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Their Adult Children?***

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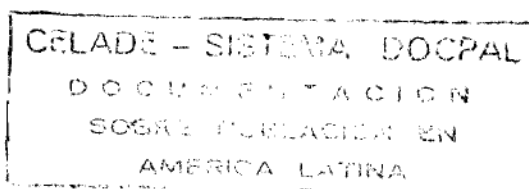
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The majority of the older Asian population, approximately three-quarters, reside with their adult children (Martin 1989). However, recent research suggests that such coresidence may be declining in some countries such as Japan (Martin and Culter 1983, Hiroshima 1987) and South Korea (Kim and Choe 1992) and Taiwan (Martin 1991). In many non-Western countries, such as Malaysia and Singapore, there is considerable debate over how much government versus family support should be provided for the care of the older population. In contrast to the United States, whose government provides substantial transfers to the elderly through Social Security and Medicare, some non-Western countries are trying to reinforce family support networks.

Malaysia, the country considered here, provides some economic incentives, in the form of tax incentives, for adult children to help support and to live with their parents. Since 1979, adult children who live with their parents have received a tax rebate of M\$1,000 (approximately US \$400). In 1991, tax amendments were introduced such that adult children can claim a M\$1,000 tax deduction for medical expenses incurred for their parents and a M\$3,000 deduction for the purchase of any necessary basic supporting equipment for disabled parents (Malaysian Inland Revenue Tax Department 1993). In addition, applicants for low-cost housing are given higher priority if their parents coreside with them. These economic incentives mirror some policies of Malaysia's neighbor, Singapore, such as quicker allocation of adult children who coreside with one or more elderly

parents (Straits Times: May 16th, 1987). Singapore also provides economic incentives in the form of bigger mortgage loans, smaller down payments, and easier repayment schemes. The Malaysian government also provides personal welfare assistance to aged parents if their adult children have insufficient means to support them. For those elderly whose children are dead or unavailable, a rehabilitation scheme exists whereby the village or community receives a grant from the government to take care of the aged and the poorest of the poor. Thus, government policies in Malaysia try to encourage family support for the elderly; the government mainly steps in when family support is not feasible.

In order to understand and predict changes in coresidence patterns in non-Western countries, and the possible effects of policies promoting extended living arrangements, we need to know more about the factors influencing coresidence. These factors include needs and preferences of older people and of their adult children, and the costs and benefits that they each associate with coresidence.

In this paper we use data from the Second Malaysian Family Life Survey (MFLS-2) to analyze the living arrangements of the older population in Peninsular Malaysia. We investigate the factors that influence the propensity of "seniors" (persons aged 60 or older) to coreside with an adult child. The factors considered here include housing costs, income, and rural-urban location; characteristics of the seniors (and their spouse, if married), such as their gender, health, age, marital status, education, and ethnicity; and the number, ages, and

gender of their adult children. This analysis extends previous research on living arrangements in developing countries, which has not investigated the effects on living arrangements of housing costs, characteristics of spouses, the resources of the elderly, and the ages of all of their children, and whether effects of the explanatory variables differ between the married and unmarried. At the end of the paper we speculate about the potential effects of policies designed to encourage parent-child coresidence and about how coresidence is likely to be affected by socioeconomic development.

Conceptual Framework, Previous Research, And Hypotheses

We hypothesize that coresidence of older people with their adult children is affected by the costs and benefits of coresidence, the opportunities for coresidence, and the preferences of seniors and their children. A similar framework has been used in many studies of living arrangements (e.g., Burr and Mutchler 1992; Casterline, Williams, Hermalin et al. 1991; Goldscheider and DaVanzo 1989; Wolf 1984; Wolf and Soldo 1988), although the categorization of factors and the terminology used to describe them differs somewhat across studies. In this section we discuss some of the ways in which the characteristics of seniors (and their spouses) and their children may relate to these costs, benefits, opportunities, and preferences and, hence, how these characteristics may motivate or discourage coresidence. Where relevant, we review previous research on these issues. We recognize that the benefits, costs, and preferences associated with parent-child

coresidence may differ between the parents and the children (Goldscheider and Goldscheider 1992) and perhaps also between the two parents or among the children. Presumably conflicts are resolved through interparty bargaining; we observe only the net outcome of such bargaining.

Benefits of Coresidence

The benefits of coresidence range from companionship and emotional support to the fulfillment of the physical and financial needs of parents and children. Coresidence provides companionship and social support for both parents and children. It is frequently contended that notions of "individualism" are not as prevalent in non-Western societies as they are in the West and, thus, that companionship is still a highly valued commodity. We expect that older people who are not currently married should be more likely to coreside with an adult child because they lack the companionship and emotional, financial, and physical support of a spouse.

From both the parents' and the children's perspective, coresidence may supply financial support or domestic services. If they coreside with their parents, children may be able to provide goods and services that their parents might otherwise have to purchase. This may be especially important for seniors who are in poor health, who are older, or who are poor. Indeed, greater physical disabilities have been found to be associated with increased coresidence in the United States (e.g., Wolf 1984, Wolf and Soldo 1988). Also, unmarried seniors

may have a greater need for assistance from children. Unmarried male seniors may especially need help with domestic household activities, whereas unmarried female seniors may need financial assistance. Adult children, also, may benefit from coresidence. Their parents may be able to provide help with child care or with other household services. This may be especially important as more young women work outside their homes. Furthermore, if the parents and children work together in a family enterprise (e.g., on a farm or in a non-agricultural family business), coresidence may reduce the transactions costs of working together.

