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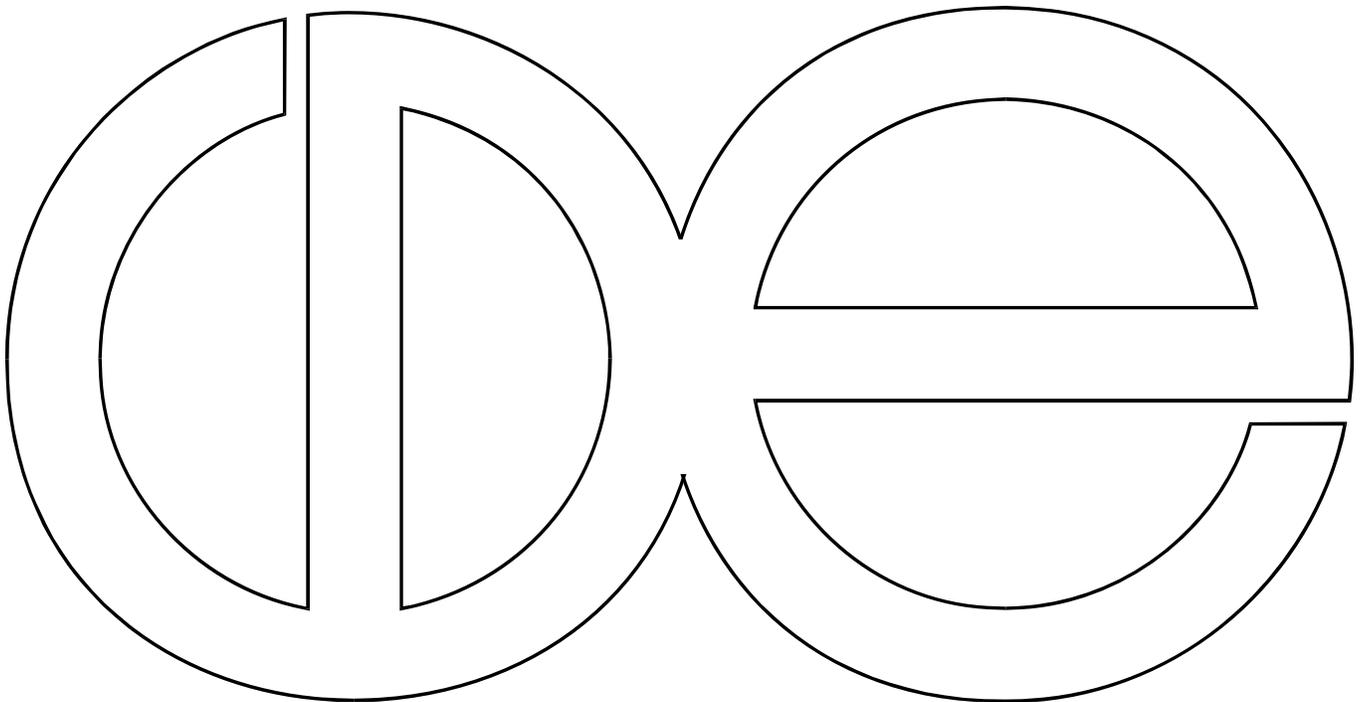
Extended family living among elderly women aged 60+ in Brazil in 2010: Comparing women who had or did not have a live birth

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CDE Working Paper No. 2018-01

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Running title: Extended family living among elderly women in Brazil 2010 by whether they had a live birth

Abstract

This study looks at the extended family household living of elderly women aged 60+ in Brazil in 2010 (35.9 percent) by whether they had had a live birth using 2010 Brazilian census data (36.8 vs. 29.0 percent). It applies a binomial multivariate logistic model containing socio-demographic, socio-economic, and socio-geographic characteristics to the two groups of women both nationally and by broad income group. It decomposes the gap into propensity differences (118.9%) and compositional differences (-23.5%).

The study found that many characteristics such as income had similar relations with the probability of extended family living among women who had or did not have a live birth. While basic income had a negative relation, receiving pension income among lower income elderly women had a positive relation. This finding was a possible side effect of the non-contributory pension, as a similar finding did not exist in other income groups. The major difference between the two fertility groups was that factors associated with a special 'need' for informal support (such as having a disability or being very old) were more important for the co-residence of women who had never had a live birth.

For both long-standing cultural as well as politico-economic reasons, Brazilians may expect a network of kin, not just biological children, to care for and sometimes share, residence with elderly family members AND they have developed a non-contributory pension program aimed at the very poor that enables old people to control and share resources within what may be extended family households.

Keywords: Brazil, elderly & household extension, elders without live births, non-contributory pension & household extension

Introduction

The purpose of this study is to point to both the differences and similarities in the extended family household living of elderly women aged 60+ in Brazil in 2010 who had or did not have a live birth (the Brazilian census does not report on the past fertility of men or we would look at elderly men too). It may be expected that people live with adult children when they become old in countries such as Brazil, but that is not possible for the almost eighth of Brazil's women 60+ who never had a live birth (unless, as has been rare, they adopted a child). Biologically childless women remain important family members throughout life however, and many still live in extended family households in old age, often as a sister or aunt (De Vos, 2014a). According to 2010 census figures described more below, roughly 37 percent of women 60+ lived in extended family households in Brazil if they had had had a live birth; 29 percent if they had not. What accounts for that gap? What is similar, what is different and why? Could families in general demand more evidence of a need for co-residence on the part of a childless elder than would be the case for a mother?

Why look at the extended family living of elderly Brazilian women who did not have a live birth?

In contrast to a culturally Western "nuclear hardship model" in which the family is limited to middle-age parents and their minor children, an ideal Brazilian family model may include relatives of all ages, marital status and childbearing history with responsibilities toward each other that may include co-residence. There are major regional differences and mothers are often given priority but we still found in 2010 that over a quarter of elderly women who had not had a live birth were living in an extended family household.

The older population is growing rapidly however, and traditional caring mechanisms are being overwhelmed (Palloni and Pinto, 2014). Whereas only 5 percent of Brazil's population was aged 60 or more in 1970, that proportion had grown to 10 percent by 2010 and is projected to become over 27

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 4 percent – more than one in four -- by 2050 (according to the U.S. Census's International Data Base[1]). Partly a consequence of an improved life expectancy from 58 years at birth in 1970 to 72 in 2010 and a projected 80 by 2050, the rapid aging is also caused by a dramatic decline in fertility, in Brazil from an estimated 5.1 births per woman in 1970 to the below replacement rate of 1.9 births per woman in 2010 and a projected 1.7 births per woman in 2050 (again according to the U.S. Census's International Data Base). An important correlate of such fertility decline is usually a significant increase in the proportion of women who never have a live birth (Rowland, 2007). By comparing the extended family household arrangements of elderly women who did or did not have a live birth, our study could help give insight into that future.

Of limited but still important value

We do not know with any certainty what the trend has been of entering old age without having given birth in Brazil. Past censuses were fairly lax in collecting and/or reporting no children ever born (El-Badry, 1961). Even as recently as in the 1990 Brazilian census, the proportion of older women 60+ in Brazil with an unknown number of children ever born (CEB) was over 5 percent while the reported percentage with 0 children ever born was 9 percent. In later censuses the level of 'unknown' is not reported at all. Supposedly, unknowns are just folded in with 0, but not reporting something does not mean that it does not exist. We just do not know what it is. All we know is that in general, *not* giving birth can be fairly common when a cohort's health is impaired, that it can become much less common when health improves and fertility is high, and that it becomes more common again when fertility drops (e.g. Poston and Trent, 1982). At almost one in eight, the level of 'childlessness' in Brazil in 2010 among women 60+ seemed intermediate on a global level for the turn of the 21st century (De Vos, 2012), and could grow in the future as cohorts of younger women with lower fertility age.

