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Abstract We compare older Egyptian women's and men's propensities to live with unmarried children only, any ever-married children, and alone, and we assess "kin-keeping" versus "modernization" hypotheses about the effects of social change on living arrangements during 1988–2000. Socioeconomic differences among women and men accounted for much of their crude differences in living arrangements during the period. Propensities to live with any ever-married children declined, and propensities to live alone or with unmarried children only rose. Compared to men, women continued to live more often with any ever-married children and less often with unmarried children only, and the 1988 gender gap in solitary residence disappeared by 2000. Increasing coresidential demands from unmarried dependent children, less frequent coresidential support from ever-married children, and rapidly increasing rates of solitary living especially among older men suggest emerging needs for non-coresidential instrumental support, especially among older Egyptians who are economically disadvantaged.

Keywords Egypt · Gender · Living arrangements · Social change

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Introduction

Family continues to be the main source of support for most Egyptians, and coresidence is one way in which Egyptian families meet the needs of older dependents (Khadr 1997; Yount 2005). Yet, studies of living arrangements and support among older adults throughout the Middle East and in Egypt are rare (Aykan and Wolf 2000; Aytac 1998; Khadr 1997; Shah et al. 2002; Yount 2005). This gap is surprising, given that 7.9 million Egyptians (10% of the total population) are 55 years or older, and 16.5 million Egyptians (16% of the total) are expected to be this age by 2025 (United States Census Bureau [USCB] 2004).

In Western societies, the frequency of intergenerational coresidence declined during the twentieth century (Grundy 1999; Ruggles 1994; Schoeni 1998), and scholars have attributed this decline to greater affluence, lower fertility, and residential experiences in early life (Goldscheider and Lawton 1998; Michael et al. 1980; Schoeni 1998). Some scholars have anticipated similar declines in rates of intergenerational coresidence outside the West (e.g., Levy 1949), but persistently high levels in some immigrant and non-Western populations have been attributed to resilient cultural norms, the socioeconomic circumstances of daily life, and state policies and institutional constraints (Lee et al. 1994; Logan and Bian 1999; Thornton and Fricke 1987).

Scholars less often have considered whether and why levels and trends in various living arrangements may differ for older women and men. Yet, such distinctions may be relevant in settings where parental investments in children and social, economic, and health-related needs for old-age support are highly gendered. Here, we assess whether living arrangements differed for women and men who were aged 60 years or older during 1988–2000 in Egypt. We also assess the applicability of "kin-keeping" and "modernization" hypotheses about the effects of societal change on trends in various living arrangements among older Egyptian women and men. To do so, we describe major demographic and socioeconomic changes that occurred in Egypt between 1980 and 2000. We then make use of nationally representative data from repeated cross-sectional demographic and health surveys (DHS) in Egypt to compare the socioeconomic and demographic needs of women and men aged 60 years or older during 1988–2000. Finally, we compare trends in the probabilities that these older adults were living with unmarried dependent children only, any ever-married children, or alone during this period. We discuss the implications of our findings for future research and policies on gender and aging in Egypt and similar settings.

Living Arrangements and Theories of Social Change

"Modernization" theorists have proposed that urbanization and industrialization, rising standards of living, and the schooling and public employment of women will initiate a transitional period in which old patterns of coresidence persist beside new ones, after which new patterns predominate in a context of less frequent intergenerational coresidence (e.g., Levy 1949). In the United States, intergenerational

coresidence was common in the early part of the twentieth century, and the practice of living apart from relatives was rare (Elman and Uhlenberg 1995; Glick 1988). When defined as expected life-years lived in residence with a child and the proportion of expected remaining years lived with a child, levels of intergenerational coresidence in the U.S. are shown to have declined for women and men after the 1930s (Schoeni 1998). The frequency of intergenerational coresidence also has declined in some Asian settings (Chattopadhyay and Marsh 1999; Domingo and Casterline 1992; Hermalin 2002; Martin 1989b; Yang 1999). In Taiwan, for example, residence of older parents with a married son declined from 83% in 1973 to 70% in 1985 (Weinstein et al. 1990). Recent data from Thailand also show that the percentage of older adults living with ever-married children or children-in-law declined from 23% to 21% and that the percentage living with any children or children-in-law declined from 74% to 66% between 1994 and 2002 (Knodel et al. 2005). Scholars have attributed declines in the frequency of intergenerational coresidence to falling fertility (Schoeni 1998), increasing affluence (Michael et al. 1980), and residential experiences in early life (Goldscheider and Lawton 1998).

Despite evidence of change, high levels of intergenerational coresidence have persisted in parts of China and among Hispanic and most Asian immigrants in the U.S. (Kamo and Zhou 1994; Kritz et al. 2000; Logan et al. 1998; Wilmoth 2001), although living arrangements among immigrants in the U.S. have varied (Kritz et al. 2000; Wilmoth 2001). Scholars have attributed high, stable levels of intergenerational coresidence to the resilience of cultural norms (Hirschman and Huu Minh 2002; Kamo and Zhou 1994; Lee et al. 1994), the adaptation of families to new social and economic circumstances of daily life (Logan and Bian 1999; Morgan and Hirosima 1983; Thornton and Fricke 1987), and legal and institutional barriers to independent living (Logan and Bian 1999; Logan et al. 1998). The latter circumstances in particular may enhance a need for coresidence not only among older adults, but also among their adult children. Studies in the U.S. have shown that, although the age at leaving home declined in the U.S. at least into the 1980s (Goldscheider and DaVanzo 1989), the rate of "returning home" also doubled from 22% to 40% between 1920 and the 1980s (Goldscheider et al. 1999). These latter trends may signal, at least in the U.S., the emergence of more flexible exchanges of intergenerational support in response to situations that either generation confronts (Goldscheider et al. 1999).

Scholars less often have considered whether and why levels of various living arrangements may differ for older women and men. Such distinctions may be relevant in settings where parental investments in family versus nonfamily roles are highly gendered, and thus where accumulated needs for coresidential support may differ markedly for older women and men. In such settings, for example, older women may have greater needs for coresidential support because they faced higher risks of leaving school or work to marry and start families, of being widowed as a result of a younger age at marriage and greater longevity than their husbands, and thus of having fewer personal, financial resources on which to rely in later life (Knodel and Ofstedal 2003). In more and less gendered settings, older women also have had higher odds than older men of cognitive and physical disability (Yount and Agree 2005). After accounting for these socioeconomic and

health-related needs, however, proponents of the "kin-keeping" hypothesis have argued that mothers still may receive more coresidential support from children because greater maternal investments in family services in early and middle adulthood may foster stronger emotional attachments and greater loyalty from children (Hagestad 1986; Kandiyoti 1988; Lye 1996; Rossi and Rossi 1990; Spitze and Logan 1989). In addition, women's continued greater domestic contributions than men's in later life (Szinovacz 2000) may make older women more valued as household members.

