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Will the Aging Population Accelerate Service Expenditures Growth?

Masaaki Kawagoe, Senior Economist

Izumi Matsuzaki, Deputy Library Head

As one grows older, (s)he tends to spend more money on services. One consumes services more in her/his 60s, for example, than in her/his 40s. However, “changes in age compositions of the population,” which the aging usually means, do not serve to accelerate a shift to a service-driven economy. This is because, at a given point in time, the share of service expenditures by elderly households is below the average of all households. This report will reexamine the claim made in the Annual Report on the Japanese Economy and Public Finance 2005 (hereafter, the White Paper).

According to *the FY 2005 White Paper*, the aging of the Japanese population will stimulate a shift in consumption from goods to services. But should we take this claim at face value? As one grows older, (s)he tends to spend more on medical treatments, nursing cares, and other services. This observation may imply an increase in the number of senior citizens should accelerate a rise in the share of services in the total expenditures. Thus, the contention of *the White Paper* may seem plausible. To the contrary, this report will show the aging is likely to slow a move toward a service-driven economy.

How to Examine a Shift Prompted by “Changes in the Age Structure”

The White Paper argues the arrival of an aged society will reinforce “a tendency of a shift from goods to services expenditures as a whole” (a subsection, “The Demographic Wave and Structural Changes in Consumption,” in Section 2 of Chapter 3). This is obtained by “the cohort analysis applied to shares of different types of expenditures in the overall consumption of each type of households, in order to detect structural changes in consumption caused by changes in the age structure of the population” (op. cit.). The cohort analysis is a method used to examine the data by generation categorized by year of birth.

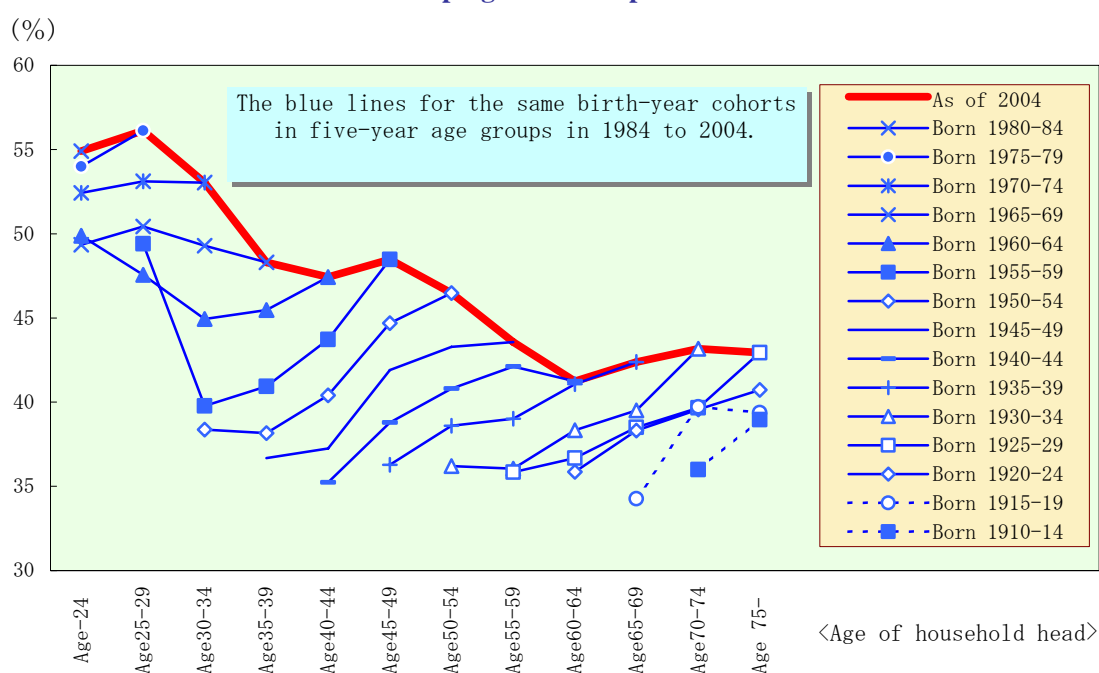
Our question is, does the shift “from goods to services” in consumption really occur as a result of “changes in the age structure of the population?” *The White Paper* does not explicitly provide an overall picture of expected shifts of consumption expenditures, in particular, to what extent the shares of goods and services within the total consumption expenditures are likely to change. Figure 3-2-4 of *the White Paper* shows decomposition into goods and services only for a specific category of expenditure, the “culture and recreation.” The figure reveals older people increase their spending weights on services, i.e. the age effects, while “the weights tend to be higher for younger generations” (op. cit.). Is this really evidence that changes in the age structure in the population will cause structural

changes in spending?

