Support Transfers between Elderly Parents and Adult Children in two Brazilian Urban Settings

Paulo Murad Saad

INTRODUCTION

Mutual aid and exchange relations among kin have historically insured survival in old age. Over the twentieth century, however, family functions have been increasingly replaced by the public sector in the more developed countries, reducing the central role family play in supporting the elderly. That is not the case in most of the less developed countries, including Brazil, where the lack of capacity of public welfare systems to provide formal support to the elderly still makes the family the main reference for old age support (United Nations, 1994; Daatland, 1990; Lillard &Willis, 1997).

At the same time that the ageing process intensifies in the less developed regions, however, several factors tend to constrain the elderly-family relationship. The available time of women, for instance, who traditionally have been the major provider of basic care for the elderly, has significantly decreased as female participation in the labor market has increased. The high migration levels in Brazil in the last decades (Saad & Camargo, 1990), on the other hand, have certainly contributed to weakening family ties by separating adult children from elderly parents. In addition, it is not difficult to imagine how a situation of increasing economic hardship can dampen the provision of support, particularly financial, to elderly parents.

Regarding to the later point, it is important to keep in mind that the support flow in Brazil is far from being just one way. The pernicious consequences – concentration of wealth, increasing unemployment, and the expansion of poverty – of the cyclical periods of economic crisis experienced by the country have led large numbers of adult children to become dependent, in some way, on their elderly parents' resources. Therefore, one may find an important top-down flow of support between generations within the family, in addition to the ascending flow of support from adult children to elderly parents.

The general objective of the study is to explore, in a comparative fashion, factors affecting support transfers between the elderly and their adult children in two quite different socioeconomic and demographic Brazilian contexts: the city of São Paulo, located in the country's richest region (Southeast), and the city of Fortaleza, located in the country's poorest region (Northeast). If, on the one hand, regional differences in the stage of demographic transition have led to distinct paces of population aging, social-economic heterogeneity, on the other hand, suggests unique implications of the aging process within each region.

More specifically, the study addresses the following questions: What kind of assistance do the non co-resident children give to elderly parents? In which cases are the elderly most likely to receive family assistance? Are the effects of these factors similar in São Paulo and Fortaleza? Are there gender differences among the elderly in terms of

support received? Are there gender differences among the children in terms of support given to the elderly parents? Do elderly parents give support to adult children? What kind of support do they give? What factors contribute most to this situation? Do the elderly in Fortaleza receive more family support than in São Paulo? Do the children who out-migrated from the state of Ceará send financial support to their elderly parents left in Fortaleza?

The study is organized as follows: after this introduction, the first section presents two important aspects which provided the basis for the analyses carried out in the subsequent sections – a brief review of the most frequently addressed hypotheses about the motives inducing intergenerational support transfers, and the main findings of previous studies on intergenerational support transfers. The next section includes a description of the data sources and methodology, including comments on both the response and explanatory variables and the statistical methods used for fitting the data. The results are discussed next, beginning by an initial approach to the magnitude of the support flows and an assessment of the correlation between the different dimensions of support. Then, separate analysis for Fortaleza and São Paulo are presented exploring the factors affecting support transfers between adult children and elderly parents, followed by a comparative analysis between the two cities. A final section is reserved for conclusions.

GENERAL ASPECTS

Motivation for Intergenerational Support Transfers

Several hypotheses have been developed concerning the motivation for the exchange of informal support between generations within the family. In a recent study, Lillard and Willis (1997) presented a brief review of the most frequently mentioned versions of these hypotheses. One of them, which they call the "old age security hypothesis," emphasized the difficulties in finding a reliable outlet for saving for old age in developing countries. In a context where "financial institutions are primitive, property rights are insecure, the currency is subject to inflation, and government social security schemes, private pensions, and health insurance are nonexistent" (pp. 115), the theory asserts that children represent the only chance for common people to have any security in their old age, even though they are risky investments since they can die, be economic failures, or be disloyal. This hypothesis suggests that fertility should decline as economic development takes place since parents can rely increasingly on market and public sector methods for old age transfers, decreasing, thus, the economic benefits of having children.

An alternative theory, which the authors call the "parental repayment hypothesis", emphasizes borrowing rather than saving constraints. Considering the scanty mechanisms available in the market for individuals to borrow against their future income, the theory postulates that "there is an implicit family capital market in which parents finance human capital investments in their children through a combination of grants and loans and, in return, children implicitly repay the loan component by providing old age support for their parents" (Lillard and Willis, 1997; pp 116).

Another hypothesis frequently addressed is the so called “altruism hypothesis” advanced by Becker (1974, 1991). According to this view, altruistic feelings of family members toward one another would explain many aspects of family behavior. One aspect would be, for instance, the efficient allocation of family resources by an altruistic ‘head of household’, providing family members with “the benefits of consumption-smoothing over the life cycle and across uncertain states of the world that otherwise would require actions such as borrowing and lending or the purchase of market insurance” (Lillard and Willis, 1997; pp 117). In this context, it is assumed that the more altruistic the household head, the greater the investments in children’s education through gifts, i.e. without requiring future repayment. As noted by Lillard and Willis (1997), however, it is hard to empirically distinguish between transfers that arise because of altruism and transfers that reflect, more properly, efficient contracting among family members.

Much of the recent work on family support transfers, however, uses social exchange theory as the conceptual framework. Rather than consumption-smoothing motives, these alternative models of intra-family transfers are based on exchange. In other words, these studies address, in general, the reciprocity in support relationships between the elderly and their family (Lee, 1985; Antonucci, 1990). In this context, the dual roles of individuals both as care providers and receivers are emphasized, as it is in the interest of the individuals to assume both roles in their social interaction. This kind of reasoning is assumed to hold in the case of the family support transfers addressed in this study, since the exchange of support between parents and children in Brazil seems to last throughout the life cycle of the family members, as if there existed an intergenerational contract stipulating the respective roles of the family members at various stages. Traditional norms, both internalized and enforced by social pressures, seem to reinforce this situation by serving as a major motivating force for exchange of support between parents and children.

Empirical Background

Prior studies on support exchanges in Brazil are scarce. A significant amount of empirical research, however, has already been developed in different regions, such as the United States and the East and Southeast Asia. In general, these studies have demonstrated the importance of the traits of both the parental and filial generations for family interaction. They also have shown the difficulties that a distance separating parents and children can impose on intergenerational interaction, and that needs increase as resources and health diminish with age. Having a number of children, on the other hand, has provided the elderly more opportunity to help and be helped. All those findings constituted important insights for selecting the explanatory variables included in the intergenerational support transfers models.

The support given and received by both parents and children is often associated with marital status. In general, research shows that widowed aging parents tend to receive more assistance from their adult children than do married parents (Lopata, 1979; Stoller and Earl, 1983). Rossi and Rossi (1990), in particular, found that widowed parents tend to receive more assistance than they give to their children, while married parents tend to give more assistance than they receive. Presumably, widowed are more needy than married

individuals, and therefore less in a position to offer assistance to children[1]. Married sons, on the other hand, are less likely to be engaged in support exchanges with their elderly parents, while parents are more likely to provide financial assistance to previously married daughters (Hoyert, 1991). Lang and Brody's (1983) study shows that middle-aged unmarried daughters gave three times more help to their elderly mothers than married daughters.