In the U.S., crude rates of living with or near a child have been higher among older women than older men (Crimmins and Ingegneri 1990; Spitze and Logan 1989), but older men have had higher rates of these living arrangements after controlling for sociodemographic characteristics, need, and the availability of children (Crimmins and Ingegneri 1990). The propensity to live with children also has not differed by older adult's gender in several Asian countries (Cameron 2000; Casterline et al. 1991; DaVanzo and Chan 1994; Knodel et al. 1992; Martin 1989a; Won and Lee 1999). However, among Chinese, Japanese, and non-Hispanic white immigrants in the U.S., older women have lived with an ever-married child more often than have older men, regardless of their duration of residence in the U.S. (Kamo and Zhou 1994). A more recent study of older immigrants in the U.S. also has shown that rates of dependent living (such as living with family without being the householder) have been highest among unmarried women, even after controlling for acculturation, resources, needs, and the availability of children (Wilmoth 2001). Older women have lived in three-generation households more often than have older men in Japan and Cambodia (Ogawa and Retherford 1997; Zimmer and Kim 2001), and older women have lived with an ever-married child more often than have older men in Korea (Kim and Choe 1992). The modal living arrangement for Filipino men has been to live with a wife, children, and others, whereas that for Filipino women has been to live only with children and others (Domingo and Casterline 1992). Women's greater tendency to be widowed, resulting in part from their greater longevity and younger age at marriage than men (Eldemire 1997; Kim and Choe 1992; Liang et al. 1992; Ogawa and Retherford 1997), may underlie women's greater tendency to live without a husband and with married children or to live alone in parts of Europe, North America, Latin America, and Asia (Iacovou 2002; Kinsella and Velkoff 2001).[1]

Given these documented differences in the living arrangements of older women and men, scholars have paid surprisingly little attention to whether and why *change* in the frequency of various living arrangements also may differ by older adults' gender. Knowledge is especially limited about the implications of societal change for gender gaps in old-age living arrangements outside the West. Mason (1992) has argued that, if a net effect of "modernizing" processes is an overall decline in the levels of intergenerational coresidence, then these effects may be more acute for older women than older men because such changes weaken filial obligations and introduce competing demands on children's time. Other scholars have argued that

[1] Taiwan and St. Lucia are exceptions in that levels of solitary living do not differ by older adult's gender.

women's greater past and continued investments in family services will effectively maintain the emotional loyalties of their children (Wolf 1972). If so, then women's greater tendency to live with ever-married (support-providing) children may withstand certain forces of social change.

Census data from Canada, however, have shown that more than 700,000 older women were living alone in 1996, which represents an absolute increase of more than 180,000 older women since 1986. The number of older women who were living alone grew at an average annual rate of 5.4% between 1961 and 1996, which exceeds average annual rates for the Canadian population as a whole (1.4%) and for older Canadian men (from sources published in Kinsella and Velkoff 2001). Data for many non-Western countries are insufficient to assess long-term changes in the living arrangements of older adults (Kinsella and Velkoff 2001). In this study, we take advantage of repeated cross-sectional national surveys for Egypt to assess the levels of various living arrangements, and their rates of change, among older women and men during 1988–2000. The analysis permits appraisal of "modernization" and "kin-keeping" hypotheses about the implications of social change for coresidential support among older Egyptian women and men.

Principles of Kinship, Living Arrangements, and Social Change in Egypt

Local principles of kinship clarify the motivations for various living arrangements in Egypt (Charrad 2001; Stevenson 1997). First, familial solidarity is rooted in relations among men of the same paternal lineage. The principle of patrilineality means that married men typically are the designated heads of family and that sons accrue family authority as they enter adulthood and at the death of their fathers. Imbedded in this principle among Muslim Egyptians are Islamic rules of inheritance that favor men over women and collateral male kin over wives and daughters. Such practices support patrilineal bloodlines *and* generate obligations among men to provide financially for their families (Rugh 1984). Although Muslim women can inherit property, they may inherit less than their rightful share if others assume that wives have access to the assets of their husbands (Morsy 1978). Inheritable assets may include the parental home, which often transfers to the eldest son at his father's death (Yount 1999). Such transfers impose obligations to support widowed mothers, often through coresidence.

A second principle of kinship is what some scholars have called the "patriarchal bargain" and what others have called the gendered division of kin-keeping (Kandiyoti 1988; Spitze and Logan 1989). According to this principle, women follow codes of behavior that uphold the interests of the kin group in exchange for "protection" or security from marital and biological kin (Charrad 2001; Kabeer 1999; Stevenson 1997). These codes of behavior often include the performance of domestic services for senior relatives and dependents.[2] The practice of kin-keeping can be important for women in Egypt, who have fewer rights in marriage than do

[2] Such activities may include the maintenance of communication, support with housework, the exchange of gifts, help with shopping, and the provision of moral support in times of need (Hoodfar 1997).

men. For example, marriage does not require a woman's explicit consent, wives "owe obedience" to their husbands, and a husband can forbid his wife to work if it interferes with her familial duties (Hoodfar 1997; Yount 2005). Polygamy is rare in practice, but husbands can marry more than one wife if they notify existing and intended wives. Until 2000, a husband could verbally repudiate his wife, whereas a wife could seek divorce only through judicial process and in cases of harm or fault of the husband.[3] These asymmetries motivate women to nurture ties with their natal kin and children through domestic kin-keeping activities (Hoodfar 1997; Rugh 1984).

A third principle of kinship concerns the lifecycle of intergenerational coresidence (Glick 1947; Hancioglu 1985; Morgan and Hirosima 1983). According to this principle in Egypt, children should reside with their parents until they have secured the resources for marriage (Singerman and Ibrahim 2001).[4] Upon consummating the marriage, a new couple may live initially with the husband's parents for economic reasons (El-Zanaty et al. 1996),[5] but motivations are strong to establish an independent household at marriage or at least after the birth of children (Khadr 1997; Nawar et al. 1995). Later in the family life cycle, parents often resume residence with a married child (and usually a son) when they need financial assistance, a spouse passes away, or their health declines and they need assistance with daily activities.

Given these principles of kinship, the tendency to live with married children in later life may be greater for Egyptian women than men for similar reasons that women elsewhere have lived more often with married children (Glick 1947). First, because Egyptian women tend to marry older spouses and to live 2–3 years longer than do men (United Nations 2002; Westoff 2003), women are more likely than men to become and to remain widowed, and widowhood is associated with intergenerational coresidence in several settings (Lee and Dwyer 1996; Lee et al. 1994; Lye 1996; Martin and Tsuya 1991). Second, older Egyptian women have higher odds of being disabled and of living a higher proportion of later life with disabilities that require assistance with daily activities (UNDP 2002; Yount and Agree 2005). Third, practices of inheritance that favor men and low levels of employment after marriage among even educated Egyptian women restrict their accumulation of private resources and public pensions (Hoodfar 1997; UNDP 2002). Persistent de jure and de facto inequities in the distribution of public and private financial resources make older women disproportionately dependent on financial support from kin (Grau 2002; Mernissi 1987). Controlling for need thus should reduce differences in the

[3] "Harm" includes emotional and material injury caused, for example, by polygamous marriage or failure of maintenance over time. Yet, harm is variously interpreted, and some women have had difficulty obtaining a divorce on these grounds. In 2000, personal status laws pertaining to divorce in Egypt changed to permit wives to obtain a divorce without proving mistreatment (Singerman 2005).

