Reconsidering the Northwest European Family System: Living Arrangements of the Aged in Comparative Historical Perspective

Abstract

During the past four decades, historians and demographers have argued that historic Northwest Europe and North America had a unique weak family system characterized by neolocal marriage and nuclear family structure. This analysis uses newly available microdata from 84 historical and contemporary censuses of 35 countries to evaluate whether the residential behavior of the aged in historical Northwest Europe and North America was truly distinctive. The results show that with simple controls for agricultural employment and demographic structure, comparable measures of the living arrangements of the aged show little systematic difference between nineteenth-century Northwest Europe and North America and twentieth-century developing countries. These findings cast doubt on the hypothesis that Northwest Europeans and North Americans had an exceptional historic pattern of preference for nuclear families.

BETWEEN THE LATE NINETEENTH CENTURY and the 1960s, social theorists argued that economic development was inversely associated with complex family forms. The idea originated with Frédéric Le Play, one of the earliest scholars to undertake empirical analysis of the family. Le Play idealized stem families, in which one child remained at home to work on the family farm and eventually inherit, thus continuing the family line. In 1872, Le Play wrote that stem families were disappearing "among the working class populations subject to the new manufacturing system of Western Europe" (Silver 1982: 260). Durkheim (1888) expanded on Le Play's interpretation, stressing the loss of specialized functions of the family and weakening of kin ties with the growth of social differentiation (Lamanna 2002: 61). Burgess (1916) generalized the theory that the nuclear family emerged as a consequence of industrialization, and by the middle of the twentieth century, the idea that simple nuclear families were functionally adapted to industrial society became a fundamental tenet of sociological thought (Ogburn 1933; Parsons 1944). Goode (1963: 6), reflecting this consensus, wrote that "wherever the economic system expands through industrialization . . . extended kinship ties weaken, lineage patterns dissolve, and a trend toward some form of the conjugal system generally begins to appear."

Policy analysts discussing changes in the living arrangements of the aged in the first half of the twentieth century similarly stressed the declining importance of agriculture and the rise of industrial wage labor. The creators of the Social Security system—the landmark U.S. old age support program, adopted in 1936—routinely justified the need for assistance in terms of the decline of farming and the flight of the younger generation to cities (Eliot 1961; Clague 1961; Brown 1969; *Helvering v Davis* 301 U.S. 619 [1937]). Mid-twentieth century literature on aging frequently raised the same points about agriculture and urbanization to explain the increasing tendency for the aged to reside alone (e.g. Burgess 1960; Cowgill 1974; Nimkoff 1962).

A revisionist paradigm emerged in the 1960s. Laslett and Harrison (1963) discovered that only a tenth of households in the seventeenth-century village of Clayworth included extended

kin—a fraction almost identical to that reported by the 1961 census of England and Wales. Laslett and his colleagues soon demonstrated that Clayworth was not an anomaly; there was similar evidence for many other pre-industrial English and Northwest European villages (Laslett 1965, 1972). Over the next two decades, Laslett and his followers elaborated a theory that Northwestern Europe had, from a very early date, a unique family system characterized by nuclear family structure and neolocal marriage (Hajnal 1982; Laslett 1983; Reher 1998). Almost immediately after Laslett's earliest publications on the family, historians asserted that nuclear families had also been standard in the British North American colonies from the time of earliest settlement (Demos 1965; Greven 1966). American social historians were soon among the most prominent and enthusiastic supporters of the hypothesis that the nuclear family had predominated for centuries in both North America and Northwest Europe (e.g., Hareven 1994, 1996).

Proponents of the nuclear family hypothesis argue that that in Northwest Europe and North America—especially England and its colonies—adult children ordinarily left their parental home and established new households when they married. Many analysts maintain that elderly persons only resided with their children in cases of poverty or infirmity, which could force aged parents to move into their children's household (Hareven 1994, 1996; Kertzer 1995; Hammel 1995; Smith 1979). Advocates of the hypothesis further maintain that these "weak family" patterns were unique to Northwest Europe and North America, and that the rest of the world had "strong family" systems with much higher levels of intergenerational coresidence (Reher 1998; Hartman 2004; Hajnal 1982). This idea of a unique Northwest European family system has been seen by some as an essential stimulus for the early development of capitalism and industrialization (Macfarlane 1978, 1986, 1987; Cain and McNicoll 1988; Hartman 2004). Despite extensive criticism of the methods and measurements used by Laslett and his followers (e.g. Berkner 1972, 1975; Ruggles 1987, 1994, 2003), the hypothesis that Northwest European

and North American families were exceptional in their preference for nuclear residence remains the dominant interpretation (Hartman 2004, Thornton 2005).

In the literature dealing with the rest of the world, there is some empirical support for the thesis that economic development is associated with a decline of family complexity. There is clear evidence, for example, of diminished intergenerational coresidence in Japan, Korea, and Taiwan, which have experienced dramatic economic growth and development (Martin 1990; Hirosima 1997; Hermalin, Ofstedal and Chang, 1992; De Vos and Lee, 1993; Knodel and Debavalya 1997; Chattopadhyay and Marsh 1999; Yang 1999). Bongaarts and Zimmer (2002) found a country-level cross-sectional relationship between schooling and nuclear family structure, suggesting that as educational levels increase, family complexity declines. Some comparative survey data also suggests a trend towards independent residence of the aged in developing countries (United Nations 2005). Other recent studies, however, suggest that there have been no clear trends in coresidence in less-developed countries (Logan, Bian, and Bian 1998; Bongaarts 2001; Palloni 2001; Knodel and Ofstedal 2002; Ruggles and Heggeness 2008).

This paper evaluates the case for European and North American exceptionalism in nuclear family residence by exploiting a vast collection of newly-available historical and contemporary data from 97 censuses of 37 countries around the world between 1850 and 2007. My goal is to begin to systematically assess cross-temporal and cross-national variation in the living arrangements of the aged.

The family patterns of the aged are a key indicator for the European exceptionalism hypothesis. All things being equal, one would expect that populations with weak nuclear family systems and neolocal marriage would have comparatively low residence of aged persons with kin or in multigenerational families. By contrast, elderly in strong-family societies in which stem families or joint families predominated would be expected to have relatively high coresidence. Accordingly, I compare living arrangements of the aged in nineteenth-century Northwest Europe

and North America to the living arrangements of the aged in both developed countries and developing countries in the second half of the twentieth century, with a basic set of controls for agricultural employment and demographic conditions.[1]

The results suggest that nineteenth-century Northwest Europe and North America did not have exceptionally simple or nuclear family structure. In fact, the family patterns in the historical data from these places are generally similar to the family patterns found in the recent past in countries that share similar levels of agricultural employment and demographic characteristics.

Data

This study is based on census microdata from three sources. The North Atlantic Population Project (NAPP 2006) provided data on from six censuses taken between 1865 and 1901 in Canada, England and Wales, Norway, Scotland, and Sweden. The Integrated Public Use Microdata Series—referred to below as IPUMS-USA—provided data from the U.S. decennial censuses of 1880 through 2000, and from the American Community Survey of 2007 (Ruggles et al. 2008). The International Integrated Public Use Microdata Series—known as IPUMS-International—provided data from 68 censuses of 29 countries dating from the period 1960 through 2002 (Minnesota Population Center 2007).

All censuses available from these three databases in December 2008 were included in the analysis except for those with inadequate information on family interrelationships or agricultural employment.[2] For the IPUMS-USA censuses, I relied on the one-percent samples available for each census year. In the case of the NAPP and IPUMS-International databases, I used an online sampling tool available on the project websites to draw 200,000 households from each census, except for a few censuses for which fewer than 200,000 households are available. The Appendix describes the basic characteristics of each sample.

