Department of Economics
and
Institute for Policy Analysis
University of Toronto
150 St. George Street
Toronto, Ontario M5S 3G7
Canada

Aging, Well-being, and Social Security in Rural North China

by

Dwayne Benjamin
University of Toronto

Loren Brandt
University of Toronto

Scott Rozelle
University of California, Davis

September 9, 1998

Author's e-mail: benjamin@chass.utoronto.ca
On-line version: http://www.chass.utoronto.ca:8080/ecipa/wpa.html

Aging, Well-being, and Social Security in Rural North China[*]

Dwayne Benjamin
University of Toronto

Loren Brandt
University of Toronto

Scott Rozelle
University of California, Davis

September 9, 1998

Abstract

We explore the economic position of the elderly in rural North China. In particular, we examine the work patterns and incomes attributable to the elderly, and explore the role of extended families in protecting the welfare of the elderly. Our objective is to document the channels by which private, family-based social security exists in rural China. Drawing upon a 1995 household survey, as well employing household surveys from 1935 and 1989 as benchmarks, we show that extended families, while still important, play a smaller role than in the "glory days" of extended families. We also show that urban-rural distinctions in terms of the role of the family are not very important. The primary difference is that the urban elderly live in higher income households, to some extent because of their more generous state-funded pensions. The main conclusion from our analysis is that the rural elderly merit considerably more attention than has been paid to them, and that it would be unwise to assume that "filial piety" will guarantee the living standards of elderly in rural areas.

INTRODUCTION

Sharp declines in fertility and increased life expectancy are expected to contribute significantly to an increased share of elderly in the population of China. The implications of this aging for pensions (social security) have received considerable recent attention.[1] The focus of this discussion has been the increase in the aggregate dependency ratio (ratio of old beneficiaries to young contributors), and the present and future pension liabilities of state enterprises. Accordingly, recent proposals have emphasized the design of a more modern, financially viable pension system for workers in China. One of the most striking features of current policy discussion, however, is the lack of attention paid to the majority of the population who are completely uncovered by formal pensions — the rural elderly.[2]

This lack of interest is justified on two grounds. First, it is argued that family values remain strong in rural areas, and traditional Confucian "filial piety" helps maintain the traditional institution of family care for the elderly. There already exists a well-functioning informal social security system in rural areas, and while it might erode over time, there is no urgency in bringing the rural elderly to the forefront of public policy. Second, is the suggestion that any formal public policy response to the elderly in rural areas would serve to undermine whatever informal arrangements actually exist, so that any state transfers to the elderly would crowd out the existing family transfers. It is better to leave well enough alone and focus on the urban elderly and their pensions.

There is virtually no empirical foundation for this view. Instead, there is appeal to historical impressions of "filial piety," and the resulting family responsibility for care of the elderly, also reflected in family law.[3] For example, the Marriage Law of 1950 codified the duty of adult children to care for their elderly parents; the Constitution of 1954 stated that "parents have the duty to rear and educate their minor children, and the children who have come of age have the duty to support and assist their parents." More

---

[1] For comprehensive discussions of these and related issues, see the World Bank's China 2020 project papers (1997), and the more general volume, *Averting the Old Age Crisis* (1994).

[2] While anecdotal, one telling sign of this inattention is that the World Bank's volume "Old Age Security" (in the China 2020 series) devotes only a one page side-bar to the rural elderly, essentially dismissing old-age security as mattering in rural areas.

[3] For example, see World Bank (1994) and Fang, Wang, and Song (1992)

recently, the Penal Code of 1980 states that children who neglect their parents can be imprisoned. These laws can be viewed as a reflection of the values and practices of rural society; alternatively, they may reflect wishful thinking, and a need to codify expectations that are often unmet.

Historically, the primary mechanism by which the young cared for the old was through shared living arrangements — Parents live with their sons, retaining control over family assets until the head's death. Assets are then divided among the sons, who were all expected to contribute to the care of the surviving parent. But how much can we expect this institution to remain intact, first after collectivization, and more recently the rapid economic growth accompanying the reforms of the 1980s?

Most commentaries emphasize the contradictions of Communist policy towards families.[4] On the one hand, as suggested by the laws passed in the 1950s, the family institution was encouraged as a means of providing old-age security. As observed by Goode (1963), family law evolved under collectivization much as it had over the previous half-century. The continuation of extended families was also reinforced by limits on migration, which kept families together in the same villages, and by housing shortages in urban areas. Nevertheless, collectivization also undermined the traditional role of the family (see Selden, 1993), and especially the bargaining position of the elderly (Whyte, 1995; Yan, 1997; Davis-Friedmann, 1991). First, asset accumulation was curtailed, particularly with land, so that one of the mechanisms by which the old could "buy" filial loyalty was severely limited. Second, the village (collective) took more responsibility for transfers to the most needy households, including those of the uncared-for elderly, so the family was replaced by the government, at least to some degree. In combination with the egalitarian distribution of land and work-remuneration, Davis-Friedmann (1991) argues that the net economic position of the elderly was enhanced under collectivization, despite the weakening of the historical power of the elderly within their families.

These same authors are less confident of the position of the elderly since the introduction of economic reforms. One question regards the extent to which the "traditional" family mechanism has

---

[4] Excellent discussions of the evolution of families under collectivization, and the implied position of the elderly, can be found in Whyte (1992 and 1995), Goode (1963), Davis and Harrell (1993), Davis-Friedmann (1991), and Selden (1993). See also Tuan (1992) and Fang (1992) for more general discussions of the elderly in rural China.

restored itself in the face of economic reforms and commercialization in the countryside. As noted by Whyte (1992), some researchers argue that collectivization unnaturally suppressed the family institution, and that more laissez-faire policies serve to restore the traditional family structure. However, most argue that the traditional family will be further weakened. First, as hypothesized by Goode (1963), economic growth is usually accompanied by movements towards more conjugal- rather than kinship-oriented families. The higher incomes and lower real prices of housing that accompanied reforms have made it more feasible for the young and old to live separately which reduces at least one (important) channel for intra-family transfers. Second, restrictions on land ownership limit the ability of households to accumulate assets for their old age. Limited village resources also mean that the principal means of income support for the elderly is their allocation of village land. This land will be of little value to an elderly household with few children, limited ability to work, and imperfectly developed factor markets. If family ties are indeed weakening, then existing transfer mechanisms may be ill-suited to supporting the elderly. Finally, attitudes or "values" of the young towards the old might be changing as the economy becomes more commercial and individual-oriented. As argued by Yan (1997), the increase in conjugal focus of families serves to divert attention away from parents. It is difficult to actually measure whether this is happening; however, there are no mechanisms in place to support the possibly neglected elderly.

Of course, changes in living arrangements need not signal an end to family responsibility for the elderly. Inter-generational transfers can occur across instead of within households. In-kind transfers of goods and labor, remittances, and child-care services can flow across generations. The obvious question is whether these mechanisms fully substitute for the traditional within-household transfers. Davis-Friedmann (1991) expresses concern that weakened family ties in the face of market-oriented growth, accompanied by a decline in government provided social services will marginalize the elderly. Selden (1993) echoes this concern, noting "it is difficult to escape the conclusion that in rural China as elsewhere the transition to the nuclear family imposes a heavy price on the rural elderly." (Selden, 1993, page 147).

Our objective is to provide an overview of the factual background to these issues. More specifically, we address the following set of questions:

● What are the current living arrangements of the elderly? Do the old still live with their children?

How have living arrangements changed, especially since the "glory days" of the extended family, prior to collectivization?

- Is retirement a meaningful concept in rural China? Are there differences in work patterns between those elderly living on their own, and those living in extended families?

- How well off are the elderly? Are they more likely to live in poor households? Has the relative standing of the elderly changed since the "glory days" prior to collectivization? Are the elderly better off in urban areas?

- What evidence exists of transfers to the elderly? How prevalent are remittances from the young to the old? How much of an advantage do pensions provide the urban elderly?

- Have the elderly lost bargaining power in terms of their control over productive assets?

We focus on the current living conditions of the elderly, utilizing an extensive household survey collected in North China in 1995. In order to provide context for our results, we draw two types of comparisons. We compare the present with the past, 60 years ago, when it is believed that extended households were more important; and we make urban and rural comparisons. We do not consider what a state-designed rural social security system might look like, nor do we suggest that the government can afford to begin significant transfers of resources to the rural elderly. However, our results strongly suggest that the current emphasis on the urban elderly might be misplaced. By almost any criteria, the marginal social value of a *Yuan* transferred to the elderly in rural areas exceeds that of one transferred to urban areas. The concerns of Davis-Friedmann and Selden seem well founded.

