# Who will support the elderly? Changing economic lifecycle reallocation in an Asian economy

Nicole Mun Sim Lai
laim@un.org
United Nations Department of Economic and Social Affairs, Population Division

An-Chi Tung (corresponding author)
actung@econ.sinica.edu.tw
Institute of Economics, Academia Sinica

## Abstract

Intra-household transfers have long been important for old-age support in the Taiwanese economy, but are dwindling with continuous changes in social, economic, and demographic dimensions. With rapid population aging and an inadequate public safety net, old-age poverty calls for urgent policy attention. Yet research tracking changes in the support system throughout the lifecycle is in its infancy. Adopting the National Transfer Accounts approach, we use both micro and macro data to compare how old-age financing evolves. Results show that in 2005, public transfers and income from past savings replaced intra-household transfers and labor income, the two major sources in 1985.



INTRODUCTION:Old-age financial security has become a pressing policy concern because of rapid population aging in many parts of the world. According to Lee and Mason (2011), an elderly person has three major income sources after retirement. First is the transfers provided by adult children to their parents. Second is the income derived from assets saved earlier in life. Third is public transfers supported by taxes that are paid primarily by those at working ages. Among these income sources, public transfers and asset income are the most important in European countries and in most other developed nations, but until very recently, familial transfers have been the major financial resource for the elderly in the Taiwanese economy.

To be more specific, _raising children to provide against old age‘ or _養兒防老’

has been a norm in the Taiwanese society for centuries. But during the past few decades, enormous social, economic, and demographic changes, such as rapid population aging and dwindling fertility rate, have weakened the role of familial transfers. At the same time, public programs for old-age security are neither broad-based nor sufficient to finance the consumption needs of the elderly population. With these changes and limitations, we are prompted to ask who will support the elderly in the future? Furthermore, who are supporting the elderly now, what is the appropriate role for the public sector, and how should the young population prepare themselves for their old age?

There has already been considerable research on old-age financial security, especially on the role of the family, public policy, individual wealth, and the relationship between private and public transfers (Casey and Yamada 2002). With a few exceptions (such as Tung and Lai, 2011), however, the existing literature lacks a complete theory and methodology of the support system in the economic lifecycle.

An important reason for such inadequacy is that the data for a thorough analysis are often not available. Regarding Taiwanese data, despite that a comprehensive national Family Income and Expenditure Survey has been conducted regularly since 1964, the unit of measurement for most variables is the household rather than the individual. Moreover, surveys on intra-household transfers are often qualitative, without providing the financial amount received or given. And finally, various surveys and statistics on households and individuals are often incompatible.

Many of these limitations are being addressed by the National Transfer Accounts (NTA) project, which organizes data and develops methods to measure income and consumption by age as well as economic flows across age groups. Here, we apply the NTA methodology to study lifecycle deficits and lifecycle reallocations for the elderly population, and to explore the pattern and significance of the changes over time.

## Economic security for the elderly

### *The NTA approach*

The NTA method is based on the premise that individuals consume throughout their lives but only receive labor income during part of their lifetime. The resulting gap between consumption and labor income is called the lifecycle deficit. During their prime working

years, individuals produce more than they consume, resulting in a negative lifecycle deficit. By contrast, at young and old ages, individuals consume more than they produce, and the lifecycle deficit is positive. The lifecycle deficit is financed in three ways, as briefly mentioned above: by private transfers, public transfers, and the use of income from assets accumulated earlier in life, referred to as asset-based reallocations. Private transfers, which include both intra-household and inter-household transfers, consist primarily of financial support given by adult children to their parents, plus some support provided by other relatives or private charities. Public transfers are resources redistributed from one age group to another by the government through the tax system. Finally, asset-based reallocations are net asset income plus dis-saving or the spending down of savings.

The NTA approach differs from other investigations of resource reallocations across generations because it provides a complete picture of the entire population divided into one-year age groups as well as the role of both the public and private sectors. As such, it yields new evidence on the economic status of all age groups, the elderly in particular, as well as many other issues of importance to policymakers.

***Elderly economic security***

For many years, transfers from adult children were the primary source of income for the elderly. The importance of family transfers is quite different from the Western societies, and is reflected in government surveys and other studies (Lo 1985; Lee and Wang 2002). By contrast, familial transfers in the Western societies tend to be trivial, and often the elderly are the net givers rather than the net receivers within their households (Cheal 1983; Davis and van den Oever 1981).