Even though the data span great distances of time and space, they provide closely comparable information on living arrangements. Both nineteenth-century and more recent censuses have generally defined households on the basis of shared meals or a shared physical structure. Family compounds in Africa composed of multiple physical dwellings are counted as single households, as long as the residents have a single household head and either eat together or share common housekeeping. One key variation among censuses is in the enumeration rule: some censuses enumerated all persons present in the household on a designated census night (*de facto* rule), and others enumerated all persons who usually resided in the household (*de jure* rule). The enumeration rule proved to have significant implications for the measurement of intergenerational coresidence, as described below.[3]

Measures of living arrangements

Household-level measures of family structure—such as those used by Laslett and his followers—are highly sensitive to demographic conditions, and therefore inappropriate for comparative analysis of populations with substantially differing demographic behavior. In populations characterized by high fertility and mortality, there are relatively few elderly persons, and therefore only a small percentage of households have the potential to include elderly kin (Ruggles 2003). In societies that also have late marriage and long generations—such as those of historic Northwestern Europe—the potential for multigenerational households is especially limited. In many such populations, the average grandchild was born when the grandparents were in their mid-60s, and people were likely to die before their grandchildren were born or shortly thereafter. Thus, the potential for multigenerational households in pre-industrial Northwestern Europe was sharply constrained (Ruggles 1987, 1994, 2003).

If we measure coresidence from the perspective of the aged, we minimize the effects of variation in demographic conditions on indicators of family structure. Even in populations where

few households have the potential to include elderly kin, the great majority of elderly persons have the demographic potential to reside with offspring. Nevertheless, demographic conditions can affect the living arrangements of elderly people. For example, fertility affects the number of options the elderly have to reside with their children, and marriage age affects the duration of overlap across multiple generations. Accordingly, although measurement from the perspective of the oldest generation greatly reduces the effects of demographic conditions on the potential for intergenerational coresidence, when comparing populations with dramatic differences in demographic conditions it is important to take these differences into account.

This analysis uses three measures of living arrangements of the aged, which are described in Table 1. The elderly population is defined as person aged 65 or older.[4] Married couples in which both partners are aged 65 or older are treated as single observations, since both partners share a single living arrangement.

<Table 1 goes here>

1. Percent residing with any kin. This measure assesses the percentage of elderly individuals and couples residing with any kin other than a spouse, including lateral kin such as siblings. The measure has the advantage that it can be consistently applied to virtually any census with a question on the relationship of each individual to a household head or reference person, even when little detail is available. Because of its simplicity, this measure poses the lowest risk of measurement error.

2. Percent residing with descendants. The second measure focuses on residence with descendants, defined as children, children-in-law, or grandchildren of the elderly person or couple. This is intended as a broad indicator of intergenerational coresidence, and may capture

Table 1. Measures of living arrangements of individuals and couples aged 65 or older

	Percent residing with:		
	Any kin	Descendants	Three generations
Nineteenth century			
Britain	62.3	50.2	23.5
Nordic Countries	48.7	46.4	14.5
North America	71.3	63.3	28.0
Twentieth and twenty-first centuries			
Latin America	72.2	59.1	33.9
Middle East	52.8	47.3	26.2
Sub-Saharan Africa	78.1	66.9	46.5
East Asia	79.8	69.6	45.9
Northwestern Europe	34.3	27.1	11.2
Eastern/Southeastern Europe	45.5	38.7	19.1
United States	42.3	34.6	13.8
Overall mean	60.3	50.5	27.6
Standard Deviation	18.4	16.7	7.6
Number of census samples	84	84	84

temporary residence with children—including unmarried "boomerang" children—as well as the enduring multigenerational families described by Le Play.

3. Percent residing with three generations. The final measure is the percentage of elderly individuals and couples residing with both a child (or child-in-law) and a grandchild. Residence with three generations provides the clearest measure of the multigenerational extended families of the sort envisioned by nineteenth- and twentieth-century social theorists, while circumventing the major problems associated with household-level measures of multigenerational families.[5]

As shown in Table 1, the level of the three indicators differs substantially; on average, across all samples, over 60% of the aged resided with kin, but just 28% resided with three generations. Nevertheless, the regional and chronological patterns are broadly similar across the three measures. The lowest coresidence is found in twentieth-century Northwest Europe and the United States, and the highest in sub-Saharan Africa and East Asia. The nineteenth-century samples from Great Britain, the Nordic Countries, and North America fall between these extremes.

Figures 1 through 3 show the three family measures for each census sample. The NAPP datasets for nineteenth-century Britain, Norway, Sweden, and Canada are represented by squares, and the IPUMS-USA samples are represented by light circles. IPUMS-International data from Latin America, Africa, and Asia appear as triangles, and the post-1960 censuses from Europe appear as darker circles.