Coresidence also economizes on the cost of living. Parents and children can save money by living and eating together. This is especially relevant when housing costs are high or increasing, as is the case in many developing countries. Thus, "economies of scale," as well as the ability to consume household "public goods," provide an added incentive towards coresidence (Lam 1983). Previous research has shown coresidence in urban areas to be more prevalent than in rural areas in a number of Asian countries (Andrews, Esterman, Braunack-Mayer, and Rungie 1986; Casterline et al. 1991; Kim and Choe 1992). These differences may be due to the greater housing costs in urban areas. Andrews et al. noted this possibility, commenting that coresidence may be more a matter of necessity than tradition; housing shortages in urban areas may motivate coresidence, whereas, in rural areas, out-migration of children may lessen the opportunities for coresidence. Chen (1987) notes that land availability in rural areas

makes it easier for the elderly to maintain separate households; children may live close by and thus parents can get help easily. These hypotheses may well describe the Malaysian situation. Below we investigate whether area housing costs affect coresidence and whether this may contribute to the urban-rural differentials observed in previous studies.

The following hypotheses, derived from the above discussion, are tested in this paper. Unless otherwise noted, each hypothesis describes the effect of a variable when all other variables in the model are controlled.

- (1) Unmarried seniors are more likely than currently married seniors to coreside with their adult children.
- (2) The higher the housing costs in an area, the more likely a senior is to coreside with an adult child.
- (3) Coresidence may be higher in urban areas as a result of higher housing costs. Hence, we expect urban-rural differences to shrink once housing costs are controlled.
- (4) Seniors in poorer health should be more likely to coreside with an adult child.
- (5) Older age, which may be correlated with poorer health, may be positively associated with coresidence. Such age effects should weaken once health is controlled.

Costs

Coresidence may also have costs, for either parents or children or both. Coresidence entails a loss of privacy. Higher income enables people to “purchase privacy” and independence and also to purchase services (e.g., housework, cooking) that coresiding children may provide. Indeed many studies of the United States have found a positive relationship between economic resources and independent living (e.g., Beresford and Rivlin 1966; Michael, Fuchs, and Scott 1980; Mutchler and Burr 1991; Pampel 1983). Parents who are able to afford separate residences can choose when to see their children (“intimacy at a distance”); this may be preferable to coresiding with their children and being with them all of the time. Martin (1990) argues that control of economic resources is critical to the elderly's well-being. Hence, another cost of coresidence may be a decline in status of the elderly if their control over economic resources is taken over by their adult children. Given these possible costs of coresidence and the greater choices that higher income provides, we expect that higher-income parents should be less likely to coreside with their adult children, presuming that privacy and independence are valued by Malaysian elderly. Thus we hypothesize:

(6) Seniors with higher incomes should be less likely to coreside.

Opportunities

"Opportunities" may also affect decisions to coreside. In this context, the number of children, ages of children, and gender composition of children available may play important roles. A parent with a greater number of children has an increased number of choices of children with whom to coreside. Indeed, a number of studies of Asia and the Pacific (e.g., Andrews et al. 1986, Casterline et al. 1991, Kojima 1987, and Martin 1989), as well as of developed countries (e.g., Easterlin, Macdonald, Macunovich, and Crimmins 1992) and historical populations (Alter, Cliggett, and Urbiel, forthcoming) have found that the number of children available for a senior to live with is positively related to the senior's likelihood of coresiding with an adult child. (There is a possibility of reverse causation here. Parents who desired to live with a child when they were older may have chosen to have more births for this reason.)

Ages of children may also affect coresidence. Younger adult children, e.g., in their early twenties, may be more likely to be coresiding in their parents' home because they are still in school, unmarried, or financially unable to set up independent households. In developing countries, children typically remain in their parents' homes until they marry, and sometimes afterwards as well (Domingo and Casterline 1992). However, as children become older and more established, they may have more to offer to their aging parents, and the parents may be more likely to coreside with them for this reason.

Thus, the age of children is a potentially important variable influencing the direction of resource flows between parents and children and hence their decisions to coreside. Hence, some seniors may be coresiding with younger adult children not for reasons of old age support, but rather because they are still living with them as part of the normal course of the life cycle (Domingo and Casterline 1992; Knodel, Chayovan, and Siriboon 1992). Other seniors may, by contrast, be choosing to live with older adult children to reap some of the benefits discussed above. Martin (1989) found a general decrease in coresidence associated with an increase in the senior's age and conjectured that it may be due to a confounding effect of age of children, which she could not observe in her data. Casterline et al. (1991) do consider ages of children and find that, when age of youngest child is controlled, the effect of senior's age on the likelihood of living with a child loses statistical significance; senior's age had a significantly negative effect on coresidence in that study when child's age was not controlled.

The gender composition of adult children with which to potentially coreside may also influence decisions to coreside. In many Asian societies, it is often preferable to coreside with sons due to cultural norms. Gender composition of children may also affect coresidence because daughters marry at a younger age than sons and hence typically leave home sooner. In Malaysia the average difference between males' and females' age at marriage is 4-5 years (Tan and Jones 1990). Although some children stay in their parents' or parents'-

in law homes immediately after marriage, many set up independent households within a year or so after marriage (Tan and Jones 1990).

We test the following hypotheses regarding characteristics of children that may affect opportunities to coreside:

- (7) The greater the number of adult children the senior has, the more likely the senior is to coreside with an adult child.
- (8) Seniors with younger adult children are likely to have these children still living with them. Thus, other things the same, seniors should be less likely to coreside as the age of their children increases, though there may be increases in coresidence at older child ages. Controlling for ages of children should make the effect of the senior's own age less negative.
- (9) The gender composition of children should have an effect on coresidence. It is hypothesized that older Malaysians are more likely to live with adult children if they have sons, because sons marry later than daughters. Also many Malaysians may prefer to live with sons rather than daughters due to cultural norms and practices.

