Wealth Accumulation of the Elderly in Extended Families in Japan and the Distribution of Wealth Within Japanese Cohorts by Household Composition: A Critical Analysis of the Literature

by

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1. INTRODUCTION

In Campbell (1991b) I carefully reviewed the literature on transfer wealth accumulation in Japan during the postwar period. In this paper I critically examine selected works from two areas that are closely related to that topic. The first is the accumulation of wealth by the elderly in extended families in Japan (Section 2), and the second is the distribution of wealth within Japanese cohorts by household composition (Section 3). My conclusions are, one, that no study to date has been able to demonstrate that the elderly in extended families in recent years have been accumulating or decumulating assets and that, two, there is no evidence, contrary to popular belief, of a relationship between household composition and the wealth distribution within cohorts.

2. ACCUMULATION OF WEALTH BY THE ELDERLY IN EXTENDED FAMILIES

In this section I address the topic of whether the elderly in extended families in recent years have been accumulating assets. I scrutinize here four recent papers that examine this issue in some detail (Ando (1985), Ando-Kennickell (1985/1987), and Hayashi, Ando, and Ferris (January 1988, December 1988)).[1]

I look first at the evidence which Hayashi, Ando, and Ferris (December 1988) claim most strongly buttresses their assertion that the elderly in extended families are accumulating wealth over time. The authors base their arguments on their Table IIIB which is reproduced here as Table 1. The table lists the total wealth

Table 1
Total Wealth by Age of Parent:
Extended Families

Age of Younger Generation	Age of Older Generation in the Extended Family							
	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
25–29								
Cell mean	3887	4041	3630	3680	3251	2735	3657	–
Median	3122	3376	3108	3103	2733	2850	3657	–
(Cell size)	(302)	(370)	(154)	(43)	(17)	(5)	(1)	(0)
30-34								
Cell mean	3540	4043	3720	3199	2992	3465	5142	3130
Median	2786	3425	3025	2981	2558	2787	3897	2684
(Cell size)	(66)	(380)	(434)	(244)	(127)	(48)	(5)	(3)
35-39								
Cell mean	5662	4308	4371	4316	3905	3577	3025	2829
Median	2603	3467	3466	3340	3024	2934	2694	2117
(Cell size)	(15)	(177)	(549)	(553)	(381)	(141)	(41)	(10)
40-44								
Cell mean	3816	4960	4320	4280	4082	4646	4003	4272
Median	4093	3778	3154	3467	3353	3295	3563	3379
(Cell size)	(4)	(24)	(180)	(484)	(574)	(312)	(100)	(25)
45-49								
Cell mean	–	4955	3987	4635	4652	4508	4000	4652
Median	–	4955	2769	3488	3651	3393	3037	3811
(Cell size)	(0)	(2)	(23)	(213)	(532)	(390)	(166)	(59)
50-54								
Cell mean	–	–	4196	3867	5035	4825	4494	3985
Median	–	–	3438	3567	3558	3659	3402	3734
(Cell size)	(0)	(9)	(9)	(28)	(187)	(333)	(249)	(94)
55-59								
Cell mean	–	–	–	4011	5716	5595	4606	4414
Median	–	–		5045	3914	3957	3424	3857
(Cell size)	(0)	(0)	(0)	(5)	(31)	(109)	(178)	(93)

Note: Wealth in ten thousand yen. Wealth is net financial assets plus housing plus the value of rental properties owned.

of extended families broken down both by the age of the younger generation and by the age of the older generation. Hayashi assumes that if the wealth of the younger generation were subtracted from each cell in the table, then holding the age of the younger generation constant the cross section profiles would be flat. In other words Hayashi et al. assume that the wealth of the young of a certain age bracket is the same regardless of the age of the older generation they are living with. While this is certainly possible, more plausibly the younger generation's wealth varies with the age of the older generation.