Besides marital status, other characteristics of the family are often associated with different patterns of support. The number and parental status of adult children are generally found to be important determinants of intergenerational exchange. The number of currently living children is expected to improve the likelihood of assistance exchange (Hoyert, 1991). Adult children who are parents of small children, on the other hand, are more likely to be receiving help from their parents than adult children at any other life stage, and less likely to give assistance to their parents (Eggebeen and Hogan; 1990).

Gender of both elderly parents and adult children is another dimension that researchers have often linked with the likelihood of intergenerational support exchanges. From the perspective of the children, daughters of older parents have been reported as providing larger, more diverse amounts of assistance than do sons (Spitze and Logan, 1990; Coward and Dwyer, 1990; Rossi and Rossi, 1990; Lee, Parish and Willis, 1994). Because elderly females are both unmarried more frequently than elderly males and less likely to have any source of income, they are, in general, more in need of assistance, particularly financial assistance, than elderly males (Rossi, 1986; Wolf and Soldo, 1988). Moreover, women tend to be more emotionally attached to their children and, hence, they are expected to be more frequently involved in intergenerational support exchanges than elderly male (Shi, 1993).

The need for support has been closely related with decreased mobility (Worobey and Angel, 1990; Speare et. Al., 1991). The lower the mobility, the less independence can be expected of the elderly and the greater the need for support, particularly co-residence. Another common finding in the literature on family support of the elderly is that the balance of support exchange is likely to be affected by declines in resources, which both decrease the ability to provide, and increase the need for receiving assistance (Dowd, 1980).

Support transfers that involve caregiving to the elderly, on the other hand, are often reported as requiring close proximity. In these cases, it is important to take into account not only demographic but also geographic availability of adult children. Several investigators have reported that the geographic distance between parents and their offspring is the fundamental determinant of interaction between them (Crimmins and Ingegneri, 1990; Kivett and Atkinson, 1984; Lin and Rogerson (1995). Proximity, they argue, determines not only the type of interaction but also the frequency of interaction.

[1] Much of the advantage in assistance received by the widowed, of course, is because of their greater tangible needs. When controls for functional disability or economic needs are introduced, widow's and widower's higher levels of support are greatly reduced (Crimmins and Ingegneri, 1990; Morgan, 1983).

DATA AND METHODOLOGY

Data

In the case of São Paulo, the data were drawn from a survey carried out in 1994 by the Department of Geriatrics and Gerontology of the Paulista Medical School as part of the "Longitudinal Study on an Elderly Population Residing in the Municipality of São Paulo" (Ramos, 1992). This project received operational support from both the State Secretariat of Health, and the Social Service Department of the Catholic University (PUC) of São Paulo. The technical support, on the other hand, came from both the Epidemiology of Aging Unit of the London School of Hygiene and Tropical Medicine, and the Center for the Study of Aging of Duke University.

The Longitudinal study consisted in a four year follow-up of the elderly population (65 years and older) living in "Vila Clementino", a neighborhood of São Paulo city with low levels of internal migration, where the population is mostly concentrated in the middle range of the socioeconomic scale. The design of the project required that all elderly individual previously enumerated in the neighborhood should be interviewed at home twice, at the beginning and at the end of the study.

Although the main objectives of the longitudinal study in São Paulo were epidemiological in character – i.e. to follow the biological and functional aging process of individuals living into the community – the instrument used to gather information took the necessary care to include complimentary data on demographic and socioeconomic characteristics of the elderly, as well as several aspects related to different forms of informal support exchanges. The data used in this study were drawn from the 1,668 interviews done during the first phase of the household survey.

In the case of Fortaleza, the data were drawn from a survey carried out between the months of March and May 1997 as part of a PhD dissertation (Saad, 1998). This survey received financial support from both the Population Council and the Mellon Foundation, and operational and technical support from the School of Public Health of the Ceará State. It consisted in applying a questionnaire to a sample[2] of individuals 65 years and older residents in the city of Fortaleza, in which not only information related to the elderly themselves were gathered, but also information related to each one of their living children, whether or not they were co-residents. Thus, besides a data set with information about the 836 elderly included in the sample, the Fortaleza survey also yielded a data set with information about their respective 4,800 adult living children (18 years and older).

The design of the questionnaire is similar to those applied in other countries, taking into account, however, the particularities of the Brazilian context and, more specifically, the Northeastern context. Besides the specific questions about different forms of support transfers involving the elderly, the questionnaire also covered several other topics such as

[2] Refers to a random sample obtained through a two-step stratification procedure.

the household structure, kin availability and structure, economic and health conditions, labor force participation, activities of daily living (ADL), and instrumental activities of daily living (IADL).

Limitations of the data for comparative purposes

The Fortaleza survey provided information for investigating several aspects of the intergenerational flow of informal support involving the elderly. In particular, the data allowed for exploring both the effects of socioeconomic and demographic characteristics of the elderly on their propensity to give and receive support from adult children, and the effects of socioeconomic and demographic characteristics of the adult children on their propensity to receive from and give support to elderly parents.

The survey undertaken in São Paulo, on the other hand, was of more limited extension in terms of intergenerational support transfers. Because it neither collected information about support given by the elderly, nor identified the children who gave support to their parents, the comparative analysis between São Paulo and Fortaleza was restricted to the support received by the elderly, taking exclusively the elderly's characteristics into account.

There are other limitations of the data sets that also impose a handicap to the comparative analysis between the two cities. In the first place, the sampling design was different in each survey. Moreover, the surveys were carried out in different periods, and important economic changes took place in the intercoming years. While the survey in Fortaleza was held in a time of stable economy, for instance, the survey in São Paulo was held in a time of huge inflation, making it difficult to establish comparable categorizations for income variables. Finally, it was necessary to be aware about a few important conceptual differences. In the case of money and articles of necessity, for instance, the survey in São Paulo recorded only exchanges between non co-resident elderly parents and adult children, while in Fortaleza the exchanges were recorded regardless of the residence status of the different generations.

Methodology

The response variable

Intergenerational support was measured by distinguishing three dimensions of exchange – material, functional and instrumental. For each of the three dimensions of exchange, giving and receiving support were separately ascertained. *Material support* includes either money or material resources such as food, clothes, and domestic utensils. In the case of Fortaleza, the elderly respondents were classified as exchanging material support if they or their spouses[3] were reported giving or receiving a gift or a loan of any

[3] In the case of married elderly, males tend to be the major responsible for money exchanges with adult children. In order to avoid missing information on financial support from married elderly females respondent, it was decided to include material support received or given by the spouses.

amount in the previous 6 months, including the payment of bills, medical insurance, education, rent or mortgage. In the case of São Paulo, the elderly respondents were classified as receiving material support (they were not asked about giving support) if they reported receiving regularly (without specifying a previous period of time) any amount of money or material resources exclusively from non-coresident people.