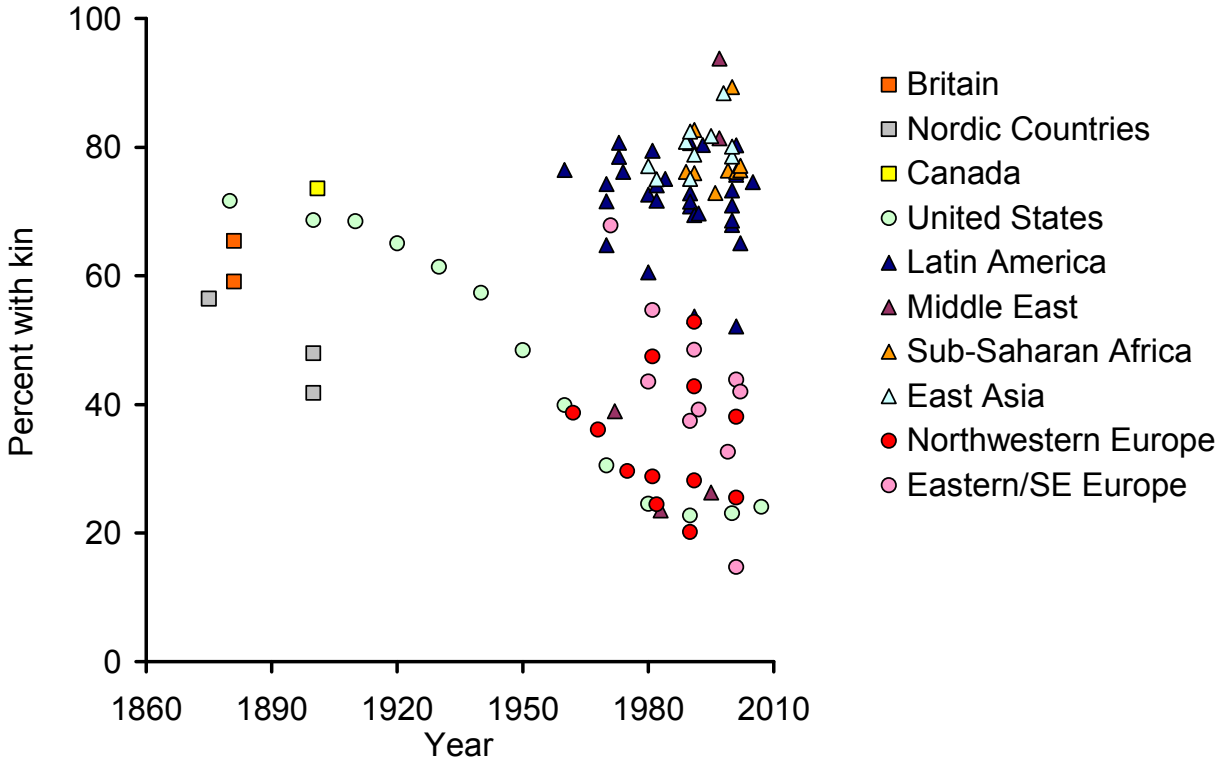

Figure 1. Percent of elderly residing with kin, by year and region

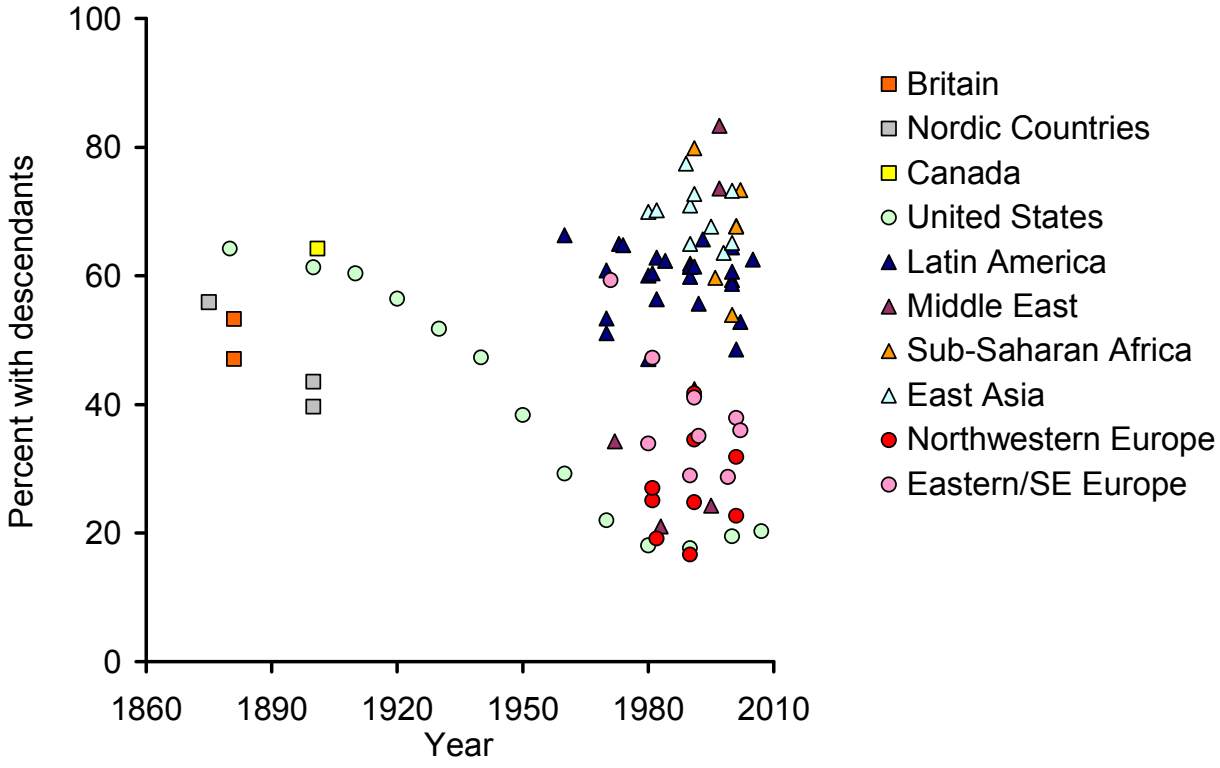

Figure 2. Percent of elderly residing with descendants, by year and region

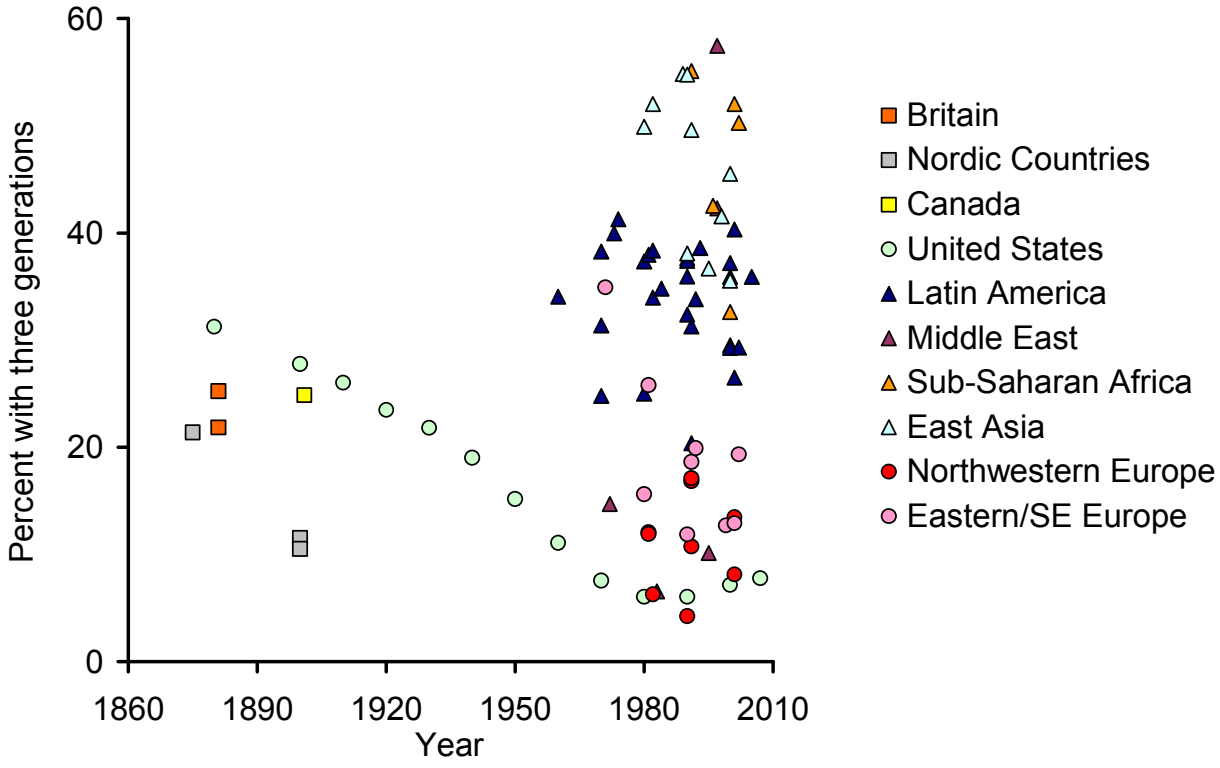

Figure 3. Percent of elderly residing with three generations, by year and region

<Figures 1 through 3 go here>

In all three graphs, the countries fall into distinct clusters. The countries of Africa, Asia, and Africa have had high coresidence, with the sole exception of Israel, represented by medium-dark triangles. The European samples taken during the past 50 years have much lower coresidence, with the exception of the earliest samples available for Greece. The nineteenth-century data from the United States and Canada generally fall in the same range as the twentieth-century data from developing countries in Africa, Asia, and Latin America, but the nineteenth-century data from Britain and the Nordic region suggest significantly lower coresidence. The United States is the only country with a continuous series of data spanning the entire period, and by all measures it shows dramatic declines in coresidence. For example, Figure 1 shows that 78% of elderly resided with kin in 1850, and such coresidence dropped to a low point of 23% in 1990.

Control variables

To evaluate whether the data provide evidence for a distinctive Northwest European family pattern, I assess how the data on family structure in the nineteenth-century census samples compares with more recent data on family structure from populations with similar economic and demographic characteristics. The variables used to control for these characteristics are summarized in Table 2.

<Table 2 goes here>

Agricultural employment is of key theoretical importance. The declining role of agriculture in the economy was central to the arguments made by Le Play and early twentieth-century social theorists about the simplification of family structure. Ruggles (2007) argued that the decline of agricultural employment among the younger generation was the key determinant of the long-run decline in intergenerational coresidence in the United States. Not only did the

Table 2. Independent variables

Name		Mean	Std. Dev.
Agricultural employment	Log of % of men aged 18-64 employed in agriculture	2.7	0.9
Percent elderly	Percent of population aged 65 or older	7.5	4.0
Fertility	Age-standardized marital fertility ratio	62.7	21.0
Unmarried elderly women	Percent of 65+ who are women without spouses	44.6	4.4
Elderly couples	Percent of 65+ who are residing with spouse	38.5	5.0
De jure census	De jure census enumeration rule	0.6	0.5

traditional family forms depend on agricultural inheritance, but the rise of non-agricultural wage-labor opportunities also provided the incentives for the younger generation to leave the farm. Agricultural employment is one of the few measures of economic development that is closely comparable across virtually every census sample. Agricultural employment is measured here as the natural log of the percentage of men age 18 to 64 engaged in agricultural work, including farm owners, tenant farmers, and agricultural laborers. The log transformation is needed to accommodate a curvilinear relationship between agricultural employment and the three measures of family composition.

Percent elderly is a powerful variable that summarizes key elements of the prevailing demographic regime. In any population, the percentage of persons aged 65 or older is determined mainly by past fertility and mortality. When the percentage of elderly in the population is low, the elderly typically have many younger kin available for coresidence. Some demographers have proposed an indirect effect of the relative size of the elderly population on coresidence, by arguing that growth in the percentage of elderly in the population may undermine the norm of intergenerational coresidence (Levy 1965:49; Kobrin 1976:136; cf. Burch 1967; Ruggles1987). With either mechanism, we would expect an inverse relationship between percent elderly and coresidence.