The above point is easy to see if one considers the composition of the wealth of the young. This can be represented by:

$$W_{ij} = LCW_{ij} + TP_{ij} + TO_{ij} \tag{1}$$

where W_{ij} is the wealth of the young in age group i in extended families whose parents are in age group j, LCW_{ij} is their life cycle wealth, TP_{ij} is their transfer wealth received from their parents who are presently living with them, and TO_{ij} is their other transfer wealth and includes bequests and transfers from the deceased spouse of the parent they are living with, transfers from the **other** set of parents, transfers from other relatives, etc. For an i, TP_{ij} and TO_{ij} will likely vary across j. In particular given the age of the younger generation, the amount of transfers the younger generation has received from the deceased spouses of the older generation they are living with changes with the age of the older generation.[2] Further LCW_{ij} is liable to vary across j for at least two reasons. First, LCW_{ij} is dependent on TP_{ij} and TO_{ij}. Second, it is also dependent on the amount of transfers that is expected to be received which in turn no doubt varies with j. In brief then we cannot ascertain from Table 1 alone what the cross section rates of the cells are.

The authors then claim, not unreasonably, that the cohort rates for the cells must be positive. But as elaborated earlier in this section, they do not present any reliable evidence on what the magnitudes of these rates are.

My conclusion then is that the authors provide no evidence on the signs or magnitudes of the cross section rates and no evidence on the magnitudes of the cohort rates, and hence we cannot infer whether the elderly in extended families are accumulating assets.

In contrast to the claim above by Hayashi, Ando, and Ferris (December 1988), based on 1984 data from the **National Survey,** that the elderly in extended families are accumulating assets, Ando in two 1985 studies (Ando(1985), Ando-Kennickell (1985/1987)) using the 1974 and 1979 **National Surveys** asserts that these elderly are decumulating assets. I examine below this conclusion which Ando highlighted as the most important result of his 1985 studies. My analysis depends heavily on the Hayashi, Ando, and Ferris (January 1988) treatment of this issue.

Ando did a regression analysis of the following form:

$$W_i = \alpha_1 + \alpha_2 A_i + \alpha_3 A_i^2 + \alpha_4 A_i^3 + \beta_1 D_{1i} + \beta_2 D_{2i} + \beta_3 D_{3i} + \beta_4 D_{4i} + \nu_i \qquad (2)$$

where W_i is the total household wealth of the i-th household, A_i is the age of the younger generation of the i-th household and the D's are age dummies which indicate the presence of a member of the older generation in the household (D_1 is for the 56-62 age bracket; D_2, 63-69; D_3, 70-76; D_4, 77 and over).[3] This regression was run on all households and then run separately on households whose younger generations were aged 30 or less, 31 to 45, and 46 to 55. The subsample regressions were preformed to test informally whether the estimated coefficients of

the regression using all households were biased due to instability of the regression coefficients.

Table 2 lists the estimated coefficients of the dummy variables for the regressions for 1974. The results seem to indicate that for the first regression (younger generation 30 or less) when the age of the younger generation is held constant there is a fairly flat cross section wealth profile of the elderly. And for the other three regressions when the age of the younger generation is held constant there is a sharply decreasing cross section wealth profile of the elderly, and furthermore the shapes of these three profiles are very similar. One might conclude from this as Ando did that, one, the all regression results are a fair reflection of what is happening in the subsamples (i.e., there is no apparent regression coefficient instability), and that, two, looking at the all regression results (or equivalently the subsample results) any reasonable choice of cohort growth rates would generate a negative longitudinal growth rate for the elderly.[4]

Hayashi, Ando, and Ferris (January 1988) argue that the Ando all regression and subsample results are in fact biased because of instability of the regression coefficients. Using 1984 **National Survey** data, they find that if Ando-style regressions are run on sufficiently disaggregated data (five-year age brackets of the younger generation), the cross section profiles are flat across rows and that wealth declines as one moves down the columns. This is of course strong evidence that the 1984 data exhibits regression coefficient instability.[5] This pattern of results together with the fact that the population distribution across columns tends to shift down (i.e., as the younger generation gets older their parents tend to be older) leads to an estimated all regression equation for 1984 that essentially duplicates Ando's 1974 result. Hence it is probably reasonable to infer that for the 1974

Table 2
Predicted Wealth of the Elderly in Extended Families,
by Age of the Younger Generation and by Age of the Elderly,
1974

Age of the Younger Generation	Age of the Elderly 56-62	63-69	70-76	77 and over
30 or less	674	528	473	539
	(460)	(254)	(81)	(59)
31-45	606	455	350	301
	(1352)	(2050)	(1285)	(529)
46-55	490	401	318	276
	(58)	(388)	(1112)	(930)
all	619	454	340	296
	(1870)	(2692)	(2478)	(1518)

Figures in 10,000 yen. Numbers in parentheses are the number of observations in the cell.

