

## **A Demographic Analysis of the Grandparent Phase of Life**

Rachel Margolis

### **Abstract**

Demographic changes impact the absolute and relative length of time that we spend in different family roles. In this paper, I examine how the grandparent phase of life has been affected by recent mortality and fertility decline, and fertility postponement. First, I use the Sullivan method to estimate how many years (at the population level) people spend in two states: grandchild-less and with grandchildren, and how recent demographic changes have shifted the grandparent phase of life. Second, I examine sex differences in grandparenthood and their causes. Third, I examine the relative importance of the reasons for being grandchild-less at each age and whether the importance of these factors has changed over time. The Health and Retirement Study (HRS) and Survey of Health Aging and Retirement in Europe (SHARE) are used to compare the grandparent phase of life across context. Preliminary results for the United States show that the transition to grandparenthood is occurring later, which is due mostly to fertility postponement of children. Implications for family relationships, care-giving, and evolutionary demography are discussed.

**Keywords:** Grandparenthood, Sullivan method, Fertility postponement, Families

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## **Motivation**

Demographic changes impact the absolute and relative length of time that we spend in different family roles (Bengtson 2001; Crosnoe and Elder 2002; Glick and Park 1965; Treas and Bengtson 1982; Watkins, Menken and Bongaarts 1987; White and Preston 1996). One type of family relationship that has been much affected by mortality and fertility decline is grandparenthood.

Formal demographic models, projections and simulations show that over the course of the 20<sup>th</sup> century, the grandparent phase of life has increased due to declining mortality, as more infants survive, parents live to see their children grow, and older people are alive to see their grandchildren become adults (Watkins, Menken and Bongaarts 1987; White and Preston 1996). However, fertility and family formation patterns have also changed. Fertility decline and the postponement of partnership, marriage, and fertility theoretically affect the proportion of the population that ever become grandparents and the age at which grandparenthood begins. These forces may offset each other to some degree. Therefore, the reasons behind being grandchild-less may have changed. On the one hand, grandparents are living longer, but on the other hand, both generations are having fewer children and having them later.

A demographic analysis of the grandparent phase of life is important for four reasons. First, grandparenthood is reported to be one of the most satisfying parts of older age (Lye 1996). People may want to stay healthy to be alive and active for this phase of life. Therefore a longer expected grandparent phase could positively affect health behaviors and chronic disease management. Second, grandparents can provide important inputs to grandchildren, for cognitive achievement or personal development (Hareven 1978; Hagestad and Burton 1986). However, the degree to which grandparents can aid grandchildren depends on their vital status, health, labor force status, and physical distance. Third, grandparents may aid the sandwich generation with

childcare if they close close enough and are in good health (Aassve, Meroni and Pronzato 2012; Glaser and di Gessa 2012; Hank and Buber 2009; Igel and Szydlik 2011). Last, grandmothers play an important role in evolutionary explanations of longevity (Hawkes 2003) and the demography of grandparenthood can speak to this research.

How long is the grandparent phase of life for men and women at the population level? Has the age pattern of becoming a grandparent shifted in recent years given trends in fertility postponement? If so, what is the relative importance of different factors in determining the percentage of those who are grandchild-less?

### **Existing Research on Grandparenthood**

The vast majority of research on grandparenthood takes a sociological, anthropological, or evolutionary perspective. Some research on grandparents has used census or CPS data to examine the prevalence of multi-generational households (Coward and Cutler 1991; Cohen and Casper 2002; Keene and Batson 2010; Mindel 1979). This approach doesn't tell us whether people *have* grandchildren, just whether they live with them. Other research has focused on specific population subgroups like young grandparents of black single mothers (Cherlin and Furstenberg 1986; King and Elder 1995). Moreover, much other literature focuses on grandparent-grandchild relationships (Barranti 1985; Crosnoe and Elder 2002; Silverstein and Long 1998; Uhlenberg and Hammill 1998; Whitbeck, Hoyt, and Huck 1993).