Preferences

Cultural norms and modern values may affect attitudes about coresidence. In Malaysia, the three main ethnic groups -- Malays, Chinese and Indians -- comprise three distinct cultures with differing attitudes towards coresidence. The Malays, who comprise over one-

half the population of Peninsular Malaysia, are Muslims and do not have as strong a patriarchal family structure as the Chinese. The majority of Chinese, who make up around a third of the Malaysian population, follow Confucian ethics, which stress filial piety towards elders. The Indians, who account for around 10% of the population, are mainly Tamils from Southern India and are mainly Hindus. The Hindu ideal with regard to parent-child relations is dependence; Hindu elderly expect to rely on their sons, especially, to provide for them in old age (Goldstein, Schuler, and Ross 1983). Previous research on Malaysians aged 60 and older found that, of the ethnic groups, Malays are the least likely to coreside with their adult children, and Chinese are the most likely (Martin 1989). This may be due to the predominantly rural character of the Malay community. Malay parents are likely to own their own land in rural areas and are thus capable of maintaining households separate from their children (Chen 1987). Also their children marry earlier, on average (Tan and Jones 1990). Chinese and Indian Malaysians are more urban; hence, it might be more expensive for them to maintain households separately from their adult children. This rural-urban difference may partly account for ethnic differences in coresidence patterns.

In addition to its associations with needs and with ages of children discussed above, the senior's age also may influence preferences regarding coresidence. There may be a cohort effect, with the oldest people being the most traditional and hence having a greatest preference for coresidence. Similarly people living in rural

areas may be more traditional, while those living in urban areas may be more modern in their attitudes. Higher education, in addition to being correlated with greater access to resources, may also be correlated with having more modern values. More "modern" seniors may prefer privacy and independence over coresidence with children, and their greater access to resources may better enable them to "purchase" this privacy.

Our hypotheses based on characteristics of seniors that may affect preferences to coreside are:

- (10) Malay seniors should be less likely than Chinese or Indian seniors to coreside due both to cultural differences and to the facts that Malays are more likely to live in rural areas, where housing costs are lower, and that Malay children marry at younger ages on average. We expect that, once rural-urban location and housing costs are controlled, these ethnic differences will lessen somewhat.
- (11) Because they may have more traditional attitudes, other things the same, older seniors should be more likely to coreside.
- (12) More educated seniors will be less likely to coreside with adult children due to their more modern values, as well as greater access to resources.
- (13) Adjusting for urban-rural differences in housing costs, older people in rural areas will be more likely to coreside with their adult children than those in more urban areas because their attitudes are more traditional.

Data And Methods

Data

This analysis uses data from the Senior sample of the Second Malaysian Family Life Survey (MFLS-2), which was fielded between August 1988 and January 1989 in Peninsular Malaysia. The MFLS-2 Senior sample, the only nationally representative sample of the older population in Peninsular Malaysia, includes 1,357 respondents aged 50 or older living in private households. In addition to fairly detailed data on these "seniors," some information is available on their spouses and on their grown children, both those living with the respondent and those living elsewhere. MFLS-2 also fielded a community questionnaire (MF26), which provides information about all enumeration blocks in the MFLS-2 sample (of which there were 398 chosen with probability proportional to size). In this analysis we use MF26 information about housing costs in each area.

Refusal rates were below 3% of the living quarters that may have contained respondents eligible for the Senior sample. Interviews could not be completed in a further 3% of the households with residents eligible for the Senior sample because of illness or deafness of the selected respondent. Thus, the sample for this analysis must be considered slightly truncated, with some of the most severely disabled older persons in the target population unavailable for interview. (For more information about MFLS-2, see Haaga, DaVanzo, Peterson, Tey, and Tan [1993].)

Malaysian Indians were double sampled to provide sufficient sample sizes for analyses within each ethnic group. If a living quarter contained more than one resident eligible for the Senior sample, one was selected at random using the Kish selection procedure. The descriptive analyses below are weighted to adjust for the oversampling of Indians and for the number of seniors in the household who could have been chosen for the Senior sample. The multivariate analyses control for ethnicity.

Samples, Estimation, and Variables Considered

The sample used for this analysis consists of 660 seniors age 60 or older who had at least one adult child.¹ (Most studies of aging in Asia [e.g., Martin 1989; Casterline et al. 1991] consider a sample of persons aged 60+.) In this analysis, a child is defined as "adult" if he/she was 20 years old or older. A higher cut-off point, say age 25, may have been more appropriate in Malaysia, where children tend to leave home at later ages than in more developed countries. It was not possible, however, to use a cut-off point between 20 and 30 years old because, in MFLS-2, ages of Seniors' children living elsewhere are only available in 10-year age categories. (This is because Senior respondents had great difficulty reporting the precise ages of their non-coresident children). The age cut-off of 20 used here gives us a general measure of family extension. Coresidence may occur because children leave home later, never leave home, return home after leaving, or because parents move in with children. In the sample considered here,

most coresiding adult children are not at the youngest end of the age distribution. Over one half of the coresiding children are older than 25 and around one-third of coresiding seniors live with a child aged 30 or older. (Other studies of parent-child coresidence in LDCs [e.g., Martin 1989, Casterline et al. 1991] do not impose any restrictions on the children's ages that they consider; coresident children could be younger than 20 and sometimes are.)