Similarly, this study of family arrangements among older people is limited to the issue of household co-residence although we know that the household and the family are not the same. Co-residence is neither a necessary nor sufficient condition for a group of people to be in the same family. Indeed, it may

be the first characteristic of a 'fully' extended family that becomes 'modified' in a so-called modern society (Litwak, 1965). And although co-residence was common in the past in many Western countries, virtually no elderly people there now reside with adult relatives irrespective of childbearing history unless they are elderly immigrants from a less developed area (e.g. De Vos and Arias, 2003; Gubernskaya and Tang, 2017; Kohli et al., 2005, 2010; Kritz et al., 2000; Wilmoth, 2001; but also see Reher and Requena, 2017).

Separate living is not necessarily a matter of people abandoning older family members of course but of being able to afford more privacy: European surveys of older people now tend to focus on proximity rather than co-residence, on how near to the elder's residence extended kin may be (Börsch-Supan et al., 2013 Part IV). Often, extended family members live immediately next door in the same building, just not in the same household (have a separate entrance). Some surveys of older people in Latin America and the Caribbean now too inquire about proximity (see e.g. Wong et al., 2006). However, the level of co-residence is still substantial enough in countries such as Brazil that we can derive important information by looking at household arrangements.

Finally, although the data limit us to examining the probability that an older woman does/does not live in an extended family household given one of her characteristics, that does not mean we think co-residence one sided. It is a two-way exchange process involving both the older person herself and other existing or possible household members (Albertini and Kohli, 2017; Burch and Matthews, 1987; Wilmoth, 2000). In fact, there may be important social forces at play affecting living arrangements that have more to do with other people than with the older person herself. For example, young people might be attracted to employment opportunities in urban areas, leaving rural areas and older kin behind. Yet all we may know is that *she* lives in a rural area; we must speculate about what that might mean regarding younger relatives. Because our view must stay open to speculation does not diminish its tremendous value of course. We just must stay aware of the limitation.

Is extended family co-residence among elderly people declining in Brazil?

Perhaps the biggest theoretical issue, and one that cannot be addressed directly with the cross-

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sectional data used here but <u>does</u> influence interpretation of the individual-level findings, is whether

extended family living among older people is declining over time in Brazil. Because in the cross–section,

the probability that an older woman's household is extended declines significantly as her household's per

capita income rises (see Table 3). Does this mean that for both individuals and entire societies, more

income provides the ability to act on a preference for more privacy?

For there to be a general trend away from intergenerational co-residence would certainly be

consistent with the main societal-level theoretical perspective nicely articulated by Donald Cowgill (1986)

and with the individual-level 'composite good' considerations nicely articulated by Thomas Burch and

Beverly Matthews (1987). In an earlier piece on Brazil, De Vos and Andrade (2005) had found that

independent living among Brazilian elders 65+ increased from 27% in 1980 to 32% in 2000 and had

provisionally interpreted that change in terms of a level of economic well-being that enabled people to act

on a preference for more privacy.

Did that change actually reflect what was theorized or did it just reflect an earlier onset of the 'empty

nest' stage among the later cohort as suggested by Ruggles and Heggeness (2008)? An earlier onset of

the 'empty nest' would certainly help explain their finding of a fairly steady level of intergenerational co-

residence in Brazil between 1970 and 2000. Using large national census samples from the same source as

the 2010 census data used here, they found that 48.9 percent of the elderly population 65+ lived in

intergenerational family households in 1970 and that 50.0 percent did so in 2000 (Heggeness and

Ruggles, 2008). Their figures for 1980 and 1991 deviated from the 2000 figure by less than two

percentage points, leading them to conclude that they saw no trend of increase or decrease in

intergenerational family household living among older people in Brazil.

Interpreting such overall figures properly is difficult. For one, talk in terms of "parents and children"

makes it unclear how Ruggles and Heggeness (2008) deal with the elderly population that does not have

living children (either men or women; p.258) as many demographers simply eliminate childless elders from

their samples. The paper's reference to the methodology used by a companion article appearing a year

earlier did not illuminate the issue. For two is the mystery surrounding potentially important unexplored

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 7 forces operating underneath the surface that are masked by one overall figure. For example, there has been a substantial body of research for different Asian countries that point to the use of traditional-looking multigenerational living arrangements for such 'modern' purposes as enabling female employment outside the home (Morgan and Hirosima, 1983) or enabling young people to cope with high housing costs (Frankenburg et al., 2002). Karagiannaki (2011) found a large decline in co-residence among married children with elderly parents in Greece in the last quarter of the 20th century but an increase among unmarried children largely spurred by the "high and in some cases increasing needs of children's generation."

The role of non-contributory pensions

De Vos and Andrade (2005) wondered if Brazil's non-contributory pension program might not be affecting elderly living arrangements in a mock 'traditional-looking' fashion too. They found for instance, that the increase in independent living among Brazilian elders was actually driven by change among white elders, not black or brown elders. They noted that in studying Spain, Brandes (1996) had found that the advent of Social Security-like payments in the 1960s was a big incentive for young Spaniards to remain in rural areas and reside with aging parents rather than leave parents to pursue economic opportunities in urban areas. They asked if similarly, receipt of the fairly new non-contributory pension benefit by low-income Brazilian elders might be encouraging younger Brazilians of low income to have either themselves or their children reside with elderly relatives with whom they might not otherwise reside, explaining some of the racial difference they saw. Theirs could only be speculation of course.

The beauty of Brazil's non-contributory pension scheme is that it promotes the melding of the government's ability to provide formal old age support with the family's ability to provide informal support to older members. Litwak nicely articulated this "complementary roles of informal networks and formal systems" in a "theory of shared functions" (1985). Formal government schemes such as ones providing financial assistance can assume predictable routine functions formerly held by primary groups; but only a primary group such as a family has the flexibility to continue performing functions tailored specifically to

the individual situation of a particular person. Informal functions can include co-residence.

When studying the non-contributory pensions of Brazil and South Africa, a team of researchers led by Armando Barrientos reported, as their first main finding, that the pension income was shared with others in the household and that pension income played a substantial role in sustaining households in both countries (HelpAge International, 2003, p. 12). Not until the work of Kassouf and de Oliveira almost a decade later (2012) however was the pension's potential effect on living arrangements in Brazil investigated more fully.[2] More attention was paid to such factors as the eradication of extreme poverty among older people (Gragnolati et al., 2011), retirement decisions or child labor (de Carvalho Filho, 2008a; 2008b). But then using different data and methodology from what is used here – national household survey data (PNAD) for 2000-2006 – Kassouf and de Oliveira looked at the issue of household composition and found no evidence that either program eligibility or the actual receipt of program benefits affected household composition (2012 p. 11). Their focus was more on the addition of relatives of labor force age than on the potential for young children or other elders to co-reside however. The latter could actually be of indirect benefit to people *in* the labor force.

Kassouf and de Oliveira (2012) also faced different but similarly challenging data limitations to what are faced here. Perhaps most importantly from the standpoint of evaluation research is that their data may have been gathered too soon after the policy change for those data to adequately reflect a behavioral change. One might wonder how well even 2010 census data on living arrangements will reflect any change although we *do* find suggestive evidence when we look more closely at lower income households in specific.

Materials and Method

Data

The study uses a large nationally representative sample of individual-level records from Brazil's *de jure* 2010 census available from the University of Minnesota Population Center's International IPUMS project.[3] While the entire sample of 9.6 million records was used to determine whether a household was extended or not, our focus is on the subset of women age 60 and over (575,000), and subsets of this subset by whether or not they had had a live birth (yes/no = 511,000/64,000). The two groups of women are sometimes referred to here as 'mothers' and 'childless' women for shorthand, the apostrophes meant to acknowledge the contentious nature of such appellation. Weights are used to make the data nationally representative. If it were unknown whether a woman had had a live birth, the Census coded her as NOT having had a live birth. (Men were not asked about their fertility.) Given the large sample sizes, the study can comfortably perform analysis on a multivariate model with eight independent variables while also demanding a very low probability of committing a Type 2 error (accepting a hypothesis when it is not true).