[4] The median age at marriage is 19.5 years among ever-married women aged 25–49 (El-Zanaty and Way 2001), and men tend to marry later than women, on average (Singerman and Ibrahim 2001).

[5] In practice, the rate of unemployment between 1980 and 2000 rose among men (from 3.9% to 5.1%) and women (from 19.2% to 22.7%) (World Bank 2002). Also, the Egyptian government lifted rent controls in 1996, which arguably increased the cost of housing during this decade. These changes during the 1990s may have enhanced the dependence of young married and unmarried adults on the financial and residential support of their older parents, despite a persistent norm to live independently.

living arrangements of older women and men. Yet, if women's greater prior investments in kin-keeping help to secure support from children, then residence with married children should remain more frequent and residence with unmarried dependent children only should remain less frequent among older women than men despite their differences in need.

Like elsewhere, Egypt has experienced substantial demographic, economic, and social change, which may differentially affect the living arrangements of older women and men. During 1980–2000, Egypt experienced the pressures of population growth and population aging, as evidenced by a 65% increase in total population size (from 42.6 to 70.5 million) and an increase from 1.3 to 2.8 million in the population of adults aged 65 years and older, of whom 57% are women (USCB, IDB 2004). Between 1988 and 2000, the total average number of births per woman of reproductive age fell from 3.1 to 2.9 in the urban governorates, from 4.6 to 3.2 in Lower or Northern Egypt, and from 5.5 to 4.2 in Upper or Southern Egypt (ORC Macro 2003).[6] Egypt has long been a densely populated country, but official levels of urbanization nevertheless rose from 38% in 1960 to 42% in 2002 (Handoussa et al. 2004). During 1980–2000, the gross domestic product (GDP) per capita increased 181% from USD500 to USD1490, and the absolute size of the labor force increased 71% from 14 to 24 million people. Although official rates of participation in the labor force underestimate women's productive contributions (Hoodfar 1997), women's share of the documented labor force increased from 27% to 30% during this period. Rates of illiteracy among adults aged 15 years and older declined more rapidly for men than women (from 46% to 33% vs. from 75% to 56%, respectively), but declined more rapidly among women than men among adults aged 15–24 years (from 62% to 37% vs. from 36% to 24%, respectively). Thus, the period 1980–2000 in Egypt was marked by declining fertility especially in urban areas and Northern Egypt, increasing levels of literacy among adults and especially young women, increasing GDP per capita, and expansion in the absolute size of the paid workforce.[7,8]

If women's investments in kin-keeping drive living arrangements despite social change in Egypt, then the propensity to live with ever-married—and often support providing—children should remain higher, and propensities to live alone or with unmarried—and often financially dependent—children only should remain the same or lower for older women than men.[9] If "modernizing" processes operate as Mason (1992) has proposed, then rates of solitary living should increase disproportionately

[6] The urban governorates include Cairo, Alexandria, Port Said, and Suez. The frontier governorates include the Red Sea, New Valley, Matrouh, and North and South Sinai. Lower Egypt includes the governorates north of Cairo, except Alexandria and Port Said. Upper Egypt includes the governorates south of Cairo and adjacent to the Nile River, except the Red Sea governorate.

[7] Yet, rates of unemployment remained high among women and men (20%, 8% in 2000; 19%, 5% in 1980).

[8] Unless indicated, figures in this paragraph were obtained on February 2, 2005 from http://www.genderstats.worldbank.org/genderRpt.asp?rpt=profile&cty=EGY,Egypt,%20Arab%20Rep.&hm=home.

[9] The greater dependence of unmarried than married children has social and economic meaning in this setting. Unmarried children are expected to live with their parents, are acquiring the resources for marriage, and so tend to be *more* financially dependent. Married children already acquired the resources for marriage, may live separately from their parents, but simply may not be financially able to do so.

and rates of living with ever-married children should decline disproportionately for older women.

Data and Method

Data for this analysis come from the household listings and household characteristics questionnaires of four national DHS that were conducted in Egypt in 1988, 1992, 1995, and 2000 (El-Zanaty et al. 1993, 1996; El-Zanaty and Way 2001; Sayed et al. 1989). Neighborhoods, towns, and villages in the 1986 census provided the initial sample frame for the 1988, 1992, and 1995 surveys. Similar units in the 1996 census provided the initial sample frame for the 2000 survey. For reasons of logistics and cost, the sampling frames in 1988 and 1992 did not include five frontier governorates, whereas the sampling frames in 1995 and 2000 covered all 26 governorates. All four samples were drawn using an urban–rural stratified, three-stage sample design, and overall response rates for the household-level interviews were high across all surveys (93% in 1988; 98% in 1992; 99% in 1995; 99% in 2000). For all years, between 26% and 30% of sample households had at least one member aged 60 years or older. Among listed household members in this age group, about half were women in 1995, but slightly less than half were women in 1988, 1992, and 2000 (Table 1).

Information collected in the household listings and household characteristics forms was highly comparable across surveys, which enhances our ability to evaluate change over time. In addition to delineating household members, the household listings permitted collection of the following data for each member: whether the household head, relationship to the head, gender, age in completed years, marital status at interview for those aged 15 years or older, schooling attainment and work in the month before interview for those aged 6 years or older, and whether reported work in the prior month was paid in cash or kind. The household characteristics forms included questions about the assets, living conditions, and amenities of each household.

To assess change over time within the same geographic unit, the analytic sample includes adults aged 60 years or older who were living in the 21 governorates that

Table 1 Design characteristics of demographic and health surveys included in the analysis

Survey	Households		Adults 60 years	
	n	% with adult 60 years	*n*	% women
1988	9805	26.2	2989	43.0
1992	10760	29.5	3815	48.8
1995	14465	29.5	5072	50.1
2000	16036	26.8	5124	48.3
Total	51066	28.0	17000	48.0

Source: Egypt Demographic and Health Surveys for 1988, 1992, 1995, and 2000

were surveyed in all years. The net effect on national estimates of excluding the Frontier governorates is likely to be negligible because these governorates include only about one percent of Egypt's population (El-Zanaty et al. 1993). Sample sizes of adults aged 60 years or older with complete data on all variables are 2,989 in 1988, 3,815 in 1992, 5,072 in 1995, and 5,124 in 2000 (total $n = 17{,}000$).[10]

Dependent variables in this analysis indicate whether or not older adults were living (1) with unmarried children only (without married children), (2) with any ever-married children, or (3) alone. The first variable permits assessment of the extent to which unmarried, often dependent children lived with their parents over time and the course of social change. The second variable permits assessment of the extent to which older parents adhered to the customary practice of taking up residence with married, often support-providing children (or if older parents offered coresidential support to the younger, married generation). The third variable permits examination of the extent to which older women and men adopted solitary living arrangements over time, which should arise if "modernizing" changes foster greater demands for privacy among parents and/or their adult children.