No recent research has addressed the grandparenthood from a demographic perspective. Several studies examined the demographics of grandparenthood in the 1980s and 1990s, charting the average age at becoming a grandparent and the average number of grandchildren (Sprey and Matthews 1982; Szinovacz 1998; Uhlenberg 1996). For example, Sprey and Matthews (1982)

find that the age at becoming a grandparent has not changed over time. “The median age at which mothers become grandmothers and has changed very little during this century. Women who married in the 1950s and 60s can expect to become grandmothers at slightly earlier ages 42 or 43 but for all the mothers who married in the 20<sup>th</sup> century, the median age is only slightly higher than 45” (Sprey and Matthews 1982). Similarly, using the National Survey of Families and Households, Szinovacz (1998) found that the transition to grandparenthood (mean age at first grandchild among those who ever become grandparents) occurred at 45.8 for women and 48.7 for men occurs during middle age whereas the transition to great-grandparenthood typically happens in young old age 60-65. The mean, however, obscures a lot of variation by race and socioeconomic status (Swartz 2009). Szinovacz (1998) cites that close to one third experience off-time transitions, defined as either before 40 or after 60. Existing studies do not examine how many never become grandparents, the reasons for being grandchild-less, or address the recent increases in fertility postponement.

## **Research Questions**

This paper will answer three questions about the grandparent phase of life.

1. How long is the grandparent phase of life (GPL) for men and women at the population level in the United States and European countries? Using the Sullivan method, I estimate how many years can one expect to live at each age in each of two states: grandchild-less and with grandchildren. I estimate the grandparent phase of life for men and women separately, for two time periods, and examine what accounts for the changes over time.
2. Second, I examine whether the grandparent phase of life varies by sex, whether the sex difference has changed over time, and if so, why. Women may be grandparents for a

longer absolute period than men because they often partner with older men implying that they have children at younger ages and also live longer than men. The size of the sex differences in the grandparent phase of life will depend on the degree of age heterogamy and sex differences in longevity.

3. Last, I examine what fraction of adults remain grandchild-less at each age and decompose this group into the reasons for being in this state. The four possible reasons are a) being childless, b) children are childless, c) children died, or d) grandchildren died. I examine the relative importance of these four factors and to what extent each of them is responsible for the changes in being without grandchildren over time.

### **Data and Method**

First, I estimate the length of the grandparent phase of life (GPL) for men and women in 1994 and 2004. To do so, I apply the Sullivan Method, a demographic method developed for analyzing disability-free life expectancy (Sullivan 1971). This method is most often used to calculate healthy or disability-free life expectancy, but can also be used to analyze other discrete transitions that happen over age such as becoming a grandparent. This method is appropriate for this topic because similar to disability, the transition to grandparenthood becomes increasingly common as age increases. Moreover, the transition from grandchild-less to grandparent is almost all a one-way transition, similar to the transition from healthy to disabled. It is possible to go from a grandparent to without grandchildren if the grandchild dies. It is also possible to recover from a disability. However, these transitions are uncommon. The fact that the vast majority of transitions are one-way makes it appropriate to break up remaining years (at the population level) into years with and without grandchildren.

In order to calculate expected years of life as a grandparent, I apply age- and sex-specific cross-sectional prevalence rates of having any grandchildren to the person years lived in different age categories derived from period life tables (Jagger et al. 2006; Sullivan 1971). The number of remaining years as a grandparent at a given age and the number of remaining years lived without grandchildren sum to the total number of remaining years from the period life table.

The main benefits of the Sullivan method are that it requires only cross-sectional data and can be used for monitoring trends over time if panel data are not available. It requires two types of data – period life tables and age-specific prevalence of having any grandchildren from a national survey. The first results presented here are for the United States. Before the European Population Conference, the analysis will be extended to draw on the recent SHARE data and make comparisons with European countries. Life tables were obtained from the Human Mortality Database. I use abridged life tables by 5-year age intervals for men and women for the years 1994 and 2004. Data on grandchildren were obtained from Health and Retirement Study. I draw on the RAND HRS family data file and the RAND FAT file. These estimates cover the U.S. adult population ages 50 and older.

To use the Sullivan method, one must assume stationarity for the period life table and the age-specific grandparenthood prevalence in order to get unbiased and consistent estimates (Imai and Soneji 2007). I will check that this assumption of the method is not violated and attempt to replicate the trends seen from the hypothetical cohort with panel data from the Health and Retirement Study.