The data set provides a wealth of information related to an older woman's living arrangements not commonly available. When studying the co-residential situation of 'childless' women in eight Latin American countries (including Brazil) with a common model for example, information had to be limited to age, marital status, education, home ownership and urban/rural residence (De Vos, 2014b). Additional country-specific information existed in the 2010 Brazilian census however, including information on race/color, disability, household income, source of income in old age, region of the country and access to such consumer goods as a television, land line phone, cell phone and radio. Indeed, we were able to determine that home ownership was *not* a reasonable proxy for economic well-being in Brazil, and do not use it (see also Gragnolati et al., 2011). We also found too much overlap (collinearity) between education, income and an index of communication goods to be able to enter indicators for all of them into one statistical model.

A major feature of the data set critical for this study is that the sample is from a census of both population AND households. Everyone in a sampled household was enumerated, and the individual person

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records can be linked with household-level information by way of a Household Identification Number. As explained more below, this enabled the creation of a dichotomous variable of family household extension (no/yes) based on each household member's partnership status and relation to the household head.

Method

The study compares extended family living among elderly women who did not or did have a live birth in several steps starting with the perusal of simple univariate and bivariate percentiles, then examining multivariate regression results overall and within income groups, and culminating in a decomposition of population differences. This helps us understand our data, the crude relationship between extended family household living and the various predictive variables in our model, the net relationship of the various elements of our model both nationally and within different income groups, and the importance of propensity vs. population composition in accounting for the overall gap in extended family living between elderly 'mothers' and their biologically childless counterparts.

The multivariate model is for a binomial logistic regression rather than OLS because the dependent variable is dichotomous – no/yes in an extended family household. The tradeoff is that interpretation of coefficients is less intuitive. With linear regression there is one relationship that stays constant irrespective of the value of either the dependent or independent variable. That is not true with logistic regression, and the general model involves a curved line described by a non-intuitive multiplicative exponential function. Estimated coefficients are "logits." Some researchers feel that reporting statistical effects in terms of log odds instead of logits makes more sense but I do not find that easier to understand, especially since even the meaning of the statistical term 'odds' is different from usual (Chen et al., n.d.). I report findings in terms of logits and their standard errors, and assess them in relative, not absolute, terms.

Then, since any overall difference is a matter of both composition *and* propensity differences (assuming a trivial indivisible interaction) whereas regression results only refer to propensity differences, we need to take our comparison one step further (or in a different direction) by decomposing the overall difference.

Ideally, a decomposition would go beyond separating a difference into two main factors to include quantifying the individual contribution of each model element to the overall difference but that was not possible given the categorical nature of many of the independent variables (Jann, 2008). This study uses STATA's Blinder-Oaxaca function to perform the decomposition.

Model

The study uses a model in which extended family household living (no/yes) is a function of eight characteristics: 1) age (60-69, 70-79, 80+); 2) disability (no/little, some, total [limitation in seeing, hearing, ambulating and/or thinking]); 3) partnership status (partnered, separated/divorced, widowed, never married); 4) socio-economic status (per capita household income in terms of minimum wage in five categories); 5) source of income of older person (none, pension only, non-pension source only, pension AND non-pension source); 6) race/color (white, black, yellow, brown, indigenous); 7) region (north, northeast, southeast, south, center-west); and 8) urban/rural residence. Although ultimately considered in a multivariate context, each model variable is first introduced below in terms of its construction, univariate distribution, and then bivariately in regards to extended family household residence.

Simple comparison of the univariate distributions involves calculating the percentage point difference in composition of the two subsamples in any given category. This is done in the last column of Table 1. Bivariate relations are described in Table 2 in terms of the percent of the category residing in an extended family household.

[Table 1 About Here]

Extended Family Household

Extended family households are households in which related people from more than one conjugal unit co-reside (Hammel and Laslett, 1974). Co-residence with an unrelated person is immaterial. All individuals were assigned a 1) 'relation to the household head' (head, spouse/partner of different/same sex,

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child/stepchild (in-law), parent (in-law), grandchild, sibling, grandparent, other relative, roomer/boarder,

housemate, domestic, other unrelated) a 2) conjugal/partnership status (the census assumed that children

under 10 were unpartnered) AND a 3) Household Identification Number. As everyone in the same

household was enumerated and assigned the same Household ID, individual-level data could be

aggregated to the household level to determine whether the household was extended or not. The

household-level information could then be assigned back to the individual. This study used the basic

programming capability of the SAS statistical software package.

Using this procedure, we estimate that 35.9 percent of Brazilian women aged 60 and over lived in an

extended family household in 2010 (Table 1). This was 36.8 percent among women 60+ who had had a

live birth, and 29.0 percent among their counterparts who had not, a difference of 7.8 percentage points.

Age

Age captures such unspecified features as general health (as opposed to a more specific disability

indicator), historical experience and family life stage. Although certain legal definitions of old age start at

65, others start it at 60 or even 55. Using 60 as the beginning of old age, this study considers it in terms

three phases: younger, middle, and older old age or 60-69, 70-79 and 80+ years of age.

The age distributions of the subsamples of women (had or did not have a live birth) were basically

the same, the largest variance being less than one percentage point among women 80 and over. Also and

as might be expected, roughly half the samples were in the 60-69 year age category while almost a third

were 70-79. See Table 1.

Before taking other factors into consideration, age appeared to matter a lot more for the extended

family living of 'childless' elderly women than for 'mothers' (women who had had a live birth). Whereas

the young-old gap in extended family living was only 6 percentage points among elderly 'mothers' (41.5-

35.5), it was 12 percentage points among biologically childless women (38.4-26.4). Table 2.

Disability

The study developed a three-category summary variable to indicate disability from separate census questions involving sight, hearing, ambulation and mental ability.[4] Those categories are 1) Little or no impairment, 2) Difficult and 3) Total. If someone were mentally capable and had little or no difficulty seeing, hearing or moving around, then the person was considered to have little or no impairment. If someone were either totally blind, totally deaf, unable to move around or was mentally incapacitated, then that person was totally disabled. If someone were mentally capable but found seeing, hearing or moving around difficult but possible, then that person's disability was Difficult or Somewhat.

Roughly three quarters of both subsamples of elderly women had little or no impairment. A slightly greater proportion of 'childless' women were totally disabled while a somewhat greater proportion of 'mothers' found something difficult but not impossible. See Table 1.

Nor was there much bivariate difference between 'mothers' and 'childless' women in the proportions of totally disabled women who lived in extended family households. About 45 percent did. But 'childless' women overall were much less likely to live in extended family households otherwise. See Table 2.

[Table 2 About Here]

Partnership Status

Partnership status has always been difficult to enumerate in Latin America because formal marital status has never indicated well the actual situation (see De Vos, 1999; Goode, 1963; Greene, 1991, Martin, 1997). Knowing this, the Brazilian census has tried different ways to indicate conjugal status over the years. The 2010 census gathered information on actual living arrangements -- whether the person does now, did in the past or never did, live with a partner. If someone no longer does but did live with a partner in the past, the study distinguished people reported to be widows from those reported to be separated or divorced using the formal 'marital status' variable <u>not</u> linked to living arrangements (married, separated, divorced, widowed, single).

Sample distributions of partnership status are unsurprisingly starkly different for the two sub-samples

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 14 of elderly women. Whereas over two fifths of the elderly women who had a live birth were living with a partner and another two fifths were widowed, only a fourth of the 'childless' women were living with a partner and only another fifth were widowed. Instead, over two fifths of the 'childless' women had never lived with a partner. (This was only 2.1 percent among 'mothers.') See Table 1.