The *functional support* received by the elderly was measured by the assistance they reported receiving in activities of daily living (ADL) which include taking a shower, dressing, eating, laying down, siting, standing up, walking, going out home, and using the bathroom. The elderly respondents were classified as receiving functional support if they reported receiving at least one of the ADL listed above. The *instrumental support* received by the elderly, on the other hand, was measured by the assistance they reported receiving in instrumental activities of daily living (IADL) which include preparing one's meal, going shopping, doing soft housework, doing heavy housework, and taking care of one's finances. The elderly respondents were classified as receiving instrumental support if they reported receiving at least one of the IADL mentioned above.

In addition to the functional and instrumental support received, the elderly respondents in Fortaleza were asked to report any functional and instrumental support given. They were classified as giving functional support if they reported giving assistance in at least one activity of daily living (as previously defined) to an unhealthy or impaired person in the previous 6 months. Similarly, they were classified as giving instrumental support if they reported giving assistance in activities such as taking care of children's or relative's household, shopping for children or relatives, taking care of children's or relative's business, and child-caring at any time during the previous six months.

For each support exchange with adult children reported by the elderly in Fortaleza, the child who gave or received support was identified among the entire kin set as if the children themselves were respondents of a survey reporting their engagement in support exchanges with their elderly parents. Therefore, the involvement (yes/no) of adult children in support transfers – material, functional and instrumental – with elderly parents in Fortaleza could be treated as the response variable in the models fitted to assess the influence of children's characteristics on such exchanges.

The explanatory variables

The selection criteria for including covariates into the multivariate analysis were based on both the theoretical foundation and the empirical background discussed earlier. The set of covariates includes socioeconomic and demographic characteristics of the elderly and their adult children as well as indicators of the health status of the elderly and the geographic distance between generations.

The selected demographic characteristics of the elderly include age, sex, marital status, number of living children, and co-residence with children. Income, education, and working status (yes/no) were selected as their socioeconomic characteristics, while physical impairments (yes/no) were taken as indicator of their health status. Besides the

dichotomous variables, all other variables were also subdivided into categories and then transformed into dummy variables[4].

The demographic characteristics of the adult children, on the other hand, included age, sex, marital status and number of living children. Working status (yes/no) was selected as the socioeconomic characteristic, while the place of residence (same household; same neighborhood; another part of the city; another city, same state; and another state) was taken as an indicator of the geographic distance between the two generations. Age and number of living children were included as continuous variables. All other characteristics were taken as categorical variables and then transformed into dummy variables[5].

Methods

Multivariate logistic regression models of the involvement (yes/no) of the elderly in giving or receiving on each dimension of exchange were adjusted in order to assess the influence of selected characteristics of the elderly on support transfers with adult children. The effects of selected characteristics of adult children on support transfers with elderly parents, on the other hand, were estimated by adjusting a set of conditional logistic models of the involvement of the children in giving or receiving on each dimension of exchange.

The multivariate logistic regression models of the involvement of the elderly in support exchanges with their adult children can be expressed by the equation:

$\text{Log } \Omega = \alpha + \beta X,$

where:

$\text{Log } \Omega = \text{Ln}[P/(1-P)] = \text{Logit } P \text{ (log odds)};$

$P = P (Y = 1 / X)$ = Conditional probability that an elderly who presents the characteristics defined by the vector X is engaged in a particular dimension of support transfer with an adult children;

α = Constant term;

X = vector of the explanatory variables associated with the elderly;

β = vector of the coefficients associated with the explanatory variables included in X.

The method used for estimating the parameters β was maximum likelihood, which, in a very general sense yields values for the unknown parameters that maximize the probability of obtaining the observed data. The estimated coefficients of the logistic regressions in this study can be viewed as the effect of a one-unit increase in a particular

[4] See Table A in the Appendix for a detailed description of the predictor variables included into the models.
[5] See Table B in the Appendix for a detailed description of the predictor variables included into the models.

predictor associated with the elderly on their log odds (logit P) of being involved in support exchanges with children, controlling for all other predictors in the model. In the particular case of dummy variables, if one exponentiates a dummy coefficient, one recovers the estimated odds ratio for those in the category of interest versus those in the reference category[6].

Since Ω is a monotonically increasing function of the odds ratio [P/(1-P)], and the odds ratio in turn is a monotonically increasing function of the probability P, any change in Ω corresponds to a change in P of the same direction. Thus, one can also interpret the coefficients β as indicators of the effect of predictors directly on the probability P associated with the outcome variable.

The conditional logit regression modeling slightly differs from the conventional logistic regression modeling. In this case, the data are stratified and the probability function is calculated relative to each stratum in a choice-model framework. The stratum in this study was defined as the children set for every elderly with at least two children[7].

The conditional logit regression models of the involvement of adult children in support exchanges with their elderly parents can be expressed by the equation:

$$P(Y_i = 1) = \exp\left(\sum_{m \in S_i} X_{ij}\beta_j\right) \Big/ \sum_{j=0}^{p} \exp\left(\sum X_{mj}\beta_j\right)$$

where:

X_{ij} = j^{th} explanatory variable associated to i^{th} child of the S_i stratum;

β_j = coefficient associated to the j^{th} explanatory variable;

S_i = i^{th} stratum, i. e. the children set of the i^{th} elderly;

m = number of children in the i^{th} stratum.

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[6] For a categorical variable with say *n* categories, one category is taken as reference and (*n* –1) dummy variables are created from the remaining categories and included into the model.

[7] Although the software used to fit the conditional logit models (Stata's clogit) is suitable to estimate probabilities in situations where only one positive outcome exists per stratum, it also handles cases of strata with multiple positive outcomes – which occurs in this study, especially regarding the material transfer dimension (more than one child giving and/or receiving support from the same parent). In these cases, Stata uses an approximation. The accuracy of this approximation is a function of the proportion of multiple positive outcomes to the number of strata. The index (a-1)/n is suggested, where a is the average number of positive outcomes per stratum, and n is the average stratum size. This index should not exceed 0.2. In this study, the index was 0.07 for the 'receiving support material' dimension, and of 0.10 for the 'giving material support' dimension.

The numerator in the above equation represents the probability of a particular child being involved in a given dimension of support exchange with elderly parents, while the denominator accounts for the probability of each one of his/her brothers and/or sisters being involved in exchanges of the same nature.

The statistical software used to fit the bivariate logistic regressions was SAS. STATA was used to fit the conditional logistic regressions. Tests were performed in both cases to check for interactions between predictor variables in each model. The goodness-fit global tests were significant for the entire set of regressions[8].