The rapid population aging in recent decades, together with declining numbers of elderly living with their adult children and low fertility rates, have not only catalyzed a rising demand for elderly medical and long-term care, but also reduced the numbers of adult children to support their parents in old age. These new challenges cannot be solved easily by families or individuals on their own. Rather, the government may need to step in and play a larger role (Jan et al. 2002).

The public sector has indeed initiated a number of social-welfare and public-insurance programs in recent decades. Programs with deep impacts on the elderly include National Health Insurance, initiated in 1995, and the National Pension Program, initiated in 2008. Nonetheless, pension pay-outs are very modest, a long-term care plan has yet to be initiated, and most social-insurance programs are threatened by financial insolvency. There is still considerable room to enhance and improve public programs that support economic security in old age.

One concern is that the above-mentioned financial sources, both private and public, may ‗crowd out' one another. For example, Chou et al. (2003) find that National Health Insurance reduces private savings, while Lai and Orsuwan (2009) and Cox and Jakubson (1995) conclude that public transfers tend to reduce private transfers. Further research is required on the complex interactions among these financial sources and their effects on individual behavior.

A more basic question is whether the elderly receive sufficient financial support for their consumption. In the Taiwanese economy, early studies suggested that retirees do well financially (Lo 1985), but later studies found that the elderly are more likely to be poor than other age groups (Shue 2008). In a government Survey on Elderly Conditions, approximately one-quarter of the elderly subjectively expressed that their financial resources were insufficient for their consumption, although the percentage went down slightly from 26 percent in 2002 to 21 percent in 2009. In this paper, we estimate and analyze consumption patterns and income sources as the foundation for understanding the economic condition of the elderly population.

**Data**

We employ several data sources to compute the NTA lifecycle flow accounts: the Family Income and Expenditure Survey (FIES), the National Income Accounts, and other public statistical reports, for example, on National Health Insurance, education, and social welfare programs. Most private variables are derived from the FIES of 1985 and 2005, which is conducted by the Directorate-General of Budget, Accounting, and Statistics.

The FIES is nationally representative and is conducted by well-trained government staff. It provides data at the household level and some at the individual level. The data

include information on individual characteristics as well as income and expenditures of individuals and their households. More specifically, income data include employee compensation, entrepreneurial income, property income, private transfer income, and public transfer income, while expenditure data consist of interest expenditure, private-transfer expenditure, public-transfer expenditure, and household consumption. The FIES reports information on public old-age allowances and inter-household transfers such as cash and gifts received or given between households. Our estimates are based on average values by each age group.

Additional public programs supporting old-age economic security have been introduced after our study period, including the National Pension Program and the annuitization of old-age benefit in the Labor Insurance, both implemented in 2008. But the benefits provided by these programs are still small, and hence they do not alter our results substantially.

## Results

### *Sources of support for the elderly*

Total consumption, private and public combined, goes down after retirement in most developing countries but goes up in some developed countries (Tung 2011). In the United States and Japan, for example, the age profile of consumption rises after retirement age due to escalating health-care expenditures. By contrast, elderly consume less than working-age adults. In 1985, average per capita consumption of person aged 65 and above was 86 percent of the consumption of a person age 15–64; in 2005, it was 88 percent.

This small increase in consumption over the 20-year period came largely from higher consumption of healthcare provided by the public sector. With the introduction of the NHI with universal coverage since 1995, the public health consumption of the elderly rose rapidly, from 0.7 percent of their total consumption in 1985 to 10.4 percent in 2005.

In contrast, privately funded health consumption dropped from 7 percent to 5 percent of total consumption. To examine changes in total health consumption, age profiles for the two years are plotted in Figure 1. In 1985, the health-consumption profile for the elderly was rather flat, ranging from 7 percent to 10 percent of total consumption.

In 2005, however, the profile rose linearly by age. Health consumption was 12 percent of total consumption at age 65, and increased to 15 percent at age 70 and 18 percent at age 80. In summary, the percentage share of healthcare in total consumption doubled for the elderly in two decades, and the increase was mainly due to health services provided by the public sector.

<Insert Figure 1 about here>

During the two decades of rapid economic growth between 1985 and 2005, public transfer programs were enhanced, and social conditions, specifically living arrangements, were revolutionized. How have these transformations changed financial support patterns for the elderly? Figure 2 presents sources of financial support for the consumption of the elderly aged 65 and above in 1985 and 2005. In 1985, 35 percent of elderly people's consumption was financed by income from work, and another one-fifth was supported by asset-based reallocations, mainly private asset income and dis-saving. The remaining consumption, which was about 46 percent of the total, was provided by the private sector, primarily through families living together. Net public transfers received by the elderly were negative but tiny, at less than 3 percent.