Residence in an extended family household was more common among elderly 'mothers' than among 'childless' women of every partnership status. The lowest proportion among either sample was among women who still lived with a partner: 29.4 percent of partnered 'mothers' lived in extended family households and only 19.1 percent of the partnered 'childless' women. The largest gap in extended family living was between partnered and never partnered 'mothers' – 18 percentage points. The difference between partnered and never partnered women who had no live births was 13 percentage points. See Table 2. This will be revisited when we consider the contribution of compositional differences to the overall gap of 7.8 percentage points in the extended family living of the two subgroups of elderly women.

Socioeconomic Status - Per Capita Household Income

There were at least three potential indicators of socioeconomic status in the Census: per capita household income (measured in terms of the minimum wage), educational attainment, and a composite index of media-related consumer goods.[5] The three variables are highly correlated however, and we could only use one of them in the multivariate model if we were to avoid multicollinearity. We settled on per capita household income because the model uses another income variable as well -- source of older person's income.

Per capita household income in terms of minimum wages is a 5-point scale: <1, 1, 2, 3-6, and 6+. This categorization captures the important information of the original variable that was continuous with a minima of 0 and a long-tailed maxima of 10,000 minimum wages. Roughly half the elderly women lived in households with a per capita income of one minimum wage whereas less than seven percent were in households with a per capita income of six or more minimum wages, (6.4 percent of the mothers and 9.5 percent of the 'childless' women). A somewhat higher proportion of 'mothers'` compared to 'childless'

elderly women were in the lower income categories. Alternately, a somewhat higher proportion of 'childless' women were in the higher income categories. See Table 1.

Household income has a strong bivariate relationship with whether an elderly woman lived in an extended family household. See Table 2. Among women who had a live birth, the proportion in extended family households ranged from 65 percent in households with incomes of less than one per capita minimum wage down to only 17.6 percent among women in households whose per capita incomes were six or more minimum wages, a range of 47.4 percentage points. Among 'childless' women, the comparable range was 48.5-14.3 percent or 34.2 percentage points. Both those ranges are huge before controlling for other factors.

Source of Income of Older Person

This study created a variable on source of an older person's income by folding together two simple "yes/no" variables: whether the woman received pension income and whether she received income from some other source. We are **not** told how flimsy or substantial a "yes" was, or whether non-contributory pension income was involved. The four categories are: 1) no pension nor other source of income, 2) pension but no other source, 3) no pension but other source, and 4) both pension AND other income.

About a fifth of both elderly mothers and 'childless' women received neither pension nor other income. Almost two-thirds of the women in both subsamples received a pension but no other income. Only about 3 percent received 'other' income but no pension while about an eighth received both a pension *and* other income (slightly more mothers [2.5 percentage points] received neither pension nor 'other' income as opposed to both pension and 'other' income). See Table 1.

In the bivariate case, roughly a third of both 'mothers' and 'childless' women resided in extended family households if they received neither a pension nor had another source of income. And although 'mothers' were about as likely to reside in extended family households when they received both a pension *and* income from another source, 'childless' women were much less likely to do so (32.0% vs. 20.8%). See Table 2. Another way of stating the situation is that 'childless' women who received another source of

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 16 income, whether along with pension income or not, were much *less* likely to live in an extended family household on the bivariate level.

Race or Color

The 2010 census used five categories to classify race/color after experiments with a variable containing more fine-tuned categories proved no more informative: 1) white, 2) black, 3) yellow, 4) brown, and 5) Indigenous. Still, the enumeration and identification of race in Brazil is highly problematic (Telles, 2004; Telles and Lim, 1998). Race is supposedly determined by looks rather than ancestry (ancestry is used in the United States) and appraisals of someone's color in Brazil may differ depending on the situation. A commonly-heard refrain is that "money whitens."

Dessen and Torres (2002), citing the work of Darcy Ribeiro[6], suggest that five Brazilian subcultures combining race and region are relevant to family structure. Both a 'crioula' subculture originally of the Northeast region where many people are descended from African slaves, and a 'cabloca' subculture originally of the Brazilian Amazon comprised of "natives and descendants of non-voluntary immigrants like the African slaves" tend to favor authoritarian and patriarchal structures "emphasizing group norms and group loyalty." The 'caipira' and 'ga£cha' subcultures originally concentrated in the Southeast and South, and comprised mainly of white descendants of Italian and German immigrants of the 17th and 18th centuries are more individualistically- and less family- oriented.[7]

A fifth group, the 'sertaneja,' predominate in the savannas of central Brazil. People in rural areas there tend to be subsistence farmers while Brazil's capital is now also located in the region. There is no mention of race or color in the description of this fifth subculture so it comes as no surprise that Ribeiro would describe it as a mixture of collectivism and the individualism. Dessen and Torres (2002) do not comment on the family orientation of 'yellow' people.

Given the tenuous nature of how race or color is reported, it is of significance that the enumerated racial/color compositions of the two subsamples of elderly women were similar. Fifty seven percent of both subsamples were reported to be white. Roughly a third were reported to be brown and about one in

twelve were reported black. Only 0.3 percent were reported Indigenous and both samples had under 2

percent reported yellow. (A slightly higher proportion of 'childless' women were reported black and a

slightly lower proportion were reported brown by roughly 2.5 percentage points). See Table 1.

Nor did there seem to be much difference among blacks or browns in the proportion living in

extended family households of either **'mothers'** (43-46%) or *'childless'* women (34-32%) on the bivariate

level. In comparison, white and yellow 'mothers' and 'childless' women always had a lower proportion

living in extended family households whereas Indigenous women of both groups also always had a higher

proportion living in extended family households. See Table 2.

Region

The study uses standard coding for the construction of a five-category region variable in Brazil: 1) North

(states of Rondonia, Acre, Amazonas, Roraima, Para, Amapa and Tocantins), 2) Northeast (states of

Maranhao, Piaui, Ceara, Rio Grande do Norte, Paraiba, Pernambuco, Alagoas, Sergipe and Bahia), 3)

Southeast (states of Minas Gerais, Espirito Santo, Rio de Janeiro and Sao Paulo), 4) South (states of

Parana, Santa Catarina and Rio Grande do Sul) and 5) Center-West (states of Mato Grosso do Sul, Mato

Grosso, Goias and the Distrito Federal).

The two subsamples of elderly women reflect the general distribution of the population at large: less

than 5 percent in the North, only slightly more in the Center-West, more still in the South but most in the

Northeast and Southeast (Table 1). Nor are the bivariate regional differences in the proportion of the

women living in extended family households particularly surprising given what Dessen and Torres (2002)

suggest in terms of different subculture orientations toward the family vs. the individual: The highest

proportion of elderly women in either sample residing in extended family households lived in the North

followed by the Northeast, then the Center-West and finally the Southeast and South. See Table 2.

Urban/Rural Residence

A characteristic that has long evaded demographer's penchant for standardization but has profound

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significance for social and economic organization is 'urban/rural' residence. It appears that the Brazilian census uses administrative or legal criteria to label an area 'urban,' and then considers any area that is not urban as rural (IBGE, 2016). "Urban" areas *do* tend to be more densely settled than "rural" areas but a factor such as density is *not* a defining characteristic. Great strides are being made using GIS however, and a more scientific approach that furthermore considers different levels of urbanization may be used in the future (Braga et al., 2016).

Without distinguishing between types of 'urban' areas, we find that over four fifths of Brazil's women 60+ were said to live in an urban area in July 2010. Less than 14 percent resided in 'rural' areas. This was roughly the same among the two subsamples. See Table 1. Even that level of aggregation tells us something in the bivariate case however. Roughly the same proportion of 'mothers' in both urban and rural areas lived in extended family households but 'childless' women were less likely to live with extended family in urban than in rural areas. See Table 2.