Independent variables include the following characteristics of older adults: age group in years (60–69, 70–79, 80 or older), marital status at interview (married, widowed, divorced), schooling attainment (none, completed primary or preparatory, completed secondary, more than secondary), and paid work in the prior month. A variable for the household's standard of living indicates *whether* = 1 or *not* = 0 each of the following assets or amenities were present in the older adult's home: a TV, video recorder, fan, heater, washing machine, radio, sewing machine, refrigerator, at least a cement floor, electricity, tap water, or toilet facilities.[11] Remaining variables include rural versus urban residence, and region of residence (Lower vs. Upper Egypt).[12] Distinguishing the group aged 80 years or older arguably captures differences in familial and health status among the "oldest old." Marital status captures one source of an older person's social support that often differs in availability and quality for older women and men. Schooling attainment, recent paid work, and household standard of living capture an older adult's educational and economic resources and associated needs for coresidence. Schooling in particular also may reflect exposure to ideals about family that affect intergenerational ties and coresidence (Thornton 2001). Measures of rural–urban and regional residence capture geographic variation in the infrastructures, norms, and other environmental circumstances of daily life that may be associated with living arrangements in Egypt.

[10] Some eligible older adults were dropped from the analysis as a result of item nonresponse for covariates ($n = 513$, or 3% of the 17,513 adults aged 60 years or older who were identified in all surveys). The eligible sample included the following numbers of older adults in each survey round: 3,473 in 1988, 3,815 in 1992, 5,073 in 1995, and 5,152 in 2000.

[11] These items are standard ones included in household-wealth or standard-of-living scores that are derived from information collected in the DHS (Filmer and Pritchett 1999).

[12] Lower Egypt includes the governorates of Cairo, Alexandria, Port Said, Suez, Damietta, Dakahlia, Sharkia, Kalyubia, Kafr El-Sheikh, Gharbia, Menoufia, Behera, and Ismailia. Upper Egypt includes the governorates of Giza, Beni Suef, Fayoum, Minya, Assiut, Souhag, Qena, and Aswan.

In the bivariate analysis, the total sample of adults aged 60 years or older is stratified by year of the survey (1988 vs. 2000), and associations of gender with sociodemographic characteristics and living arrangements are estimated. *p*-values are computed for basic χ^2 tests for the independence of gender and other covariates and for tests of difference in the proportions of women and men occupying each covariate category. Mantel–Haenszel tests for homogeneity in the association of gender and each covariate in 2000 versus 1988 are computed to identify significant changes over time in any gender gaps in covariates and living arrangements. For all estimates, robust variance estimators are used to account for the multistage, cluster-sample designs of each survey (Rao and Scott 1981, 1984).

In the multivariate analysis, a series of logistic regression models are fitted to compute the unadjusted and adjusted log odds and odds, for women versus men, of living with unmarried children only, any ever-married children, and alone. Unadjusted models include only gender of the older adult, and adjusted models include the adult's gender and all other measured characteristics. To compare qualitatively models that allow for time-variant and invariant effects of gender, unadjusted and adjusted models are estimated for samples of older adults identified in 1988 only, 2000 only, and all survey years combined (1988, 1992, 1995, and 2000). To test for variation over time in the factor by which the odds of each type of living arrangement differ for women and men, samples for all survey years are pooled, and interaction terms between gender and year of the survey are added to each full main-effects model. Robust variance estimators again account for the multistage cluster-sample study designs (Rogers 1993; Williams 2000). Finally, coefficients from final estimated models are used to compute trends in the predicted probabilities of each type of living arrangement for widowed older women and men who otherwise are classified as economically "vulnerable" or "advantaged," respectively, according to specified values for schooling attainment (none vs. more than secondary), work status (not working vs. working), number of household amenities (lowest vs. highest), and location of residence (rural vs. urban; Upper vs. Lower Egypt). Uneducated, nonworking older adults with the fewest numbers of household amenities clearly have fewer personal resources on which to draw in the absence of coresidential support. Rural Upper Egyptian older adults are considered more economically vulnerable because they live in more economically disadvantaged regions of Egypt and so tend to have less access to higher quality public services (roads, clinics, transport). Distinguishing trends in the probability of solitary and coresidential living across these two groups is of potential policy interest because doing so reveals the extent to which non-coresidential needs for economic and instrumental support are emerging in economically marginal groups of older Egyptians. Confidence intervals are computed to assess whether the predicted probabilities of each living arrangement differ significantly for women and men having similar levels of economic need.

Certain analytic limitations, and strategies to address them, warrant mention. Because data for the analysis come from household listings and characteristics questionnaires rather than a targeted survey of older adults, certain variables that are known to be associated with living arrangements elsewhere (e.g., number of living children, individual health status, characteristics of adult children) are unavailable

for inclusion in the analysis (Yount 2005; Zimmer and Kwong 2003). The absence of information on total number of living children is substantially mitigated by three factors. First, the percentages of Egyptian women aged 45–49 years without living children were very low in all years (4.4 in 1988, 4.3 in 1992, 3.9 in 1995, and 4.8 in 2000) (ORC Macro 2003). Second, the total fertility rate in 2000 was close to three even in the urban governorates. Finally, the number of living children has not differed markedly between women and men because polygamy and divorce are uncommon in this setting (e.g., Yount 2005). To address the lack of health-related data, we distinguish the oldest older adults (aged 80 or more years) from younger older adults and capture changes in familial and health status associated with advanced age (Yount 2005). The absence of data on a range of children's characteristics is mitigated by the fact that the marital status of coresident children is known and is a marker in this setting for children's degree of financial dependence versus their ability to provide at least some financial support to their parents. The availability of four national cross-sectional surveys spanning a 12-year period offers a rare opportunity to examine changes in the living arrangements of older women and men in a region of the world where issues of population aging remain grossly understudied.