DATA

Our examination of the elderly in rural China utilizes three separate surveys. We primarily draw on a household level survey that was carried out by the authors and Chinese colleagues in 1995 and extends to 780 households in 6 counties and 30 villages in Hebei and Liaoning provinces (North-Northeast China). A more detailed description of these data (the "1995 data") can be found in Benjamin and Brandt (1998). These data are supplemented by data for the rural and urban population from the China Health and

Nutrition Survey (CHNS) carried out in 1990 ("the 1989 data").[5] Finally, for historical comparisons, we use household level data collected by Japanese investigators in Northeast China in 1935 that covers some of the same villages as surveyed in our 1995 survey. A detailed description of these data (the "1935 data") is contained in Benjamin and Brandt (1995). Altogether, 1095 households in 22 villages in three provinces were surveyed. The provinces include Liaoning, Jilin and Heilongjiang.

LIVING ARRANGEMENTS

Our primary question of interest is whether extended families remain an important mechanism by which the young care for the old. As previously mentioned, the caricature of elder-care was the extended household — old parents living with adult son(s). One sign of possible erosion of transfers to the elderly would be a decline in the percentage of the elderly living with adult children.

The Age Structure of the Population

We begin with a brief description of the age structure of the population in each of the surveys. Comparing first the 1995 and 1935 samples, the 1995 sample is clearly older. There are significantly fewer children (10 years old and under) in 1995 (16% versus 28.2%), and more prime age adults (51.5% versus 39.3%). The percentage in the oldest category (61 and older) is significantly higher in 1995 as well: 8.7% versus 6.7%. The two periods present different challenges regarding care of the elderly: While there were fewer elderly in 1935 there were also fewer prime age adult earners. The overall dependency ratio was worse in the 1930s because of the much higher number of children. Turning to the CHNS, we find there are more children in rural areas than urban (20.1% versus 14.7%). In contrast, there are many more elderly in urban areas: 12.3% versus 6.6% in rural areas. The fraction of prime age is approximately the same. This suggests a higher elder-dependency ratio in urban areas.

---

[5] A description of these data (as well as the data themselves) can be obtained at the website: http://www.cpc.unc.edu/projects/china/china_home.html. The CHNS includes provinces: Liaoning, Shandong, Jiangsu, Henan, Hubei, Hunan, Guangxi, and Guizhou. Only Liaoning and Shandong can reasonably considered as "North China". However, to maximize sample size, we use all provinces in this paper. We have replicated our results using the north China provinces only, and obtain virtually identical results.

Historical Baseline for Living Arrangements

Recent work by Lee and Campbell (1997) using household registries for 19th century Liaoning

provide a useful historical baseline on household structure and living arrangements for our investigation.

Utilizing the classification system for household types developed by the Cambridge Group for the Study of

Population and Social Structure, they divide households into four basic types: fragmentary, simple,

extended and multiple. The key defining feature in the system is the number of conjugal units in the

household. In the fragmentary household there are none, in the simple there is only one, and in the multiple

there are two or more. The extended family also has only one conjugal unit, but includes other co-resident

kin as well.[6]

Their data confirm conventional wisdom: A majority of the individuals in these households lived in

multiple family units. Almost half of all households (47.2%) were multiple, and reflecting the larger than

average size of these households, three-quarters of the population lived in these households. Of the

multiple family households, more than half (25.0/47.2) were horizontal, with (12.7/47.2) vertical, and the

remainder (9.5/47.2) diagonal. An additional fifteen percent of all households, and ten percent of the

population lived in extended households. In addition, a majority of the elderly (75%) lived in extended or

multiple family households, while only 25% lived on their own.

Current Comparison

The 1995 data allow estimates of household size, household type and living arrangements for the

elderly for the 1990s that can be directly compared with the findings of Lee and Campbell. Average

household size in rural Hebei and Liaoning in 1995 was only 3.7. By comparison, it was 6.3 in 1930s,

which is similar to that implied by Lee and Campbell's data for the 1800s for Liaoning only. (Their data

---

[6] Multiple family households can be further divided into those that are vertical, horizontal and diagonal. Vertical households are multiple family households in which no brothers, brother's sons, cousins, cousins' sons or uncles are present. Horizontal households are multiple family households which have brothers or brother's sons present, but no uncles, cousins or cousins' sons. Diagonal households are multiple family households which have uncles or cousins present.

imply an average household size of 6.0.). However, a decline in household size may not tell us much about living arrangements, since households may be smaller due to the significant reduction in fertility over this time period.

Figure 1 provides a breakdown of households by type for 1935 and 1995. We report two sets of figures for 1995. First, are our "best" estimates of household type, based on extensive information on the relationship of household members to the household head. The second set of "garbified" (G) estimates are based on the more limited type of information that is also available in the 1935 survey. The 1935 data do not reveal the nature of the relationship between household members. Using the information on the age and sex distribution of members, however, we estimate the number of conjugal pairs in the household, and thus, household type. This second series is computed in order to maximize comparability between the 1935 and 1995 surveys. In order to focus on whether elderly are living with relatives, we also pool extended and multiple households, distinguishing primarily between simple and multiple households.

The figure shows that, by far, most households in 1995 were simple family households. This is true in both the 1995 series, with our "best" estimate identifying 73 percent of all households as simple. The remainder of the households are rather evenly divided between extended and multiple, which combined represent slightly less than a quarter of all households. In the nineteenth century, by contrast, households with co-resident kin represented more than sixty percent of all households, while less than a quarter of households were simple. Selden (1993), and others, argue that collectivization in the 1950s contributed to the demise of the extended and multiple family household. The estimates for the 1930s, on the other hand, show that almost one-third of the households were simple. This suggests that the decline in the role of multiple and extended households, and the rise of simple family households, actually precedes the establishment of the PRC and the reorganization of agriculture into collectives in the early-to-mid 1950s, in line with the suggestions of Goode (1963), Whyte (1995), and Davis and Harrell (1993).

Is the rapidly growing prominence of single family households paralleled by an equally radical shift in living arrangements of the elderly? Actually not. Both our series for 1995 show that over 60 percent of the elderly live in extended or multiple households, while 30 percent live on their own (with their spouse). Compared to the rest of the population, the elderly are more likely to live in extended or multiple family

household arrangements. In the 1930s, by contrast, almost none of the elderly lived in simple family households, and an even higher percentage (86 percent) lived in extended or multiple family households.

Urban-rural Comparison

Using the CHNS data, we draw our urban-rural comparison along the same three lines discussed above: Household size, household type, and the living arrangements of the elderly. Household size in urban and rural areas are very similar, with rural households slightly larger (4.2 vs 3.8). Part of this difference reflects the fact that state policy restricting the number of children per household was initiated earlier in urban areas, and generally has been more strictly enforced. The distribution of household types is shown in Figure 2. The distribution is quite similar in the two areas, with urban areas actually having a slightly higher percentage of extended or multiple households. The living arrangements of the elderly are virtually indistinguishable between the two areas—in both urban and rural areas, almost two-thirds of the elderly live in extended or multiple households, as in the 1995 data.

Several conclusions can now be drawn from these comparisons. First, in the context of a decline in household size, we observe a marked growth in the percentage of single family households, and a decline in the percentage of the population living in extended or multiple family households (in accordance with Yan, 1997). Second, a majority of the elderly continue to live in extended or multiple family relationships, though the percentage is down from the 1930s. Third, current differences in household size, structure, and living arrangements of the elderly between the urban and rural areas are modest. Indeed, one is impressed by the similarity.

WORK AND THE ELDERLY

The economic welfare of the elderly depends on the resources that they command. These resources can come from a variety of sources, either own earnings or social security, such as transfers from children or the state. In this section we document the associations between age and work, which will be highly correlated with own-earnings, and the economic contribution (and independence) of the elderly.

Work Patterns — 1995

The old have no need for social security if they can earn income themselves. In a rural economy, income can be derived from farming or working off the farm, either in a family business, or in the labor market. We begin by looking at the work patterns of the elderly, in particular looking for evidence of "retirement". It is "retirement" from earning activities (voluntary or involuntary) that usually drives the loss of income in old age, and necessitates some form of provision for old age.

The simplest measure of work activity is a measure of participation, or more accurately, an indicator of whether an individual worked over the previous year. In Figure 3 we show the age-employment profile for men and women. Note that these measures do not include "house work" which might actually be an important avenue by which the elderly contribute to their families. An important caveat should be noted in the interpretation of these age-employment profiles. While we would like to interpret the differences across age groups as the pure effect of aging, this interpretation may be contaminated by cohort effects, which will likely be most pronounced at younger ages. The young, especially girls, are clearly growing up in a different economy than their parents did. For example, young women may be more likely to work than their mothers, in which case the age profile may appear flatter than it really is.