The Elderly Spend Less on Services

Let's examine the claim made in *the White Paper*. Chart 1¹ shows an age profile of shares of service expenditures for each birth cohort of household heads every five years from 1984 to 2004, when the data of *the National Survey of Family Income and Expenditure*, which is conducted by the Statistical Office, Ministry of Internal Affairs and Communications, are available. Examining the shares across the birth cohorts at a time, one can see the share of service expenditures declines as the household heads get older.

Chart 1. Downward-sloping Service Expenditure Share in 2004



Source: *National Survey of Family Income and Expenditure* (Ministry of Internal Affairs and Communications). "Age 24 and under" includes younger cohorts, while "Age 75 and above" does older ones. For example, the figure for "Age 24 and under" for the "Born 1960-64" group is the total for persons born from 1960 and on.

For example, as is read from the red line on Chart 1, the service-spending share in 2004 is around 40 per cent for households headed by the aged 60 and above, lower than the counterpart of around 50 per cent or higher for those in the 30s or younger. The lower service share for the elderly households is mainly attributable to lower shares in "transportation and communications" and "education and other services," despite higher shares in "health cares and medical treatments" and "culture and recreation". Suppose

¹ This chart is a revised version of Figure 1-41 from the 32nd *Medium-Term Forecasts of the Japanese Economy*, the Japan Center for Economic Research (December 2005), thanks to Mr. Tomoki Tsuruta of Kyushu Electric Power Co., Inc., who is formerly a member of the Medium-Term Economic Forecast Team, Economic Analysis Department, the Japan Center for Economic Research.

service shares for each age group shown by the red line in Chart 1 will remain unchanged. Progress in aging should increase the number of middle-aged and elderly household heads, thereby reducing the overall service share.

A closer look at Chart 1 reveals the shares of service expenditure rise in the all age groups. This is because each cohort increases their service spending share as they get older, as is shown by each blue line, which corresponds to the “age effect” pointed out in *the White Paper*. In addition, the start points of the blue lines, shares at the time of younger ages, are high and also gradually shift upwards, thereby placing higher the lines for the younger generation. This corresponds to the “cohort effect” mentioned in *the White Paper*.

However, it is one thing that these effects are detected in the data. Another is that the shift “from goods to services” in consumption is caused by “changes in the age structure of the population.” It is true, for an each cohort, the share of service expenditures rises as one becomes older. The key point here, however, is the share does NOT rise sufficiently to exceed the level succeeding cohorts reach at the same age group. In other words, the red line, which connects the shares of different age groups at a given time, is downward sloping, i.e. lower shares for elderly households. This shape implies the advance of the aging population actually *slows* a move toward greater service consumption. This could be verified if one supposes an extreme case: if all households other than those headed by members of the younger generation were to vanish, the service share would suddenly rise to over 50 percent! Therefore, it is the *downward* sloping red line, not the upward sloping blue ones, that is important in evaluating the effects of the compositional changes in population called “aging.”

Naturally, there is a possibility that the blue lines might become much steeper in the future, which could raise the service share for the elderly above that of the younger cohorts, thereby making the red line upward sloping. In such a case, the aging population could serve to accelerate service consumption. However, the data for the 20-year period from 1984 to 2004 reveal the service shares increased much more strongly in middle-age households headed by those in their 30s and 40s than in elderly households. Despite the large increases, the service shares for middle-age still remain lagging behind those for younger households. Hence, extremely large changes would be necessary to realize the scenario of a shift toward the service-driven economy fueled by senior citizens’ spending.

Don’t Exaggerate the Effects of the Aging Population

For the aging population to realize such a scenario, for the first of all, the service share for elderly households should exceed the average for all households. If this were to be true, how to adjust living costs for elderly households would be an important policy issue. Pension benefits are adjusted according to changes in the Consumer Price Index, which reflects expenditure shares for all households. Therefore, a rise in the relative price of services compared to goods, together with higher share of service expenditures for elderly household, implies the benefit adjustment formula could cut the real value of pension benefits. This concern, however, is shown to be groundless by the evidence presented in the

previous section.