Source: Ando (1985), Table IV-6-2-A.

data too if the number of subsamples were large enough, the cross section profiles across rows would be quite flat and wealth held by the elderly would decrease as we moved down the columns.[6,7] In short the Hayashi, Ando, and Ferris (January 1988) critique of Ando's work suggests that his all regression results are biased and that holding the age of the younger generation constant the cross section wealth profile of the elderly in extended families is level rather than sharply decreasing. In other words we have returned full circle back to Hayashi, Ando, and Ferris's (December 1988) Table IIIB.

The same drawbacks that characterize their analysis of Table IIIB apply here. If finely divided subsamples were used for the Ando regressions one would be implicitly imposing the condition that for a subsample the wealth of the younger generation living in extended families was the same (and equal to the wealth of the young of the same age bracket in nuclear families) regardless of the age of the older generation they were living with. As explained earlier this condition is untenable, and hence we cannot infer what the cross section growth rates of the cells are. Further as indicated earlier it is difficult to infer what the magnitudes of the cohort rates are.

In summary, Hayashi, Ando and Ferris (January 1988) provides a convincing indictment of the econometric techniques that underlay Ando's (Ando (1985), Ando–Kennickell (1985/1987)) conclusion that the elderly in extended families in 1974 were decumulating assets. However none of the papers reviewed were able to demonstrate whether the elderly in extended families in recent years actually have been accumulating or decumulating assets.

3. DISTRIBUTION OF WEALTH WITHIN COHORTS

In this final section of the paper I evaluate the evidence that there is a relationship in certain cases between household composition and the wealth distribution within cohorts. I look first at the often cited claim that the independent elderly (here defined to be married couples not living with adult children or one-person households) are wealthier than the elderly of the same age living with their adult children.[8] Two pieces of evidence have been cited for this. The first is Ando's probit equation results on the older individual's residential arrangement.[9] There he finds the coefficient on the wealth variable of the elderly (ratio of net worth of the elderly person or couple to the mean value of net worth of all elderly of the age group) to be positive, indicating that the wealthier the elderly (in relative terms) the more likely they are to be living independently. The entire analysis depends of course on whether the wealth variable has been constructed correctly. As I argued in detail in the previous section, Ando's assignment of wealth to the elderly in extended families is in error; hence his probit equation results are highly suspect, and the conclusion that the independent elderly are wealthier than the elderly living with their adult children is unsupported.

The second piece of evidence that has been presented is the fact that in 1984 the income of the independent elderly was higher than that of the elderly living with their adult children.[10] The supposition here apparently is that wealth on hand is a monotonic function of present income. In the absence of a formal, verifiable model of household formation of the elderly, which would presumably elucidate the connection between present income and wealth, the prudent conclusion to

draw is that a differential in present income between the two groups is insufficient evidence of a parallel wealth differential."

There are also proponents of the view that the independent young (married couples not living with adult children or one-person households) are wealthier than the young of the same age living with parents.[12,13] Their argument runs along these lines. The life cycle wealth of these two groups of the young are the same since a measure of their 1984 gross labor income appears to be the same.[14] Further it is claimed that a certain portion of the independent young have already received the bulk of their transfers while the young living with their parents have yet to receive significant transfers.[15] Therefore the independent young are wealthier than the young of the same age living with their parents.

There are two problems with this line of reasoning. First, the fact that a measure of 1984 gross labor income was the same for the two groups of the young says rather little about the size of the differential in their life cycle wealth; indeed it does not necessarily say much about the size of the differential in their 1984 life cycle saving. Second, it is not a simple matter by any means to decide a priori which group has received more transfers. I think my discussion in the previous section on the possible sources of transfer wealth received by the young living with their parents makes this point clear. In particular since a large number of the young living with their parents are living in single-parent extended families, the possibility that these young have already received substantial transfers cannot be dismissed. All in all then it appears we are not yet in a position to assess which group of the young is wealthier.

Finally it is suggested that "because the definition of the 'head' of the household in the NSFIE is the main income earner (i.e., the person normally earning

the highest income), there is a sample selection by ***design*** that extended families in older age brackets are a combination of rich parents and poor children while those in younger age brackets are poor parents and rich children."[16] First one should point out that no one has tried to compare the wealth of the different generations in these families nor has anyone attempted to estimate where the generations that make up these families stand in the wealth or income distributions of their respective cohorts. Hence the statement above is little more than speculation.