Results

Table 2 shows the sociodemographic characteristics of women and men aged 60 years or older in 1988 and 2000 (results for 1992 and 1995 are not presented, but are available upon request). Because sample sizes are large, significant differences that also are large in magnitude are emphasized. First, differences in the age distributions of women and men are significant only in 1988, and differences in this year are generally small. Large gender differences in marital status are apparent in 1988 and 2000, with men being married markedly more often than women in both years (89–90% of men vs. 32–35% of women), and women being widowed markedly more often than men in both years (64–66% of women vs. 10–11% of men). Differences in schooling attainment between women and men are significant and large in both years. Over 80% of women compared to 63–65% of men had no formal schooling, and men more often achieved all other levels of schooling. The gender gap in schooling attainment shifted over the period, largely because of greater declines among women than men in the percentage without formal schooling (86–81% vs. 65–63%). Greater gains among men than women in the percentage achieving secondary or higher schooling (9–17% vs. 3–5%) are not significant because of small sample sizes in these cells. In both years, women were working for cash or kind markedly less often than were men ($\sim$2% vs. 32–33%). The percentage distributions of women and men by the number of household assets or amenities also differed at least marginally in both years, generally because women tended to occupy the lowest category in both years while men more often occupied the highest category in 2000. Shifts between 1988 and 2000 in the overall number of household assets or amenities may be in part the result of changes in household expenditures between the two years (El-Laithy et al. 2003). The percentages of

Table 2 Characteristics of women and men aged 60 years and older in Egypt (1988 vs. 2000)

Covariate	1988				2000				
	Men	Women	p^a	p^b	Men	Women	p^a	p^b	p^c
(*n*)	(1703)	(1286)			(2649)	(2475)			
Age group (years)									
60–69	69.3	65.6	**	*	65.2	65.3	ns	ns	†
70–79	24.3	25.0		ns	27.6	26.6		ns	ns
80+	6.4	9.4		**	7.2	8.1		ns	†
Marital status									
Married	89.7	35.2	***	***	88.6	32.4	***	***	ns
Widowed	9.9	64.0		***	11.0	66.1		***	ns
Divorced	0.4	0.8		ns	0.4	1.5		***	ns
Completed schooling									
None	64.5	85.6	***	***	62.6	80.7	***	***	*
Primary	27.0	11.4		***	20.4	14.0		***	***
Secondary	4.0	2.0		**	10.1	4.0		***	ns
More than secondary	4.5	1.0		***	6.9	1.3		***	ns
Paid work, prior month (no)	32.2	2.3	***	–	33.0	1.7	***	–	ns
Standard of living									
0–2	40.8	44.1	†	†	14.5	17.3	**	**	ns
3–5	25.4	22.9		*	23.5	24.8		ns	†
6–8	19.1	17.3		ns	37.0	35.0		†	ns
9+	14.7	15.6		ns	25.0	23.0		*	ns
Residence urban (rural)	51.6	51.1	ns	–	46.6	43.5	*	–	ns
Region lower Egypt (upper)	60.7	63.2	ns	–	62.1	59.6	*	–	*

Notes: Reference categories for dichotomous variables are in parentheses

[a] $*p < 0.05$; $**p < 0.01$; $***p < 0.001$; $^{\dagger}p < 0.10$ for χ^2 test of independence, accounting for multi-stage, cluster-sample designs

[b] $*p < 0.05$; $**p < 0.01$; $***p < 0.001$; $^{\dagger}p < 0.10$ for test of difference by gender in proportion in the adjacent category

[c] $*p < 0.05$; $**p < 0.01$; $***p < 0.001$, $^{\dagger}p < 0.10$ Mantel–Haenszel test of homogeneity in the association of gender and covariates, 1988 versus 2000

Source: Egypt Demographic and Health Surveys for 1988 and 2000

women and men who were living in urban areas and in Lower Egypt were significantly different in 2000, but actual differences are small. Thus, the period 1988–2000 was characterized by consistently more frequent marriage among men and widowhood among women, large percentages of men and women without any schooling, shifts toward secondary or more schooling among men and at least some primary schooling among women over the period, and persistently lower rates of paid work among women than men. Despite increases in standards of living (according to the number of household assets or amenities) between 1988 and 2000, men more often occupied the highest standard-of-living stratum, and women more often occupied the lowest by 2000.

Table 3 Percentage of women and men aged 60 years and older living with unmarried children only, any ever-married children, and alone, overall and by age in Egypt (1988 vs. 2000)

	1988					2000					
	Men		Women			Men		Women			
	(*n*)	%	(*n*)	%	p^a	(*n*)	%	(*n*)	%	p^a	p^b
Unmarried children only											
60–69-year-old	(1180)	47.4	(843)	20.9	***	(1728)	52.7	(1617)	22.7	***	ns
70–79-year-old	(414)	30.4	(322)	5.0	***	(730)	34.8	(658)	7.5	***	ns
80 years and older	(109)	14.7	(121)	3.3	**	(191)	19.4	(200)	1.0	***	†
Total	(1703)	41.2	(1286)	15.2	***	(2649)	45.4	(2475)	16.9	***	ns
Any ever-married children											
60–69-year-old	(1180)	37.2	(843)	51.7	***	(1728)	30.3	(1617)	47.7	***	ns
70–79-year-olds	(414)	42.0	(322)	68.0	***	(730)	37.4	(658)	58.7	***	ns
80 years and older	(109)	56.0	(121)	71.9	*	(191)	51.8	(200)	71.5	***	ns
Total	(1703)	39.6	(1286)	57.7	***	(2649)	33.8	(2475)	52.5	***	ns
Alone											
60–69-year-old	(1180)	1.2	(843)	11.9	***	(1728)	2.3	(1617)	9.8	***	**
70–79-year-old	(414)	4.1	(322)	14.3	***	(730)	3.7	(658)	17.5	***	ns
80 years and older	(109)	3.7	(121)	15.7	**	(191)	8.4	(200)	16.0	*	ns
Total	(1703)	2.1	(1286)	12.8	***	(2649)	3.1	(2475)	12.3	***	*

Notes: Reference categories for dichotomous variables are in parentheses

[a] $*p < 0.05$; $**p < 0.01$; $***p < 0.001$; $^{\dagger}p < 0.10$ for test of difference by gender in the proportion with the given living arrangement, accounting for the multistage, cluster-sample design

[b] $*p < 0.05$; $**p < 0.01$; $***p < 0.001$; $^{\dagger}p < 0.10$ for Mantel–Haenszel test for difference in the association of gender and each living arrangement, 1988 versus 2000

Source: As for Table 2

Table 3 shows the percentage of women and men living with unmarried children only, any married children, and alone in 1988 and 2000. Estimates are presented for the total samples of women and men in each year, and for women and men by age group. In both years, women lived with unmarried children only less often than did men, regardless of age. Between 1988 and 2000, the frequency of residence with unmarried children only increased slightly among women and men overall (from 15% to 17% among women; from 41% to 45% among men), but increased among men and decreased among women aged 80 years or older (from 15% to 19% among men; from 3% to 1% among women). Although the frequency of living with any ever-married children declined slightly for women and men over the period, women lived with any ever-married children consistently more often than did men across all ages and in both years. Women lived alone more often than did men at all ages and in both years, but this gap diminished among those aged 60–69 years and those aged 80 years or older because of increases over time in the prevalence of living alone among men (e.g., from 4% to 8% among men aged 80 years or older).