Fertility is intended to control for variation in the opportunity to reside with children. In low-fertility populations, the aged have fewer children with whom they can reside, and some demographers have suggested that this helps explain the low levels of intergenerational coresidence in economically-developed countries (Kobrin 1976; Soldo 1981; Wister and Burch 1983). There is some evidence, however, that this fertility effect is relatively small. In populations where coresidence of the aged is the norm, the likelihood of living with a child appears to be relatively insensitive to the number of surviving children (Knodel et al. 2000; Smith 1986; Ruggles 1994; see also Elman and Uhlenberg 1995).[6] Fertility is calculated here as

the mean number of own-children under age five per married woman age 15 to 49. I used direct standardization to control for age structure; the standard population was the average across all census samples of the age distribution of married women (Siegel, Swanson, and Shryock 2004: 389-390). It should be noted that this is not a pure measure of marital fertility, since the own-child fertility ratio is also influenced by infant and child mortality.[7]

I also controlled for the sex and marital status composition of the elderly population. I divided the elderly population into three groups: *married couples*, *unmarried women*, and *unmarried men*. The sex and marital status of the aged population mainly reflects patterns of widowhood and remarriage. It is influenced by mortality levels, differential mortality of men and women, the prevalence of divorce, proportions of men and women remarrying following widowhood or marital disruption, and the proportion of each sex never marrying,. In virtually every population, unmarried women are especially likely to reside with kin, and in most populations unmarried men are the group most likely to reside independently. The models explicitly include the percent of elderly persons who are unmarried women and married couples, and unmarried men are the residual category. Overall, an average of 44.7% of the cases were unmarried women, 38.4% were married couples, and the remainder—just 16.9%—were unmarried men.[8]

Finally, I included an indicator to distinguish between *de jure* and *de facto* censuses. The enumeration rules determine whether the census includes persons present on census night (*de facto*) or persons ordinarily resident in a particular household (*de jure*). The censuses are split between *de jure* (56%) and *de facto* (44%), and both enumeration rules were used in every period and region under study. This variable did not have a substantial substantive effect on the findings of the analysis, but it did significantly improve the fit of the model.

Analysis

I use ordinary least squares regression to control for the effects of variation in demographic conditions and agricultural employment on residence with kin. My goal is not to assess the statistical significance of each independent variable.[9] Demographic and economic conditions are clearly related to family composition, but that is not my main point. The real purpose of the regression exercise is to evaluate the level of coresidence in each census sample. It provides us with a systematic way to assess whether the level of coresidence in a particular country is high or low, given the demographic and economic circumstances. Thus, I use the regression to predict living arrangements of the aged in each census. I can then compare the predicted family structure with the actual family structure in each census, to gauge whether a given population has higher or lower elderly coresidence than would be expected, given that population's economic and demographic characteristics.

Table 3 shows the results of Ordinary Least Squares regressions of agricultural employment and demographic conditions on the measures of living arrangements of the aged. The models fit well, with adjusted R^2 of .79 to .84. As expected, the most consistently powerful variables are agricultural employment and percent elderly. Populations with a high percentage of agricultural employment tended to have much higher coresidence of the elderly with kin. As anticipated, the percent elderly was inversely related with coresidence.

<Table 3 goes here>

The other variables were all associated with living arrangements, but not always in the expected way. As anticipated, there is a substantial positive bivariate correlation between fertility and coresidence, perhaps because elderly persons with many children have greater opportunities to coreside. When the percent elderly is controlled, however, the relationship between fertility and coresidence is inverted. This suggests that—controlling for other aspects of the demographic regime—countries with substantial fertility limitation may actually have closer ties between

Table 3. OLS regressions of agricultural employment and demographic characteristics on living arrangements of the aged

	With kin		With descendants		Three generation	
	B	Std. Error	B	Std. Error	B	Std. Error
Agricultural employment	8.37	1.46 ***	8.06	1.30 ***	6.54	1.19 ***
Percent elderly	-4.10	0.37 ***	-3.61	0.33 ***	-3.11	0.30 ***
Marital fertility	-0.20	0.06 **	-0.15	0.05 **	-0.19	0.05 ***
Unmarried elderly women	0.76	0.28 **	1.04	0.25 ***	1.52	0.23 ***
Elderly couples	0.72	0.24 **	1.06	0.21 ***	0.94	0.19 ***
De jure census	-9.15	1.83 ***	-5.54	1.62 **	-5.48	1.49 ***
Constant	24.59	20.34	-19.45	18.04	-55.94	16.60 **
Adjusted R Square	0.84		0.84		0.79	
N	84		84		84	

*** p<.001 ** p<.01 * p<.05

parents and children. The *de jure* enumeration rule is inversely associated with coresidence, suggesting that visiting relatives may account for some intergenerational living arrangements.

Figures 4 through 6 plot the *predicted* percent of aged in each living arrangement based on the equations for each model against the *observed* percent. In all three graphs, most countries cluster closely around the diagonal line, underscoring the finding that a few simple economic and demographic indicators effectively predict most variation in coresidence. If historical Northwest European and North American families were truly exceptional, we would expect that the observed percentage residing with kin would be lower than the percent predicted by the regression equation—that is, those countries should fall significantly *above* the diagonal.

<Figure 4 goes here>

Figure 4 shows the observed and predicted coresidence of the elderly with any kin. One of the data points for nineteenth-century Britain (represented by dark squares) is just below the diagonal, and the other is above. The three nineteenth-century Nordic data points (shaded squares) are slightly above the line, and nineteenth-century Canada (light square) is slightly below the line. The symbols for the United States (light circles) are on or above the line. In no case is one of the samples from nineteenth-century Northwest Europe or North America an outlier; the observed coresidence tends to fall within a few percentage points of the predicted coresidence.

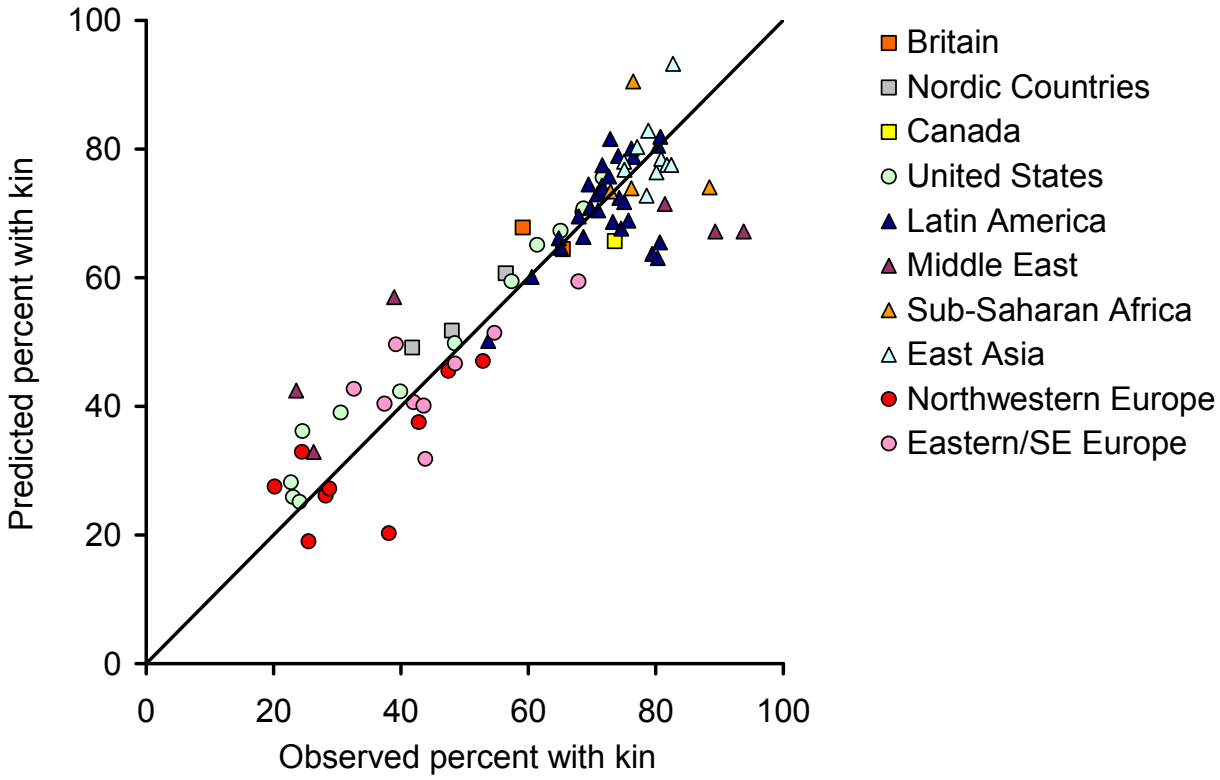

Figure 4. Observed and Predicted percent of elderly with any kin

<Figures 5 and 6 go here>:

The story is similar for Figure 5, which focuses on coresidence with descendant kin. Here, the historical Northwest European counties all fall on or below the diagonal, with the exception of the sample for England and Wales, which is just above the line. There is somewhat more evidence for the hypothesized pattern of historical European exceptionalism in Figure 6, which focuses on three generations; in this analysis, almost all the Northwest European and North American samples fall slightly above the diagonal, suggesting that these countries did have less coresidence than predicted.[10] From a larger perspective, however, even this effect appears fairly trivial. The historical samples in Figure 6 are not outliers. There are multiple samples from Latin America, Europe, the Middle East, and Asia that are farther above the line than any of the historical Norwest European or North American samples. Thus, there is no evidence here for an exceptional weak Northwest European family pattern.

Discussion

Goody (1996: 17) argued that the sharp distinction drawn by Hajnal (1982) and others between the Northwest European family and the rest of the world "overstresses the actual differences," and "the data do not altogether justify such a sharp dichotomy." The evidence presented here reinforces Goody's interpretation. The living arrangements of the aged in nineteenth-century England and Wales, Scotland, Norway, Sweden, Canada, and the United States were similar to those of developing countries in the second half of the twentieth century that had similar engagement in agriculture and demographic profile.

This analysis may have implications that go beyond the debate over the Northwest European family pattern. A few basic demographic indicators, together with the percentage of agricultural employment, proved sufficient to predict most variation in living arrangements of

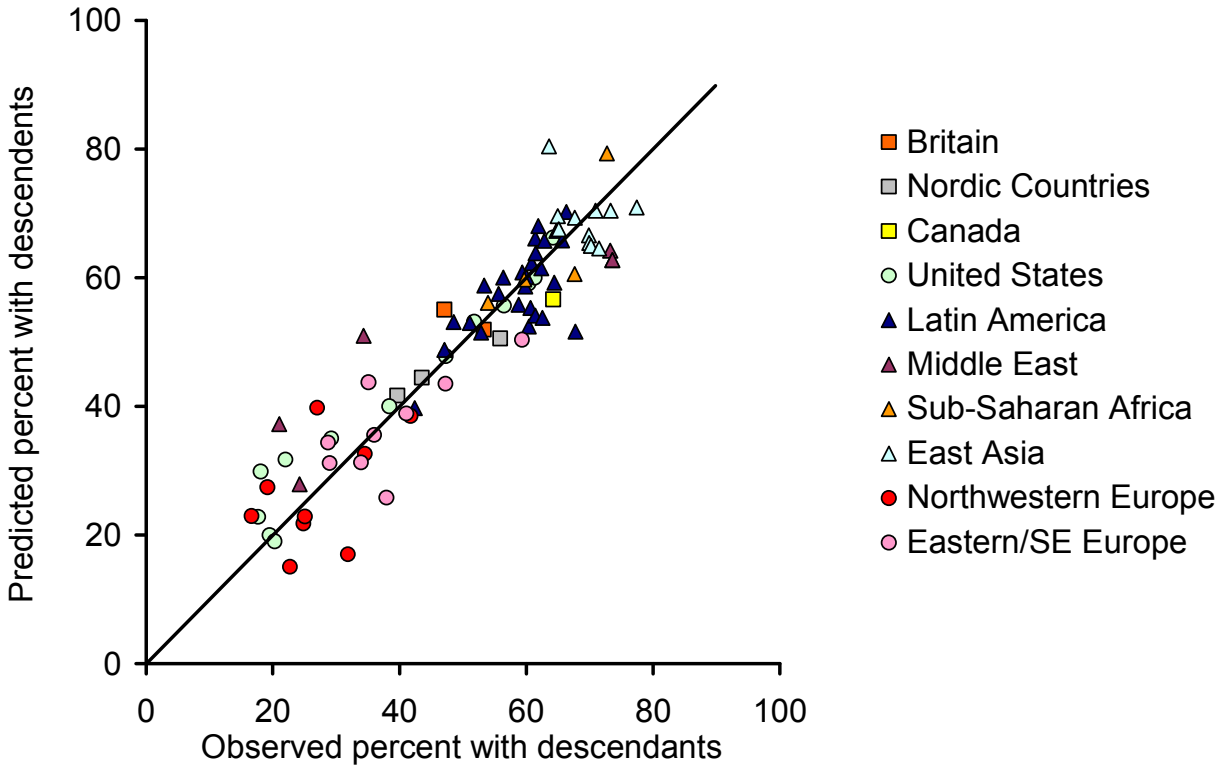

Figure 5. Observed and Predicted percent of elderly with descendants

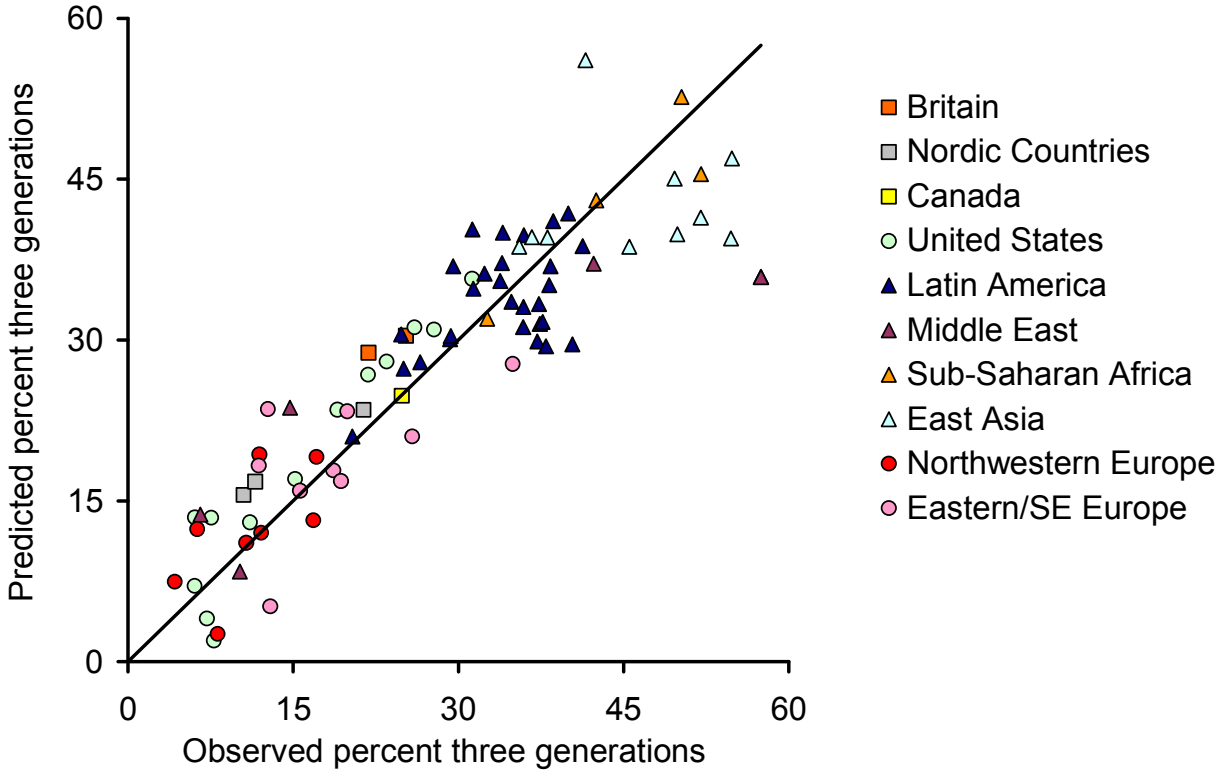

Figure 6. Observed and Predicted percent of elderly with three generations

the aged over an extraordinarily diverse collection of countries. This suggests that the effects of cultural factors on family structure may not be as great as some analysts have assumed.

