in log likelihood (likelihood ratio test) ¹	22.81**	7.42*	13.65*
Constant	0.67 (0.31)*	-0.47 (0.31)	-0.13 (0.30)
Pseudo R ²	0.2277	0.2245	0.1817
Chi ²	276.97***	265.55***	234.73***

Notes: Standard errors are given in parentheses. ADL: activity of daily living. info: information. na: no cases. 1. Compared to model without interactions.

Significance levels: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

those with the nearest child outside the neighbourhood and currently employed have advantages. While this interaction is difficult to explain, it could be that older persons work because they lack economic sufficiency. Descriptive analyses, not shown, indicate that roughly 60 per cent of older

Barbadians in the sample feel that they do not have enough money to live on. Thus they are receiving financial and material help from both a job and a non-co-resident child who lives within the country. Finally, experiencing a difficulty in undertaking ADLs increases functional support among those whose nearest child is outside the neighbourhood. This suggests that children living further away will provide assistance to those in physical need. While the number of significant interactions is few, they do point toward children responding to the needs of parents when not living nearby but in the same country. That is, the interactions suggest increased probabilities of receiving support when the nearest child lives outside the neighbourhood but within the country and there is some need that the older adult experiences. However, interactions do not indicate increased probabilities of help when the nearest child is living abroad even if there is a need.

Discussion

Research on ageing and intergenerational relations in the Caribbean region has been somewhat neglected, yet the importance of such research is heightened by realities such as the accelerated rate of population ageing and the fact that it is occurring within relatively poor socio-economic contexts as opposed to developed regions. In addition, accelerated population ageing is occurring in a region where the family plays a critical role in the care-giving of older persons. This role may have a particular significance in a country like Barbados where there is an important trend of migration among the younger adult population and fertility has declined to below replacement level. This combination of demographic factors raises questions such as whether older adults without co-resident children receive similar levels of support as those with co-resident children, and whether those only with children living abroad receive remittances to a similar extent as those with children living in the same country. The main objective of the current study was to answer some of these questions by assessing how proximity of the nearest adult child relates to the probability that an older person receives three types of support: financial, material and functional. By doing this, we hope to inform as well as activate the dialogue on the association between living situations and the intergenerational support of older persons in the Caribbean. It is true that Barbados has a small population, but it is also the case that the country is experiencing many of the conditions that are or will be experienced soon in other Caribbean countries and therefore this study can serve as a baseline for similar studies elsewhere in the region.

Our results show, to quite an alarming degree, that geographic separation impinges on the receipt of support. Indeed, it is hard to over-emphasise from

the current results the importance of having a co-resident child on the probability of support. Those whose nearest child is co-resident are highly likely to be receiving financial, material and functional support, net of other important characteristics, like health and economic condition. When distance between parent and nearest child increases, outside of co-residence, little difference is noticed in the probability of receiving support. There is an exception in that the probability of receiving functional support is greater for those with a nearest child in as opposed to out of the country. At the same time, interactions provided some reason for optimism among those in need with a nearest child living in the country but outside one's neighbourhood. It is interesting, for instance, that those with the nearest child outside the neighbourhood and with ADL difficulties have quite a high probability of receiving functional support. Further calculations conducted using coefficients from [Table 4](#) indicated that there is a 0.150 probability of receiving functional support if an older person has a nearest child living outside the neighbourhood and has no ADL difficulties, holding all other variables constant at their mean values. This doubles to 0.306 if there is an ADL difficulty. While these probabilities are still lower than those for older adults with a co-resident child (approximately 0.540 with or without ADL difficulties), the increase is nonetheless dramatic and suggests some degree of changing probabilities of receiving support with increasing need.

Other characteristics that positively impact on the probability of receiving support include number of children, assistance from auxiliary household members, being female and age. Yet, we found no significant relationship between age and receipt of financial support or between income level and financial support. Moreover, our results are somewhat in contrast to literature that indicates strong provision of support by international migrants to elders in their country of origin (De Vos, Solis and Montes de Oca 2004; Gomes 2007). Some of this research is even based on qualitative studies conducted in Barbados (Chamberlain 2004, 2006). Our study suggests that the approximately 11–12 per cent of Barbadian elders whose nearest child lives outside of the country are disadvantaged relative to others, a situation that may be interpreted by some as a type of neglect.