It is worthwhile noting that, one, the generation not the head in these older and younger extended families is presumably in its peak earning years and, two, that the cross section Japanese age-wage profile is very steep and tapers off sharply after about age fifty.[17] These facts imply that if the income of the non-head generation in these families is not too far below average for its cohort, then the heads of these families will stand very high in the income distributions of their cohorts. This is, I believe, the rationale for the quotation above." I think that it would not be surprising to find that the non-head generation in these households (whose relative numbers in any case are no doubt small) is near the bottom of the income distribution of its cohort. If so this means that one cannot really say anything about the relative positions the heads of these families occupy in the income distributions of their cohorts. And of course it is also impossible to guess their standing in the wealth distributions of their cohorts.

I conclude this section by noting that the claims conventionally made about the distribution of wealth within cohorts appear to be without foundation.

NOTES

1. Dekle (1990) also writes on this topic, but I do not review his work here.

2. The patterns of TP_{ij} and TO_{ij} as j varies holding i constant are difficult to model in the absence of detailed demographic data. We do not know for instance the breakdown of marital status and sex of the older generation nor the number of years the older generation has been living with the younger. Similarly we cannot tell what the patterns of TP_{ij} and TO_{ij} are as i varies holding j constant.

3. In the regressions Ando ran the independent variable actually was the wealth-permanent income ratio. From those regression results he then in effect imputed the betas in equation 21. This estimation procedure may well have biased his estimates of the betas. Nevertheless I abstract from this in my analysis below.

4. For the first point, see Ando (1985), Chapter IV, pp. 38-39. For the second, refer to Ando–Kennickell (1985), pp. 53-54.

5. It is not however definitive evidence of regression coefficient instability. In this sense Hayashi, Ando, and Ferris (January 1988) repeat Ando's mistake of not testing formally and comprehensively for this source of bias (see Kmenta (1986), Chapter 11 for a concise discussion of the relevant tests). I am indebted to Jan Kmenta for clarifying my thinking on the econometric analysis of this section.

6. Hayashi, Ando, and Ferris (January 1988), pp. 3-4 to 3-6 and p. T3–2.

7. On the other hand, the same exercise done on the 1979 data I think would show that the cross section profiles across rows were declining and that wealth declines as one moves down the columns. The reason I say this is that the subsample cross section profiles computed by Ando for the 1979 data are much steeper than the corresponding profiles for 1974.

8. See for instance Ishikawa (1988), Hayashi, Ando, and Ferris (December 1988) and Ando (1985).

9. Ando (1985), Chapter IV, pp. 56-62; also reproduced in Ando and Kennickel1 (1987), pp. 204-5.

10. Hayashi, Ando, and Ferris (December 1988), Table IIIC, panels A and B, pp. 475-6.

11. Any such model would have to take into consideration the fact that the independent elderly tend to be married couples while the elderly living with their adult children tend to be widows (this observation was, in effect, made by Ishikawa

(1988), footnote 8, pp. 425-6). This fact, as Ishikawa notes, explains in part the income differential between the two groups (for instance, one would expect Social Security payments on a household basis to be higher for the independent elderly than for the elderly of the same age living with their adult children). It also suggests, in my opinion, that the wealth differential (which I think actually exists) between the two groups is not as large as one might think from looking at the size of the income differential.

12. Hayashi et al. seem to be the strongest supporters of this proposition; see Hayashi, Ando, and Ferris (December 1988), p. 473.

13. Note that the young (those under 60) of the same age living with their adult children are excluded from consideration by this categorization. Of course this mainly affects the older young.

14. This statement applies to the 1984 sample investigated by Hayashi, Ando, and Ferris (December 1988), pp. 467-68, in particular footnote 14. The measure used was the sum of employment and business income.

15. Hayashi (1986), p. 184 and p. 218 and Hayashi, Ando, and Ferris (December 1988), p. 473.

16. Hayashi, Ando, and Ferris (December 1988), pp. 465-66.

17. The assumption that the non-head generation is in its peak earning years excludes older extended families composed of elderly children (the heads) and their very elderly parents (the non-heads). This kind of family I suspect accounts for a significant portion of all older extended families.

18. See Hayashi (1986), p. 179.

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