After analyzing the absolute and relative length of the grandparent phase of life, I will estimate to what extent the sex difference in grandparenthood is due to age heterogamy and sex differences in longevity. Last, I calculate the relative importance of different reasons for

remaining grandchild-less by sex and year. There are four reasons why one may not (yet) be a grandparent. The first is that the person is childless. The second is that the person has had children, but that the children have died before having children. Third, the person's children may not have (yet) had children. Last, the child's children may have died. In this draft of the paper, I ignore child and grandchild mortality because they are relatively small factors and focus on whether the respondents a) did not have any biological children or b) the biological children of the respondent have not (yet) had children. Before PAA 2014, I will include child mortality in the estimates. In this draft, I analyze only biological children of the respondents and exclude step-children, but in the future draft, will analyze to what extent patterns change when accounting for grandchildren from non-biological children.

## **Preliminary Results**

### *Proportion of Respondents with Grandchildren*

First, I examine the prevalence of grandparenthood across age. Figure 1 plots the percentage of Americans ages 50 and above that had any grandchildren from their biological children in 1994 and 2004. There are four things to note from this chart. First, the overall pattern is that the percentage of men and women who are grandparents increases until about ages 65-69 and then levels off. Second, women become grandmothers at a younger age than men become grandfathers. This sex difference is large until ages 65-69 and then disappears. Third, the age pattern of becoming a grandparent has shifted later in the life course for both men and women from 1994 to 2004. For example, in 1994, half of men were grandfathers at ages 50-54, but in 2004, only 34 percent of men the same age were grandfathers. The pattern is the same for women, but the levels are different and there is an even larger change. Among women 50-54 in

1994, 65 percent were grandmothers compared with less than 50 percent in 2004. Last, a slightly higher percentage of older Americans were grandparents in 2004 than in 1994 by about 5-10 percent. In 1994, 78-80 percent of men and 76-80 percent of women were grandparents by ages 70 and in 2004, these numbers increased to 87 percent for men and 88 percent for women.

*Sullivan Method Estimates of Remaining Years with and without Grandchildren*

Next, I turn to the results which analyze whether the number of expected years as a grandparent at each age has increased because of declining mortality, decreased because of children's fertility postponement and decline, or stayed the same because these two forces have offset each other. Using the Sullivan method, I estimate remaining years of life at each age ( $e_x$ ) into remaining years with grandchildren and remaining years without grandchildren at the population level for men and women separately. Then I estimate whether the relative length of life spent as a grandparent has changed, with the proportion of remaining years spent as a grandparent.

Table 1 shows that both men and women have a longer life expectancy at all ages in 2004 relative to 1994. Life expectancy at age 50 for men increased 1.8 years in a decade, from 26.9 years in 1994 to 28.7 years in 2004. It increased less for women in this period, 0.8 years, from 31.6 years in 1994 to 32.4 years in 2004. Do these additional years lead to older Americans spending more absolute time as a grandparent? Yes. Men at age 50 can expect to spend 1.6 more years as a grandparent in 2004 than in 1994. The increase is smaller for women. At age 50, women can expect to spend two thirds of a year longer as a grandparent. In contrast, the number of years spend without grandchildren has not changed from 1994 to 2004, leading to an increased proportion of remaining life in the grandparent phase of life from 1994-2004. At age 50, men



spend 70 percent of their remaining years as a grandparent and women spent about 77 percent of remaining time as a grandparent.

### *Reasons for Being Grandchild-less*

The last question addresses the reasons why people are grandchild-less and whether this has changed for men and women from 1994 to 2004. To answer this, Figures 2a-2d present the proportion with grandchildren and the proportion who are grandchild-less due to two reasons: those who are not grandparents because they do not have any biological children, and those who are grandchild-less because their biological children have not (yet) had children.