But, the lack of association between income and financial support and the possible neglect among those without co-resident children and among those whose nearest child is abroad should all be interpreted with caution. The 2000 Census indicated that only a small proportion of Barbadian elders depend on remittances as a source of their livelihood. The government of Barbados has instituted a number of public health provisions that have benefited health care for older adults (PAHO 2007), and there is a stronger pension support system in place in Barbados than in most of the region (Pettinato and Diaz Cassou 2005). Indeed, the relatively strong public health

and pension programmes that exist in Barbados may provide a context within which to interpret our results, meaning that elderly parents who do not have a co-resident child may in fact be receiving a substantial amount of formal support. The measure of yearly income used in this study is based on non-familial sources of income which include pensions, income from rent or banking, welfare and other sources. This latter category may include pooling of pensions or sources such as rotating credit institutions. These are common sources of informal financial security within the Caribbean and other developing regions (Anderson 1966; Handa and Claremont 1999; Watkins-Owens 2001). However, we do not know the degree to which such situations exist and influence our results since there were not applicable questions in the survey.

Elderly parents who do receive support from their nearest child living abroad may also receive substantial amounts, a factor that we could not measure in the current data. Although parents whose nearest child is co-resident are likely to receive support, our study cannot tell whether this actually comes from the co-resident child or whether there are children living elsewhere, including abroad, who are providing this support. Those who indicate their nearest child lives nearby and from whom they receive support may also receive some support from children at farther distances. The main concern in this study, however, is to assess the probability of parent's receipts of support from any one child rather than from each individual child, although the latter is an equally important topic of inquiry. Finally, we are disadvantaged insofar as a cross-sectional design limits the ability to make causal statements. The lack of longitudinal data, for instance, means that we cannot tell whether older parents whose nearest child is abroad have assisted their children in obtaining their living status with financial exchanges moving in the opposite direction. It is also possible that older adults may have been supported in the past by their child/children who live(s) abroad. Thus we cannot say definitively that older adults whose nearest child lives abroad are neglected.

Earlier in the paper we referenced both new household economics and modified extended family perspectives. By suggesting that support is most likely received when a nearest child is co-resident does not necessarily lend strong support to these ideas in Barbados. Rather, it suggests some inflexibility in the informal and intergenerational support system. But, again, we caution not to over-interpret the findings. Our ability to comment on the modified extended family is limited in that the study did not assess other dimensions of intergenerational support, such as emotional, that may be evidenced by frequency of social interaction either via telephone calls, visits or forms of new technology such as computer contact. These forms may be more characteristic of the relationship for elderly parents whose nearest

child is abroad, as has been documented in studies of transnational Barbadian and other Caribbean families (Foner 1997; Zontini 2007). Our ability to comment on the new home economics perspective is hindered by our sample, which is entirely urban. We cannot determine whether similar relationships exist among rural-living elders.

Increases in life expectancy alongside declining fertility and migration can pose some threat to the sustenance of informal support. The Caribbean region experienced very low population growth rates between 1996 and 2002, which has implications for low labour force growth rates in the near future. Relatively high unemployment continues to threaten the economic security of younger adults, especially in Barbados where national economic activity is dangerously dependent on the service and tourism sectors. As of 1999, the unemployment rate was 21.8 per cent among young adults 15–24 years (Downes 2006). Young women are at greater risk of unemployment throughout the wider Latin America and Caribbean region even though their labour force participation rates have increased (Arriagada 1998; Downes 2006). If and when the need arises, labour market insecurity of young adults can potentially threaten financial support to older adults, which may explain to some extent the low probability of financial support to older adults with a nearest child outside their home. Moreover, labour market insecurity and other declines in economic conditions can drive spatial separation of parents and their adult children who may emigrate for employment.

Our focus on the nearest child as a main indicator of proximity has both advantages and disadvantages. We do not mean to say that proximity of nearest child is the only factor that determines the supply of support. Indeed, it is quite likely that having children living in various places, such as co-resident and abroad, may be most advantageous. Still, given the changes taking place in the region that will see further reductions in family size and lead to increased separation between older adults and adult children, the results are certainly cause for concern. As noted, relatively strong government programmes make it possible that structural supports are playing a role in the lives of older people who do not have co-resident children. This is something we cannot tell from our data. Still, our study does intimate that there is a need for future studies in the region to assess the propensity and intensity of upward and downward flows of support based on proximity of all children, which is possible given the current data but is not the focus of this particular study. Since spatial separation of older adults and their children may have different meanings and consequences for the wellbeing of older adults in rural parts of Barbados, subsequent analyses should also assess the flows of intergenerational support to elders in rural parts of Barbados and how this may differ from urban elders. Indeed, the health status of rural

elderly may have a stronger effect on financial, functional and material support from non-co-resident children than was shown amongst this urban sample due to broad socio-economic differences in infrastructure across regions of the country. We would also suggest that a promising line of investigation is cross-national comparisons of intergenerational support. This is possible given other urban samples provided by the SABE study and other datasets available in the Caribbean and Latin American region. Comparative study can be useful for disentangling how intergenerational transfers operate within distinct demographic and socio-economic contexts.