RESULTS

Magnitude of Support Flows

The magnitude of the support flows involving the elderly in São Paulo and Fortaleza can be assessed in Tables 1 and 2. In the first place, one notices not only the high intensity of the support flows, particularly in the case of Fortaleza, but also the fundamental role adult children play in this process of support exchanges. In São Paulo, 30% of the elderly reported having received at least one kind of support from an adult child (Table 1); in Fortaleza this proportion reached 55% (Table 2). The parent to children flow also proved to be of extreme importance in the specific case of Fortaleza, where 52.5% of the elderly declared having given support to children.

The proportion of elderly in Fortaleza involved simultaneously in support flows with adult children in both directions, i.e. who gave *and* received any kind of support, was 19.4%, while those who participated in either direction, i.e. who gave *or* received support, added up to 69.6% (Table 2).

The type of support most frequently received from adult children by elderly parents in both São Paulo and Fortaleza was material, followed by instrumental and then functional. The type of support most frequently given by elderly parents in the specific case of Fortaleza was instrumental, followed by material. The proportion of elderly parents giving functional support to adult children was very small. Particularly in the case of instrumental support, the proportions of elderly giving and receiving support were quite similar.

[8] The test is a model chi-squared statistic equal to –2LogL, where L is the likelihood function. The null hypothesis is that all J(k-1) parameters included in the K-1 logit equations are simultaneously equal to zero. The alternative hypothesis is that at least one of these parameters is non-zero.

Table 1
Percent of elderly who received support, according to the type of support, São Paulo, 1994.

Type of Support	Received from		Elderly	Elderly not	Total
	Children (1)	Other (2)	receiving (1) + (2)	receiving (3)	(1)+(2)+(3)
Any Support	30.0	16.3	46.3	53.7	100.0
Material	19.4	4.7	24.1	75.9	100.0
Functional	6.1	7.5	13.6	86.4	100.0
Instrumental	12.2	17.3	29.5	70.5	100.0

Note: Material Support excludes co-resident individuals

Table 2
Percent of elderly involved in support exchanges, according to the type and direction of support, Fortaleza, 1997.

Participation in the Support Flow	Transfer to or from		Elderly involved (1) + (2)	Elderly not Involved (3)	Total (1)+(2)+(3)
	Children (1)	Other (2)			
Received					
Any	55.0	13.9	68.9	30.1	100.0
Material	37.8	5.9	43.7	56.3	100.0
Functional	15.4	12.2	27.6	72.4	100.0
Instrumental	26.0	14.9	40.9	59.1	100.0
Given					
Any	34.0	18.5	52.5	47.5	100.0
Material	17.0	20.3	37.3	62.7	100.0
Functional	0.8	5.4	6.2	93.8	100.0
Instrumental	20.8	3.5	24.3	75.7	100.0
Given and Received					
Any	19.4	15.0	34.4	65.6	100.0
Given or Received					
Any	69.6	17.4	87.0	13.0	100.0

Interestingly, higher proportions of elderly in São Paulo than Fortaleza declared having difficulty in performing activities of daily living, in spite of the significantly higher proportions of elderly who got support from adult children in Fortaleza than in São Paulo. Regarding functional activities, 37.8% of the sample in São Paulo reported some level of difficulty against 33.1% in Fortaleza; regarding instrumental activities the proportions reporting difficulty were of 46.1% in São Paulo and 43.5% in Fortaleza. While 46.6% of those elderly with difficulty in performing functional activities and 59.6% of those with

difficulty in performing instrumental activities received support from at least one child in Fortaleza, only 16.0% and 26.4% of the elderly in São Paulo received such support, respectively for functional and instrumental activities.

Correlation between dimensions of support

In order to check for correlation between the different types of support given and received by the elderly parents and adult children, a set of correlation matrixes were calculated and are presented in Tables 3 and 4 for São Paulo and Fortaleza respectively. As expected, receiving instrumental support in both places is highly correlated with receiving functional support, since those with difficulties in performing functional activities of daily living tend also to find difficulties in performing instrumental activities of daily living. In the case of Fortaleza, a slight correlation was also found between receiving material and instrumental support (Table 4).

An important correlation between giving instrumental support and giving functional support to the elderly was found among the adult children, suggesting that the task of giving support to elderly parents may be concentrated among a few members of the kin set. The high correlation between receiving material support and receiving instrumental support from parents among the children, on the other hand, suggests that also in the opposite direction – from parents to children – the support flow tends to be concentrated among a limited share of the kin set.

The significant negative correlation between giving material support and receiving material support among the children (Table 4) was, of course, expected, since those in a position to provide this kind of support do not in general need to receive it back from the parents. Surprisingly, however, the lack of significant correlation between giving and receiving support among the elderly suggests that elderly parents get material support from those children in better financial conditions and at the same time give support for those in worse conditions.

Table 3
Pearson correlation coefficients between different types of support received by elderly parents from adult children, São Paulo, 1994.

Support Received by Elderly Parents	Types of Support		
	Material	Functional	Instrumental
Material	1.000		
Functional	0.021	1.000	
Instrumental	0.030	0.658***	1.000

Notes: Material Support excludes co-resident individuals. Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (Prob > | R | under Rho = 0 / N=1,667).

Finally, the important positive correlation between giving functional and instrumental support and receiving instrumental support among the adult children not only puts into evidence the high frequency in which intergenerational support exchanges take place in Fortaleza, but it also suggests a kind of bargain system between older and younger members of the families. Co-residence in this case represents a key factor. As it will be seen further in this analysis, most of the functional and instrumental support exchanges take place between co-resident generations.

Table 4

Pearson correlation coefficients between different types of support, relative to the exchange flows between adult children and elderly parents, Fortaleza, 1997.

Direction of Support	Support Received			Support Given		
	Material	Function.	Instrume.	Material	Function.	Instrume.
Relative to parents						
Support Received						
Material	1.000					
Functional	0.056	1.000				
Instrumental	0.084*	0.404***	1.000			
Support Given						
Material	-0.037	0.009	0.015	1.000		
Instrumental	0.098**	0.009	-0.027	0.050		1.000
Relative to children						
Support Received						
Material	1.000					
Instrumental	0.074***		1.000			
Support Given						
Material	-0.065***		0.015	1.000		
Functional	0.020		0.040**	0.034*	1.000	
Instrumental	0.026		0.035*	0.022	0.344***	1.000

Note: Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (Prob > | R | under Rho = 0 / N=836 in the case of elderly parents and N=4,800 in the case of adult children).

Factors Affecting Support Exchanges between Elderly Parents and Adult Children in Fortaleza

Effects of Elderly Attributes

The effects of select covariates on the propensity of an elderly individual being involved in intergenerational support transfers are estimated by the coefficients presented in Table 5, regarding each dimension of support – material, functional and instrumental – and for both directions of the flow – giving and receiving[9].

[9] The functional dimension was not considered for support given by the elderly due to the rareness of this event.