The main pattern is the same for men and women in both periods, but the levels change. At younger adult ages, the main cause of not being a grandparent is that one's children have not (yet) had children. The proportion of middle-aged adults who are not grandparents yet for this reason increased dramatically from 1994 to 2004. Among women ages 50-54 in 1994, 24 percent had children who were childless, and by 2004 this number grew to 40 percent. The pattern is similar for men. In 1994, 36 percent of 50-54 year old men were grandchild-less because their children had not yet had children, but in 2004 this number was 47 percent. Thus, fertility postponement among the younger generation is having large effects on the timing of grandparenthood. The percentage childless has also increased slightly between 1994 and 2004, but to a much smaller degree.

### **Discussion**

Demographic changes result in altering the absolute and relative periods that we spend in different family roles. An important role of the demographer is to document whether the time

that we spend in different life stages is changing and why. In this paper, I analyzed how long the grandparent phase of life is for men and women at the population level, whether the age pattern of becoming a grandparent shifted in recent years with postponement of fertility and increases in longevity, and what is the relative importance of different factors in determining these changes.

The length of time that Americans spend as grandparents increased dramatically because of mortality decline throughout the twentieth century (Watkins, Menken and Bongaarts 1987; White and Preston 1996). However, research in the 1980s and 1990s found that the age at which people became grandparents was not changing in the latter part of the 20<sup>th</sup> century (Sprey and Matthews 1982; Szinovacz 1998). In this paper, I document that grandparenthood is coming later to older Americans in 2004 relative to 1994 and that this is mostly due to recent fertility postponement among children. However, despite becoming a grandparent later, increasing longevity means that people are spending more time as a grandparent than a decade earlier.

What does it mean if grandparenthood is coming later in life? Evolutionary demographers stress the importance of grandmothers for taking care that their genes make it another generation (Hawkes 2003). Having to wait longer for grandchildren may imply that this explanation will have to be applied to survival at more and more advanced ages. Grandparenthood occurring later also has implications for the children's generation. Many are worried about the middle/sandwich generation having to care for both young children and aging parents. Fertility postponement means that the oldest generation will be even older when grandchildren arrive on the scene. The extent to which grandparents are healthy enough depends on not only vital status, but also disability and how close they live to grandchildren. I will further explore this theme in future work.

I got these results from applying the Sullivan method, to another demographic change that commonly occurs in adulthood – the transition to grandparenthood. This new application of this old method allows us to examine at the population level the absolute and relative amount of remaining years that are spent in the grandparent phase and the grandchild-less phase.

### *Next Steps*

Between now and the 2014 European Population Conference, I will move this analysis forward in several ways. First, I will compare the patterns of becoming a grandparent and reasons for not being a grandparent for the United States and European countries using the SHARE data (2004 wave). There is much variation within European countries, and I will examine variation within Europe and between Europe and North America. Second, in this draft, I examine only grandchildren from biological children of respondents, excluding step-children. In the next draft, I will examine how trends in grandparenthood differ when including non-biological children. Third, I will be examining to what extent the sex differences in grandparenthood are due to a) age heterogamy, difference in age between spouses, b) sex differences in longevity, or c) differences in marriage and remarriage patterns resulting in different numbers of children and step-children.