Our dependent variable is a dichotomous indicator that equals one if the senior lives with an adult child (age 20 or older) and zero otherwise. In these data, of those with adult children, 69% of married seniors and 73% of unmarried seniors aged 60 or older live with an adult child. Of those seniors with adult children, only 2% of the married and 14% of the unmarried live alone.

Multivariate analyses are estimated using logistic regression. For several of the explanatory variables, we also note results obtained when other explanatory variables were not controlled, since several of our hypotheses deal with the sensitivity of results to whether other variables are held constant.

We estimate separate regressions for married seniors (n=371) and unmarried seniors (n=289). We stratify by marital status because we expect the effects of some of the explanatory variables to differ for the married and unmarried. Furthermore, the specifications differ for the two groups because spouse characteristics are relevant for the married group but not for the unmarried. For the married sample, the units of observation are couples, with separate variables referring to

husbands (either male Senior respondents or the spouses of female Senior respondents) and wives (female Senior respondents or the spouses of male Senior respondents). The unmarried sample consists of 64 males and 225 females. (In Malaysia many more men than women remarry after divorce or being widowed.) We tried interacting all the explanatory variables with gender for the unmarried sample, to allow effects to differ for males and females, but none of the interactions were statistically significant. We have also estimated a regression that pools the married and unmarried to assess the effect of marital status when other variables are controlled. This regression (which is briefly discussed, but not presented here) is similar to those in other studies of elderly living arrangements in LDCs, which typically combine married and unmarried respondents and do not consider spouse characteristics.

Table 1 presents the weighted means of the variables used in our analysis. Below we briefly discuss the independent variables considered.

Marital Status. As noted above, regressions have been estimated separately for the married and unmarried. The vast majority (91%) of the unmarried sample are widowed; 5.2% are divorced and 4.2% are separated. Widowed, divorced, and separated did not differ significantly in their living arrangements and are not distinguished in the analyses .

Housing Costs. Data from the Community Questionnaire (MF26) supply information on the costs of specific types of housing in

each enumeration block (EB) in the sample.² We use these area housing costs in our analysis so that our results are not confounded by individuals' housing costs being correlated with the size of their households (and hence their living arrangements).

Location. We consider three categories of location:

Metropolitan/large urban, small urban, and rural. (The data distinguish between metropolitan areas [population above 75,000] and large urban areas [nonmetropolitan areas with population greater than 10,000]. We have combined these into one category because their coresidence patterns did not differ significantly from each other. Also, the average housing costs were very similar in the two types of areas.) Metropolitan/large urban is defined as an area with a population above 10,000, small urban as an area with a population between 1,000 and 10,000, while even smaller areas are rural, which is the reference group in the regression analyses. Over one-half of the seniors in each of our subsamples live in rural areas.

Health. Seniors were asked to rate their own health and their spouses' health as "good," "fair," or "poor." These ratings are entered into the regression as indicators of seniors' and spouses' health, with "good" as the reference category. (This three-category ranking correlates well with more detailed information available on limitations in activities of daily living [ADLs] [Haaga, Peterson, DaVanzo, and Lee 1990]. We do not use the ADL information here because it is not available for spouses of the selected respondents.)

Age. In preliminary studies we considered the age of respondents (and of their spouses if they were married). However, none of the age variables were statistically significant when the other variables considered here were controlled. For this reason, we exclude age from regressions presented here.

Income. Our income variable is average monthly unearned income of the senior (and his/her spouse) during the year preceding the survey, excluding transfers received from either other households or public sources. We exclude from our income measure:

- the income of household members other than the senior respondent and spouse, because the very existence of such income is determined by living arrangements;
- earned income of the senior (and his/her spouse), because it is the result of decisions concerning working, which may be jointly made with decisions about living arrangements; and
- transfer income, because it may be jointly determined with living arrangements. (For example some older people may receive money from non-coresident children rather than living with one of their children [see Chan 1991].)

We have also estimated the regressions using broader definitions of income that include the components listed above to illustrate how estimated income effects differ when these components are included.

The measure of income we use here includes dividends, or interest on savings, pensions and EPF (Employees Provident Fund) payments, and rents, for the Senior respondent and his/her spouse, if

he or she is married. Lump-sum payments (such as EPF distributions) were annualized for these calculations assuming ten years of remaining life on average. The most important sources of non-familial support for the older population in Malaysia are the EPF and pension schemes (Haaga, Peterson, DaVanzo, and Lee 1990). The natural logarithm of the quantity of unearned income plus M\$1 is entered into the regression to account for skewness in the income distribution. Sixty percent of the total sample has no unearned income; of those with income, the median is M\$300. Five percent of the sample have monthly unearned income of M\$1,440 or higher.

Education. Education is included as a proxy for preferences and may also be related to the level of permanent income. Education of respondents (and spouses) is represented by three categories: none (the reference group), primary (six or less years of schooling), and secondary (seven or more years of schooling). Husbands, on average, are better educated than wives, while unmarried seniors are the least highly educated. The lower education of the unmarried sample probably largely reflects the older age of this sample. (Forty-nine percent of respondents in the unmarried sample are aged 70 or older, compared with 33% of husbands and 10% of wives in the married sample.)

Number, Ages, and Gender of Children. In order to be included in the sample, the senior had to have had at least one adult child (aged 20 or older). The total number of adult children a senior had, whether living at home or living elsewhere, is included in the analysis to measure the "opportunities" to live with an adult child. (On average,

married seniors in our sample had 5.3 adult children and unmarried seniors had 4.8.)