I do not, however, want to overstate the findings. I am not arguing that European families were typical in all respects. My purpose is limited to testing the hypothesis that Northwest Europe and North America had an exceptional preference for nuclear family structure. Analysts such as Hajnal (1982) and Hartman (2004) place at least as much stress on the distinctive Northwest European patterns of late marriage and a high proportion remaining unmarried as they do on nuclear family structure. As shown in the Appendix, the Northwest Europeans (but not the North Americans) did have unusually late marriage in the nineteenth century, and these data therefore support that aspect of Northwest European distinctiveness.[11]

Most of the revisionist literature inspired by Laslett (1965, 1972), however, has focused on family structure rather than marriage age. The new census samples provide nationally-representative, high-precision statistics that can for the first time place the living arrangements of nineteenth-century Northwest Europe and the North America in broad comparative perspective. The results of that comparison demand that we think carefully about the prevailing ideas about the Northwest European family. Accordingly, the paragraphs that follow explore ways we might reconcile the new findings with the theory of Northwest European exceptionalism.

Some might argue that the cross-sectional measures used here are too crude to detect the exceptional character of the Northwest European family. In particular, perhaps Northwest Europe and North America really did have a unique system of neolocal marriage, but also had a unique system of "nuclear reincorporation" under which large numbers of elderly moved into their children's homes when they became unable to care for themselves (Kertzer 1995). Under this scenario, even though the living arrangements of the elderly in nineteenth-century Northwest Europe and North America appear similar to those in other parts of the world, they would still be distinctive because they were formed when dependent parents moved in with their children,

rather than by children remaining in their parental home. The nuclear reincorporation hypothesis, however, is unlikely to account for the findings presented here. I have presented evidence elsewhere contradicting the hypothesis in the United States (Ruggles 2003, 2007). Moreover, in nineteenth-century Canada, England, Norway, Scotland, and Sweden—as in the United States and most other countries—most intergenerational families were headed by the older generation.[12] This makes the nuclear reincorporation hypothesis strained at best. If most intergenerational families were formed though reincorporation, we would have to assume that when frail and impoverished dependent elders moved in with their children for support, they nevertheless assumed headship of the household.

An alternative defense of the idea of the Northwest European nuclear family system could focus on the temporal and geographic limitations of the data analyzed here. This analysis compared data from nineteenth-century Northwest Europe and North America with late twentieth century data from around the world. We presently have no observations of non-Western countries before the mid-twentieth century. Perhaps the less-developed countries of the world at some point in the distant past had strong family systems, but by the second half of the twentieth century these had already weakened to the point that they appear similar to the weak family systems of nineteenth-century Northwestern Europe and North America. Such a scenario, however, seems unlikely. The best data we have suggests that there has been little change in coresidence in the least developed countries during the past several decades (Knodel and Ofstedal 2002; Palloni 2001; Ruggles and Heggeness 2008). Accordingly, any general weakening of the families of the developing world probably would have had to occur in the mid-twentieth century or earlier, and this seems unlikely.

This analysis also lacks any observations from Northwest Europe before the nineteenth century. Laslett, Hajnal, and others originally placed the Northwest European nuclear family system in the seventeenth and eighteenth centuries, whereas the earliest censuses used in this

analysis date from the nineteenth century. Perhaps Northwest Europe and North America had a weak family system in the seventeenth and eighteenth centuries, but then developed a strong family system sometime in the first half on the nineteenth century. Two decades ago I described a "rise of the extended family" in nineteenth century England and America (Ruggles 1987), and Anderson (1971) argued that industrialization and urbanization in Lancashire brought about an increase in extended living arrangements. My study, however, argued that the apparent increase in the percentage of households with extended kin was actually just an artifact of demographic change; as the proportion of available elderly kin in the population increased, so did the percentage of households containing elderly relatives. I am not aware of any evidence for an increase in coresidence of the aged with kin between the end of the eighteenth century and the mid-nineteenth century. All things considered, the idea that Europe developed a stronger family system after the eighteenth century seems unlikely.[13]

The simplest interpretation is that the propensity to reside with kin among the aged was not substantially different in preindustrial Northwestern Europe and North America compared with the rest of the world. As Le Play and the early twentieth-century theorists suggested, in agricultural societies it makes sense for a child to remain at home after reaching adulthood. Farmers who reached advanced ages needed help with heavy work, and the younger generation hoped to inherit the farm. Growing commercialization and industrialization in Northwest Europe and North America in the nineteenth and twentieth centuries meant that a declining percentage of families had farms. Young people moved to towns, attracted by the high wages and independence offered by jobs in commerce, manufacturing, and transportation. Thus, economic development undermined the material incentives for intergenerational coresidence, and gradually the elderly began to reside separately from their descendants.

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NOTES

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[1] It is beyond the scope of this essay to summarize here the large literature on living arrangements of the aged in developing and developed countries. For recent discussions of these literatures see Bongaarts and Zimmer (2002), Knodel and Ofstedal (2002), Palloni (2001); Ruggles and Heggeness (2008); United Nations (2005). There is also significant historical literature on living arrangements of the aged; notable contributions include Haber and Gratton (1994); Hareven (1994, 1996); Kertzer (1995); Wall (1989, 1995); Ruggles (1996, 2007).

[2] Twelve census samples do not provide sufficient information on household relationships to consistently identify the presence of own children, children-in-law, and grandchildren of the elderly. This problem eliminated all samples for Egypt, Kenya, Uganda, and older samples from Argentina, Costa Rica, France, and the United States. In some cases, the census samples are not organized into households, making it impossible to identify family interrelationships (all recent samples of Canada, Great Britain, and the Netherlands, many Latin American censuses from the 1960s, and Spain in 1981). In several other cases—Norway in 1865, Hungary in 1970, and Mexico in 1970—the relationship variable had excessive missing data; I excluded samples with over 4% missing relationship information. Finally, two additional

censuses did not allow consistent identification of agricultural employment (Kenya 1999 and Rwanda 1991). In all, I examined 128 samples and excluded 44 owing to data limitations.

[3] Another potentially important incompatibility is that 13 of the censuses do not include residents of large collective units, such as institutions. In most of the affected countries, however, few elderly resided in such units, and multivariate analysis revealed no significant difference in measures of family composition between the censuses with and without collective households. For a more comprehensive discussion of comparability issues, including the official census definitions of household in each census, see Ruggles and Heggeness (2008).

[4] Age 65 has the advantage compared with younger thresholds often used for developing countries that the overwhelming majority of children of the population aged 65 or older are adults, and therefore usually have some choice about where to live. The major liability of the age 65 threshold is that sample surveys often include too few cases for analysis, but that is not an issue with the census microdata samples. Some investigators (e.g. Cowgill and Holmes 1972; Holmes and Holmes 1995; Cattell 1989) have suggested that social definitions of old age vary from country to country, but in practice there is no realistic alternative to using a fixed age threshold for the analysis of living arrangements of the aged. In particular, it is inappropriate to measure old age relative to expected years remaining. Paradoxically, in populations with early death, the elderly tend to have characteristics that in low-mortality populations are associated with younger age groups. For example, populations with low life expectancy tend to have comparatively high proportions of persons over 65 still in the workforce and with minor children still at home. Accordingly, there is little empirical justification for imposing an earlier threshold for old age in populations that have an earlier age at death.

[5] As noted, measures such as Laslett's extended and multiple family households are greatly affected by prevailing levels of fertility and mortality. Accordingly, they are unsuitable

for comparing populations that differ greatly with respect to demographic behavior. Measurement from the perspective of the elderly minimizes the impact of demographic variation; see Ruggles (1987, 1994, 2003).

[6] Moreover, some analysts have argued that the net effects of U.S. fertility decline on long-term change in coresidence were negligible (Kramarow 1995; Ruggles 1994, 1996).