Some of the results in Table 5 are consistent with findings commonly reported in studies on intergenerational transfers. One such result is the case of the inverse effect of income on material support transfers according to the direction of the flow – negative for receiving and positive for giving. The inverse effect of age on instrumental support transfers, which is positive for receiving and negative for giving, is also consistent with previous studies. Similar to other places, females in Fortaleza are significantly more involved than males in functional and instrumental support exchanges. The highly positive effect of physical impairment on receiving functional and instrumental support, as well as the negative effect of education on receiving instrumental support were also expected results.

Several other results, however, were not anticipated, and seem to be characteristic of Fortaleza and maybe of the Northeast region in general. Although widowhood and number of living children are consistently reported as important contributing factors for receiving support from adult children – especially material support in the case of the kin set size – neither marital status nor kin set size have any significant effect on support transfers between generations in Fortaleza[10].

Economic activity, on the other hand, which is generally associated with greater financial and physical autonomy of the elderly, did not affect support transfers in the expected way. Although the negative effect of being in the labor force on receiving instrumental support still makes the economic activity a good predictor of physical autonomy[11], the lack of a significant effect on receiving material support suggests a lack of association between work and financial autonomy of the elderly in Fortaleza. This result implies that income coming from economic activity does not make the elderly who work any financially better off than those who do not work. It is related to the fact that elderly who work in Fortaleza are probably engaged in low paid jobs, if not underemployed in the informal sector of the economy. The income from work would represent, in most cases, either a complement of a very low retirement pension or a substitute for it.

Another unexpected result found in Table 5 refers to the negative effect of having no education in receiving material and giving instrumental support. Although discrepancies in educational attainment between generations are expected to represent an obstacle for co-habitation, the reasons why it also represents a barrier for intergenerational support exchanges in Fortaleza, particularly material, still remain uncertain12.

[10] As indicated by the interaction terms involving the variable female and the variables associated with higher numbers of living children in the first model of Table 5, the kin set size has a slightly significant positive effect on receiving material support only in the case of elderly females.

[11] The working status of the elderly was not included into the model relative to functional support since receiving this kind of support and being working are practically exclusive categories.

[12] Unfortunately the available data do not allow to explore explanations for this finding. It would probably demand the use of a more qualitative instrument for collecting data.

Table 5

Estimated coefficients from logistic regressions of elderly parents' propensity to be involved in support transfers with adult children, Fortaleza, 1997.

Characteristics of Elderly Parents	Support Received			Support Given	
	Material	Functional	Instrumen.	Material	Instrumen.
INTERCEPT	-0.715	-4.601***	-2.633***	-1.796***	-1.989***
FEMALE	-0.466	0.861***	0.409	-0.128	1.038***
AGE_2	0.161	0.174	0.031	-0.234	-0.232
AGE_3	0.066	0.614	0.988***	-0.241	-1.085***
MARIT_2	-0.134	0.378	0.082	0.154	0.254
MARIT_3	0.086	0.542	0.141	-0.897*	0.389
NCHILD_2	0.037	0.592	0.366	0.643	0.359
NCHILD_3	0.413	0.539	0.550	0.480	0.329
ARRANGE_2	-0.119	0.316	0.582*	-0.277	-0.071
ARRANGE_3	-0.418	1.041**	0.769**	0.138	0.151
INCOME_1	0.224	0.365	-0.625	-0.183	-0.010
INCOME_3	0.171	-0.163	-0.238	0.038	0.359
INCOME_4	-0.720**	-0.079	-0.534	0.577*	-0.117
EDUC_1	-0.428*	0.276	0.273	0.002	-0.550**
EDUC_3	-0.288	0.318	-1.116**	0.373	-0.121
HANDICAP	-0.015	1.414***	0.975***	-0.302	0.265
WORK	-0.370		-1.473**	0.289	-0.001
FEMALE*NCHILD_2	1.246*				
FEMALE*NCHILD_3	1.371*				
AGE_3* ARRANGE_2		1.033*			

Notes: The reference category for age is 65-69; for marital status is 'married'; for the number of living children is '1 or 2'; for living arrangement is not living with children'; for income level is 'until 1 minimum wage'; and for education is 'complete or incomplete basic education'. See Table A in the Appendix for variable definitions. Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

The effect of the elderly's household structure on their propensity to give and receive support from children – a factor not fully explored in previous studies – proved to be of extreme importance in the case of Fortaleza. As stated earlier in this section, the number of living children has no significant effect on support transfers, particularly receiving functional and instrumental support. In these cases, what seems to count the most is the co-residence with a child. The probability of receiving instrumental and functional support is significantly greater for those elderly living with children than for those not living with children.

In the case of receiving functional support, it is important to notice the differences in the effect of co-residence between married and unmarried children. Co-residence with married children generally implies some sort of functional transfer to the elderly at any age of the elderly (note that age has no significant effect on receiving functional support). The effect of co-residence with unmarried children on receiving functional support, on the other hand, becomes statistically significant only for elderly in the older age groups as indicated by the interaction term between age and household structure in the second model of Table 5. This result is also consistent with the findings of a previous study, in which co-residence between elderly parents and unmarried children in the Northeast region tended to

be associated with a specific stage of the normal life cycle rather than preferences or needs of the elderly (Saad, 1996). Of course, this association becomes weaker at the older ages of the parents when needs start playing a more decisive role in the configuration of their living arrangements.

Effects of Children's Attributes

The effects of select covariates on the propensity of adult children to be involved in support transfers with elderly parents are estimated by the coefficients presented in Table 6, regarding each dimension of support – material, functional and instrumental – and for both directions of the flow – giving and receiving[13].

As in the case of the elderly, in which females proved to be involved more frequently than males in functional and instrumental support exchanges with adult children, daughters, among the children, were found to be involved more frequently than sons in functional and instrumental support exchanges with elderly parents. Also similar to the case of the elderly, transfers of material support from the standpoint of the children were not affected by sex.

The small effect of the age of the children on their engagement in support transfers with their elderly parents suggests that it is a process that lasts for most of their adult life. The only exceptions refer to the chances of giving material support, which slightly increases with the age of the children, and receiving instrumental support which decreases slightly with the age of the children (and consequently with the age of the parent). These effects, however, were expected since, in the first case, the older the children, the greater their chances of having attained better economic conditions and being in a position to give material support. In the second case, they were expected because, as shown in the previous section, the older the elderly the lower their capacity to give instrumental support.

The lack of a significant effect of marital status of the children on their propensity to give support to parents was a surprising result. Given the availability of single children in Fortaleza – resulting from the high fertility rate prevalent in the past in the Northeast region – and taking into account that married children usually have additional concerns relative to their own families, one would expect a positive effect of being single on the probability of giving support to elderly parents.

[13] The functional dimension was not considered for support received by the children due to the rareness of this event.

Table 6

Estimated coefficients from conditional logistic regressions of adult children's propensity to be involved in support transfers with elderly parents, Fortaleza, 1997.