Of most interest, note the very high participation rate for both men and women at all ages. If we view retirement as withdrawal from employment, then this withdrawal appears to begin earlier for women than for men. The participation rate begins to decline for women in the 50-54 age group, and for men in the 60-64 age group. By age 60-64, however, around 80% of men and women are still working. This compares with around 40% and 20% for men and women in Canada. Clearly, there is no sense in which "early retirement" occurs in rural China, at least in the ways we think of it in North America. Women's participation drops off sharply by age 65, while men's declines more gradually. If they are still alive, the majority Chinese men can anticipate working into their 70s. This is a reflection of the "ceaseless toil" described by Davis-Friedmann (1991).

Figure 4 shows quantitative, rather than qualitative attachment to the labor force, by showing days worked per year. These averages include those who worked zero days, so they still include participation, as well as days dimensions. These figures show more striking age patterns than the participation profiles. The

reduction in working time is sharper than implied by the participation profile alone, especially for women. It is clear that if income is proportional to days worked, we expect that earned income declines from age 45 for men, and age 35 for women.

Urban-Rural Comparison

How do these numbers compare between urban and rural individuals? In urban areas, employees of state enterprises are subject to mandatory retirement provisions (age 50 for women, and 60 for men). In contrast, rural individuals have farms from which they need never retire, until they are physically incapable of working. As well, urban individuals have state provided pensions, which reduce the need for working. Note, that the measure of employment in the CHNS is not whether the individual worked in the previous year, but whether they are "currently" working, so we might expect the mean participation rates to be lower than in the 1995 data.

Figure 5 shows employment-age profiles for men and women in both urban and rural areas. The rural pattern bears close resemblance to the 1995 figure, with the steepest age-related drop off beginning at age 60-64, but with a large fraction of men working into their 70's. In contrast, the urban numbers reflect the mandatory retirement age at 60, but also show a large drop in participation for those aged 55-59. Urban men are less than half as likely to work as rural men beyond age 60, and urban employment rates are less than 20% for the elderly. The obviously interesting questions, which are hard to answer, pertain to the determinants of the retirement decision in the countryside and the city. Do urban men stop working because they have to (due to mandatory retirement)? Or, do the more generous state pensions facilitate earlier retirement in urban areas. The main source of transfer to households, including the elderly, in rural areas is land.[7] This transfer only has value if it is worked, especially if factor markets are thin. For this reason, the rural elderly may "need" to work more than those in the city. Unless either the returns to farming are higher than employment in state enterprises, or non-market time is more valuable in cities, this would have to be true. Unfortunately, answering this question requires data and methodology beyond the scope of our paper.

---

[7] Land in rural China remains collectively (village) owned. However, households are allocated use-rights, usually on the basis of household size or farm labor force, which effectively makes them residual claimants.

Turning to women, again, the rural patterns are similar to the 1995 data, with gradual withdrawal from employment beginning at age 50. As with the men, the urban-rural comparison reflects the importance of mandatory retirement. Urban women's participation drops sharply beginning at age 50, by which time urban women are less than half as likely as rural women to work.

Comparison with the 1930s

The other informative comparison is with the 1930s. Unfortunately, the 1930s data are only available at the household level, so it is not possible to draw comparisons of individual behavior across data sets. However, we can conduct a more indirect exercise, comparing aggregate household labor supply behavior across the 1935 and 1995 samples, and highlighting differences in the responsiveness of household labor supply to changes in family composition. For example, we can compare the effect of adding an old man to a household in the 1930s with that in the 1990s. If there were no cross-household member effects, then the estimated effect of adding a man to total household labor supply would be the amount of labor supply he provides. Of course, there are likely to be "indirect effects" as well, as the labor supply of one household member substitutes or compliments others (See Benjamin and Brandt, 1995 for a detailed discussion). Nevertheless, it is worth drawing the comparisons between the 1930s and 1990s, even for the more limited objective of comparing the associations between household demographic structure and household labor supply.

Based on data constraints, we restrict our analysis to aggregate household participation in agriculture, as measured by the number of men and women engaged in farming. We further restrict our analysis to those households that farm at all. The results are presented in Table 1. Column 1 shows the "age profile" for men in the 1930's. Focusing on the effect of "adding" men to the household, the implied age profile has the expected shape: Adding a male child adds 0.08 men; adding a teen male adds 0.34 men to the farm labor force; and adding a prime age male adds 0.55. Adding a man older than 60 only adds 0.30 men to the farm labor force. The results for 1995 are shown in the next column. We also "asterix" those coefficients that are significantly different than the corresponding one from the 1930s. The coefficients from the 1990s are larger than those in the 1930s, except for teens. This might reflect differences in

-11-

measurement of "participation", but at least some of these differences should be absorbed by the constant (and 1935 dummy). Alternatively, it could reflect higher participation in agriculture in the 1990s, possibly due to the more even distribution of land, even among cultivators. As we expect, younger men are less likely now to be working on the farm, and more likely to be working off the farm, or in school. What is interesting, however, is that the we cannot reject the hypothesis that the coefficients in 1995 and 1935 are the same. This is consistent with (though does not imply) the hypothesis that labor force attachment decisions in terms of participation in agriculture are the same now as in the 1930s (except for the young).

The corresponding results for women are presented in columns 3 and 4. The results suggest that women in the 1990's are more likely, at any age, to be working on the farm than was the case in the 1930s. Second, the age patterns for women are similar to what we expect based on the participation patterns reflected in Figure 3. Adding an older woman to the household in the 1930s had a slightly greater impact on the number of women working than is the case now, but the difference is not statistically significant. As with the men, the age profiles are quite similar across the two samples. The most important differences are that teen-age females are much more likely to work on the farm than was the case in the 1930s, and secondly, the effects of men in the household are different between samples. In the 1930s, having additional older men was associated with a decline in the number of women working (all else equal), whereas this indirect effect is not present in the 1990s. The 1930s results could have reflected the need for care of older men by their wives or the substitution of older men for older women on the farm. Whatever the case, these data do not support a hypothesis that participation of the elderly in farm employment has declined since the 1930s.

Work Patterns and Family Structure

Our final look at retirement behavior focuses on the relationship between retirement and living arrangements. As noted previously, there has been an increase in the number of elderly people living in single-family households. Is their labor supply different from that of the elderly living with their children? Note that the direction of causality is impossible to determine. It could be that only the "independent", economically capable elderly can live on their own, in which case we expect to see the elderly working

more outside of multiple households. Alternatively, the extra resources associated with living in an extended household may permit older individuals to work less, in which case the causality runs from family structure to work.[8]

In Table 2 we show the participation and days worked equations for men and women. The purpose of these regressions is also to estimate more formally the age profile as depicted in the graphs above. In a regression context, we can also partial out the effects of other individual level variables — namely, measures of education — that might be correlated with the cohort effects we believe are part of the age profiles in the figures. Indeed, the implied age profiles with controls for education are "flatter" than those without controls, to some extent suggesting that cohort effects are part of the story. In the tables we report only the age-coefficients for older individuals (aged 50 plus). For each measure of labor supply we show the coefficients for the whole sample, as well as the coefficients interacted with an indicator that the individual lives in a household that is either multiple or extended.

In column 1, we see that the employment rate is 0.91 for all men, but that participation begins to significantly decline for men aged 60+. (The omitted category is men aged 35-39). In the second column, we see that participation rate for older men in single family households is high (0.94) compared to 0.64 for men living in multiple households. Looking at the age profile, it appears that the decline in employment probability only significantly occurs for those elderly living in multiple households. This suggests that the elderly living on their own work as much as they did when they were young. Again, the welfare implications are impossible to disentangle from these patterns alone. We cannot tell whether the elderly living in multiple family households are working less because they cannot, or because they don't have to. The simple-family elderly could be the hardy, independent, self-selected elderly who prefer to farm until they die, in which case, we cannot conclude that extended households "facilitate" retirement. However, the numbers do suggest that there is an association between extended households, and the possibility of retirement for the elderly.

The next 2 columns show the days profiles. Again, consistent with the figures, the relationship

---

[8] For the remainder of the paper we pool the "extended" and "multiple" households, and use the terms interchangeably when referring to households with more than a single conjugal unit.

between age and days is much stronger than with participation. The average number of days worked for all men is 159.8 days per year. Beginning at age 50, men work fewer days. In comparing men in multiple and simple households, as with the employment rates, men in simple households reduce their labor supply less as they age than those living in multiple-family households. Older men living alone with their wives work as much as younger men, until they are over age 70.