Results

Results are discussed in three steps. In the first step, we run our statistical model on the entire subsamples of elderly women who had or did not have a live birth. Those overall results are shown in Table 3. Then, we estimate the same model within income categories of those subgroups. Those results are shown in Table 4. Finally, we use the model to decompose the overall difference into compositional and propensity factors. This is shown in Table 5. Less formally, we pursue the general decomposition by asking what the difference would be *if* the 'childless' subgroup had the same partnership status as the 'mother' group. The results of that simple standardization are shown in Table 6.

The eight predictive variables themselves are discussed in terms of three groups roughly reflecting their demographic, socio-economic and socio-geographical nature: (1) age, disability and partnership status, (2) per capita household income and source of older person's income, and (3) race/color, region and urban/rural residence. Per our previous discussion, we found it best to consider race and region

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 19 together.

Step 1 - Summary Multivariate Results for the Two Groups

<u>Age, Disability and Partnership Status</u> Net of other factors, age, disability, and partnership status all seemed more important predictors of extended family household living among 'childless' women than among 'mothers.' For instance, the estimated contrasts of younger-middle and younger-older age of -0.04 and 0.06 among 'mothers' were statistically significant (at p<.01) but too small to be of any real substance. However, there *was* a significant positive contrast of substance between younger-old and older-old 'childless' women – +.369, older-old women being more likely to reside in extended family households net of other things. See Table 3.

Also, although both 'mothers' and 'childless' women who were totally disabled were more likely to reside in extended family households than woman with little or no impairment, this was much more so for 'childless' women than for 'mothers' – .606 v s. .185. And while only being somewhat disabled did not seem to matter among 'mothers,' it *did* matter for extended family living among 'childless' women. See Table 3.

Partnered women, whether 'mother' or 'childless,' were least likely in their subgroup to live in extended family households, again more so for 'childless' women than for 'mothers.' There appeared little net difference in extended family living by whether the woman was widowed or had never married ('always solo') however. In the bivariate case, the difference among 'mothers' had been notable. See Tables 2 & 3.

<u>Per Capita Household Income, and Source of Retirement Income</u> The strongest predictor of whether an older woman lived in an extended family household in our model was per capita household income, and more strongly for elderly ''mothers' than for 'childless' women. The more income, the less likely to live in an extended family household. For example, the estimated logit contrast between the lowest and highest income categories was -1.97 among 'mothers' compared to -1.54 among "childless' women. See Table 3.

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 20

Whether an elderly 'mother' had a pension seemed to have a slightly positive effect on the likelihood that she would live in an extended family household net of other things but having another source of income did not (although at -.08 it was again statistically significant). In contrast, receiving pension income seemed to have no effect among 'childless' women while receiving income from another source *did* – a negative one. See Table 3. A confusing situation, these overall results appear to mask important, and sometimes countervailing, contrasts existing within income subgroups. We explore this further in the next section.

[Table 3 About Here]

Race/color, Region and Urban/Rural Residence There persisted a small but noteworthy relationship between race or color and the probability that a 'mother' or 'childless' woman would live in an extended family household net of other factors in our model including region. Whites were less likely to live in such households than black, brown or Indigenous people and, among 'mothers,' yellow people too. There was no white-yellow contrast among 'childless' women. See Table 3.

The probability of extended family household living by region seemed fairly similar for 'mothers' and 'childless' women and what we would expect given our discussion about region and family orientation (collectiveness vs. individualism). Elderly women in the North were most likely to live in extended family households, followed by women in the Northeast, the Center-West, and finally the Southeast and South. See Table 3.

The big flip between bivariate and multivariate findings was the relationship between urban/rural residence and the propensity of living in an extended family household. In the bivariate case, there was little urban/rural difference among 'mothers' but more extended family living in rural areas among 'childless' women. After controlling for other factors, there was little difference in extended family household living among 'childless' women but more extended family living in urban areas among 'mothers.' See Tables 2 and 3. Upon closer examination (figures not shown), the major reasons for the

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 21

change appear to be controlling for income and region.

Step 2 - Results Within Income Subgroups

Since a household's resources are so important in determining an elder's ability to buy privacy, in making what others perceive to be a significant financial contribution to a household lived in with others or in determining the ability of people to take relatives into their household etc,. the study estimated the multivariate model within lower, medium and higher income groups of less than one minimum wage per capita, one minimum wage per capita, and two or more minimum wages per capita. This translated into roughly one eighth, one half and three eighths of the samples. (Results were similar enough for the separate three highest income groups that they were pooled together into one 'higher income' group). This is shown in Table 4.

While most results seem to mirror those for the entire subsamples, there appear to be several noteworthy differences. Foremost and among both elderly 'mothers' and 'childless' women alike in lower income households, are the **huge contrasts in favor of extended family household living of women receiving a pension (only) compared to receiving neither pension nor anything else.** That was not the case in other income groups and suggests that the non-contributory pension may be at play here. See Table 4.

The older woman herself receiving other combinations of income compared to receiving none also favored extended family household living among elderly women in lower income households of both 'mothers' and 'childless' women, just not as strikingly as the 'pension only' contrast with nothing alluded to be above (the contrast with receiving both pension *and* another source of income was not significant for 'childless' women). Table 4. This was **not** the case among women in the other income groups and was masked in the overall figures as the lower income group constituted only about an eighth of the samples. In the other groups, income of any kind tended to have a negative relation with extended family household living.

[Table 4 About Here]

Also masked by overall figures was the nuanced relationship between an elderly "mother's" age and the probability the she lived in an extended family household. Among elderly "mothers," age's overall non-relationship with extended family living appeared to be the result of countervailing forces: *negative* relationships in lower and middle income households and *positive* relations in the higher income households. See Table 4. The situation in higher income households might best reflect the situation that exists when people think they have the resources sufficient to act on preferences.

A similar income-specific relationship between disability and living in an extended family household pertained as well. There was no relationship between disability status and extended household living among elderly 'mothers' in lower income households, but there *was* when she lived in a higher income household, a *positive* one. (Disability <u>always</u> had a positive relationship to extended family household living among elderly 'childless' women, reinforcing the notion that 'need' always played a more important role for them.) See Table 4.

Step 3 - Decomposing the 'Mother'-'Childless' Woman Difference into Propensity and Composition

Regression coefficients refer to propensity. But if we are to consider the possibility that the situation of 'childless' women helps forecast the future for elderly women in general, then we are comparing two different populations, with different compositions as well as different propensities. We must ask how much of the roughly eight percentage point difference in favor of elderly 'mothers' living in extended family households (36.8% vs. 29.0%) was due to compositional differences and how much due to propensity differences.

A simple answer has eluded statisticians since at least the time of Evelyn Kitagawa (1955) because decomposition involves an indivisible interaction term. If that interaction is small, it can be safely ignored. Fortunately, according to the 'Blinder-Oaxaca' decomposition of our eight-variable model shown in Table 5, the indivisible interaction term accounts for less than five percent of the difference between elderly 'childless' women and elderly 'mothers.' In this context then, it is noteworthy that propensity differences would by themselves account for 118.9 percent of the actual difference while composition factors dampen

Extended family living among elderly women in Brazil 2010 by whether they had a live birth 23

that would-be propensity difference by almost a fourth (-23.5%).

[Table 5 About Here]

Ideally, we would want to identify what factors were the major contributors to the overall difference. Unfortunately, the categorical nature of our variables makes that mathematically impossible because specific results differ widely depending on which category is selected as the contrast. We know from the figures in Table 1 however that the two populations had fairly similar univariate compositions except for partnership status. Less than a quarter of the 'childless' women were living with a partner whereas this was over four in ten among 'mothers.' Roughly 2 percent of elderly 'mothers' were reported as never having lived with a partner compared to over 40 percent of 'childless' women.