We allow the effect of these children to differ by their age and gender, by including in the regression the numbers of children the senior had in each age/gender group. The variables included are numbers of sons 20-29, 30-39, and 40+, and the numbers of daughters in each of these age groups. (The children of married seniors are younger, on average, than those of unmarried seniors [see Table 1].) We also consider the number of children under age 20, since this may affect decisions about whether older children remain in the household.

Ethnicity. Dummy variables for Chinese and Indians are included to assess the influence of ethnicity on coresidence. Malays and the category "Other" (of which there are only 5 seniors) are the reference group in the regression.

Results

Marital Status

As noted above, in the sample considered here (people aged 60+), unmarried seniors are somewhat more likely to coreside with at least one adult child than are married seniors (73% compared with 69%). This difference is not statistically significant, however, and this remains true even when the other variables considered here are controlled. Hence, the data do not support Hypothesis #1.

Table 2 presents separate logistic regressions explaining coresidence for the married and the unmarried subsamples.³

Housing Costs

Housing costs are positively and significantly ($P < .05$, one-tailed test) associated with coresidence for the married sample but not for the unmarried.⁴ The result for the married is consistent with our hypothesis (#2) that parents and children are more likely to live together when housing costs are high. Coresidence among unmarried seniors may be less affected by housing costs because unmarried seniors may have a stronger motivation for coresidence because they lack the companionship and support of a spouse, independent of housing costs.

Location

When no other variables are controlled, coresidence rates are highest in the most urban areas. Eighty-two percent of married seniors in the largest urban areas coreside with an adult child, compared with 55% in small urban areas and 63% in rural areas. The pattern is similar for the unmarried, for whom the coresidence rates are 78%, 57%, and 71% respectively.

Housing costs are higher in more urban areas of Malaysia. (The average housing cost is M\$96,493 in metropolitan/large urban areas, M\$52,250 in small urban areas, and M\$36,201 in rural areas.) This explains some of the tendency toward greater coresidence in more urban areas for the married (the group for whom housing costs have a

significant effect). In particular, when housing costs are controlled we see less of a tendency toward coresidence in large urban areas, compared with smaller urban areas or rural areas, than when housing costs are not controlled. However, for the married, significant differences among different types of areas remain, even when housing costs (along with the other variables in Table 2) are controlled. In particular, there is a tendency towards greater coresidence in rural areas compared with small urban areas, despite the lower housing costs in rural areas, and in larger urban areas compared with smaller urban areas, despite our efforts to control for the higher housing costs in the larger areas. Both of these differences are statistically significant for the married sample. The higher coresidence rate in rural areas is consistent with our presumption that rural residents are more traditional in their attitudes toward parent-child coresidence. The higher rates in rural and in the larger urban areas may also reflect a greater incidence of family enterprises in such areas (e.g., farms in rural areas), which may make intergenerational coresidence economically beneficial.

Health

In Hypothesis #4, we expected that seniors in poorer health would have a greater need for assistance from their children and hence be more likely to coreside with their adult offspring. We see some evidence of this for married seniors, but not for the unmarried. Husbands in poor health are significantly more likely to coreside than

husbands in fair or good health. Wives in fair health are significantly more likely to coreside than those in good health; those in poor health are more likely to coreside than those in good health, but the difference is not statistically significant. It is interesting that it appears to be only very serious health problems for husbands (poor health) that increase the likelihood of coresidence, whereas fair health has this effect for wives, perhaps because even a moderately unhealthy wife cannot perform household tasks efficiently. We also considered interactions of the husband's and the wife's health, since husbands and wives may be able to help each other if only one is in poor health but they may have a greater need for help from children if both are in poorer health. However, we found no significant interaction effects between the husband's and wife's health.

Seniors' health does not have a significant effect on coresidence among unmarried seniors. It seems puzzling that we are not seeing the expected health effects in the unmarried sample but do see them for the married. We would have expected unmarried people in poorer health to have even greater need for assistance from children, since they do not have a spouse who can help. We can think of several reasons for this unexpected result: It is possible that the assistance provided by coresident children leads to improvements (or slows the decline) in the senior's health. This effect, in the opposite direction of that hypothesized above and with the opposite sign, could weaken an effect running from health to living arrangements. Furthermore, whereas the senior presumably would benefit more from coresidence

when his or her health is poor, the potential benefits to children, in terms of the services that the senior can provide (e.g., housework, child care), are greater when the senior is healthy. However, we are unsure why these relationships should be more important for unmarried than for married seniors.

Our results suggest that health effects may differ for the married and unmarried, and perhaps between males and females. This may explain why Martin (1989), who pooled the married and unmarried and men and women, did not find significant effects of health on living arrangements in Malaysia.

Senior's and Spouse's Age

As noted above, no age variables (separately for husbands and wives in the married sample and for the respondents in the unmarried sample) had statistically significant effects when included in regressions otherwise like those in Table 2. These age effects were little affected by whether health was controlled, as conjectured in Hypothesis #5. However, as hypothesized in the last part of #8, some of the age effects were considerably different when the numbers and ages of children were not controlled. In particular, without controls for children's ages, we found that husbands, wives, and unmarried seniors aged 70 and older were less likely to coreside compared with their younger counterparts than what we find when ages of children are controlled. As noted above, Casterline et al. (1991) report similar findings.