Most importantly, it is necessary to continue to push a research agenda with respect to the impact of migration on upward and downward flows of intergenerational support within a region that has a historical and cultural thread of familial separation as a means to the ultimate goal of ensuring the wellbeing of all members. Although this relationship is rarely assessed, it will take on more significant meaning as the region ages, fertility declines and migration among younger age cohorts continue against a backdrop of the family unit having the primary responsibility for care over the lifecycle.

Future research on the intersection of migration (internal and/or international) and intergenerational support should be designed with the aim of developing longitudinal samples of families and households across the region in both urban and rural settings. The Caribbean region is characterised by a history of migration but to date there has not been population-level assessments of how remittances are utilised across the lifecycle of the family or household. Arguably, future household surveys, for instance, should not only incorporate modules to capture the extent to which the household is receiving remittances from immediate blood relatives or extended kin but also an assessment of how these remittances (domestic or international) are spent by the household. For instance, we would want to know the extent to which remittances are used by co-resident children to care for the older adult or to care for grandchildren, other household members and non-members. It may be the case that elderly persons with co-resident children are being supported indirectly by non-co-resident children. It would also be useful to assess whether households within communities pool remittances as a form of personal savings or community support for elders. Against the backdrop of vulnerabilities to global economic shocks and natural disasters that are characteristic of the Caribbean region (Barrientos 2010), we would want to be able to answer the question, how do the forms of support and coping strategies of households with and without elderly persons change over time in response to shifts in support? A richer and more comprehensive investigation of this question should be pursued through mixed-method designs, qualitative and quantitative methods, and among different ethnic groups in the region.

In summary, our results indicate that a co-residential living arrangement between older adults and at least one child is advantageous to the former. Our findings regarding the response of non-co-resident children within the country to the needs of older adults suggests that socio-economic planning needs to consider the extent to which geographic proximity between older adults and their children can be sustained. Distance to children introduces an additional form of vulnerability for older adults. Planning therefore requires identifying households that are most vulnerable to migration of the younger cohort, and the subsequent targeting of social services for older adults in those households. It may also be prudent to consider plans that allow other household members, related or non-related, to more easily take some of the responsibility for the care-giving to older adults. This may call for investigating the preferential living and care arrangements of older adults based on their needs and community contexts.

References

- Aboderin, I. 2005. Changing family relationships in developing nations. In Johnson, M. L., Bengston, V. L., Coleman, P. G. and Kirkwood, T. B. L. (eds), *The Cambridge Handbook of Age and Ageing*. Cambridge University Press, Cambridge, 469–75.
- Anderson, R. T. 1966. Rotating credit associations in India. *Economic Development and Cultural Change*, **14**, 3, 334–9.
- Arriagada, I. 1998. *The Urban Female Labour Market in Latin America: The Myth and the Reality*. Mujer y Desarrollo Series, 21, Economic Commission for Latin America and the Caribbean, Santiago. Available online at <http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/1/14421/P14421.xml&xsl=/mujer/tpl-i/pgf.xsl&base=/revista/tpl/top-bottom.xslt> [Accessed 7 March 2011].
- Barrientos, A. 2010. Vulnerability and social protection in small island States: the case of Grenada. *Social and Economic Studies*, **59**, 1/2, 3–30.
- Calvo, E. and Williamson, J. B. 2008. Old-age pension reform and modernization pathways: lessons for China from Latin America. *Journal of Aging Studies*, **22**, 1, 74–87.
- Chamberlain, M. 2004. *Narratives of Exile and Return*. Transaction Publishers, New Brunswick, New Jersey.
- Chamberlain, M. 2006. *Family Love in the Diaspora*. Transaction Publishers, New Brunswick, New Jersey.
- De Vos, S., Solis, P. and Montes de Oca, V. 2004. Receipt of assistance and extended family residence among elderly men in Mexico. *International Journal of Aging and Human Development*, **58**, 1, 1–27.
- Dowd, J. J. 1980. Exchange rates and old people. *The Journal of Gerontology*, **35**, 4, 596–602.
- Downes, A. S. 2006. *Caribbean Labour Market Challenges and Policies*. Macroeconomía del Desarrollo Series, 45, Economic Commission for Latin America and the Caribbean, Santiago. Available online at <http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/1/25721/P25721.xml&xsl=/de/tpl-i/pgf.xsl&base=/tpl/top-bottom.xslt> [Accessed 7 March 2011].
- Durate, Y. A. d. O., Lebrão, M. L. and Dias de Lima, F. 2005. The contribution of living arrangements in the provision of care for elderly persons with functional