Using the simple logic of standardization (from which multivariate decomposition derives in part) and figures in Tables 1 and 2, we can ask what proportion of 'childless' women would live in extended family households IF they had the same partnership status composition as did the elderly 'mothers' but still had their own partnership status propensities of living in an extended family household. Shown in Table 6, we find that the proportion would be only 26.7 percent compared to the observed proportion of 29.0 percent, widening the gap between the two populations from 7.8 percentage points to almost ten percentage points or about a fifth more. While only suggestive of course, it would appear that partnership status can explain a large part of the compositional contribution to the overall difference between the two groups. If the two populations had a more similar partnership status, the gap in tendency to live in an extended family household would have been even more, again pointing to the important role of the family in the lives of 'childless' elderly women in Brazil.

[Table 6 About Here]

Conclusion and Discussion

Many biologically childless elderly women 60+ live with extended kin in Brazil although not quite as often as do elderly women who had a live birth – an estimated 29.0 vs. 36.8 percent in 2010. The purpose of this study was to identify how certain socio-demographic, socio-economic and socio-geographic characteristics were associated with extended family household living, and to explore how that might or might not be the same for women who did or did not have a live birth. The idea was that findings could help us better understand the situation of older people in the future, as signs are that an increasing proportion of Brazilian women will be entering old age without having had a live birth.

Using data from Brazil's 2010 census, the study developed a multivariate logistic model that regressed whether or not an elderly woman resided in an extended family household on her age, disability status, partnership status, household's income, source of income in old age, race/color, region and urban/rural residence. Only scratching the surface of the many reasons an older person might live in an extended family household of course, the model was still a significant step forward. It used country-specific variables to help document the situation in addition to the few available for cross-national comparison (e.g. De Vos, 2014b). This enabled the study to estimate the model for all elderly women, for all elderly women who had or did not have a live birth, and for different income groups of elderly women who had or did not have live births. The study also used the model to decompose the overall difference in extended family residence among the two populations of elderly women (by whether they had a live birth or not) into that due to composition and that due to propensity (an indivisible interaction term being trivial). The idea was that doing so might help us predict the future.

The study found the two populations to be similar in the strong predictive effect of socio-economic status or income in two ways. First, the study found that the higher a woman's per capita household income, the less likely she was to live in an extended family household. Although an individual-level relationship cannot be automatically extended to the aggregate level, the finding is consistent with the

idea that privacy is a normal good that operates among everyone on both individual and societal levels, an explanation that could fit both an historical and individual-level relationship.

Second, among women in lower income households specifically (households with a per capita income of less than one minimum wage) a woman who received a pension was more likely to live in an extended family household than if she received neither a pension nor any other kind of income. This was found among women who had or did not have a live birth, and was not found among women of either group living in medium or higher income households. While it is impossible to definitely attribute this to the non-contributory pension given the nature of our data, it certainly is suggestive. It suggests that receiving that income might attract kin to share the benefit by living with her. The study does not say whether the extended kin are children, middle age adults or other elders. But it *does* report that while receiving other combinations of income compared to none also had positive relations to living in an extended family household in lower income households, such relationships were not found in higher income households. Indeed, in higher income households, we tended to see the same *negative* relation between income receipt and the probability of living in an extended family household that we see overall.

Most (but not all) other items in the general model also seemed to have rather similar findings for both 'mothers' and 'childless' elderly women although one could haggle over specifics. For instance, elderly women living with a partner were least likely to reside in extended family households; whites were about as likely to as yellows and less likely to than blacks, browns or indigenous people; and extended family household living was highest in the North followed by the Northeast, the Center-West and finally by the South and Southeast.

What seemed most different about the two groups was the level of demonstrated **need** for co-residence, consistent with the idea that relatives had a much higher threshold for 'childless' elderly women than for 'mothers.' For instance, age did not matter overall for women who had had live births but 'childless' elderly women 80+ were more likely than younger counterparts to live in extended family households. When we looked more closely at the different income groups, we found that age *did* have a positive effect among 'mothers' too, but only if those 'mothers' were in the higher household income group

Extended family living among elderly women in Brazil 2010 by whether they had a live birth of 2+ minimum wages per capita (age's effect was even mildly negative for 'mothers' in middle income households) who had a lower overall level of co-residence. Presumably, it was in these households that people had the luxury of choosing whether to co-reside or not. The situation with an elderly woman's disability was similar: Disability status had almost no effect among all 'mothers' except those in higher income households but did have a relationship among *all* women who had not had a live birth.

Worth noting although outside the scope of this study to explore, the study found no simple urban/rural difference in the amount of extended family living among 'mothers' but *did* among 'childless' women. But the multivariate result was opposite: no difference among 'childless' women but more extended family living among 'mothers' in urban areas. Could it be that rural mothers had been left behind by children who migrated to an urban area for work whereas that could not happen among 'childless' women? The situation seemed different enough in each region, and the definition of what was 'urban' or 'rural' seemed vague enough however, that it seems impossible to interpret the finding without more in-depth understanding of the situation.

Decomposing the difference in extended family living among elderly women who had or did not have a live birth, the study found that the gap between the two groups of women would actually have been greater than it was if the composition of the two groups had been the same, perhaps 36.8 vs. 27.4 percent instead of 36.8 vs. 29.0 percent. While our use of categorical variables made it impossible to specify what those composition factors were with precision, the two populations seemed quite similar except for their partnership status. A sizable proportion of 'childless' women had never lived with a partner.

The overall message for the future is that a demonstrated *need* for co-residence is more important than it might seem on the surface. Brazil's impressive decline in fertility since 1970 seems to have occurred because people living *with partners* can effectively act on a desire for fewer (or no) children (e.g. Forero, 2011), not because more people adopted an obsolete nuptiality pattern. If that finding is added to the finding that the non-contributory pension scheme may be making a *huge* difference for all older women irrespective of their childbearing history, we are back to the theory of shared functions, the idea

that older people's well-being can be maximized by using the "complementary roles of informal networks (the family household) and formal systems" (pension-like financial schemes).

Brazil's history of extended family residence among elderly people, whether they themselves have adult children or not, make it a perfect place to explore that idea further. Because we are offered a different view of old age from one in which there are only two mutually-exclusive strategies by which people can insure a more or less 'good' old age: 1) giving birth to, or adopting, children who stay emotionally connected to their parents and live with them in their old age, and/or 2) developing formal intergenerational support structures applicable to everyone regardless of past marital status or fertility history through a governmental Social Security-type scheme. For both long-standing cultural as well as politico-economic reasons, Brazilians have expected a network of kin, not just biological children, to care for, and possibly share residence with, elderly family members AND they have developed a distinctive non-contributory pension program aimed at the very poor that enables old people to control and share resources within households. What more widely applicable governmental policies aimed at old-age welfare might reinforce and build on a changed demographic scene coupled with the extended family's natural inclination to share both income and responsibility for *all* elderly relatives? Hopefully, this study has taken us a little closer toward finding out.

Acknowledgments

Endnotes

[1] Source is U.S. Census Bureau's International Data Base – retrieved from

http://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=13&A=separate&RT=0&Y=1950,1960,1970&R=-1&C=BR on January 10, 2017

[2] They <u>do</u> refer to an unavailable 2008 masters thesis however: Paulo, M. A. 2008. A Relacao entre Renda e Composicao Domiciliar

dos Idosos no Brasil: um Estudo sobre o Impacto do Recebimento do Beneficio de Prestacao Continuada. Master's 32 Dissertation, Department of Demography, Universidade Federal de Minas Gerais – UFMG/CEDEPLAR, BR.

[3] Minnesota Population Center. Integrated Public Use Microdata Series, International: Version 6.5 [dataset]. Minneapolis: University

of Minnesota, 2017. http://doi.org/10.18128/D020.V6.5. https://international.ipums.org/international/ AND Brazil's Institute of Geography and Statistics.