Table 4 shows, for 1988, 2000, and all years combined (1988, 1992, 1995, and 2000) the unadjusted (row 1) and adjusted (row 2) log odds and odds for women

Table 4 Unadjusted and adjusted log odds and odds (women vs. men) of living with unmarried children only, any ever-married child, and alone, adults aged 60 years and older in Egypt, 1988, 2000, and 1988–2000

	1988				2000				All years[a]			
	OR	*b*	*p*	(s.e.)	OR	*b*	*p*	(s.e.)	OR	*b*	*p*	(s.e.)
Unmarried children only												
Female (Male), unadjusted	0.26	−1.36	***	(0.08)	0.24	−1.41	***	(0.06)	0.26	−1.33	***	(0.03)
Female (Male), adjusted[b]	0.51	−0.67		(0.10)	0.39	−0.95	***	(0.08)	0.43	−0.84	***	(0.04)
Any married children												
Female (Male), unadjusted	2.08	0.73	***	(0.06)	2.17	0.77	***	(0.05)	1.98	0.68	***	(0.03)
Female (Male), adjusted[b]	1.42	0.35	***	(0.09)	1.22	0.20	**	(0.07)	1.26	0.23	***	(0.04)
Alone												
Female (Male), unadjusted	7.01	1.95	***	(0.19)	4.35	1.47	***	(0.13)	4.79	1.57	***	(0.08)
Female (Male), adjusted[b]	1.84	0.61	*	(0.29)	1.20	0.19		(0.17)	1.14	0.13		(0.11)
(*n*)	(2989)				(5124)				(17000)			

[a] Includes samples of adults aged 60 years and older from the 1988, 1992, 1995, and 2000 Egypt Demographic and Health Surveys

[b] Adjusted models control for marital status, completed education, current paid work, standard of living, urban–rural residence, and region of residence

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ accounting for the multistage, cluster-sample design.

Source: As for Table 1

versus men of living with unmarried children only, any ever-married children, and alone. Unadjusted odds of living with unmarried children only are 0.2–0.3 times lower for women than men in 1988 and 2000. Controlling for other covariates diminishes the factor by which these odds differ, but adjusted odds of living with unmarried children only remain significantly lower for women than men in both years (OR = 0.5 in 1988; OR = 0.4 in 2000). By contrast, the unadjusted odds of living with any ever-married children are over two times higher for women than men in 1988 and 2000. The factors by which these odds differ also diminish after adjusting for other covariates, but remain significantly greater than 1.0 in both years (OR = 1.4 in 1988; OR = 1.2 in 2000). Unadjusted odds of living alone are 7.0 times higher for women than men in 1988 and 4.4 times higher for women than men in 2000. Adjusted relative odds of living alone are markedly reduced in magnitude in both years, and although these relative odds remain significantly greater than 1.0 in 1988 (OR = 1.8), they do not in 2000. For women relative to men across all years, adjusted odds of living with unmarried children only are 0.4 times lower, adjusted odds of living with any married children are 1.3 times higher, and adjusted odds of living alone are similar.

Table 5 Adjusted gender-by-year interaction models of the log odds and odds (women vs. men) of living with unmarried children only, any ever-married child, and alone, adults aged 60 years and older in Egypt (1988–2000)

	OR	*b*	*p*	(s.e.)
Unmarried children only				
Constant	0.54	−0.62	***	(0.07)
Female (Male)	0.43	−0.84	***	(0.09)
Year (1988)				
1992	1.07	0.07		(0.07)
1995	1.07	0.07		(0.07)
2000	1.38	0.32	***	(0.07)
Female * 1992	1.03	0.03		(0.11)
Female * 1995	1.07	0.07		(0.10)
Female * 2000	0.93	−0.08		(0.10)
Any ever-married children				
Constant	0.83	−0.18	*	(0.07)
Female (Male)	1.31	0.27	***	(0.07)
Year (1988)				
1992	1.01	0.01		(0.08)
1995	0.94	−0.07		(0.08)
2000	0.53	−0.64	***	(0.08)
Female * 1992	0.96	−0.04		(0.09)
Female * 1995	0.86	−0.15	†	(0.09)
Female * 2000	1.04	0.04		(0.08)
Alone				
Constant	0.00	−5.64	***	(0.24)
Female (Male)	1.70	0.53	*	(0.23)
Year (1988)				
1992	1.24	0.21		(0.26)
1995	1.71	0.54	*	(0.24)
2000	2.83	1.04	***	(0.23)
Female * 1992	0.70	−0.36		(0.29)
Female * 1995	0.56	−0.58	*	(0.26)
Female * 2000	0.63	−0.47	†	(0.26)
(*n*)	(17000)			

Note: Includes older adults from the 1988, 1992, 1995, and 2000 Egypt Demographic Health Surveys

All models control for marital status, completed education, current, paid work, standard of living, urban–rural residence, and region of residence

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, †$p < 0.10$ accounting for multistage, cluster-sample design

Source: As for Table 1

Table 5 shows adjusted log odds and odds of living with unmarried children only, any married children, and alone, for women versus men in 1988 ("main effect" of gender), men in 1992, 1995, and 2000 relative to 1988 ("main effect" of year), and

women versus men in 1992, 1995, and 2000 relative to 1988 (gender-by-year interaction terms). Women have 0.4 times lower adjusted odds than men of living with unmarried children only in 1988. Among men, adjusted odds of living with unmarried children only are 1.4 times higher in 2000 versus 1988, and similar changes are apparent among women over the period, as evidenced by the nonsignificant gender-by-year interactions. By contrast, adjusted odds of living with any ever-married children are 1.3 times higher for women than men in 1988. For men, adjusted odds of living with any ever-married children are 0.5 times lower in 2000 relative to 1988. Adjusted odds of living with any ever-married children for women versus men are marginally lower (OR = 0.9) in 1995 than in 1988, but trends in the odds of living with any ever-married children generally are similar for women and men. Finally, women have 1.7 times higher adjusted odds than men of living alone in 1988. For men, adjusted odds of living alone are 1.7 times higher in 1995 versus 1988 and 2.8 times higher in 2000 versus 1988. Adjusted odds of living alone for women versus men are at least marginally lower in 1995 and 2000 relative to 1988 (relative ORs = 0.6).

The associations of other characteristics of older adults and their living arrangements merit remark (not shown; available upon request). As expected, the odds of living with unmarried children only tend to decrease with increasing age among older adults, and the odds of living with any ever-married children tend to increase with increasing age. Compared to married older adults, widowed older adults have lower odds of living with unmarried children only and higher odds of living alone and with any ever-married children. Higher schooling attainment, current work, urban residence, and residence in Lower Egypt are positively associated with living with unmarried children only and alone, and are negatively associated with living with any ever-married children. The number of household assets/amenities is positively associated with living with any ever-married children and is negatively associated with living with unmarried children only and alone.