[7] An earlier version of this analysis also incorporated the singulate mean age at first marriage (SMAM) for each sex following the method described by Hajnal (1953). Marriage age is a key determinant of the timing of fertility and affects the availability of married children and grandchildren for coresidence. Several colleagues—including George Alter, Brian Gratton, and an anonymous reviewer—argued that the European pattern of late marriage is an inextricable facet of the Northwest European family system. Therefore, they maintained, controlling for marriage age leads to underestimated predicted coresidence. To address this concern, I excluded marriage age from the analysis. By leaving out marriage age, however, the current model does not fully control for the demographic constraints on coresidence posed by late marriage and long generations. Accordingly, I expect that the predicted coresidence for Norway, Sweden, and Britain in Figures 4 through 6 is now somewhat *over*estimated.

[8] As noted, married couples in this analysis are treated as single observations, so theses statistics are not directly comparable to the percentage of all elderly persons in each category.

[9] The models would not be well suited to this purpose in any case. The collection of available data is not a random sample of countries. Moreover, the available observations are not independent of one another; there are usually multiple observations from the same country or the same region, so there may be spatial autocorrelation.

[10] Taken as a group, the nineteenth-century samples from Northwest Europe and North America had a marginally lower percentage of three-generation families than predicted ($p<.05$),

as measured by adding an indicator variable identifying those censuses to the regression. The same indicator variable had no discernable effect on the models of residence with kin or descendants.

[11] Age at marriage was very late in Norway. Among the twentieth-century developing countries included in this analysis, only South Africa had as late marriage as nineteenth-century Norway. The census data also indicate that age at marriage was comparatively late in nineteenth-century Canada and Great Britain, and celibacy was also relatively high in all three countries.

[12] On headship pattern in the United States, see Ruggles (2007). Table 4 documents headship patterns for intergenerational coresidence in the other nineteenth-century Northwest European and North American countries.

<Table 4 goes here>

[13] Reher (1998) argues that the weak family system of Northwest Europe was still readily detectable at the end of the twentieth century, and this is inconsistent with a theory that the weak family system disappeared in the nineteenth century.

Table 4. Percent of households headed by the older generation: NAPP households with persons aged 65+ residing with adult child, by sex and marital status of older generation

	Canada	Norway		Sweden	England	Scotland
	1901	1875	1900	1900	1881	1881
Unmarried men	50.1	55.6	65.8	67.0	63.1	73.0
Unmarried women	28.8	38.8	55.8	57.2	51.3	59.3
Married couples	88.5	85.0	92.8	95.6	96.4	97.2
All	58.9	58.7	75.4	76.7	68.7	74.6
N	56,011	29,825	61,996	50,812	37,560	41,442

Appendix: Characteristics of samples and values of variables used in the analysis

	Enumeration Rule	Elderly N	Sample N	Coresidence			Agric. empl.	Percent elderly	Marital fertility	Female marriage	Male Marriage	Unmarried Eld. Wom.	Elderly Couples
				With kin	Des-cendant	Three gen.							
Nineteenth-Century Censuses													
Canada 1901	De facto	11,112	264,686	73.6	64.2	24.9	37.7	5.1	87.4	25.5	28.5	34.8	44.5
England/Wales 1881	De facto	37,560	956,806	59.1	47.1	21.9	12.6	4.6	88.7	24.8	25.7	42.1	37.5
Norway 1875	De jure	29,829	625,461	56.5	55.9	21.4	41.1	6.0	87.6	27.3	28.5	41.6	34.5
Norway 1900	De jure	61,996	966,403	48.0	43.5	11.6	36.4	7.8	99.7	26.7	28.0	40.2	39.0
Scotland 1881	De facto	41,442	954,585	65.4	53.3	25.2	14.0	5.0	100.5	25.4	27.4	50.5	28.7
Sweden 1900	De facto	50,812	726,911	41.8	39.7	10.5	35.6	8.3	99.2	27.5	29.6	42.1	36.3
United States 1880	De jure	14,937	502,819	71.6	64.2	31.3	43.0	3.5	86.1	23.2	26.9	39.1	42.7
United States 1900	De jure	27,193	760,081	68.7	61.3	27.8	34.6	4.1	74.6	23.7	27.5	39.1	39.2
East Asia													
Cambodia 1998	De facto	30,807	1,021,208	88.4	63.6	41.6	61.8	3.5	76.0	22.5	24.2	50.8	35.2
China 1982	De facto	35,237	824,332	75.0	70.2	52.0	64.5	4.9	48.9	22.3	25.0	46.6	31.2
China 1990	De jure	34,687	751,233	75.1	70.9	54.8	61.8	5.5	46.5	22.1	23.8	43.6	35.8
Malaysia 1980	De facto	6,327	182,601	77.1	69.9	49.9	27.1	3.8	77.5	23.9	26.9	43.3	37.2
Malaysia 1991	De facto	11,549	347,892	78.8	72.7	49.6	21.5	3.8	74.1	24.6	28.0	45.8	39.6
Malaysia 2000	De facto	14,482	435,300	78.5	73.2	45.5	15.0	3.9	68.2	24.9	28.5	43.9	43.4
Philippines 1990	De facto	29,571	1,040,996	82.4	64.9	38.1	35.5	3.4	85.3	23.7	26.1	40.4	45.7
Philippines 1995	De jure	28,944	1,006,525	81.8	67.6	36.7	36.5	3.5	82.2	24.1	26.6	40.6	45.1
Philippines 2000	De jure	31,703	982,341	80.1	65.1	35.5	32.8	3.8	74.9	23.9	26.5	40.8	44.0
Vietnam 1989	De facto	36,729	982,683	80.8	77.4	54.8	57.2	4.8	77.4	23.2	24.1	51.0	36.2
Latin America													
Argentina 1970	De facto	28,198	466,892	64.8	51.1	24.8	15.3	7.0	60.7	23.0	26.3	45.2	35.3
Argentina 1980	De facto	47,450	793,384	60.5	47.1	25.0	12.4	8.1	67.1	22.8	25.4	46.4	36.6
Argentina 1991	De facto	53,849	747,089	53.7	42.4	20.4	4.1	8.8	63.2	23.2	25.8	47.6	37.1
Brazil 1960	De jure	23,678	979,390	76.5	66.3	34.0	52.4	2.8	99.1	22.4	26.0	42.0	41.6
Brazil 1991	De jure	33,842	845,935	69.4	61.4	31.3	22.8	4.8	59.3	22.8	25.8	43.8	43.6
Brazil 2000	De jure	35,848	763,878	67.9	59.4	29.5	16.3	5.8	47.9	23.0	26.4	44.3	42.4
Chile 1970	De jure	40,195	890,481	74.3	53.4	31.4	22.5	5.1	79.4	23.3	25.6	46.3	32.8
Chile 1982	De facto	40,674	803,309	71.7	56.4	34.0	18.3	5.8	55.7	23.6	25.7	45.9	35.3
Chile 1992	De facto	40,181	713,170	69.7	55.7	33.8	16.5	6.6	53.5	23.4	25.7	46.3	35.5
Chile 2002	De facto	41,804	622,826	65.1	52.9	29.3	11.8	8.1	40.3	24.3	27.5	44.8	37.1
Colombia 1973	De jure	32,369	1,138,740	80.7	65.0	40.0	32.9	3.1	87.1	22.3	26.1	46.2	32.9
Colombia 1993	De facto	33,166	831,417	80.4	65.7	38.6	21.3	4.5	53.3	22.6	26.0	43.9	36.8
Colombia 2005	De facto	45,580	781,302	74.6	62.6	35.9	9.7	6.2	50.2	23.0	26.4	43.8	36.8
Costa Rica 1984	De jure	9,075	241,220	75.1	62.3	34.8	31.5	4.5	68.0	22.1	25.2	40.5	40.1
Costa Rica 2000	De jure	17,826	381,500	68.6	58.8	29.3	19.4	5.6	51.1	22.1	26.0	40.8	39.8
Ecuador 1974	De jure	20,313	648,678	76.2	64.8	41.3	45.7	3.8	99.3	21.3	24.9	43.0	37.2
Ecuador 1982	De facto	27,489	806,834	74.1	62.9	38.4	31.4	4.0	86.1	21.4	24.8	40.5	39.8
Ecuador 1990	De facto	29,082	791,475	72.8	61.9	36.0	29.8	4.4	68.1	22.0	25.0	40.1	41.5
Ecuador 2001	De facto	39,033	685,893	75.7	48.5	26.5	25.6	6.6	53.3	21.3	24.6	40.5	33.8