[4] The Census asked 1) "Do you have any permanent difficulty in seeing?" 2) "Do you have a permanent difficulty in hearing?" 3)

"Do you have any permanent difficulty in walking or climbing stairs?" and 4) "Do you have any permanent mental or intellectual disability that limits you in your daily activities such as working, going to school, playing, etc.?" The first three questions each had four similar possible answer:: 1) Yes, cannot do it at all, 2) yes, major trouble, 3) Yes, some difficulty and 4) No, no difficulty. The last question just had a yes/no answer.

[5] For education, the Census had questions about literacy, highest level of education attended, and level of education completed. It

enumerated level in terms of an older and newer system. For the composite index it had questions on having a radio, television, cell phone and landline phone.

[6] Ribeiro, D. (1997). O povo brasileiro: a formacão e sentido do Brasil [Brazilian people: The formation and meaning of Brazil]. São

Paulo: Companhia das Letras.

[7] According to Dessen and Torres, 'caipira' started by farming coffee but have since industrialized; many 'ga£cha' continue to raise

cattle and grow sugar cane.

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Table 1
Percentage Distribution of Samples of Women 60+ in Brazil 2010
and Percentage Point Difference Between Subpopulations (weighted)
(percentages may not total to 100 or add exactly due to rounding)

	All women 60+	Had Live Births	Did Not Have Live Births	% pt. diff (d-c)
Lives in an Extended Family Household				
No	64.1	63.2	71.0	7.8
Yes	35.9	36.8	29.0	-7.8
Age				
60-69	53.5	53.5	53.2	-0.3
70-79	31.1	31.1	30.4	-0.7
80+	15.5	15.3	16.4	0.9
Disability				
Little or None	74.8	74.7	75.7	1.0
Difficult	20.4	20.8	17.1	-3.7
Total	4.8	4.4	7.2	2.8
Partnership Status				
partnered	41.2	43.4	24.4	-19.0
separated/divorced	14.2	14.5	11.9	-2.6
widowed	37.6	40.0	19.6	-20.4
always solo	7.1	2.1	44.1	42.0
Per Capita Household Income in Minimum Wages				
<1	12.6	12.7	11.5	-1.2
1-1.9	52.3	52.8	48.9	-3.9
2-2.9	16.6	16.7	16.1	-0.6
3-5.9	11.7	11.4	14.0	2.6
6+	6.7	6.4	9.5	3.1
Source of Old .Age Income				
Neither pension nor other	22.2	22.5	20.0	-2.5
Pension, no other	63.0	63.0	63.1	0.1
Other, no pension	3.0	3.0	2.9	-0.1
Pension and Other	11.8	11.5	14.0	2.5
Race or Color				
White	57.0	57.0	57.0	0.0
Black	7.5	7.2	9.6	2.4
Yellow	1.4	1.3	1.6	0.3
Brown	33.8	34.1	31.5	-2.6
Indigenous	0.3	0.3	0.3	0.0
Region				
North	4.8	4.9	3.6	-1.3
Northeast	26.4	26.2	28.2	2.0
Southeast	47.2	46.6	51.2	4.6
South	16.0	16.5	12.6	-3.9
Center-West	5.6	5.8	4.3	-1.5
Urban or Rural				
Urban	86.4	86.2	88.1	1.9
Rural	13.6	13.8	11.9	-1.9
Total	100.0	100.0	100.0	
Sample Size	575679	514399	63771	

Table 2
Percentage of Women 60+ in Brazil in 2010 Who Had or Did not Have a
Live Birth Living in An Extended Family Household by Selected
Characteristics (weighted)

	Had Live Birth	Did not Have Live Birth '(Childless')
Total	36.8	29.0
Age		
60-69	35.5	26.4
70-79	36.9	28.3
80+	41.5	38.4
Disability		
Little or None	35.4	26.6
Difficult	40.1	32.4
Total	45.0	45.7
Partnership Status		
partnered	29.4	19.1
separated/divorced	41.6	30.0
widowed	42.6	33.5
always solo	47.4	32.1
Per Capita Household Income in Minimum Wages		
<1	65.0	48.5
1-1.9	37.9	30.0
2-2.9	27.2	25.5
3-5.9	25.3	23.4
6+	17.6	14.3
Source of Old Age Income		
Neither pension nor other	35.1	32.0
Pension, no other	38.8	30.1
Other, no pension	30.8	22.7
Pension and Other	31.2	20.8
Race or Color		
White	31.7	25.7
Black	46.0	32.1
Yellow	35.2	24.7
Brown	43.4	34.0
Indigenous	50.3	53.5
Region		
North	56.8	48.5
Northeast	46.2	36.9
Southeast	32.0	24.0
South	29.7	24.3
Center-West	37.3	33.0
Urban or Rural		
Urban	36.6	28.2
Rural	38.6	35.0
Sample Size	514,399	63,771

Table 3

Logits and their Standard Errors from Regression of Living in an Extended Family Household (no/yes) on Various Demographic, Socio-Economic and Geographic Characteristics Among All and Subgroups of Older Women 60+ in Brazil in 2010 by Whether They Had a Live Birth or Not (weights used to make results nationally representative)

	All Women		Had a live birth		Did not have a live birth	
	b	(SE)	b	(SE)	b	(SE)
Intercept	0.877	(0.022)	1.148	(0.029)	0.524	(0.083)
Age						
60-69	omitted		omitted		omitted	
70-79	-0.035	(0.008)	-0.040	(0.008)	*0.030*	*(0.025)*
80+	0.085	(0.011)	0.057	(0.011)	0.369	(0.031)
Disability						
Little or None	omitted		omitted		omitted	
Some difficulty	*0.006*	*(0.009)*	*-0.008*	*(0.009)*	0.076	(0.028)
Total	0.246	(0.002)	0.185	(0.018)	0.606	(0.038)
Partnership Status						
partnered	omitted		omitted		omitted	
separated/divorced	0.351	(0.011)	0.346	(0.110)	0.554	(0.041)
widowed	0.581	(0.009)	0.572	(0.009)	0.704	(0.036)
always solo	0.308	(0.014)	0.577	(0.026)	0.714	(0.030)
Per Capita Household Income in Minimum Wages						
0	omitted		omitted		omitted	
1	-1.029	(0.010)	-1.061	(0.011)	-0.780	(0.035)
2	-1.433	(0.014)	-1.496	(0.014)	-0.869	(0.044)
3_5	-1.497	(0.016)	-1.559	(0.017)	-0.958	(0.047)
6+	-1.938	(0.022)	-1.972	(0.023)	-1.537	(0.062)
Source of Old Age Income						
Neither pension nor other	omitted		omitted		omitted	
Pension, no other	0.168	(0.010)	0.177	(0.011)	*0.039*	*(0.034)*
Other, no pension	-0.088	(0.023)	-0.076	(0.024)	-0.238	(0.077)
Pension and Other	*-0.027*	*(0.014)*	*0.005*	*(0.015)*	-0.281	(0.046)
Race or Color						
White	omitted		omitted		omitted	
Black	0.223	(0.013)	0.245	(0.014)	*0.127*	(0.038)
Yellow	0.084	(0.032)	0.105	(0.034)	*0.002*	*(0.095)*
Brown	0.140	(0.008)	0.139	(0.008)	0.120	(0.025)
Indigenous	0.286	(0.053)	0.261	(0.056)	0.524	(0.160)
Region						
North	omitted		omitted		omitted	
Northeast	-0.467	(0.016)	-0.457	(0.017)	-0.531	(0.055)
Southeast	-0.814	(0.016)	-0.791	(0.017)	-0.956	(0.056)
South	-0.820	(0.018)	-0.814	(0.018)	-0.908	(0.062)
Center-West	-0.583	(0.022)	-0.594	(0.022)	-0.518	(0.076)
Urban/Rural Status						
Urban	omitted		omitted		omitted	
Rural	-0.196	(0.008)	-0.219	(0.009)	*0.005*	*(0.027)*
Sample Size	578170		514399		63771	

significant at p < .01 unless:
italicized in grey

Table 4

Logits and Their Standard Errors from Regressions of Living in an Extended Family Household (no/yes) on Various Demographic Characteristics Among Older Women 60+ in Brazil in 2010 Who Had or Did Not Have a Live Birth -- Overall and Within Lower, Medium and Higher Income Households* (weighted to be nationally representative)