Characteristics of Adult Children	Support Given			Support Received	
	Material	Functional	Instrumen.	Material	Instrumen.
DAUGTHER	0.107	0.818**	0.858***	-0.139	3.234**
AGE	0.018*	0.005	0.023	-0.017	-0.052*
MARIT_1	-0.055	-0.010	0.322	-1.200***	-3.926**
MARIT_3	-0.391	-0.573	0.137	-0.086	0.522
NCHILD	-0.032	-0.013	-0.094	0.047	0.194*
WORK	1.290***	-0.465	-0.387	-0.445*	0.229
RESID_1	-0.593**	2.055***	1.645***	-0.121	0.576
RESID_3	-0.105	-0.084	-0.454	-0.217	-0.845**
RESID_4	-0.754**			-0.079	
RESID_5	0.020			-1.298**	
DAUGHTER*AGE					-0.064*
MARIT_1*AGE					0.105**
MARIT_1*RESID_5				2.923***	
NCHILD*WORK	-0.153*				
NCHILD*RESID_1					0.539**

Notes: The reference category for marital status is 'married'; for residence is 'same neighborhood'. See Table B in the Appendix for variable definitions. Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Not only do the married children give more support than expected, but they also receive support much more frequently than single children. In the case of instrumental support, this result could be an indication that a great share of this kind of support refers to taking care of grandchildren. This hypothesis is reinforced by the important positive effects of both the number of children and the interaction term between the number of children and co-residence on the chances of getting instrumental support in the last model presented in Table 6. In the case of the material support, on the other hand, the result clearly points toward a situation in which the meager income of the elderly has become an important asset for their adult children, in spite of the needs and the poor socioeconomic conditions of the elderly themselves.

As expected, children who work are significantly more likely to give material assistance to their parents and slightly less likely to receive material support from them. The chances of the adult children who work providing material support to elderly parents, however, decline substantially for each additional child of their own. It is clearly expressed by the negative effect of the interaction term between economic activity and number of living children on giving material support in the first model presented Table 6. These results could reflect a kind of competition between grandparents and grandchildren for the financial resources of adult individuals.

The effects of place of residence of the children on their probability of giving and receiving support reinforce the conclusions drafted in the previous section regarding the importance of physical proximity for certain kinds of support to take place. Children who co-reside with elderly parents are significantly more likely to give them functional and

instrumental support than those who live apart. If one considers the important negative effect of co-residence on giving material support, one could conclude that material support would represent a kind of substitute for co-residence or, inversely, that co-residence substitutes for material support. The effect of co-residence, on the other hand, seem not to affect the children's probability of receiving support, except for the previously mentioned case in which the adult children have children of their own.

A final and surprising result from the models in Table 6 refers to the lack of geographic barriers in the case of intergenerational transfers of material support involving the elderly in Fortaleza. Living out of Ceará state does not decrease the probability of adult children providing material support to their elderly parents. In this case, the support refers to monetary remittances from children who have left the state of Ceará to live and work in other parts of the country, but who still mantain ties with their original families. Also the inverse direction of the flow seems not to face geographic barriers. As indicated by the interaction term in the fourth model of Table 6, the chances of single (but not married) children receiving material support from elderly parents do not decrease substantially because they live out of Ceará state. This result suggests that some of the younger children who leave the state, but have not been successful in the new places, can still count on provisional monetary assistance from their parents left in Fortaleza.

Factors Affecting Support Transfers from Adult Children to Elderly Parents in São Paulo.

Effects of Elderly Attributes

The effects of selected covariates on the probability of an elderly parent to receive support from adult children in São Paulo are estimated by the coefficients presented in Table 7, regarding each one of the support dimensions considered in this study – material, functional and instrumental.

More frequently than was observed in Fortaleza, the effects of the selected covariates on support transfers in São Paulo agreed with the findings commonly reported in previous research. The only unexpected result was the lack of importance of the economic activity of the elderly on their propensity to receive support. As stated in the case of Fortaleza, economic activity is usually taken as a proxy for physical and financial autonomy; hence, one would expect a decrease in the probability of receiving material and instrumental support among the elderly who work. The same reasons and conditions that lead a small proportion of elderly in Fortaleza to remain in the labor force, however, seem to prevail all over the country, including São Paulo. As is the case in Fortaleza, most elderly who work in São Paulo are probably engaged in low paid jobs, maybe in the informal sector of the economy.

Consistent with previous findings, elderly females in São Paulo are more likely than males to receive functional and instrumental support, while widow are more likely than married individuals to receive any kind of support. Age has a positive effect on receiving functional and material support, while income has a negative effect on receiving

material support. The number of children is positively associated with the probability of receiving support, especially material support, while education is negatively associated with the chances of receiving material and instrumental support.

Table 7
Estimated coefficients from logistic regressions of elderly parents' propensity to receive support transfers from adult children, São Paulo, 1994.

Characteristics of Elderly Parents	Support Received		
	Material	Functional	Instrumental
INTERCEPT	-1.209***	-7.947***	-4.912***
FEMALE	-0.348	0.906*	0.939***
AGE_2	0.058	0.859	-0.078
AGE_3	0.307	2.868***	1.463***
MARIT_2	0.810***	1.255***	0.752**
MARIT_3	-0.168	0.312	0.358
LC_2	0.769***	0.325	0.036
LC_3	0.955***	1.016**	0.628*
LC_4	1.590***	0.788*	0.452
ARRANGE_2	-1.187***	1.702***	1.684***
ARRANGE_3	-0.993**	1.557***	1.730***
INCOME_1	-0.079	0.559	-0.216
INCOME_3	-0.607**	-0.001	-0.368
INCOME_4	-1.741***	-0.746	-0.448
EDUC_1	0.035	0.114	0.245
EDUC_3	-0.367*	-0.362	-0.527*
WORK	-0.286		-0.150
MARIT_2*ARRANGE_3	-1.163*		

Notes: The reference category for age is '65-69'; for marital status is 'married'; for the number of living children is '1'; for living arrangement is 'not living with children'; for income level is 'until Cr$300,000.00'; and for education is 'complete or incomplete basic education'. See Table A in the Appendix for variable definitions. Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

A major finding in São Paulo refers to the highly significant effect of co-residence on the probability of receiving functional and instrumental support from adult children. This result underscores the crucial importance of physical proximity for the realization of functional and instrumental support transfers from adult children to the elderly, which was also found in the case of Fortaleza. Interesting to notice in the case of São Paulo is the negative effect of co-residence on receiving material support. Although inferences cannot be made regarding an eventual substitution effect between material support and co-residence in the case of São Paulo[14], it seems clear that co-residence with a child inhibits material support from other non co-resident children. As indicated by the substantial negative effect of the interaction term included in the model for receiving material support in Table 7, widowed elderly also have reduced chances of receiving material support when co-residing with children.

[14] Unlike the Fortaleza survey, the survey in São Paulo did not take into account the material support eventually received by the elderly from co-resident children. Only material support received from non co-resident children were taken into consideration.