Two decades later, in 2005, results show a very different pattern. Both the roles of families and income from work diminished tremendously. Labor income, which supported 35 percent of old-age consumption in 1985, was only 9 percent in 2005. Financial support from families living together shrank by half, from 39 percent of total support for old-age consumption in 1985 to 17 percent in 2005. At the same time, contributions from families not living together (which are probably the bulk of inter-household transfers) remained at 7 to 8 percent of total consumption.

While the decline of the importance of supports from families and labor income is obvious, the public sector and asset-based reallocation became increasingly more important. One major change was that the elderly saved and supported their own consumption in old age, rather than relying on their children. Asset-based reallocations became the primary source of income, supporting 42 percent of total consumption in 2005. One explanation is that the population who were elderly during this period enjoyed

the rapid economy growth of the 1980s and 1990s, which enabled them to save for retirement. The other important change was the large increase in support from public transfers. With the initiation of many social programs mentioned already, net public transfers rose from –3 percent to 25 percent of support for old age consumption

<Insert Figure 2 about here>

To verify our results, we compare them with the Survey of Elderly Condition (SEC, hereafter) conducted by the Ministry of Interior, which contains self-reported major source of income. Although SEC only inquires about the most important source of financing of each elderly, rather than the composition of value by source, the results as depicted in Figure 3 echo our NTA estimates in several important ways. In particular, the rise of the role of public transfers against the decline of that of familial transfers is evident. If retirement pension from public insurances, such as Labor Insurance and Government Employee Insurance, is re-classified from the "labor income and retirement pension" in SEC to "public transfers", as is the case in the NTA framework, the increased role of public transfers would be even more pronounced.

What is different from the NTA results is the small percentage share of asset income in Figure 3. This discrepancy is mostly due to differences in the definition of variables. Property income in SEC includes the income from assets, bequests, and dis-saving. NTA, by contrast, defines asset-based reallocations of an individual from the perspective of the macro-economy as a whole. That is to say, besides the property income received by individuals, NTA includes operating surpluses of corporations because individuals are the owners of corporations. In addition, NTA includes the imputed rent of owner-occupied housing. A preliminary experiment, using FIES data but following the variable definition in SEC, also shows a higher share than qualitative result reported in SEC. So the validity of our results is basically confirmed.

<Insert Figure 3 about here>

***Less support from labor income***

Did the decreasing reliance on labor income among the elderly between 1985 and 2005 correspond with changes in the labor market in general? To answer this question, we first compare age profiles of labor income and consumption between 1985 and 2005, as depicted in Figure 4. The profiles are expressed in terms of average labor income of prime-age adults, between age 30 and 49, to facilitate comparison. The 1985 labor-income profile shows an early entry into the workforce, starting around age 15, a peak of earnings in the late thirties, and a gradual exit from the labor market in the sixties. By contrast, the 2005 labor-income profile shows a somewhat later entry into the workforce, starting in the twenties, a similar earnings peak in the late thirties, and an earlier withdrawal from the labor market, starting in the mid-fifties. This withdrawal was rapid, and average labor income becomes tiny by age 65.

<Insert Figure 4 about here>

The elderly are relying less on labor income partly because of general changes in labor-force participation and unemployment over the two decades. Between 1985 and 2005, labor-force participation dropped at age 50 and above and even more dramatically at ages 15 to 19. More specifically, labor-force participation at ages 50–59 declined from 61.4 percent in 1985 to 56.7 percent in 2005. During the same period, labor-force participation at ages 60–64 fell from 40.8 percent to 31.8 percent. At ages 65 and above, labor-force participation dropped from 9.8 percent to 7.2 percent. At the same time, unemployment increased across all age groups, given the slowdown of overall growth and rapid industrial transformation. During this economic transformation, older workers faced more difficulties than younger ones, and many were pushed into early, involuntary retirement (Zhou and Chen 2006).

***More support from asset income and dis-saving***

With less support from families and labor income, one alternative is to increase reliance on asset-based reallocations, defined as net asset income minus saving. The age profiles of the two components of asset-based reallocations—asset income and saving—are illustrated in Figure 5. To facilitate comparisons, values are expressed as proportions of

the per capita labor income of 30–49 year olds. In 1985, saving increased gradually with age, peaked twice, in the forties and in the mid-fifties, and declined gradually at older ages. The elderly age 80 and above funded their retirement needs in part by spending down their savings, or dis-saving. Similar to the pattern of saving, asset income was positive, increased with age, and peaked twice, in the forties and again in the sixties. Deducting saving from net asset income yields asset-based reallocations that were mostly positive throughout the lifecycle (the shaded area in Figure 5), with asset income higher than saving. Two exceptions occurred in the thirties and late fifties, when saving was higher than asset income, yielding negative asset-based reallocations.