The next four columns show the corresponding results for women. Again, there are dramatic differences in labor force attachment (on average) between women living in multiple households, and those living on their own. As indicated by the figures, women withdraw more sharply from work as they age than men. However, despite the overall difference in participation and days worked, the age profiles for employment are quite similar between women in extended and simple households. This suggests that the economic role of women changes as they age, in a way that is common to the two types of households. It also suggests that "need" does not drive women in single households to work any more than those in the multiple households.[9]

LIVING STANDARDS OF THE ELDERLY

In this section we ask a more difficult question: How do living standards of the elderly compare with the young, and how has the relative position of the elderly changed over time? Furthermore, is there any evidence that changes in living arrangements are related to living standards? To begin, it is important to emphasize the empirical difficulties associated with this exercise. Most importantly, income and consumption are measured at the household level, but we are interested in individual access to resources. The actual living standards of the elderly will thus depend on both the living standards of the households in which they live, as well as the distribution of resources within households. A related problem concerns adjustments of household resources for demographic composition. The simplest estimate of an individual's access to household resources is to attribute equal pieces of the pie to each household member, i.e., to impute per capita household income as the individual's share of resources. However, if children require

---

[9] See Davis-Friedmann (1991) for a more extensive description of the role of women as they age.

fewer resources than an adult, then adults in households with children will actually have higher living standards than households without children and the same per-capita income. These issues are carefully discussed in Deaton and Paxson (1992 and 1996). One simple correction is to calculate the "per adult-equivalent" level of consumption for each household. Following Deaton and Paxson, we assume that children under 5 are equivalent to 0.25 adults, and those between 5 and 14 are equivalent to 0.45 adults. These numbers are chosen, not because they are necessarily true, but that they allow us to explore the sensitivity of our conclusions to the possibility that young household members need fewer resources.

Individual Basis — 1995

Rather than separately analyze men and women, we pool individuals, and look at individuals in broad age categories. This allows maximum comparability across data sets, and avoids some of the problems associated with small cell sizes. Our first investigation is of the living standards of the households in which the elderly live. We attribute household per capita income to each individual, then estimate the age profile associated with this measure of welfare. Table 3 shows results from the 1995 sample. The ideal measure of access to resources would be based on consumption, rather than income, especially as far as the elderly are concerned. In column one (PCC) we see that the per capita consumption level is lowest for the elderly (those aged 61 and over). Other adults have consumption levels no different than prime age adults, and children 10 and under are also in poorer households. In the second column (PCY) we look at the correlation of per capita income and age. Here we see that the age profile is virtually the same as with consumption (note that there is virtually no overlap in the measurement of these two variables). We do, however, see that the elderly are associated with a steeper decline of income than consumption, which is consistent with a life-cycle model, where individuals smooth consumption between their working-years and old-age. Note, though, that the implied degree of consumption smoothing is very small, and that income and consumption essentially track each other. Another important caveat to bear in mind throughout these tables is that the effects of "age" might very well be picking up "cohorts effects", and that the declines in income and consumption apparent in the currently elderly might reflect their poorer relative position to the young, who are richer for having been born later. Nevertheless, the age (rather than pure cohort) interpretation is

bolstered by the decline between "middle-age" and old-age. We do not expect the cohort effects to benefit 50 year olds, leaving 60 year olds behind. Through the remainder of our discussion, we will treat the estimated age coefficients as "age" effects, while acknowledging that they could be contaminated by cohort effects.

In the next column (PAY) we adjust for adult-equivalents. Not surprisingly, this has the effect of significantly steepening the age profile — the elderly appear much worse off, since they tend to live with other adults, rather than young children. Thus, any proper adjustment in living standards for family composition would probably lead to a downward revision of the relative position of the elderly. In the last two columns, we compare the income levels of individuals in simple and multiple households. Note that, especially when comparing the elderly in the two types of households, that the endogeneity of household structure contaminates any causal links between household structure and income — we are only interested in determining whether there are any systematic differences in the living standards of the elderly in the two types of households. In particular, we are interested in whether those elderly living on their own are any worse off than those living with relatives. We expect the endogeneity of household structure to positively select the elderly living on their own, as only the most independent and productive can afford to choose to live apart from relatives. On the other hand, if living alone is not by choice, but reflects a lack of care by the children, then they might be worse off.

The fourth column shows the age-income profile for simple households, and it reflects the same age profile as in column 2, though slightly steeper. Column 5 shows the difference in age profile for those in multiple households. The only difference in the age profile is that the elderly are significantly better off in the extended households. In fact, the net effect is that the elderly are no worse off than prime age adults in these households. Of course, this should not be surprising, since we have assumed that all members of extended households get the same per capita income. Of particular note, however, is that the per capita income of multiple household members of any age is significantly below that of simple households. Indeed, the estimated coefficients imply that if given a choice, an elderly person would have the same per capita income in both types of households. Thus, if we believe that there is any positive selection into simple households, this suggests that the average elderly person is better off in an extended household, and that the

extended household plays some social security role. This is especially true once we recognize that the elderly in simple households also work more.

Comparisons

We repeat this exercise in the comparison data sets, and the results are reported in Table 4. We restrict our analysis to a comparison of the basic age profiles, with and without an adjustment for adult equivalents. In the first two columns we report the estimates from the 1935 data. The most striking feature of this profile is the absence of any effects of age, except for children when no account is taken of their possibly lower needs. The elderly live in as well-off households as the young, unlike what we observed in the 1990s. This remains true even when we adjust for adult equivalents, unlike in the 1995 data. In the last four columns, we use the reported household income from the CHNS data set to compare the urban and rural age profiles. The main conclusion here, as we have seen before, is the similarity of the profiles in both urban and rural samples. Lest one be concerned that the urban indicator has no content, note that the mean incomes are significantly higher in urban areas. Yet, the age profiles are quite similar. Relative to mean incomes, however, the elderly fare slightly worse in the rural areas, while children fare worse in urban areas. If we also take account of the fact that the elderly work much harder in rural areas, and if we place a positive weight on non-market time, then this would further widen the welfare gap in favor of the urban elderly.

As a final check on the robustness of our results we explore the relative position of the elderly in other parts of the income distribution besides the sample mean.[10] Our initial objective was to compare poverty rates between the elderly and non-elderly. However, most of the official poverty lines, and even the World Bank's $US 1 per day adjusted for purchasing power parity, lead to very low poverty rates. It thus makes sense instead to look at the proportion of individuals with incomes below more general poverty lines. This can be achieved by looking at the cumulative distribution functions (CDF's) of per capita income. One

---

[10] See Chu and Jiang (1997) for a related attempt to explore the links between age-composition of household members, and individual-based measures of income distribution, in their case, indicators of income inequality.

-17-

can choose any poverty line, z, and then easily compare the proportion of individuals living in households with incomes below z between the two groups.

Figure 5 shows the CDF for the elderly and non-elderly in the 1995 survey. As suggested by the regressions, this figure shows that the elderly have lower mean income. However, it also suggests that for whatever poverty line one chooses, the elderly have a significantly higher poverty rate that the non-elderly. At a poverty line of 1000 *Yuan*, the poverty rate is almost twice as high for the elderly, as the CDF for the elderly lies above the non-elderly. The most striking comparison is with 1935. In Figure 6 we see that the CDF for the two groups are virtually coincident, again as suggested by the regressions. Thus, for any poverty line, the poverty rates of the elderly and the non-elderly are the same. This reinforces the case that the elderly were (significantly) relatively better off in the 1930s than in the 1990s. Our final comparison is the CDF's in the rural and urban CHNS samples. These figures (not shown) reinforce the earlier observation that there is little difference between the urban and rural areas besides mean incomes.

Household Income and Demographic Structure

As a final exercise in exploring the relationship between age and household living standards, we examine the overall correlation between household demographic structure and household income. As with the previous regressions, we must be very careful in avoiding placing a causal interpretation on the coefficients. If family structure is exogenous, we can interpret the coefficients on the number of household members in a given age category as the effect of adding an additional household member to family income. However, richer households are also able to support more members, and a positive coefficient might only reflect this fact. (See Benjamin and Brandt 1995 for more detailed discussion of these issues). Nevertheless, the coefficients still indicate the level of household resources associated with an increase in the number of individuals of a given type. A high coefficient may imply that an individual brings a lot of income into the household, or that he is "expensive". Similarly, a low coefficient indicates very little contribution of income, or alternatively that such a member can be supported "cheaply." Finally, note that these results are not independent of the individual level regressions shown before, and serve primarily to underline the key

relationships between age and household income. Nevertheless, we can still distinguish between the effects of age of member from that of household size.