Between-City Analysis of the Support Transfers from Adult Children to Elderly Parents in São Paulo and Fortaleza

Taking into account the limitations of the data for comparative purposes[15], the net effects of the city variable[16] on support received by the elderly from adult children are estimated by the coefficients presented in Table 8. According to these results, the probability of receiving support of any kind is significantly higher for the elderly in Fortaleza than in São Paulo, even after controlling for the socioeconomic and demographic covariates. It would suggest either that cultural norms regarding parent-filial obligations are more influential in Fortaleza than in São Paulo or that family ties are weaker in São Paulo than in Fortaleza.

Of particular interest in Table 8 is the large number of interactions involving the city-variable, which expresses how distinctly some covariates affect intergenerational support transfers in São Paulo and Fortaleza. In general, these interactions translate a situation in which attributes that proved to be important predictors of the elderly's involvement in support transfers with children in São Paulo have practically no effect in Fortaleza. That is the case, for instance, of being older and widowed. While in São Paulo they constitute crucial pre-conditions for receiving functional support, in Fortaleza they have practically no explanatory power[17]. The advantage of elderly female over the male in receiving instrumental support, on the other hand, seems to be less accentuated in Fortaleza than in São Paulo[18]. Co-residence with children also has effect significantly greater in São Paulo than Fortaleza on the elderly's probability of receiving instrumental support[19].

[15] See 'Limitations of the data for comparative purposes' in the Data section.
[16] Refers to the variable 'FORT' included into the models in Table 8.
[17] See the negative effect of the interaction terms involving the city-variable with age and marital status in the second model of Table 8.
[18] See the negative effect of the interaction term between the city-variable and female in the third model of Table 8.
[19] See the negative effect of the interaction terms between the city-variable and the variables that indicate co-residence with married and unmarried children in the third model of Table 8.

Table 8

Estimated coefficients from logistic regressions of elderly parents' propensity to receive support transfers from adult children, São Paulo (1994) and Fortaleza (1997) samples pooled together.

Characteristics of Elderly Parents	Support Received		
	Material	Functional	Instrumental
INTERCEPT	-1.891***	-7.172***	-4.698***
FORT	0.556***	2.310***	2.323***
FEMALE	0.161	0.854***	1.039***
AGE_2	0.143	0.382	0.019
AGE_3	0.313*	2.529***	1.549***
MARIT_2	0.700***	1.268***	0.350*
MARIT_3	0.124	0.520	0.201
LC_2	0.893***	0.418	0.147
LC_3	1.010***	0.633*	0.507*
LC_4	1.653***	0.598*	0.445*
ARRANGE_2	-0.678***	1.269***	1.717***
ARRANGE_3	-0.890***	1.327***	1.766***
INCOME_1	0.010	0.484	-0.460*
INCOME_3	-0.242	-0.150	-0.362*
INCOME_4	-1.177***	-0.400	-0.560**
EDUC_1	-0.255*	0.130	0.250*
EDUC_3	-0.331*	-0.189	-0.853***
WORK	-0.193		-1.144**
MARIT_2*ARRANGE_2	-0.473*		
MARIT_2*ARRANGE_3	-0.777*		
FORT*LC_3	0.497*		
FORT*AGE_3		-1.137**	-0.562
FORT*MARIT_2		-0.869*	
EDUC_3*WORK			1.608*
FORT*FEMALE			-0.711*
FORT*ARRANGE_2			-1.172***
FORT*ARRANGE_3			-1.013**

Notes: The reference category for age is '65 to 69'; for marital status is 'married'; for the number of living children is '1'; for living arrangement is 'not living with children'; for income level is 'until Cr$300,000.00' if living in São Paulo or 'until 1 minimum wage' if living in Fortaleza; and for education is 'complete or incomplete basic education'. See Table A in the Appendix for variable definitions. Significance level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

What all these findings suggest is that support transfers from adult children to elderly parents is much more widely spread in Fortaleza society than in São Paulo. If, on the one hand, this situation reinforces the idea of the differential effect of cultural norms across the two societies, on the other hand it points towards the need for further research on this topic, in order to identify the effect of factors that were not included in this analysis.

Comments

The informal support transfers between elderly parents and adult children were found to be extremely intense in Fortaleza in both directions. This leads to two important assessments. First, the intense flow of support from adult children to elderly parents is a substitute for an important share of support that, otherwise, would have been transferred to the older members of society through formal mechanisms such as the social security and the public health systems. The intense support flow from elderly parents to adult children, on the other hand, particularly regarding material support, constitutes an example of the perverse consequences for the elderly of an unfavorable socioeconomic context. Not only have their children – their main source of support – gradually lost capacity to provide assistance[20], but also they themselves have became an important source of support for their offspring well past the time they reach adulthood.

Intergenerational support exchanges tend to retain their importance in Brazil, particularly in the Northeast region where the high fertility rates of the recent past have assured the prevalence of large size families. The availability of informal support for the elderly in the future, however, has increasingly reported to be challenged by the consequences of the huge demographic and socioeconomic transformations currently being experienced by the Brazilian society. In some sense, the findings in this study suggest that these concerns should be taken seriously.

As seen in the previous analysis, a substantial share of the support received by the elderly is provided by female co-resident children. The time spent by adult women in caring for their elderly parents, however, is supposed to decline sharply as women become more and more engaged in economic activity outside of home. On the other hand, the sharp and countrywide decline of fertility rates will certainly reduce the availability of children for future generations of elderly people, decreasing the chances of intergenerational co-residence. Since the chances of getting functional and instrumental support proved to be highly associated with co-residence, one could expect a reduction in the availability of this kind of support to the elderly.

The same factors pointed to above as inhibitors of intergenerational transfers, i.e. the increasing female participation in the labor force and the lesser number of children, also tend to favor exchanges between generations through other kinds of mechanisms. Because they work, the probability of giving material support to elderly parents will substantially increase among females. As the results show, material support is positively associated with the economic activity of the children and does not depend on physical proximity. On the other hand, declining fertility will mean further advantages for the

[20] Data from the United Nations Program for the Development – UNPD – show that several social indicators experienced improvements in São Paulo and Fortaleza during the 80s. In both places, for instance, the life expectancy and the mean number of years of schooling increased while the illiteracy rate and the infant mortality rate decreased. The economic conditions of the population however seem to be worsened. From 1980 to 1991, the proportion with insufficient income increased from 5.93% to 11.19% in São Paulo, and from 36.69% to 48.22% in Fortaleza (PNUD, IPEA, FJP and IBGE, 1998).

elderly in their competition with grandchildren for the financial resources of their adult children.

Also favoring of the maintenance of high levels of intergenerational support transfers to the elderly are cultural norms and values regarding filial obligations. Such norms are expected not only to persist but also to be constantly reinforced in Brazilian society – particularly among the more traditional communities of the Northeast – as no significant improvements in the formal mechanisms to provide support to the elderly are foreseen in the short and median run.