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## Tables and Figures

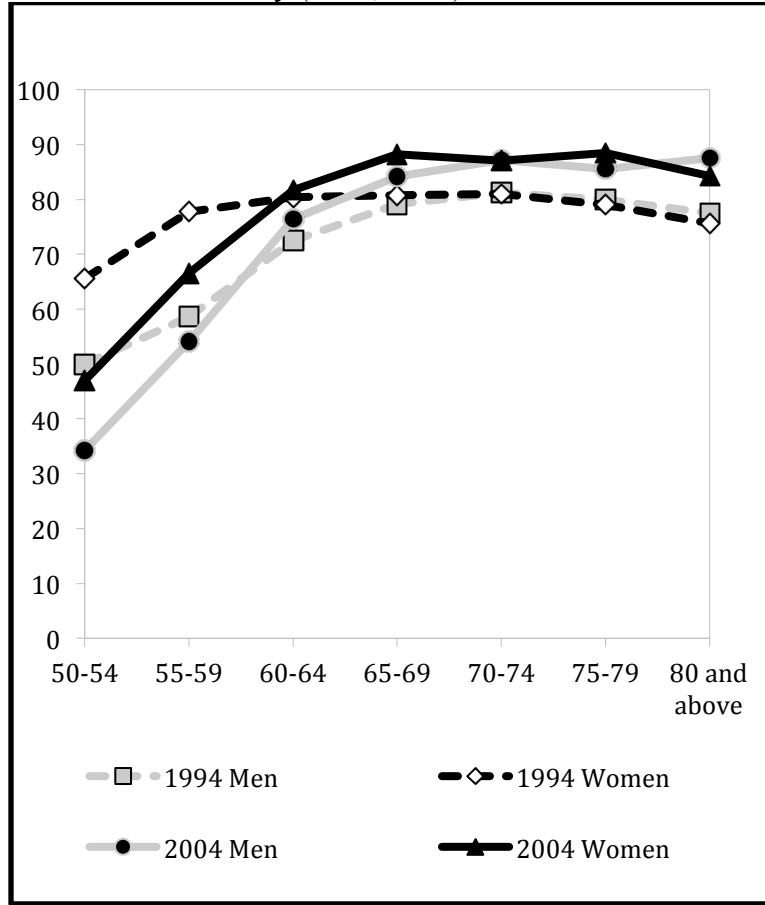
Table 1. Remaining life expectancy with and without grandchildren for men, 1994, 2004.

Age	% with Grandkids	Remaining years ( $e_x$ )	Remaining years with Grandkids	Remaining years without Grandkids	Proportion remaining years with Grandkids	Proportion remaining without Grandkids
<b>1994: Men</b>						
50-54	49.91	26.90	18.63	8.27	0.69	0.31
55-59	58.58	22.80	16.78	6.02	0.73	0.26
60-64	72.44	18.96	14.72	4.24	0.78	0.22
65-69	79.11	15.48	12.30	3.19	0.79	0.20
70-74	81.2	12.35	9.82	2.52	0.79	0.20
75-79	79.94	9.56	7.51	2.05	0.79	0.21
80+	77.46	7.11	5.50	1.60	0.77	0.22
<b>2004: Men</b>						
50-54	34.16	28.7	20.20	8.50	0.70	0.30
55-59	54.05	24.57	19.14	5.43	0.78	0.22
60-64	76.46	20.61	17.27	3.33	0.84	0.16
65-69	84.19	16.92	14.56	2.36	0.86	0.14
70-74	87.19	13.51	11.73	1.78	0.87	0.13
75-79	85.50	10.42	9.03	1.39	0.87	0.13
80+	87.47	7.73	6.76	0.97	0.87	0.13

Table 2. Remaining life expectancy with and without grandchildren for women, 1994, 2004.

Age	% with Grandkids	Remaining years ( $e_x$ )	Remaining years with Grandkids	Remaining years without Grandkids	Proportion remaining years with Grandkids	Proportion remaining without Grandkids
<b>1994: Women</b>						
50-54	65.56	31.6	24.27	7.32	0.77	0.23
55-59	77.78	27.2	21.47	5.73	0.79	0.21
60-64	80.46	23.02	18.22	4.79	0.79	0.21
65-69	80.78	19.1	15.05	4.04	0.79	0.21
70-74	80.94	15.45	12.07	3.37	0.78	0.22
75-79	79.02	12.11	9.32	2.79	0.77	0.23
80+	75.67	9.11	6.89	2.22	0.76	0.24
<b>2004: Women</b>						
50-54	46.88	32.42	24.92	7.50	0.77	0.23
55-59	66.51	27.98	23.02	4.96	0.82	0.18
60-64	81.69	23.71	20.30	3.40	0.86	0.14
65-69	88.17	19.67	17.05	2.62	0.87	0.13
70-74	87.04	15.89	13.69	2.19	0.86	0.14
75-79	88.44	12.41	10.65	1.76	0.86	0.14
80+	84.27	9.28	7.82	1.46	0.84	0.16

Figure 1. Weighted Percentage of Respondents with Any Grandchildren by Sex and Year, Health and Retirement Study (1994, 2004)





Figures 2a-2d. Proportion of respondents by age with a) any grandchildren, b) without grandchildren because they are childless, and c) without grandchildren because their children are childless. Figure 2a. Men, 1994