The results are reported in Table 5. We report results for a logarithmic specification. Logarithms have the advantage that the coefficients can be interpreted (approximately) as percentage increases in household income associated with additional members. This allows easy comparison across data sets, the primary purpose of this exercise. In the first column we report the 1995 results. Here we see that the elderly are associated with the smallest "increases" in family income, significantly smaller even than children. The elderly are the only group with an insignificant coefficient, suggesting that adding an elderly person to the household is associated with an increase in household income of only 1 percent, certainly less than enough to cover the cost of caring for an elderly person. These low numbers for the elderly are also reflected in the next column which presents estimates for the rural CHNS. Here the elderly are also associated with a low (6 percent) and insignificant increase in household income. The urban coefficients are slightly different. Here, the elderly have lower coefficients than prime age adults, but the number is higher than the rural counterpart (16 percent) and significant. The most striking results are for 1935. In the last two columns we see only small declines in the age profile for elderly members. Household income increases as much with the number of elderly as it does with prime age adults. However it is accomplished, whether by income directly associated with the elderly, or through harder work on the part of the non-elderly, it appears that the elderly lived in more fortunate circumstances in the 1930s (compared to the young) than the 1990s.

Transfers to the Elderly

The previous analysis focuses on the "bottom line" of how family resources vary with the age structure of its members, with little attention paid to how the elderly support themselves, beyond working. For example, the dissolution of extended households need not imply any reduction of the importance of the role of families in caring for the elderly, as long as children are supporting their parents through inter-household transfers. As well, those individuals who worked for state-owned enterprises (mostly in urban areas) have state-financed pensions, so they have alternative means of support. In this section, we provide simple descriptive statistics on the importance of these types of transfers, as well as more generic

"welfare", which is needs-based transfers that may help out the poorest of the elderly.

Table 6 shows the sample means for the various types of income: Pensions, government transfers (welfare), and private (family) remittances. We draw comparisons between households with and without elderly people, and as well between simple and multiple households. In the top panel we focus on the 1995 sample. Clearly, very few rural households have pension income, and even for the elderly, it comprises a very small fraction of their income. Similarly, government transfers are of no significance to elderly and non-elderly alike. As suggested before, this partially reflects the limits on village financial resources, as well as the fact that the primary form of social relief is through access to land. Private transfers, however, are very important. Over 44% of elderly households, compared to only 23.9% of households without elderly, receive remittances. The level of remittance income is also more than twice as high in the households with elderly people, and these remittances account for about 5% of total income. It does appear, then, that remittance activity is highly age-motivated. In the last two columns we compare transfers to simple and multiple families, restricting attention only to the elderly households. The most striking feature is that 70% of the simple families receive remittances, compared to only 30% for the multiple households. In comparing the level of the remittances, the elderly in simple households earn slightly higher remittances. While these remittances are more important to those elderly living on their own (remittances account for almost 1/6th of household income), it is worth noting the importance of remittances for the multiple households as well. It is difficult to argue that the elderly living on their own receive enough remittances to offset the implicit intra-household transfers they would receive in an extended household.

The bottom panel shows similar numbers based on the CHNS, primarily to draw an urban-rural comparison. Two features are worth noting. First, the elderly in urban areas have significantly higher pension income, which comes as no surprise. Perhaps more surprisingly, though, they also are more likely to receive a remittance, though this receipt is less a function of age than in rural areas. In terms of broader social security, these results, combined with the evidence on living arrangements, suggest that there is little difference in the urban and rural areas as far as the private provision of social security is concerned. Family appears to matter as much in the urban areas, though of course, they have the added bonus of state-financed pensions. While it is difficult to answer, an interesting question at this point is how much the state

pensions crowd out the private urban transfers. If there is any positive crowding out, it is the urban, not

rural, elderly who have the more developed private social security system![11]

Control over Resources

One common theme of the studies of Chinese families previously cited, was that through the

twentieth century, but especially with collectivization, the balance of power shifted away from the older

generation.[12] This potentially adversely affects the economic standing of the elderly both inside, and

outside extended households. In the words of Selden, "At the heart of the family compact was the exchange

of the care of aged parents by male offspring and the eventual transfer of land." (Selden, 1993, page 148)

The elderly did not need to rely on the goodwill of their children, but could disinherit negligent sons of their

land. Further reinforcing the economic clout of the elderly, Goode (1963) notes that there was a high return

to the accumulated farming experience of the elderly. Neither of these advantages of age are present now.

As noted by Whyte (1995): "The elimination for a generation of meaningful family property, combined

with the rising education of the young and other trends, significantly softened the power of the senior

generation in Chinese families." (Page 1012). Not only do these changes imply a loss of bargaining power,

but the lack of control over land reduces the ability of the elderly to save, and their relative decline in

human capital reduces their contemporaneous earning power. Finally, thin land and labor markets may

limit the ability of the elderly to convert their allocated land into income. This also highlights how a

seemingly egalitarian institution, such as prohibitions on land ownership, can have unintended adverse

distributional consequences. It also provides another example of the importance of evaluating the

distribution of land in the context of the development of factor markets.[13] As emphasized by Davis-

Friedmann (1991), the reduction in the bargaining position of the elderly was not a problem when the state

was committed to care of the elderly. With the demise of collectivization and related social programs, the

---

[11] See Case and Deaton (1996), (for example) for a discussion of the difficulties in addressing this question, and Jensen (1997) for an attempt to answer the question in a South African context.

[12] See especially Whyte (1995), Yan (1997), Goode (1963), Davis-Friedmann (1991) and Selden (1993).

[13] See Benjamin and Brandt (1997) for a more extensive discussion of these issues, focusing on the 1930s.

elderly have been left to fend for themselves, with the current elderly in a particularly disadvantageous position.

We show quantitative evidence of this decline in control over resources. First, we show the stark differences in asset accumulation between the private economy of the 1930s and the socialist one of the 1990s. In Table 7 we show estimates of household per capita land and its relationship to household demographic structure. In the 1990s, land is distributed on an egalitarian, essentially per capita basis. Not surprisingly then, household per capita land is virtually orthogonal to household age structure: The old command no more land than the young. In contrast, the age of household members was highly correlated with per capita land in the 1930s. In the second column we see that those households with the most elderly had the highest per capita owned land, reflecting the accumulation of land over the lives of the elderly. These two regressions show the most striking difference in the relative economic position of the elderly in rural China, before and after collectivization.

Finally, in Figure 8 we show the differences in education between the old and the young. The graph indicates an approximate difference in education of one year for each ten years of age. The gap between young and old is especially pronounced for women. Given the increased importance of education, especially in accessing off-farm income, it is clear that the elderly will continue to be at a disadvantage relative to the young for decades to come.

CONCLUSIONS

We have documented several aspects of the living conditions of the rural elderly in contemporary China. It appears that "urban bias" reflected in other aspects of public policy in developing countries (and China in particular) extends itself to the realm of social security. There appears to be no foundation to the notion that the rural elderly are well taken care of, at least in comparison to the urban elderly. Most evidence instead points to a relative deterioration of the economic position of the elderly in rural areas, and a weakening of the family as a social security institution. What is most clear is that it is difficult to build a case that urban elderly are at a particular disadvantage, and merit addition pension resources. Design of alternative social security schemes will undoubtedly be complicated, but the evidence presented and

reviewed here suggests that the rural elderly warrant more attention than they have received in the recent literature.

REFERENCES

Benjamin, Dwayne, and Loren Brandt. 1995. Markets, Discrimination, and the Economic Contribution of Women in China: Historical Evidence. *Economic Development and Cultural Change* 44 (1):63-104.

Benjamin, Dwayne, and Loren Brandt. 1997. Land, Factor Markets, and Inequality in Rural China: Historical Evidence. *Explorations in Economic History* 34 (4):460-494.

Benjamin, Dwayne, and Loren Brandt. 1998. Administrative Land Allocation, Nascent Labor Markets, and Farm Efficiency in Rural China. Manuscript, University of Toronto.

Case, Anne, and Angus Deaton. 1996. Large Cash Transfers to the Elderly in South Africa: NBER Working Paper.

Chu, C. Y. Cyrus, and Lily Jiang. 1997. Demographic Transition, Family Structure, and Income Inequality. *Review of Economics and Statistics* 79 (4):665-669.

Davis, Deborah, and Stevan Harrell, eds. 1993. *Chinese Families in the Post-Mao Era*. Berkeley: University of California Press.

Davis, Deborah, and Stevan Harrell. 1993. Introduction: The Impact of Post-Mao Reforms on Family Life. In *Chinese Families in the Post-Mao Era*, edited by D. Davis and S. Harrell. Berkeley: University of California Press.