Figure 1 shows predicted probabilities (and their 95% confidence intervals) for the above three living arrangements among adults aged 60 years or older. Estimates are derived from fully adjusted models that include gender-by-time interaction terms. Predictions are presented for two hypothetical profiles of widowed women and men: an economically "vulnerable" group of rural Upper Egyptians who are without schooling, not working, and with the fewest household amenities; and an economically "advantaged" group of urban Lower Egyptians who have more than secondary schooling, are working, and have the highest number of household amenities. Figures show that, relative to "advantaged" older adults, "vulnerable" older adults have lower predicted probabilities of living with unmarried children only, higher predicted probabilities of living with any ever-married children, and somewhat lower predicted probabilities of living alone. In both groups, the predicted probability of living with unmarried children only is higher in 2000 than in 1988, and although this increase appears to be greater for men, this gender difference is not significant. Also for women and men in "vulnerable" and "advantaged" groups, predicted probabilities of living with any ever-married children are significantly lower in 2000 than in 1988, but women in both groups retain higher predicted probabilities than men of living with any ever-married children. Predicted probabilities of living alone are much higher in 2000 than in

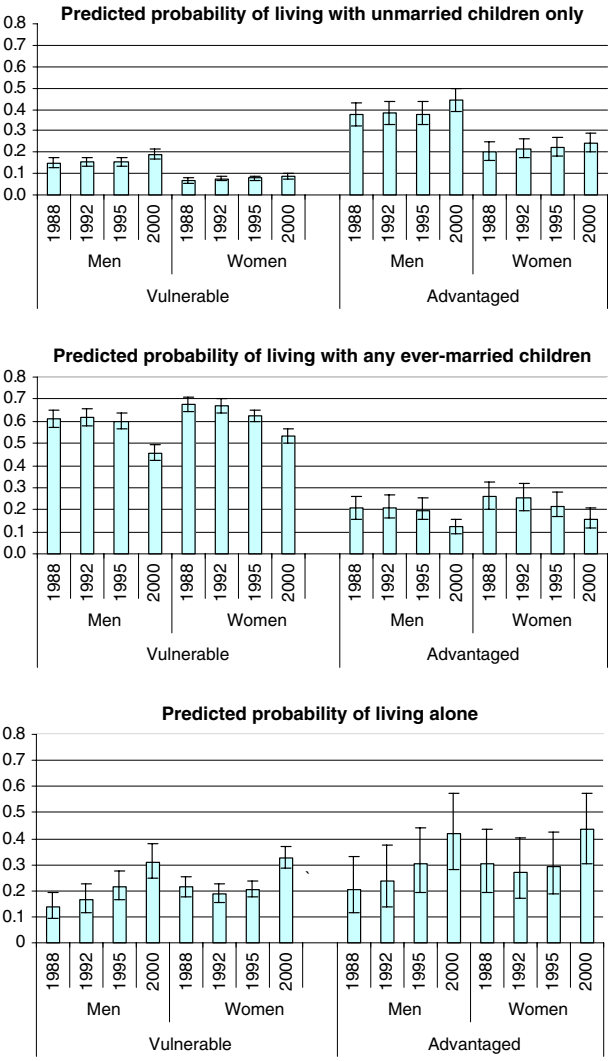

Fig. 1 Predicted probabilities of various living arrangements, 'vulnerable' and 'advantaged' women and men aged 60 years of older in Egypt (1988–2000). *Note*: See text for detailed description of 'vulnerable' and 'advantaged' groups

1988, and the increase is greater for men than women so that, by 2000, the probability of living alone is similar for women and men among "vulnerable" (0.43 vs. 0.42) and "advantaged" (0.32 vs. 0.31) groups.

Conclusions

This paper explores similarities and differences in the living arrangements of Egyptian women and men aged 60 years or older during a period of marked

socioeconomic change in the 1990s. The availability of repeated cross-sectional national DHS for Egypt offers a unique opportunity to track changes in the living arrangements of older adults in a region in which issues of population aging and intergenerational support remain ill-understood. Because coresidence is a major mechanism by which parents and children exchange other forms of support, exploring the courses and correlates of living arrangements among older Egyptians is important to understand at least *qualitative* changes in their support. Exploring how the courses and correlates of living arrangements may vary for older women and men also may expose the potential for different "gaps" in support that warrant public attention.

Findings from this analysis show that the social and economic resources of older Egyptian women and men differed greatly in 1988. Older women were much less often employed, and much more often widowed, without schooling, and having the fewest household assets/amenities. By 2000, gender gaps in some resources increased (e.g., the percentage with secondary or more schooling increased more for older men than women), while gender gaps in other resources decreased (e.g., the percentage with no schooling declined more for older women than men). Throughout the period, older women maintained greater social and economic needs for coresidential support.

Indeed, differences among women and men in their social and economic resources accounted for a large portion of observed differences in all three forms of living arrangements examined here. Yet, compared to men in 1988 and 2000, women continued to live more often with any ever-married children and less often with unmarried children only, even after adjusting for differences in need. These findings support the idea that, although women's greater propensities to be widowed and economically dependent account for some of their greater coresidential support from married children, women's investments in kin-keeping throughout their life course may enhance their ability to access coresidential support in later life. Women's slightly higher adjusted odds than men of living alone in 1988 are consistent with patterns of solitary living observed in Western and non-Western settings (Kinsella and Velkoff 2001). In Egypt, this difference may have resulted from women's younger age at marriage and greater longevity than men, men's higher rate of remarriage after divorce or widowhood, and frequent labor migration by Egyptian men to the Gulf (Omran and Roudi 1993).

With regard to trends in the living arrangements of older adults, findings show that, for economically "vulnerable" and "advantaged" older women and men, propensities to live with unmarried children only rose between 1988 and 2000. This trend contradicts the expectations of "modernization" theorists but is consistent with changes in the circumstances of daily life that emerged in Egypt during the 1990s. In particular, researchers have shown that the costs of housing and marriage relative to incomes increased in Egypt over the decade (Singerman and Ibrahim 2001; World Bank 2002). Because marriage in particular symbolizes a "pinnacle" event in the lives of Egyptians (Shafey 1998, in Singerman and Ibrahim 2001), increases in its direct (e.g., the wedding ceremony) and associated (e.g., the purchase of a separate apartment) costs may have hindered the abilities of young adults and their families to accumulate the sums required for an "appropriate" Egyptian marriage. Protractions in the process of acquiring an apartment,

furnishings, and other necessities for marriage may have contributed to delays in marriage and to prolonged dependence of unmarried children on their parents (Singerman and Ibrahim 2001). Notably, this increase in the demand for coresidential support from unmarried children did not accrue disproportionately to women. Instead, older women remained much less likely than older men to live with unmarried children only throughout the 1990s.