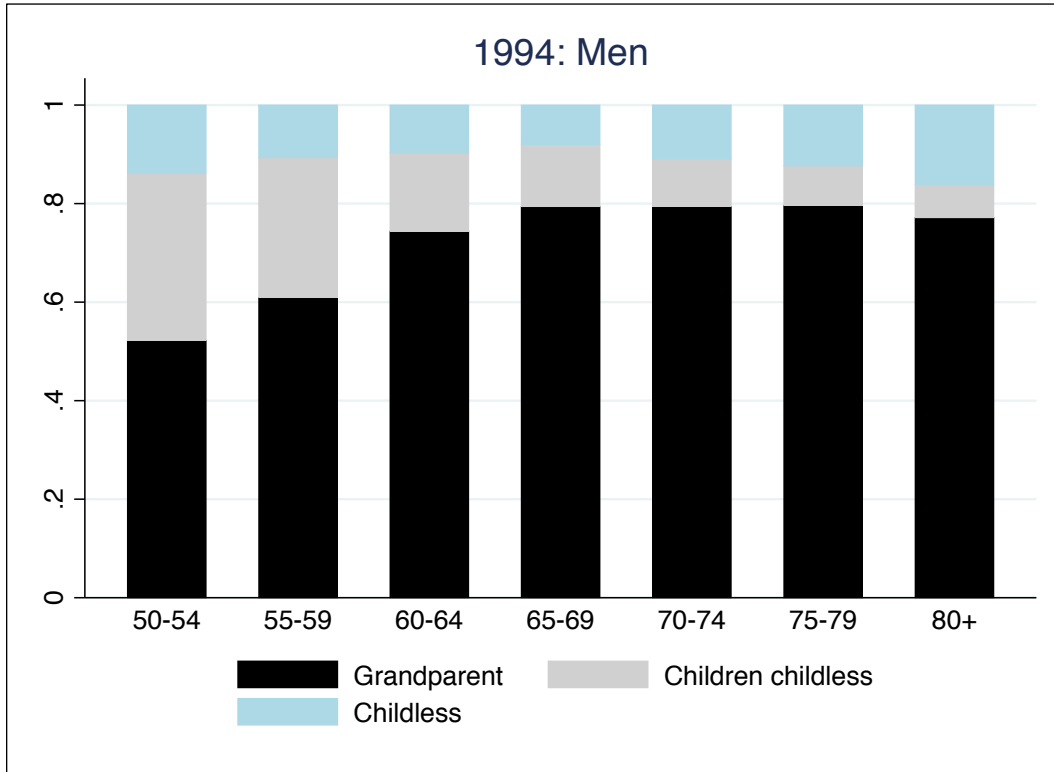


Figure 2b. Men, 2004

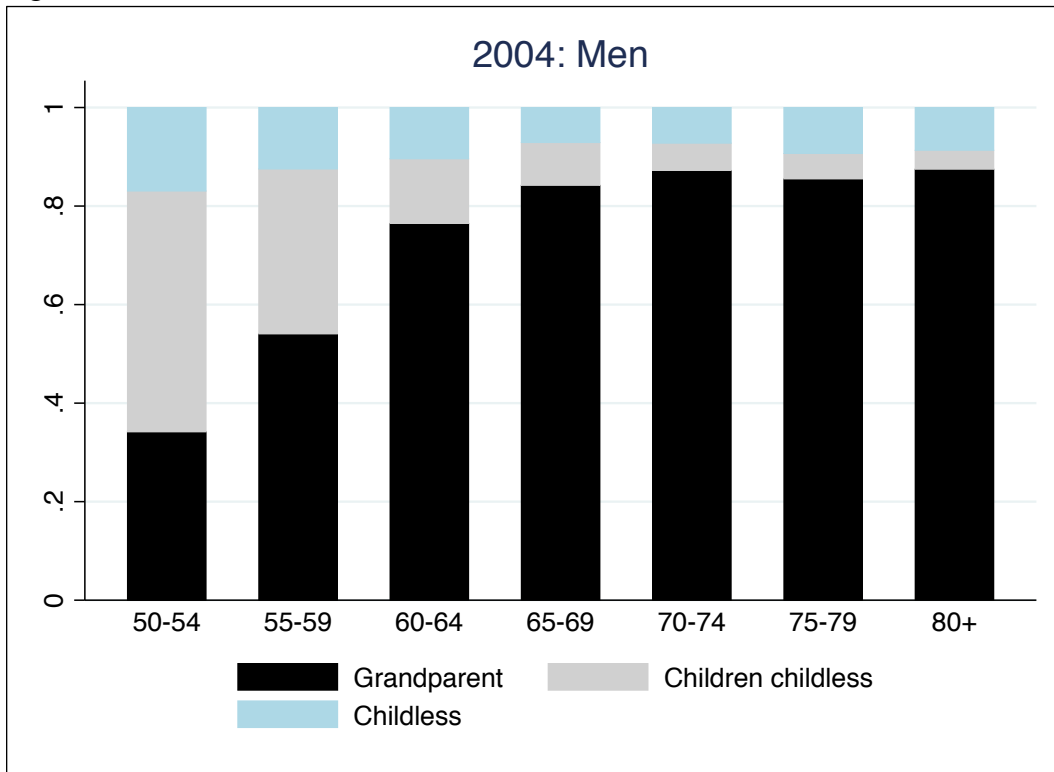