Davis-Friedmann, Deborah. 1991. *Long Lives: Chinese Elderly and the Communist Revolution*. Expanded Edition ed. Stanford: Stanford University Press.

Deaton, Angus, and Christina Paxson. 1992. Patterns of Aging in Thailand and Cote d'Ivoire. In *Topics in the Economics of Aging*, edited by D. A. Wise. Chicago: University of Chicago Press.

Deaton, Angus, and Christina Paxson. 1998. Measuring Poverty Among the Elderly. In *Inquiries in the Economics of Aging*, edited by D. A. Wise. Chicago: University of Chicago Press.

Fang, Yuan, Wang Chuanbin, and Song Yuhua. 1992. Support of the Elderly in China. In *Family Support for the Elderly: The International Experience*, edited by H. L. Kendig, A. Hashimoto and L. C. Coppard. New York: Oxford University Press.

Goode, William J. 1963. *World Revolution and Family Patterns*. London: The Free Press of Glencoe.

Lee, James Z., and Cameron D. Campbell. 1997. *Fate and Fortune in Rural China: Social Organization and Population Behavior in Liaoning 1774-1873*. Cambridge: Cambridge University Press.

Selden, Mark. 1993. Family Strategies and Structures in Rural North China. In *Chinese Families in the Post-Mao Era*, edited by D. Davis and S. Harrell. Berkeley: University of California Press.

State Statistical Bureau. Various Years. Provincial Statistical Yearbooks.

State Statistical Bureau. Various Years. Zhongguo Tongji Nianjian (Statistical Yearbook of China).

Tuan, Chi-hsien. 1992. The Process of Population Ageing and the Status of Old People in China. In *The Elderly Population in Developed and Developing World*, edited by P. Krishnan and K. Mahadevan. Delhi: B.R. Publishing Corporation.

Whyte, Martin King. 1992. Introduction: Rural Economic Reforms and Chinese Family Patterns. *China Quarterly* 130:317-322.

Whyte, Martin King. 1995. The Social Roots of China's Economic Development. *China Quarterly* 144:999-1019.

World Bank. 1994. *Averting the Old Age Crisis*. New York: Oxford University Press for the World Bank.

World Bank. 1997. *Old Age Security: Pension Reform in China*, *China 2020 Series*. Washington, D.C.: The World Bank.

Yan, Yunxiang. 1997. The Triumph of Conjugality: Structural Transformation of family Relations in a Chinese Village. *Ethnology* 36 (3):191-212.

Table 1
Number of Household members engaged in agriculture
(For cultivating households)

	Males		Females	
	1935	1995	1935	1995
Male Kids	0.080	0.027	-0.139	0.015**
(0 to 10)	(0.033)	(0.037)	(0.038)	(0.035)
Female Kids	0.065	-0.005	-0.024	-0.043
(0 to 10)	(0.033)	(0.037)	(0.038)	(0.035)
Male Teens	0.340	0.313	-0.046	0.036
(11 to 19)	(0.040)	(0.039)	(0.045)	(0.037)
Female Teens	-0.002	0.022	0.137	0.310**
(11 to 19)	(0.034)	(0.035)	(0.039)	(0.033)
Male Prime	0.552	0.690	-0.072	0.007
(20 to 50)	(0.041)	(0.037)	(0.047)	(0.035)
Female Prime	0.088	-0.028	0.509	0.607
(20 to 50)	(0.046)	(0.041)	(0.052)	(0.039)
Male Middle Age	0.595	0.641	-0.264	-0.039*
(51 to 60)	(0.069)	(0.060)	(0.079)	(0.056)
Female Middle Age	0.165	0.078	0.711	0.501
(51 to 60)	(0.081)	(0.067)	(0.092)	(0.063)
Male old	0.301	0.449	-0.229	0.172**
(61 plus)	(0.069)	(0.062)	(0.079)	(0.058)
Female old	-0.172	0.037*	0.126	0.066
(61 plus)	(0.080)	(0.059)	(0.091)	(0.056)
Intercept	0.286	0.265	0.225	0.311**
	(0.060)	(0.064)	(0.068)	(0.060)

Notes: The dependent variable is the number of men or women engaged in agriculture over the previous year (per household). Standard errors in parentheses. * indicates significant difference in the coefficients in 1935 and 1995 at the 10% level, while ** indicates a significant difference at the 5% level. Sample size for 1935 is 836, while for 1995, sample size is 734. Each demographic variable is the number of household members in the designated age-sex group.

Table 2
Participation and Days Profiles by Individual Age, Sex, and Household Type — 1995

	Men				Women			
	Participation		Days Per Year		Participation		Days Per Year	
Means:								
All	0.91		159.8		0.84		99.01	
Elderly in single fam		0.94		109.4		0.70		43.46
Elderly in mul fam		0.61		60.6		0.34		17.65
Coefficients:								
Age 50-54	-.038 (.025)	-.038 (.029)	-37.04* (16.57)	-19.86 (19.62)	0.059 (0.039)	-0.039 (0.042)	-51.21* (13.05)	-57.05* (15.46)
Age 55-59	-.024 (.024)	-.026 (.030)	-58.84* (16.35)	-61.08* (20.64)	-0.174* (0.049)	-0.171* (0.068)	-61.35* (12.98)	-64.38* (16.75)
Age 60-64	-.100* (.042)	-.070 (.048)	-75.86* (18.35)	-69.99* (21.94)	-0.168* (0.065)	-0.110 (0.079)	-59.25* (15.34)	-57.05* (17.24)
Age 65-69	-.146* (.067)	.014 (.014)	-94.40* (18.75)	-56.89* (25.12)	-0.431* (0.088)	-0.281* (0.131)	-91.70* (12.69)	-84.19* (16.40)
Age 70-74	-.322* (.092)	.016 (.018)	-112.02* (21.04)	-53.75* (30.17)	-0.732* (0.083)	-0.371* (0.159)	-105.83* (11.82)	-91.24* (17.04)
Age 75 plus	-.553* (.105)	-.198 (.177)	-163.36* (14.55)	-173.91* (21.68)	-0.796* (0.070)	-0.773* (0.183)	-114.72* (10.80)	-117.54* (12.77)
Multiple Family		.001 (.006)		9.86 (27.67)		.019 (.014)		-11.88 (22.44)
Multiple Family × Age 50-54		-.004 (.054)		-60.11 (36.66)		-0.069 (0.087)		22.91 (28.45)
Multiple Family × Age 55-59		-.000 (.045)		-1.10 (36.35)		-0.020 (0.097)		13.88 (27.75)
Multiple Family × Age 60-64		-.094 (.096)		-23.61 (38.87)		-0.138 (0.124)		2.56 (32.17)
Multiple Family × Age 65-69		-.265* (.102)		-69.36 (39.26)		-0.255 (0.169)		-3.69 (26.52)
Multiple Family × Age 70-74		-.484* (.114)		-91.50* (42.09)		-0.568* (0.166)		-13.88 (25.45)
Multiple Family × Age 75 plus		-.459* (.211)		4.46 (33.46)		-0.045 (0.196)		12.50 (22.78)
F-test for Multiple Family		7.57 (0.000)		2.53 (0.39)		3.77 (.005)		1.32 (.263)

Notes: * indicates significantly different from zero at the 5% level (standard errors in parentheses). The top panel shows sample means for each dependent variable for the whole sample, as well as the separate means for the elderly in simple families (one conjugal unit) and multiple families (more than one conjugal unit). For each dependent variable, the coefficients represent the difference of the specified age indicator from individuals aged 35-39. For each dependent variable, there are two specifications, with and without interactions of the age profile with an indicator for multiple family. Sample size is 1072 for men, and 1075 for women. The f-test for difference in age profiles for multiple families is reported in the last row. Regressions also include controls for years of education and technical training.