During the same period, propensities to live with any ever-married child declined at similar rates for older women and men. By the year 2000, rates of living with any ever-married children were 53% among economically vulnerable women compared to 46% among economically vulnerable men. These rates were well below 20% for economically advantaged older women and men. Thus, older women did not disproportionately lose coresidential support during the socioeconomic changes of the 1990s; however, substantial percentages of older women and men did not have the living arrangements that historically have facilitated their receipt of financial and hands-on support. This change occurred despite increases during the 1990s in the cost of housing in Egypt, which some scholars believe may have increased the pressure on ever-married children to live with their parents or parents-in-law (Bayat and Denis 2000). This trend toward living apart from ever-married children also may have been felt most acutely among the economically vulnerable men (54%) and women (47%) who had the greatest needs for financial support but lacked the living arrangement that customarily has facilitated their receipt of such support. Although the rate and nature of economic transfers between ever-married children and their older parents may have remained constant despite declines in their rates of coresidence, it is unlikely that non-coresident children provide the same level and types of hands-on care as do coresident children. Thus, non-coresident ever-married children may be finding new ways to fulfill these obligations, such as paid in-home care (Sinunu et al. 2004). New studies are needed that explore simultaneously changes in living arrangements and changes in the quantity and quality of support received from resident and non-coresident children to elucidate the extent to which women's and men's various prior investments in children may stimulate financial and hands-on support in later life.

Finally, propensities to live alone rose during 1988–2000, but rates of solitary living rose faster among older men than older women, and rose especially quickly among the oldest and most economically "vulnerable" men. As a result of differences in these trends by gender, levels of solitary living in 2000 were similar for older Egyptian women and men. These patterns depart noticeably from the higher prevalences and rates of increase in solitary living among older women than men in the West (Kinsella and Velkoff 2001). One reason for this departure in Egypt may be that women's financial dependence on family, their past and continued investments in kin-keeping, and the social unacceptability for older women to live alone have slowed women's uptake of solitary living arrangements. Another reason for this departure may include an emerging tendency to institutionalize frail older adults, and especially widowed women (Sinunu et al. 2004). Ethnographic evidence from greater Cairo has documented cases of extended hospitalization and the institutionalization of frail, older adults since the 1980s (Rugh 1984). Yet, the frequency of such events is unknown because facilities that provide such care in the region often are informal (Margolis and Reed 2001). Nevertheless, recent data

from centers providing long-term care in Cairo reveal that the vast majority of inpatients are older women with physical and/or cognitive disabilities (Sinunu et al. 2004). Because these inpatients typically receive high levels of contact and emotional care from their adult children (Sinunu et al. 2004), these changes most likely do not suggest a rejection of filial obligations but instead reveal new strategies for providing care to severely disabled surviving parents (Rugh 1981).

Thus, findings from this analysis contradict somewhat the expectations of Mason (1992) and suggest that older women need not disproportionately lose coresidential support during periods of rapid social change, such as that observed in Egypt during the 1990s. Rather, Egyptian men and women during the 1990s experienced similar increases in the need for coresidential support among unmarried children and similar declines in the receipt of coresidential support from ever-married children. Moreover, men experienced greater increases in the propensity to live alone in the latest, and perhaps most dependent, years of life. Results of this study likewise suggest that classic "modernization" variables had contradictory effects on the residential arrangements in Egyptian families during the 1990s. Most notably, greater wealth in Egypt during this period was associated with higher odds of living with ever-married children and lower odds of living alone. These findings suggest that wealth may have enabled older adults to secure customary forms of intergenerational coresidence, even while the frequency of such arrangements was declining in many sectors of Egyptian society. Indeed, other indicators of "modernization," such as schooling, urban residence, and residence in Lower Egypt, were negatively associated with the propensity to live with any ever-married children and were positively associated with the propensity to live alone. These variables also may indicate exposure to and acceptance of ideals favoring independence, nuclear living, and greater privacy (Thornton 2001). Although not verifiable with existing data, such changes also may have resulted in part from increasing schooling attainment and higher rates of employment among youth, with corresponding increases in their desire for independent living as soon as the financial means to do so had been achieved.

The findings of this analysis, and certain of its limitations, generate ideas for future research. First, we were unable to assess how changes in the characteristics of children may have been associated with changes in the living arrangements of older Egyptians during the 1990s. Although data on adult children and their parents exist in settings where research on aging has a longer history, such data are not available on a national scale in Egypt and need to be collected. Second, future longitudinal or repeated cross-sectional studies of the living arrangements of older Egyptians need to include the collection of data on self-reported and objective measures of health. Given this recommendation, an analysis of cross-sectional data on adults aged 60 years or older and collected around 1990 has shown that differences in the frequency of cognitive impairment, reported functional limitations, and reported medical conditions account for little or none of the difference in living arrangements between women and men in parts of Egypt (Yount 2005). Rather, differences in the frequency of widowhood accounts for much but not all of the unadjusted association of gender and intergenerational coresidence in this sample. Because these data are sub-national, cross-sectional, and include only self-reports of disability and illness

(Andrews 1998), they could not be used to assess adjusted *changes* over time in the living arrangements of older women and men throughout Egypt. With objective and subjective measures of health in future national studies in Egypt, analysts will not need to rely on "advanced aged" as a crude proxy for health-related dependence.

Fourth, data on exchanges among older adults and non-coresident children are lacking in national DHS, so the implications for older adults of more frequent solitary living should be weighed with caution. A note of caution also is warranted regarding the widely held assumption that intergenerational coresidence necessarily leads to intergenerational intrahousehold exchanges. Research from Baoding, China, for example, has shown that a child's progress toward full adulthood increases the likelihood that the generations will budget separately, even while coresiding (Treas and Chen 2000). Thus, intergenerational coresidence may be neither a necessary nor a sufficient condition for income pooling. Fifth, the measures for household standard of living and recent work status used in this analysis may be endogenous to living arrangements if some older adults moved in with their children in order to improve their standard of living or to mitigate their need to work. Despite this concern, estimated coefficients for gender are very similar in models with and without these variables. So, their inclusion or exclusion does not change basic inferences about either period differences or temporal changes in the living arrangements of older women and men (results not shown; available upon request). Finally, this analysis focused on changes in the living arrangements of older adults over 12 years. Although some might consider this period too short for an analysis of trends, other studies in non-Western settings have assessed similar trends for even shorter periods (e.g., Knodel et al. 2005; Weinstein et al. 1990), and the magnitude of change observed in Egypt parallels that which is documented for other non-Western settings.

Given these considerations and suggestions for further research, the findings here still suggest that macro-social change need not place older women at special risk of losses in coresidential support. Rather, findings corroborate the idea that, even during a period of marked macro-socioeconomic change in Egypt, women's investments in kin-keeping in early and middle adulthood may help them to retain higher relative levels of coresidential support, to avoid more rapid increases in solitary living during their most dependent years, and to access emerging forms of formal care while maintaining high levels of familial support.

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