	Women Who Had Live Births								Women Who Had No Live Births							
	Total		lower income		middle income		higher income		Total		lower income		middle income		higher income	
	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)	logit	(S.E.)
age (60-69 contrast)																
70-79	-0.040	(0.008)	*-0.042*	*(0.025)*	-0.107	(0.011)	0.150	(0.017)	*0.030*	*(0.025)*	*0.051*	*(0.073)*	*0.020*	*(0.033)*	*0.113*	*(0.048)*
80+	0.057	(0.011)	-0.207	(0.034)	-0.136	(0.014)	0.497	(0.021)	0.369	(0.031)	*0.180*	*(0.092)*	0.246	(0.040)	0.659	(0.057)
Disability ('Little or no' contrast)																
Some difficulty	*-0.008*	*(0.009)*	0.067	(0.025)	-0.029	(0.011)	*0.043*	*(0.020)*	0.076	(0.028)	*0.016*	*(0.082)*	*0.043*	*(0.036)*	0.157	(0.058)
Total	0.185	(0.018)	*-0.006*	*(0.047)*	0.189	(0.022)	0.276	(0.036)	0.606	(0.038)	0.383	(0.115)	0.523	(0.047)	0.856	(0.078)
partnership ('with partner' contrast)																
separated/divorced	0.346	(0.110)	0.282	(0.028)	0.381	(0.015)	0.420	(0.025)	0.554	(0.041)	0.663	(0.102)	0.610	(0.055)	0.458	(0.082)
widowed	0.572	(0.009)	0.361	(0.026)	0.689	(0.011)	0.543	(0.018)	0.704	(0.036)	0.669	(0.096)	0.912	(0.047)	0.498	(0.071)
always solo	0.577	(0.026)	0.370	(0.060)	0.614	(0.036)	0.782	(0.064)	0.714	(0.030)	0.565	(0.082)	0.749	(0.039)	0.774	(0.060)
Per Cap Hshld Inc in Min Wages ('<1' contrast)																
1	-1.061	(0.011)							-0.780	(0.035)						
2	-1.496	(0.014)							-0.869	(0.044)						
3_5	-1.559	(0.017)							-0.958	(0.047)						
6+	-1.972	(0.023)							-1.537	(0.062)						
Source of Old Age Inc ('neither pension nor other' contrast)																
Pension, no other	0.177	(0.011)	**1.382**	(0.023)	-0.082	(0.014)	-0.197	(0.021)	*0.039*	*(0.034)*	**1.612**	(0.071)	-0.416	(0.043)	-0.280	(0.064)
Other, no pension	-0.076	(0.024)	0.646	(0.072)	-0.314	(0.031)	-0.425	(0.044)	*-0.238*	*(0.077)*	0.713	(0.217)	-0.688	(0.102)	-0.587	(0.138)
Pension and Other	*0.005*	*(0.015)*	0.623	(0.118)	-0.091	(0.021)	-0.501	(0.027)	-0.281	(0.046)	*0.145*	*(0.128)*	-0.501	(0.064)	-0.756	(0.077)
race (white contrast)																
black	0.245	(0.014)	0.448	(0.037)	0.246	(0.180)	0.203	(0.037)	0.127	(0.039)	*0.261*	*(0.108)*	*0.080*	*(0.049)*	0.184	(0.088)
yellw	0.105	(0.034)	*0.162*	*(0.095)*	*0.063*	*(0.045)*	*0.136*	*(0.059)*	0.002	(0.096)	*-0.322*	*(0.257)*	*0.058*	*(0.138)*	*0.041*	*(0.151)*
brown	0.139	(0.008)	0.353	(0.023)	0.143	(0.010)	*0.056*	*(0.019)*	0.119	(0.026)	0.328	(0.070)	0.076	(0.033)	0.134	(0.053)
indigenous	0.261	(0.056)	0.601	(0.118)	0.180	(0.077)	*0.083*	*(0.174)*	0.524	(0.160)	*0.403*	*(0.255)*	*0.683*	*(0.216)*	*0.264*	*(0.667)*
region (north contrast)																
northeast	-0.457	(0.017)	-0.405	(0.040)	-0.451	(0.022)	-0.601	(0.043)	-0.531	(0.056)	-0.394	(0.126)	-0.491	(0.077)	-0.552	(0.123)
southeast	-0.791	(0.017)	-0.930	(0.042)	-0.741	(0.022)	-0.824	(0.041)	-0.956	(0.056)	-1.187	(0.131)	-0.804	(0.078)	-0.923	(0.119)
south	-0.814	(0.018)	-0.934	(0.050)	-0.751	(0.024)	-0.815	(0.042)	-0.908	(0.061)	-1.248	(0.161)	-0.730	(0.084)	-0.866	(0.125)
center-west	-0.594	(0.022)	-0.783	(0.059)	-0.621	(0.028)	-0.462	(0.049)	-0.518	(0.076)	-0.743	(0.188)	-0.493	(0.102)	-0.432	(0.148)
Rural (in contrast to urban)	-0.219	(0.009)	-0.197	(0.024)	-0.233	(0.011)	-0.348	(0.024)	*0.005*	*(0.028)*	*0.048*	*(0.071)*	*-0.028*	*(0.034)*	*0.051*	*(0.076)*
constant	0.963	(0.024)	0.432	(0.053)	0.088	(0.028)	-0.268	(0.051)	*-0.081*	*(0.074)*	-0.526	(0.171)	-0.561	(0.096)	-0.974	(0.158)
N of Obs	514,399		70,112		294,250		150,037		63,771		7,707		35,440		20,624	
Percent of subgroup	(100.00)		(13.60)		(57.30)		(29.20)		(100.00)		(12.10)		(55.60)		(32.30)	

significant at p < .01 unless:
italicized in grey

* lower income households have less than one minimum wage per capita income; medium income is per capita income of one minimum wage; higher income is more than a per capita income of one.

Table 5

Blinder-Oaxaca Decomposition of Gap Between Elderly Women Who Had and Did Not Have a Live Birth (weighted)

Total No. Observations	578,170				
No Live Births (Group 1)	63,771				
Had A Live Birth (Group 2)	514,399				

	Coefficient	Std. Error	z	P>|z|	Percent
Proportion of 'Mothers' in Extended Family Households	0.368	0.001	455.91	0.000	
Proportion of 'Childless' Women in Extended Family Households	0.290	0.002	135.37	0.000	
Difference	0.078	0.002	34.39	0.000	100.0%
due to composition	-0.018	0.002	-9.22	0.000	-23.5%
due to propensity	0.094	0.003	28.29	0.000	118.9%
due to interaction	0.003	0.003	1.09	0.277	4.3%

Table 6

Simple Standardization Applying 'Childless' Women Propensity of Extended Family Household Living in Table 2 to Partnership Status Composition of 'Mother' Population in Table 1

Partnership Status	Composition of 'Mother' Population in Percents (from Table 1)	Hypothetical Distribution of 'Childless' Population Given 'Mother' Composition	Percent of 'Childless' Population in Ext. Fam. Household (from Table 2)	Hypothetical Number of 'Childless' in Ext. Fam. Households Applying Actual Propensity to 'Mother' Composition
Partnered	43.4	27676	19.1	5286
Separated/ Divorced	14.5	9246	30.0	2774
Widowed	40.0	25508	33.5	8545
Never Lived with a Partner	2.1	1339	32.1	430
Total	100.0	63771	29.0	17035

Hypothetical % of 'Childless' in Ext. Fam. Hshlds. (17035/63771)	26.7

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