The coresidence rate for married couples in which the wife is very young (age <40) is lower than that for couples with older wives. However, there are very few wives in this age group and, in most cases, these women, who are all married to men at least 20 years older, are not the men's original wives and are not the biological mothers of the children under consideration. For example, most of the wives aged <40 had been married less than 20 years (and hence could not have children aged 20 or older). Hence, adult children appear to be especially unlikely to be living with their fathers if those fathers have remarried (younger women). Although these results certainly are not conclusive, they do suggest that future studies should take into account whether the children under consideration are "his," "hers," or "theirs."

Income

Higher unearned income (excluding transfers) significantly reduces the likelihood of coresidence with adult children for the unmarried, but does not have a significant effect for the married. The negative income effects that we find for the unmarried supports our hypothesis (#6) that seniors who can afford to purchase privacy will do so.

In Table 3 we present income coefficients from regressions otherwise like those in Table 2 but with broader measures of income to assess the sensitivity of estimated income effects to the definition of income. We see that income effects are sensitive to the definition of income. They are positive and very significant when we include

income of other household members (whose very existence is related to living arrangements). Once that component of income is removed, income effects switch to being negative, and are significant for the unmarried. Removing the earned income of the senior and spouse, which may be related to living arrangements because decisions about work may be jointly determined with decisions about living arrangements, does not affect the estimated income effect much, though for both samples the income effects become somewhat less negative. Finally, excluding transfers from relatives living elsewhere, which may substitute for coresidence, has the expected effect of making income effects more positive, though, as noted above, a significant negative effect remains for the unmarried.

Education

We had expected that more education would be negatively associated with coresidence, because of its correlation with more modern attitudes and with permanent income. We do see this for married males: Husbands with secondary education are significantly less likely to coreside than those with no education ($P=0.04$) or with primary education ($P=0.03$). Education does not have a significant effect for wives or for the unmarried sample, which consists mainly of widowed females, though there is a suggestion that higher education may be positively related to coresidence. Hence, it appears that the effects of education may differ for men and women.

Number, Ages, and Gender of Children

The effects of additional children vary with the ages and gender of those children and differ between the married and unmarried. The numbers of sons aged 20-29 years and aged 30-39 are positively and significantly associated with coresidence for both the married and the unmarried. In both cases, but especially for the unmarried, the effect is stronger for the 20-29 than the 30-39 age group. For the married, numbers of daughters aged 20-29 and 30-39 also have significant effects of magnitudes nearly identical to those for sons in the same age group. However, for the unmarried, numbers of daughters in these age groups do not have statistically significant effects. For neither sample do the number of children, of either gender, aged 40 or older significantly affect whether the senior coresides with an adult child. This set of results is consistent with the notion that some younger adult children may not have left home yet.

For unmarried, the greater the number of children under the age of 20 that the senior has, the significantly less likely a child age 20 or older is to be still living with his or her parents. (Recall that all seniors in the sample have at least one child aged 20 or older.) We also find a negative relationship for the married, but it is not statistically significant. These results suggests that younger siblings may be able to provide some of the same benefits to parents that children aged 20 or older do. Having such younger siblings at home may "free" young adults to be able to leave home earlier. This is consistent with

evidence from historical Belgium (Alter et al., forthcoming), where the youngest child typically had responsibility for aging parents.

As noted above, previous studies in a variety of settings have found that the total number of children of any age that the senior has is strongly positively associated with the likelihood of parent-child coresidence, as we do for all children aged 20 and older (in results not presented here). However, we have shown here that the effect of the number of children differs markedly with the ages of those children and, for the unmarried, with the gender of the children. Casterline et al. (1991) also showed the importance of considering ages of children. They found the likelihood of coresidence to be greater the younger the age of the youngest child, which is consistent with our results.

Ethnicity

For both the married and unmarried, Malays are the least likely of the ethnic groups to coreside with an adult child. The generally low coresidence rates for Malays may reflect the fact that Malay parents and children may be more likely to live nearby rather than in the same living quarters. It may also reflect the fact that Malays have a lower average age at marriage and are more likely to live independently immediately after marriage than either Chinese or Indians (Tan and Jones 1990), and hence, for both reasons, children are likely to leave home sooner. For the married, the Chinese are most likely of the three ethnic groups to coreside, while, for the unmarried, the Indians are the most likely. The difference between Chinese and Indians is

statistically significant for the married but not for the unmarried. Contrary to the expectation in the second part of Hypothesis #10, ethnic differentials change relatively little when the urban/rural variables and housing costs are not controlled.

Gender of Senior

In the unmarried sample, the gender of the senior does not significantly effect the probability of coresiding with an adult child. Martin (1989) and Casterline et al. (1991) also found no effect of gender on coresidence in their studies of parent-child coresidence in various Asian countries.

Conclusions

Support for the Hypotheses Implied by the Conceptual Framework

The conceptual framework motivating our analysis implies that coresidence of seniors with adult children may be affected by the benefits, costs, opportunities, and preferences for coresidence versus separate living arrangements. Our analysis generally supports the notion that these concepts are associated with living arrangements of older people in Peninsular Malaysia.

Benefits of Coresidence. Regarding benefits, we had hypothesized that seniors should be more likely to coreside with their adult children the greater their needs for assistance -- emotional, financial, or physical. We found that married (but not unmarried)

seniors are more likely to coreside the greater the housing costs in their area. This suggests that married parents and their children live together to economize on living costs. The greater housing costs in urban areas explain a small part of the greater levels of coresidence in urban areas seen when other variables (particularly housing costs) are not controlled.