- impairments in Sao Paulo, Brazil. *Revista Panamericana de Salud Publica/Pan American Journal of Public Health*, **17**, 5/6, 370–8.
- Economic Commission for Latin America and the Caribbean 2004. *Population, Ageing and Development*. Thirtieth Session of ECLAC, San Juan, Puerto Rico. Available online at <http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/6/15126/P15126.xml&xsl=/tpl/pgf.xsl&base=/tpl/top-bottom.xsl> [Accessed 15 October 2010].
- Foner, N. 1997. The immigrant family: cultural legacies and cultural changes. *International Migration Review*, **31**, 4, 961–74.
- Giles, J. and Mu, R. 2007. Elderly parent health and the migration decisions of adult children: evidence from rural China. *Demography*, **44**, 2, 265–88.
- Glaser, K., Agree, E. M., Costenbender, E., Camargo, A., Trench, B., Natividad, J. and Chuang, Y. 2006. Fertility decline, family structure, and support for older persons in Latin America and Asia. *Journal of Aging and Health*, **18**, 2, 259–91.
- Gomes, C. 2007. Intergenerational exchanges in Mexico: types and intensity of support. *Current Sociology*, **55**, 4, 545–60.
- Handa, S. and Claremont, K. 1999. The economics of rotating savings and credit associations: evidence from the Jamaican 'Partner'. *Journal of Development Economics*, **60**, 1, 173–94.
- Hoyert, D. L. 1991. Financial and household exchanges between generations. *Research on Aging*, **13**, 2, 205–25.
- Jones, A., Sharpe, J. and Sogren, M. 2004. Children's experiences of separation from parents as a consequence of migration. *Caribbean Journal of Social Work*, **3**, 1, 89–109.
- Knodel, J., Kespichayawattana, J., Saengtienchai, C. and Wiwatwanich, S. 2010. How left behind are rural parents of migrant children? Evidence from Thailand. *Ageing & Society*, **30**, 5, 811–41.
- Lawton, L., Silverstein, M. and Bengston, V. 1994. Affection, social contact and geographic distance between adult children and their parents. *Journal of Marriage and the Family*, **56**, February, 57–68.
- Lee, G. R., Netzer, J. K. and Coward, R. T. 1995. Depression among older parents: the role of intergenerational exchange. *Journal of Marriage and the Family*, **57**, 3, 823–33.
- Lin, G. and Rogerson, P. A. 1995. Elderly parents and the geographical availability of their adult children. *Research on Aging*, **17**, 3, 303–31.
- Litwak, E. 1960. Geographic-mobility and extended family cohesion. *American Sociological Review*, **25**, 3, 385–94.
- Lloyd-Sherlock, P. 2000. Population ageing in developed and developing regions: implications for health policy. *Social Science and Medicine*, **51**, 6, 887–95.
- Massey, D. and Basem, L. C. 1992. Determinants of savings, remittances and spending patterns among U.S. migrants in four Mexican communities. *Sociological Inquiry*, **62**, 2, 185–207.
- Nam, V. E. 2009. *National Census Report: Barbados*. Caribbean Community (CARICOM) Secretariat, Greater Georgetown, Guyana. Available online at <http://www.caricomstats.org/Files/Publications/NCR%20Reports/Barbados.pdf> [Accessed 20 February 2011].
- Pan American Health Organization (PAHO) 2007. *Barbados. Health in the Americas, 2007*. Pan American Health Organization, Washington DC. Available online at <http://www.paho.org/hia/archivosvol2/paisesing/Barbados%20English.pdf> [Accessed 22 January 2011].
- Pelaez, M., Palloni, A., Albala, C., Alfonso, J. C., Ham-Chande, R., Hennis, A., Lebrao, M. L., Lesn-Diaz, E., Pantelides, E. and Prats, O. 2000. SABE – *Survey on Health,*