Table 3
Individual Age and Family Income
Difference from Prime Age (31 to 50 years old)
1995

	PCC	PCY	PAY	PCY (Base: Simple Family)	PCY (Interaction: Multiple Family)
Kid (0 to 10)	-247.97* (52.03)	-216.53* (108.63)	73.99 (129.15)	-209.50 (144.21)	156.99 (187.37)
Teen (11 to 19)	-30.17 (42.54)	-82.63 (97.39)	-137.44 (111.55)	-128.32 (111.51)	34.13 (188.79)
Prime 1 (20 to 30)	-21.23 (71.41)	-120.16 (136.44)	-181.93 (167.66)	177.00 (188.51)	421.55 (239.61)
Middle (51 to 60)	85.58 (106.17)	-108.89 (153.00)	-459.94* (175.09)	-188.48 (208.07)	463.32 (289.67)
Old (61 plus)	-449.50* (79.41)	-726.22* (171.26)	-1038.58* (189.05)	-927.85* (336.95)	732.75* (351.87)
Multiple Family Indicator					-675.53* (188.10)
Mean Income	2314.45	2691.13	2840.06		

Notes: Coefficients are estimates of individual age indicators from OLS regressions of household per capita income, defined at the head of each column: PCC = Per capita consumption; PCY = Per capita income; PAY = Per adult equivalent income. All specifications include village fixed effects. * indicates significant at the 5% level (standard errors in parentheses). Sample size is 2881. The omitted category is prime age, 31 to 50 years old. The F-test for difference between multiple and simple family age coefficients is 2.73 (p=0.000). The f-test for whether multiple and simple old coefficients sum to zero is 3.07 (p = 0.082), and the f-test for whether old have the same income in multiple and simple households is 0.03 (p=0.8648)

Table 4
Individual Age and Family Income
Difference from Prime Age (31 to 50 years old)
Comparison data sets

	Rural — 1935		Rural — 1989 CHNS		Urban — 1989 CHNS	
	PCY	PAY	PCY	PAY	PCY	PCY
Kid (0 to 10)	-2.50* (1.00)	-0.33 (1.29)	-33.30 (19.94)	40.96 (24.32)	-110.44* (35.57)	-59.04 (39.44)
Teen (11 to 19)	-1.75 (1.11)	-2.59 (1.42)	-20.85 (20.72)	-65.79* (25.27)	18.60 (37.64)	-33.01 (41.72)
Prime 1 (20 to 30)	0.24 (1.14)	-1.10 (1.46)	48.22* (20.92)	25.11 (25.52)	18.87 (33.71)	-63.64 (37.37)
Middle (51 to 60)	-0.04 (1.54)	-2.58 (1.98)	80.14* (29.24)	-20.00 (35.67)	95.89* (39.69)	-33.25 (44.00)
Old (61 plus)	0.13 (1.56)	-1.90 (2.00)	-63.04* (30.13)	-152.42* (36.74)	-62.85 (39.77)	-171.09* (44.09)
Mean Income	34.72	45.41	703.83	853.51	1196.60	1364.73
Sample Size	6719	6719	10356	10356	4802	4802

Notes: Coefficients are estimates of individual age indicators from OLS regressions of household per capita income, defined at the head of each column: PCC = Per capita consumption; PCY = Per capita income; PAY = Per adult equivalent income. All specifications include village fixed effects. * indicates significant at the 5% level (standard errors in parentheses). Sample size is 2881. The omitted category is prime age, 31 to 50 years old. Sample sizes are 6719 for 1935; 4802 for urban CHNS; and 10356 for rural CHNS.

Table 5
Log Family Income and Demographic Structure

	Rural — 1995	Rural — 1989	Urban — 1989	Rural — 1935
Kid	0.10*	0.06*	0.02	0.07*
(0 to 10)	(0.04)	(0.02)	(0.03)	(0.02)
Teen	0.15*	0.13*	0.16*	0.15*
(11 to 19)	(0.05)	(0.02)	(0.03)	(0.02)
Prime 1	0.27*	0.20*	0.29*	0.20*
(20 to 30)	(0.04)	(0.02)	(0.02)	(0.02)
Prime 2	0.30*	0.25*	0.37*	0.24*
(31 to 50)	(0.04)	(0.03)	(0.03)	(0.03)
Middle	0.22*	0.23*	0.29*	0.24*
(51 to 60)	(0.05)	(0.03)	(0.03)	(0.04)
Old	0.01	0.06	0.16*	0.22*
(61 plus)	(0.04)	(0.03)	(0.03)	(0.04)
Sample Size	769	2448	1251	1075

Notes: Coefficients are estimates of OLS regressions of log household income on the number of people in each age category.. All specifications include village fixed effects. * indicates significant at the 5% level (standard errors in parentheses).

Table 6
Transfers to Households with Elderly Members
Means table

	1995 Rural			
	All Family Types		Only Elderly Households	
	Elderly	Non-Elderly	Single Family	Multiple family
% With Pension > 0	7.1	0.1	7.8	6.8
Mean Pension Income	95.4	23.0	75.5	106.3
% With Gov. Transfer > 0	8.8	5.0	10.9	7.6
Mean Gov. Transfer Income	25.5	29.8	33.4	21.3
% With Remittance > 0	44.0	23.9	70.3	30.0
Mean Remittance Income	516.4	201.9	631.7	453.9
Mean Income	10294.1	11422.8	3981.4	13717.9
Sample Size	182	603	64	118

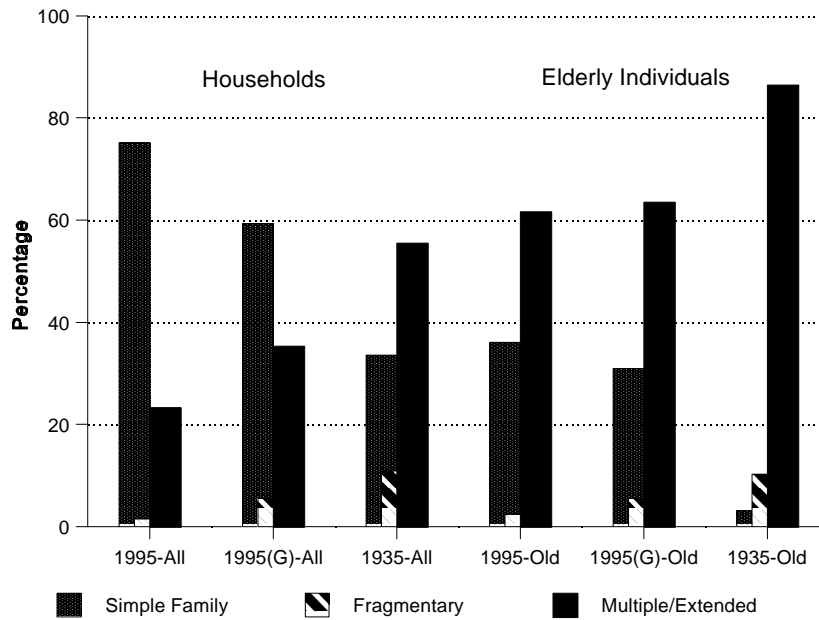|	1989			
	Rural		Urban	
	Elderly	Non-Elderly	Elderly	Non-Elderly
% With Pension > 0	11.9	1.7	49.3	14.1
Mean Pension Income	120.9	14.2	670.4	14.1
% With Gov. Transfer > 0	3.3	0.1	1.6	1.1
Mean Gov. Transfer Income	5.0	1.8	4.1	2.2
% With Remittance > 0	31.0	20.3	36.5	29.1
Mean Remittance Income	100.4	41.5	122.1	91.9
Mean Income	3044.6	2929.2	4517.1	4616.9
Sample Size	521	1943	436	818

Notes: The table shows sample averages for the incidence of receipt of the various types of transfer income (% with transfer > 0), as well as the sample average of that type of income (including zeroes). Elderly households are defined as those households with members over 60 years old.

Table 7
Per Capita Controlled land and Household Demographic Structure
1995 versus 1935

	1995	1935
Kids	-0.31	-0.24
(0 to 10)	(0.17)	(0.33)
Teens	-0.17	-0.18
(11 to 19)	(0.19)	(0.35)
Primes 1	-0.11	-0.28
(20 to 30)	(0.14)	(0.36)
Primes 2	0.24	2.13*
(31 to 50)	(0.17)	(0.45)
Middles	-0.01	2.39*
(51 to 60)	(0.19)	(0.62)
Olds	-0.11	2.41*
(61 plus)	(0.17)	(0.66)

Notes: Coefficients are estimates from OLS regressions of per capita household controlled land (owned in 1935, and allocated in 1995) on the number of household members in each age category. * indicates significant at the 5% level. All specifications include village fixed effects. Sample size is 1095 in 1935 and 787 in 1995.