We also expected that seniors in poorer health would benefit more from coresidence. We generally find this to be true for married seniors. Couples in which the husband is in poor health or in which the wife is in fair health are more likely to coreside than their healthier counterparts. Health, however, has no significant effect on coresidence among unmarried seniors. We had also expected that unmarried seniors would have a greater need to coreside because they lack the companionship and support of a spouse, but we did not see significant differences between married and unmarried seniors in our data, regardless of whether other variables were controlled.

Costs of Coresidence. We hypothesized that an important "cost" of coresidence is reduced privacy and that, as incomes increase, people may choose to purchase privacy. We find that the measure of income considered here -- unearned income of the senior (and spouse), excluding transfer income -- is negatively associated with coresidence for the unmarried. For the married, husband's secondary education, which may reflect his permanent income, is negatively associated with coresidence. Although it is sometimes presumed that notions of individualism are not as prevalent in Asia as in the West, our results

suggest that many older people in Malaysia do value privacy and independence.

Opportunities for Coresidence. The hypothesis that senior coresidence may be affected by opportunities to coreside is strongly supported in this analysis. Number of children, ages of children, and gender of children all generally affect seniors' living arrangements in the directions hypothesized; the effect of numbers of children varies with the age and gender of those children.

Preferences Regarding Coresidence. However, not all variations in coresidence are explained by the factors just discussed. Even when these factors are controlled, there remain significant differences among ethnic and urban/rural groups and by husband's education, suggesting that attitudes about parent-child coresidence may differ among these groups.

Policy Implications

Thus we find that coresidence decisions are generally affected in expected ways by economic factors such as the ability to afford separate housing and the costs of housing in the area. Hence, policies such as those recently implemented in Malaysia, that increase the financial incentives for older people and their adult children to coreside, are likely to increase the likelihood of such coresidence.

However, the data also suggest that coresidence between parents and their adult children is already the norm for most Malaysians. For example, we find that married older Malaysians are

nearly as likely to live with their adult children as their unmarried counterparts; of married Malaysians aged 60+ who have adult children (aged 20+), only one in three do not coreside with an adult child. Such high rates of parent-child coresidence may explain why old-age homes in Malaysia are not widely used (Personal communication with George Chan).

Implications About Coresidence in the Future

These results also have implications about how the likelihood of coresidence may change in the future with socio-economic development and demographic change. Increases in housing costs may lead to increased coresidence, with coresidence serving as a beneficial, cost-saving response. Higher incomes and education, however, may lead to reduced coresidence as seniors may begin to prefer privacy and are better able to afford it. Reductions in fertility will reduce the number of children with whom seniors can coreside, and may, in so doing, reduce their likelihood of living with an adult child, though this only seems to matter when children are in their twenties or thirties. Furthermore, a reduction in the number of younger siblings may cause earlier birth-order children to leave home later. If decreases in mortality are accompanied by increases in healthy life, this could lead to reduced coresidence. It is also possible, with the increased availability of spouses (due to lower mortality rates), there may be a reduction in coresidence with children because spouses can provide companionship and assistance, though the differences between the

married and unmarried are not statistically significant in the (relatively small) samples considered here. It is difficult to predict, a priori, how these negative and positive influences will balance out and what their net effect will be.

Implications For Future Research and Future Data Collection

The analyses presented here suggest that influences on parent-child coresidence may differ between the married and unmarried and that spouse characteristics are important for the former. Hence, future data collection efforts should not only seek detailed information about the selected respondent, but should also try to collect considerable information about the spouses of married respondents (e.g., their age, education, income, health, and their children from previous marriages). The data analyzed here suggest that it is probably not necessary to also interview the spouses; it appears that senior respondents can provide useful (proxy) information about the characteristics of their spouses.

We have also seen that numbers, ages, and gender of the senior's children influence coresidence decisions. Unfortunately the data used here did not document other characteristics of non-coresident children, such as their marital status, employment status, income, or number of children (the senior's grandchildren), that may also affect coresidence between older people and their adult children (e.g., by affecting the adult children's need for child care by the senior). It is important to collect such information about all of the children with whom the

respondent could potentially live, including those with whom they do not currently live. Furthermore, it is important to try to collect data on the exact ages of non-coresident children, so that the risk set of children with whom the senior could potentially live can be alternatively defined (e.g., to be children aged 25 or older) and so that the youngest and oldest child in the family can be uniquely identified. (Such data were not collected for the MFLS-2 Senior sample because the Senior respondents had great difficulty reporting the exact ages of their non-coresident children.)

This study has also illustrated the usefulness of having data on incomes and area housing costs. We have shown, however, that estimates of the effects of income on coresidence are very sensitive to the definition of income and that these estimates can be biased if the income measure includes components, such as the income of other household members or transfers received from non-coresident children, that may be directly affected by living arrangements. Similarly, the measure of housing costs should not reflect the living arrangement chosen (e.g., extended households may pay more because they live in larger houses), but should measure how the cost of a specified type of housing varies across localities.

Notes

¹ If the Senior respondent is married, the couple is included in the sample if either the respondent or his/her spouse (or both) is age 60 or older. Hence, the sample used here is equivalent to the one we would

have chosen had our sampling rule been to select a household if it contained at least one person aged 60 or older.

Twenty-one seniors aged 60+ were excluded because they did not have any children or because their children were all under age 20. An additional 12 respondents were dropped because we did not know the ages of their children living elsewhere. Three additional observations were dropped because the senior's marital status code was missing.

² Respondents to the Community Questionnaire were asked to estimate the cost of two types of housing in their area: (1) the cost of a 10-year-old, two-story link house with three bedrooms in an average neighborhood of the town, village, or estate in which the respondent was being interviewed, and (2) the cost of a 10-year-old kampung house, with a half-acre of land around it, in the village in which the respondent was being interviewed. For rural areas we use the cost of a kampung house, which is the dominant type of housing in rural areas. In urban areas we use the cost of a link house, which is the main type of housing in urban areas.