The above consideration shows how large the effects of the aging population are depends upon the degree of differences in the spending patterns of elderly households from the average of all households. *The National Survey of Family Income and Expenditure* summarized in the left hand side of Chart 2 indicates the difference in the service shares between them was rather small, about three and four percentage points in 1999 and 2004, respectively. With the relative price of services to goods rising by 1 per cent per annum over the past 10 years, this minor share difference does not mean anything really significant.

Chart 2. Service Share Differences of 3 to 4 Percentage Points

	National Survey of Family Income and Expenditures				Consumer Price Index			
	Share (1999)		(Reference) share (2004)		Weight (2000)		Average annual growth %	
	All households	Elderly households	All households	Elderly households	All households	Elderly households	1995~2000	2000~2005
Total	100.00	100.00	100.00	100.00	100.00	100.00	0.30	-0.44
Goods	56.16	59.58	53.96	58.24	49.79	51.40	-0.20	-0.85
Durable goods	6.17	6.71	5.75	6.31	5.71	5.43	-2.31	-4.56
Semi-durable goods	10.59	10.60	9.67	9.35	9.02	8.75	0.24	-1.08
Non-durable goods	39.40	42.28	38.54	42.58	35.06	37.23	-0.02	-0.26
Service	43.84	40.42	46.04	41.75	50.21	48.60	0.82	-0.02

(Notes)

1. In the “*National Survey of Family Income and Expenditure*” columns, “All households” refers to the total of one-person as well as two-person plus households. “Elderly households” refers to households with their heads aged 60 to 69.
2. In the “Consumer Price Index” columns, the figures for “All households” are those published as the weights for the index. Because these “All households” figures are based on the *Family Income and Expenditure Survey*, they include households of two persons or more, but not one-person households. The “Elderly households” figures are provisionally calculated figures in the same way as the official consumer price index, except that the item-specific expenditure weights are calculated from elderly households (with their heads aged 60 to 69) of the *Family Income and Expenditure Survey* and other sources.
3. For the calculations in the above footnote 2, water services are treated differently from the official procedures. Officially, tap water is included in non-durable goods, while sewer water is in the service category. However, data availability prohibits such a division for our calculation for elderly households. Thus, in the consumer price index weight column, both tap and sewer water are included in the service category for all households and elderly households alike. As a result, the weight of tap water (1.00 for all households) is exaggerated for services and undervalued for non-durable goods and goods, compared to the official classification definition.

The weights used to calculate the Consumer Price Index are taken from shares of *the Family Income and Expenditure Survey*, rather than *the National Survey of Family Income and Expenditure*. The former is a monthly survey and, therefore, less comprehensive in its coverage of households (stated below). Computing the spending shares of elderly households (where the household head is 60 to 69 years old) from the data of approximately 580 items in the 2000 edition of the former survey, we find, as expected, that the service share for those elderly households are below the all household average, although the gap is around half as large as that found in the more comprehensive latter survey. The

differences in these two surveys may stem from the fact that one-person elderly households are included in the latter, but excluded from the former (which covers two-or-more person households only).

Because the differences in weights given to service expenditures between the all households and the elderly ones are only several percentage points, our trial computation reveals the “elderly household CPI” only slightly diverges from the official CPI based on the spending weights of all households². This very tiny divergence indicates even if differences do exist in the consumption patterns between the two, they are of little importance in reality. The conclusion of this exercise, therefore, is that the changes in consumption expenditures resulting from the aging of the Japanese population are not likely to be as large as expected.

(Contact : 81-3-3639-2829)

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Japan Center for Economic Research (JCER)

Nikkei Kayabacho Bldg. 2-6-1 Nihombashi Kayabacho, Chuo-ku, Tokyo 103-0025, Japan
Phone:81-3-3639-2810 / FAX:81-3-3639-2839 / E-mail:jcernet@jcer.or.jp

² Using the inflation rates and weights of approximately 580 items and setting the value in year 2000 to be 100, “elderly household CPI” was 99.1 in 1995 and 97.7 in 2005. The all-households counterpart computed in the same way were found to be 99.2 and 97.7, respectively. That is, the difference between the two is 0.1 point for 1995 and zero for 2005. Because our calculation method for all households is slightly different from the official one, our figures differ from the official CPI: the published figures are 98.5 in 1995 and 97.8 in 2005.