Figure 1 — Distribution of Households by Type and Elderly Individuals by Household Type
1935 versus 1995

Figure 2 — Distribution of Households by Type and Elderly Individuals by Household Type
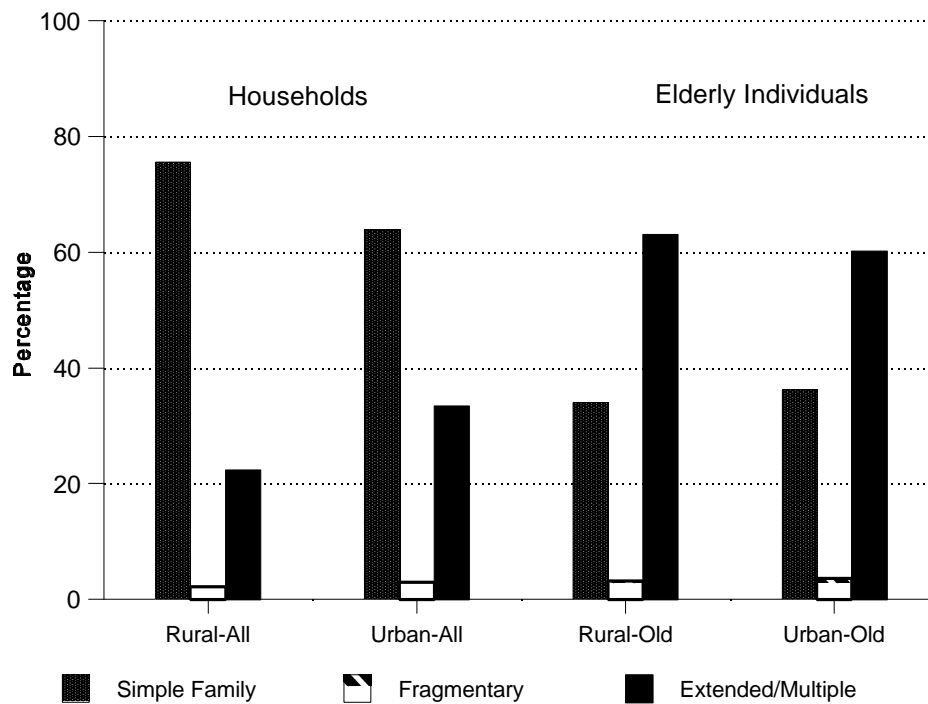**Urban versus Rural, 1989**

Figure 3 — Proportion of Men and Women Working During the Previous Year by Age, 1995

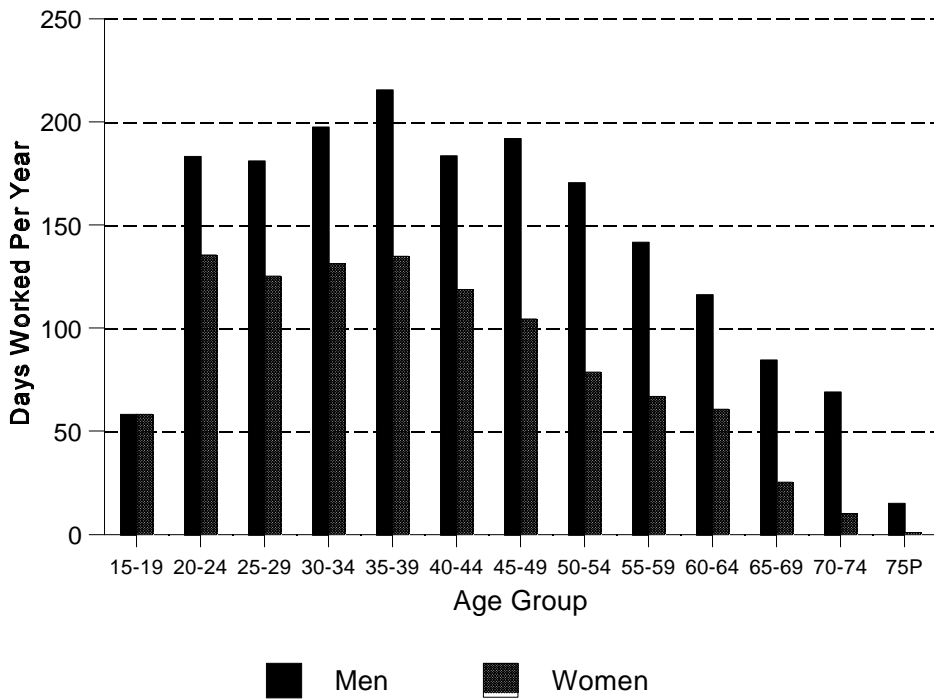**Figure 4 — Days Worked in the Previous Year by Age, Men and Women, 1995**

Figure 5 — Proportion of Men and Women Currently Working by Age, Urban versus Rural, CHNS 1989

Figure 6 — CDF of Per Capita Income, Elderly versus Non-Elderly Individuals, 1935
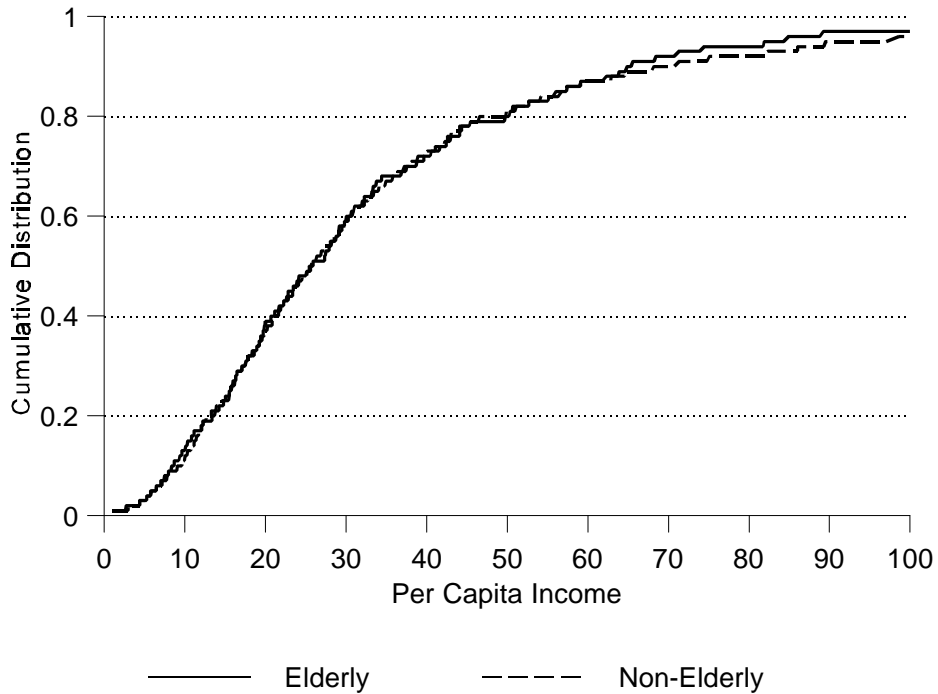
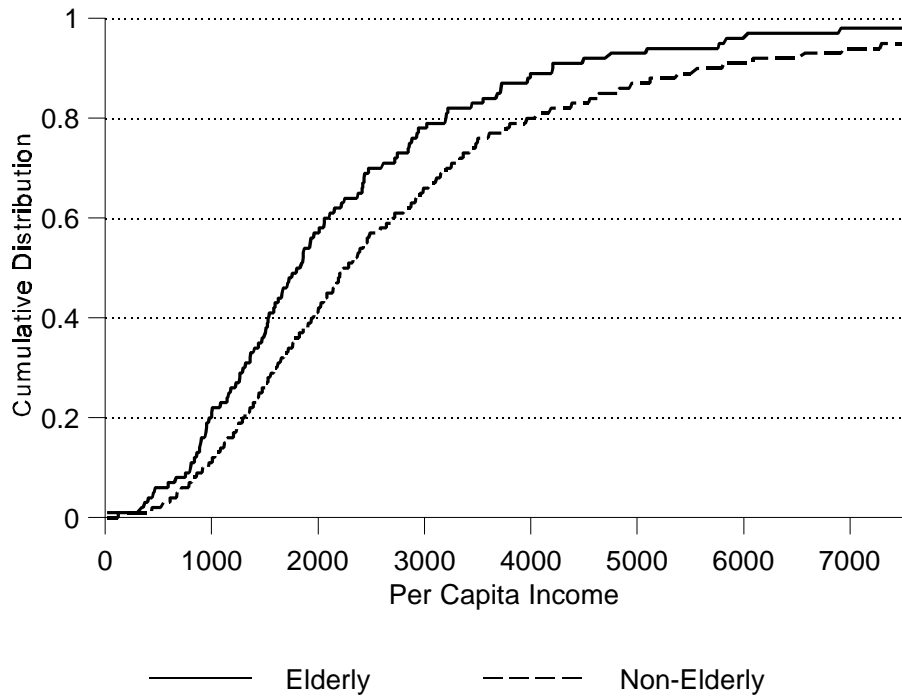**Figure 7 — CDF of Per Capita Income, Elderly versus Non-Elderly Individuals, 1995**

Figure 8 — Years of Education by Age and Sex, 1995