Where housing costs were missing for a particular sub-EB, we substituted the average housing cost for that EB (using data from other sub-EBs in that EB). If the housing cost for an entire EB was missing, we substituted the average cost of housing in other EBs of the same type (metropolitan, large urban, small urban, or rural) in the

same district. A missing-value dummy is entered into the regression for the few remaining cases without a value for housing cost.

We use the housing costs of the area in which the senior lives. There is a question of whether the relevant locality is where the senior lives, where each of their non-coresident children live, or some other place. For an analysis of parent-child location, see Wolf, Clark, and Schulte (1993).

³ Some observations have missing values for housing costs, income, age, or education. Dummy variables for missing values were included in the regression for these cases, but these coefficients are not reported in Table 2.

⁴ The housing-cost coefficient for the married had much stronger statistical significance ($t=3.06$) when we considered the larger sample of all seniors aged 50+ or older.

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Table 1: Means of Variables Used in the Analysis

<u>Variable</u>	<u>Description</u>	<u>Married sample</u> (n=371)	<u>Unmarried sample</u> (n=289)
Live with an adult child		0.693	0.725
Housing Costs:	(in ringgit)	59,060	66,008
Location (D):	Large Urban	0.374	0.400
	Small Urban	0.067	0.076
	Rural	0.559	0.534
Health (D):	<u>Senior's health</u>		
	Good	-	0.240
	Fair	-	0.554
	Poor	-	0.206
	<u>Husband's health</u>		
	Good	0.401	-
	Fair	0.463	-
	Poor	0.136	-
	<u>Wife's health</u>		
	Good	0.468	-
	Fair	0.458	-
	Poor	0.074	-
Income (in ringgit):	Senior's (and spouse's) unearned income	291	254
Education (D):	<u>Senior's education</u>		
	None	-	0.703
	Primary	-	0.261
	Secondary	-	0.036
	<u>Husband's education</u>		
	None	0.323	-
	Primary	0.572	-
	Secondary	0.105	-
	<u>Wife's education</u>		
	None	0.673	-
	Primary	0.277	-
	Secondary	0.050	-
Number of children, by Age & Gender:	<u>Under 20</u> (Both Genders)	0.476	0.057
	<u>Males</u>		
	20-29	1.049	0.409
	30-39	1.249	1.014
	40 +	0.531	1.136
	<u>Females</u>		
	20-29	1.032	0.414
	30-39	1.039	0.852
	40+	0.505	1.042
Ethnicity (D):	Malay	0.502	0.416
	Chinese	0.396	0.455
	Indian	0.102	0.129
Gender of Senior (D):	Male	-	0.212
	Female	-	0.788

NOTE: Means are weighted to reflect over-representation of Indians in MFLS-2 sample and under-representation of seniors living in households with more than one senior.
D=Dichotomous indicator.

Table 2: Logistic Regressions Explaining Seniors Decisions to Coreside

<u>Explanatory Variable</u>		<u>Married Sample</u> (n=371)	<u>Unmarried</u> <u>Sample (n=289)</u>
Housing Costs (M\$1000):		0.00735+	-0.00176
Location:	Large Urban/Metropolitan	0.189	0.247
	Small Urban	-1.230*	-0.573
	Rural	-	-
Health:	<u>Senior's Health</u>		
	Good	-	-
	Fair	-	0.094
	Poor	-	-0.180
	<u>Husband's Health</u>		
	Good	-	-
	Fair	-0.363	-
	Poor	1.116*	-
	<u>Wife's Health</u>		
	Good	-	-
	Fair	0.631*	-
	Poor	0.402	-
Unearned Income (Log):	Unearned Income of Senior (and Spouse)	0.0501	-0.162*
Education:	<u>Senior's Education</u>		
	No Education	-	-
	Primary	-	0.479
	Secondary	-	-0.143
	<u>Husband's Education</u>		
	No Education	-	-
	Primary	0.026	-
	Secondary	-1.524*	-
	<u>Wife's Education</u>		
	No Education	-	-
	Primary	0.177	-
	Secondary	0.997	-
Number of Children by Age and Gender:	Under 20	0.101	-1.347**
	<u>Males</u>		
	20-29	0.319*	0.687*
	30-39	0.249#	0.381*
	40+	0.009	0.103
	<u>Females</u>		
	20-29	0.429**	0.113
	30-39	0.232#	0.159
	40+	-0.267+	0.003
Ethnicity:	Malays	-	-
	Chinese	1.622***	0.546+
	Indians	0.670+	1.000*
Gender of Senior	Male	-	0.0732
Intercept		-1.385*	0.0585
Log Likelihood		-178.4	-143.8

+ = P < .20, # = P < .10, * = P < .05, ** = P < .01, *** = P < .001 (two-tailed tests)

**Table 3: Sensitivity of Estimated Income
Effects to the Definition of Income**
[Table entries are coefficients (and t-statistics) from logistic
regressions otherwise like those in Table 2]

<u>Income Measure</u>	<u>Married Sample</u>	<u>Unmarried Sample</u>
Total household income	1.511***	1.390***
Total income of senior and spouse	-3.078	0.407***
Total unearned income of senior and spouse	-0.002	0.369***
Total unearned income of senior and spouse, excluding transfers (from Table 2)	0.050	0.162*

* = $P < .05$, *** = $P < .001$ (two-tailed tests)