- Well-Being, and Aging in Latin America and the Caribbean, 2000*. Computer file, ICPSR03546-v1. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [distributor], 2005. doi:10.3886/ICPSR03546.
- Pettinato, S. and Diaz Cassou, J. 2005. A needs assessment of pension systems in the English speaking Caribbean. In Brunton, D. P. and Masci, P. (eds), *Workable Pension Systems: Reforms in the Caribbean*. Inter-American Development Bank, Washington DC, 97–126.
- Pottinger, A. M. 2005. Children's experience of loss by parental migration in inner city Jamaica. *American Journal of Orthopsychiatry*, **75**, 4, 485–96.
- Rawlins, J. M. 1999. Confronting ageing as a Caribbean reality. *Journal of Sociology and Social Welfare*, **XXVI**, 1, 143–53.
- Ribe, H., Robalino, D. A. and Walker, I. 2010. *Achieving Effective Social Protection for All in Latin America and the Caribbean: From Right to Reality*. The International Bank for Reconstruction and Development/The World Bank, Washington DC.
- Rogerson, P. A., Burr, J. A. and Lin, G. 1998. Changes in geographic proximity between parents and their adult children. *International Journal of Population Geography*, **3**, 2, 121–36.
- Saad, P. M. 2006. *Informal Support Transfers of the Elderly in Brazil and Latin America*. 169–210. Available online at http://www.ipea.gov.br/sites/ooo/2/publicacoes/livros/sixty_plus/Arq_13_Cap_06.pdf [Accessed 20 January 2011].
- Scholnik, S., Saad, P., Miller, T., Huenchuan, S., Martínez, C., González, D., Chackiel, J., Bay, G. and Holz, M. 2008. *Demographic Change and Its Influence on Development in Latin America and the Caribbean*. Thirty-second Session of ECLAC, The Economic Commission for Latin America and the Caribbean, Santo Domingo, Dominican Republic. Available online at <http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/o/33220/P33220.xml&xsl=/pses32/tpl/pgf.xsl&base=/pses32/tpl/top-bottom.xsl> [Accessed 30 January 2011].
- Silverstein, M., Gans, D. and Yang, F. M. 2006. Intergenerational support to aging parents: the role of norms and needs. *Journal of Family Issues*, **27**, 8, 1068–84.
- Smith, G. C. 1998. Residential segregation and patterns of interaction between elderly parents and their adult children. *Progress in Human Geography*, **22**, 3, 368–84.
- Stark, O. and Bloom, D. E. 1985. The new economics of labor migration. *The American Economic Review: Papers and Proceedings of the Ninety-Seventh Annual Meeting of the American Economic Association*, **75**, 2, 173–8.
- Stark, O. and Lucas, R. E. B. 1988. Migration, remittances and the family. *Economic Development and Cultural Change*, **36**, 3, 465–81.
- The National Assistance Board 2011. *Services*. Available online at http://www.socialcare.gov.bb/default.asp?V_DOC_ID=1173 [Accessed 17 September 2011].
- Thomas-Hope, E. 2009. *Freedom and Constraint in Caribbean Migration and Diaspora*. Ian Randle Publishers, Kingston, Jamaica, Miami, Florida.
- Trujillo, A. J., Mroz, T. A. and Angeles, G. 2007. Living arrangements and the role of caregivers among the elderly in Latin America. *World Health and Population*, **9**, 2, 114–31.
- United Nations 2005. *Living Arrangements of Older Persons Around the World*. United Nations, New York.
- United Nations 2010a. *World Population Prospects: The 2010 Revision*. Available online at <http://esa.un.org/unpd/wpp/unpp/p2kodata.asp> [Accessed 5 May 2011].
- United Nations 2010b. *Population Ageing and Development 2009*. Available online at <http://www.un.org/esa/population/publications/ageing/ageing2009.htm> [Accessed 5 December 2010].

- Watkins-Owens, I. 2001. Early twentieth-century Caribbean women: migration and social networks in New York City. In Foner, N. (ed.), *Islands in the City: West Indian Migration to New York*. University of California Press, Ewing, New Jersey, 25–51.
- Wolf, D. A. and Soldo, B. J. 1998. Household composition choices of older unmarried women. *Demography*, **25**, 3, 387–403.
- Zimmer, Z. 2006. Population ageing. In Schulz, R., Noelker, L. S., Rockwood, K. and Sprott, R. L. (eds), *Encyclopedia of Gerontology*. Springer, New York, 36–40.
- Zimmer, Z. and Knodel, J. 2010. Return migration and the health of older aged parents: evidence from rural Thailand. *Journal of Aging and Health*, **22**, 7, 955–76.
- Zimmer, Z., Korinek, K., Knodel, J. and Chayovan, N. 2008. Migrant interactions with elderly parents in rural Cambodia and Thailand. *Journal of Marriage and Family*, **70**, August, 585–98.
- Zontini, E. 2007. Ethnicity, families and social capital: caring relationships among Italian and Caribbean transnational families. *International Review of Sociology*, **17**, 2, 257–77.

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