Figure 2c. Women, 1994

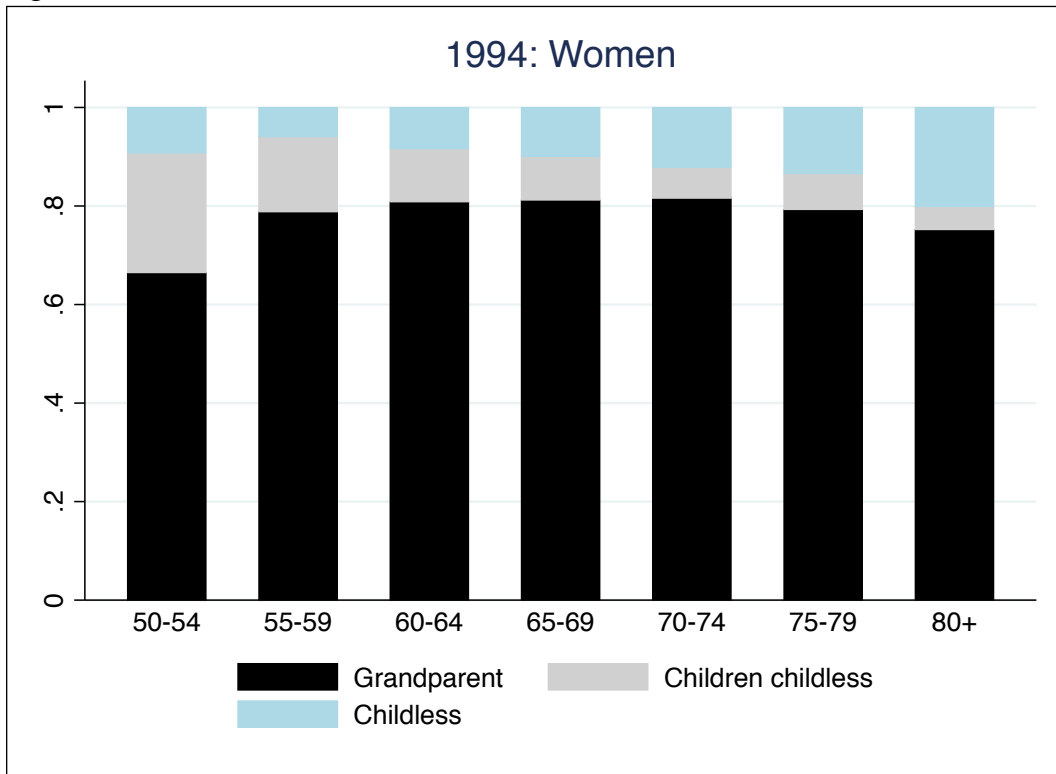


Figure 2d. Women, 2004