Appendix: Characteristics of samples and values of variables used in the analysis (continued)

	Enumeration Rule	Elderly N	Sample N	Coresidence			Agric. empl.	Percent elderly	Marital fertility	Female marriage	Male Marriage	Unmarried Eld. Wom.	Elderly Couples
				With kin	Des-cendant	Three gen.							
Latin America (continued)													
Mexico 1990	De jure	34,794	984,186	70.8	61.5	32.4	21.3	4.2	65.2	22.4	24.6	40.7	43.8
Mexico 2000	De jure	38,020	874,765	73.3	64.4	35.9	16.3	5.0	56.5	22.8	25.0	41.1	42.6
Panama 1970	De jure	5,042	150,473	71.6	60.8	38.3	43.0	3.7	92.1	20.7	24.9	43.6	30.8
Panama 1980	De facto	7,574	195,577	72.6	60.0	37.3	25.7	4.3	68.9	21.5	25.0	41.0	34.3
Panama 1990	De facto	10,758	232,737	71.5	59.8	37.7	27.9	5.3	58.9	22.0	25.4	39.4	35.9
Panama 2000	De facto	14,545	284,081	70.9	60.6	37.2	21.4	6.0	57.0	22.0	25.8	40.8	35.3
Venezuela 1981	De facto	28,381	891,167	79.4	60.4	38.0	11.9	3.5	77.7	21.2	24.9	47.0	30.6
Venezuela 1990	De jure	28,576	768,474	80.6	61.4	37.4	13.0	4.0	65.3	22.1	25.2	46.9	31.7
Venezuela 2001	De jure	30,759	714,924	80.3	67.7	40.3	9.9	4.9	50.8	22.8	26.1	45.6	33.7
Sub-Saharan Africa													
Ghana 2000	De jure	47,452	951,789	89.3	53.9	32.6	42.7	5.3	59.9	22.5	27.1	44.2	25.4
Rwanda 2002	De facto	21,171	843,392	76.4	73.3	50.3	58.4	2.9	102.0	23.9	26.5	49.1	37.8
South Africa 1996	De jure	31,703	728,659	72.9	59.7	42.5	5.4	4.8	45.2	27.3	30.0	54.1	31.0
South Africa 2001	De facto	34,270	752,400	76.2	67.6	52.0	5.5	5.0	44.4	28.1	30.9	56.8	29.7
Middle East													
Iraq 1997	De facto	42,151	1,464,194	93.8	83.3	57.5	13.9	3.4	116.9	23.9	27.1	46.6	44.5
Israel 1972	De jure	18,758	315,608	38.9	34.3	14.7	14.5	7.1	77.5	22.7	25.4	39.3	47.6
Israel 1983	De jure	28,800	403,474	23.6	21.0	6.6	4.7	8.9	67.6	24.3	26.3	40.6	46.8
Israel 1995	De jure	43,583	556,365	26.3	24.2	10.2	2.3	9.9	65.3	24.3	27.3	44.5	42.5
Palestine 1997	De facto	7,408	259,191	81.4	73.6	42.3	8.1	3.4	121.1	21.0	25.3	45.2	47.0
Eastern/SE Europe													
Belarus 1999	De jure	56,239	513,435	32.6	28.7	12.7	4.2	13.5	30.5	22.8	25.2	56.1	34.7
Greece 1971	De facto	62,959	678,174	67.9	59.3	34.9	27.7	11.2	57.2	23.5	28.0	44.1	43.3
Greece 1981	De facto	65,339	627,465	54.7	47.3	25.8	20.9	13.1	50.7	22.6	27.4	41.8	46.7
Greece 1991	De facto	66,991	594,050	48.5	41.1	18.6	15.0	14.2	39.4	24.7	29.4	41.8	47.2
Greece 2001	De facto	73,726	559,522	43.8	37.9	12.9	10.5	17.2	37.8	26.7	31.1	39.0	50.3
Hungary 1980	De facto	56,441	507,059	43.6	33.9	15.6	5.9	13.5	41.4	20.9	24.7	49.2	37.7
Hungary 1990	De facto	52,181	472,421	37.4	29.0	11.9	4.4	13.2	36.3	22.3	25.8	52.6	34.7
Romania 1992	De jure	54,993	614,610	39.2	35.1	19.9	15.6	11.1	41.8	21.9	25.4	45.5	42.9
Romania 2002	De jure	65,349	584,530	42.0	36.0	19.4	18.3	14.2	31.7	23.8	27.2	45.4	43.0
Western Europe													
Austria 1981	De facto	67,767	533,314	28.8	25.1	12.1	6.5	15.2	38.2	23.0	26.5	55.7	32.9
Austria 1991	De jure	61,894	503,568	28.2	24.8	10.7	4.6	14.9	36.6	25.0	27.9	55.3	33.7
Austria 2001	De jure	58,282	470,944	25.5	22.7	8.1	3.1	15.5	37.8	26.4	29.4	50.7	37.3
France 1982	De jure	58,231	543,018	24.5	19.2	6.3	6.9	13.3	41.0	22.6	24.6	50.1	36.5
France 1990	De jure	55,193	496,444	20.2	16.6	4.3	4.8	14.0	41.3	24.3	26.4	48.1	39.5

Appendix: Characteristics of samples and values of variables used in the analysis (continued)

	Enumeration Rule	Elderly N	Sample N	Coresidence			Agric. empl.	Percent elderly	Marital fertility	Female marriage	Male Marriage	Unmarried Eld. Wom.	Elderly Couples
				With kin	Des-cendant	Three gen.							
Western Europe (continued)													
Portugal 1981	De jure	44,939	492,289	47.5	27.0	11.9	15.2	11.4	50.5	22.2	24.6	45.4	41.6
Portugal 1991	De jure	49,334	459,228	42.8	34.5	16.8	12.2	13.8	37.1	23.9	26.7	43.9	44.1
Portugal 2001	De jure	50,103	399,784	38.1	31.9	13.5	5.7	16.5	36.4	25.6	28.3	42.2	45.9
Spain 1991	De facto	68,296	652,096	52.9	41.7	17.1	12.1	13.5	39.0	25.9	28.2	44.3	43.6
Twentieth-century United States													
United States 1910	De jure	34,211	923,153	68.5	60.4	26.0	29.7	4.3	68.2	23.1	26.9	39.9	38.4
United States 1920	De jure	42,753	1,050,634	65.1	56.5	23.5	25.9	4.7	62.3	22.5	26.0	38.9	37.8
United States 1930	De jure	56,156	1,216,337	61.4	51.8	21.8	22.0	5.4	52.5	22.4	25.6	39.4	37.1
United States 1940	De jure	77,093	1,351,732	57.3	47.3	19.0	17.6	6.8	43.6	22.7	25.5	40.6	36.3
United States 1950	De jure	88,747	1,922,198	48.4	38.4	15.2	12.1	8.1	54.9	20.7	23.7	41.9	36.4
United States 1960	De jure	133,402	1,799,888	39.9	29.2	11.1	7.4	8.9	68.4	20.3	23.3	43.2	38.8
United States 1970	De jure	167,467	2,030,386	30.5	22.0	7.6	4.6	10.0	49.5	21.4	23.5	46.4	37.3
United States 1980	De jure	206,354	2,267,320	24.6	18.1	6.1	3.6	11.2	40.0	23.3	25.2	47.9	38.6
United States 1990	De jure	251,993	2,479,020	22.7	17.7	6.1	3.4	12.8	43.4	25.3	27.5	47.7	38.5
United States 2000	De jure	279,250	2,808,457	23.1	19.5	7.2	2.9	12.6	45.3	26.1	27.9	46.8	37.6
United States 2007	De jure	351,104	2,994,662	24.1	20.3	7.8	3.0	12.5	48.1	27.4	29.1	45.1	38.1

Note: Iraq 1997 excludes three states in the Kurdish region; Malaysia 1980 excludes the Borneo states of Sabah and Sarawak; United States 1850 and 1860 excludes slave population.