CONCLUSIONS

In general, the study showed that support transfers between generations in Brazil varies greatly across regions, and is moderated by the characteristics, resources, opportunities, and needs of both the parental and filial generations. The influence of socioeconomic and demographic attributes on support transfers found in São Paulo was mostly consistent with findings commonly reported in previous research. Support transfers in Fortaleza, however, presented a number of unexpected relationships that have not been anticipated in previous studies. One particularly striking finding was the substantial support flow from elderly parents to adult children. Many elderly people there continue to provide support to their children well into their adult years.

Whereas income from retirement pensions tend to be low all over the country, income derived from current employment generally does not make the elderly who work any financially better off than those who not work. The dissociation between work and financial autonomy of the elderly found in this study probably means that the elderly who work in Brazil are, for the most part, ill-covered by the social security system, and are mostly engaged in low paid jobs, or even underemployed in the informal sector of the economy. The income from work usually represents only a meager complement or even a substitute for retirement pension.

Mothers and daughters, in general, proved to be involved much more frequently than fathers and sons in intergenerational support exchanges. This may indicate either a greater emotional attachment between mothers and daughters, or the dissemination of traditional values in which women are more suited for taking care of parents and children[21]. The study also showed the primary role of co-residence in the exchange process of informal support between generations, especially support requiring physical proximity such as functional and instrumental activities of daily living. Surprisingly, however, the results indicated no geographic barriers for intergenerational transfers of material support in Fortaleza. Whereas co-resident children often had primary responsibility for the care of dependent parents and were more likely to get instrumental support from them, there is also a strong indication in this study of substantial economic

[21] In fact, the data point toward a strong expectation in this direction. It was asked for the elderly who reported not having any difficulty in performing activities of daily living, the person they expected would eventually give them support if they needed help in the future. Those who reported a daughter instead of a son accounted for 73.2% in the case of instrumental support and 79.2% in the case of functional support.

contributions to households by non-co-resident adult children, including remittances of those who had migrated out from the state of Ceará.

In spite of the unexpectedly high levels of support rendered by the elderly to adult children, support received from children still constitutes a crucial dimension of the elderly well-being, especially in the case of the Northeast region. As the process of population aging in Brazil intensifies, however, the availability of informal support to the elderly in the future will become increasingly jeopardized. At the same time that life expectancy at birth has been improving, fertility has been declining, migration and urbanization have increased, and female labor force participation has risen. These developments, in conjunction with a decline in the economic conditions of the younger generations, have been thought to pose potentially serious problems for parents requiring support in old age. The findings in this study suggest that such considerations should not be completely dismissed, although they should be taken cautiously.

There are many reasons to believe that intergenerational support exchanges will remain important in Brazil, particularly in the Northeast region. Although fertility has declined rapidly in Brazil in recent decades, the effect on the numbers of children that older women have will be felt with a lag. Moreover, declining fertility levels and increasing female participation in the labor force can, instead, constitute stimulating factors for support transfers for the elderly.

The analysis developed in this study to examine the effects of family structural characteristics of both aging parents and adult children on exchange patterns of support adds substantial knowledge in a practically unexplored area of Brazilian socio-demographic research. There remain, however, many unresolved issues. One refers to the extent to which either cultural norms regarding parent-filial obligations or stronger family ties are responsible for the higher levels of intergenerational support transfers found in Fortaleza than in São Paulo, even after controlling for socioeconomic and demographic covariates. Another refers to the unexpected inhibiting effect of no-education on support transfers in the Northeast. Although an education gap between illiterate parents and more educated children would be expected to impose some barriers to inter-generation co-residence, it remains unclear why this situation would also hamper other kinds of support.

Given the huge socioeconomic contrasts in Brazil, another aspect that should deserve special attention refers to the differential aging patterns all over the country. In particular, further research should include rural settings. Because urbanization is driven in large part by youthful migration from rural areas to cities, it influences the age distribution in both sending and receiving areas. Thus, in spite of the increasingly urban nature of today's Brazilian elderly population, rural areas remain disproportionately older than the urban areas of the country. There has been considerable discussion of the consequences of rural-to-urban migration for family structure and the well-being of the elderly who are left behind in rural areas. A commonly expressed concern is that movement of younger adults to urban areas resulted in the isolation of the aged in rural areas, presumably to the latter's detriment. In this sense, comparative analysis should be performed to investigate how differently intergenerational support transfers operate in urban and rural contexts.

For any one of the above suggested research topics, further investigation will require both the implementation of new data gathering instruments and the elaboration of more refined analytical tools. First, the geographic area of study necessarily needs to be expanded. Second, data collection has to include information allowing for more qualitative inferences. Finally, more complex models have to be tailored, taking into consideration a larger set of characteristics of the younger generation.

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APPENDIX

Table A

Definitions of the variables related to the elderly parents used in the models of support transfers with adult children.

Variable	Definition
FEMALE	Coded 1 if respondent is a woman
AGE_2	Coded 1 if respondent is in the age group 70-74 years old
AGE_3	Coded 1 if respondent is in the age group 75 and more
MARIT_2	Coded 1 if respondent is widow(ed)
MARIT_3	Coded 1 if respondent is single or divorced
LC_2	Coded 1 if number of living children is 2
LC_3	Coded 1 if number of living children is 3
LC_4	Coded 1 if number of living children is 4 and more
NCHILD_2	Coded 1 if number of living children is 3 to 5
NCHILD_3	Coded 1 if number of living children is 6 and more
ARRANGE_2	Coded 1 if respondent lives with at least 1 unmarried child (but no married child)
ARRANGE_3	Coded 1 if respondent lives with at least 1 married child
INCOME_1	Coded 1 if respondent has no income
INCOME_3	Coded 1 if respondent lives in São Paulo and has an income between Cr$300,001.00 and Cr$1 million or if respondent lives in Fortaleza and has an income between 1 and 3 minimum wages
INCOME_4	Coded 1 if respondent lives in São Paulo and has an income greater than Cr$1 million or if respondent lives in Fortaleza and has an income greater than 3 minimum wages
EDUC_1	Coded 1 if respondent had no formal education
EDUC_3	Coded 1 if respondent has surpassed “primario” level (more than basic education – usually more than 4 years of schooling)
HANDICAP	Coded 1 if respondent declared having any physical impairment
WORK	Coded 1 if respondent is currently working
FORT	Coded 1 if respondent lives in Fortaleza

Table B

Definitions of the variables related to the adult children used in the models of support transfers with their elderly parents.

Variable	Definition
DAUGTHER	Coded 1 if child is a woman
AGE	Age of the child in single years
MARIT_1	Coded 1 if child is single
MARIT_3	Coded 1 if child is widow(ed) or divorced
NCHILD	Number of child's living children (elderly's grandchildren)
WORK	Coded 1 if child is currently working
RESID_1	Coded 1 child co-resides with elderly parent(s)
RESID_3	Coded 1 if child lives in other neighborhood of Fortaleza
RESID_4	Coded 1 if child lives in other city of Ceará State.
RESID_5	Coded 1 if child lives out of Ceará State

Note: Child attributes were coded for each surviving child 18 years and older reported by the elderly respondents.