The asset income and saving profiles were different in 2005. Saving profiles still showed the two peaks and declined steadily at older ages, although the peaks occurred a little earlier. A significant new trend was that the elderly continued to save throughout their old age and did not dis-save. Moreover, the elderly continued to receive high asset income throughout their old age. This pattern is at odds with the standard lifecycle model that predicts that people will accumulate assets during their working years and dis-save during old age. By contrast, in 2005, elderly relied on asset income to fund their retirement but at the same time continued to save.

It must be noted that the NTA method assumes that a household head owns all of the household assets. The surveys that provided data for this research define the household head as the main economic earner in the household. In 1985, a large proportion of the elderly were living with their adult children, and therefore not many of the elderly were considered the head of a household. This could be one of the reasons why we observed low asset income during old age in 1985. By 2005, more of the elderly lived independently from their adult children and were thus considered household heads and owners of the household assets. If we were to define the oldest person in a household as the household head, then the 1985 asset profiles might look more like those of 2005. The results would be still at odds with the standard lifecycle model, however.

One important question is whether the elderly are accumulating wealth in order to leave bequests to their descendants. This could be to compensate their children for the high social contributions or to compensate them for expensive child rearing. The stronger the altruistic motivation is, which concept is explained in Barro (1974), the

greater the elderly save. A question that follows is: Would such intergenerational altruism be carried forward over many generations? This question has important macroeconomic implications because the answer would suggest whether population aging will eventually lead to wealth creation or depletion.

<Insert Figure 5 about here>

***More support from public transfer programs***

The public sector has expanded its role from providing general public services to offering social programs, such as health care, education, and pensions, which target specific age groups. In the 1970s, public-education programs for primary, secondary, and tertiary levels were intensified and expanded to prepare a skilled workforce for the growing industrial sector. Two decades later, a number of public-welfare programs were initiated for the elderly. Besides the NHI and National Pension Program mentioned already, one example is the Old-Age Allowance program launched by the central government in 1993, to provide monthly stipends to those 65 and above who were not covered by other social benefits. By 2005, the program covered 38 percent of the elderly population. But the monthly stipend was NT$3,000, only 16 percent relative to our NTA estimates of an elderly person‘s average private consumption. This allowance was replaced and integrated into the National Pension Program in 2008, to provide a better old-age safety net, though the monthly annuity is still meagre and further reform of the program is under way.

One interesting comparison is whether the elderly are receiving as much in public transfers as children. Figure 6 shows public transfers received and given over the lifecycle. In 1985, the pattern was typical of a developing economy with limited social programs. Working adults paid taxes, and public transfers were provided mostly to children, in the form of education, while all other age groups received general services only. Combining both inflows and outflows, we observe a net public-transfer age profile that is positive for the young and negative for working adults, as shown by the shaded area in Figure 6. The elderly at ages 65–70 paid more in taxes than they received in public transfers, while those at age 71 and above received small net public transfers.

This pattern had changed by 2005, when the elderly were receiving larger transfers through the National Health Insurance and the Old-Age Allowance programs. After deducting the taxes paid, an elderly person was receiving net public transfers equivalent to those received by a child.

<Insert Figure 6 about here>

***Less support from families***

Private transfers provide social and economic benefits similar to those provided by public programs, such as old-age support, funding for education, health assistance, and unemployment insurance. As shown in Figure 2, between 1985 and 2005 the role of intra-household transfers declined significantly in supporting the consumption of the elderly, while inter-household transfers remain fairly stable. Figure 7 compares transfers within households by age groups in 1985 and 2005.

Our results reveal some differences between ages and years. First, the elderly were net receivers in both years, although the amount of transfers declined. Second, the prime working-age group, age 30–49, provided the most support, equivalent to two-thirds of an adult‘s consumption or one-third of an adult‘s labor income. Adults age 50–64 were also net providers, but their contribution was smaller, no doubt because most of their children were already financially independent. The young population, at age 0–29, were net receivers, with those at high school and college age receiving the most. Between the two years, the reduction in transfers to the elderly was balanced by a rise in transfers to children.

<Insert Figure 7 about here>

Although the elderly received declining intra-household transfers between 1985 and 2005, they were not yet providing transfers to the younger generation, as is the case with Japan. Ogawa et al. (2011) reported that the elderly in Japan were net receivers of intra-household transfers before 1999. After 1999, however, the elderly age 65–75 became net givers.

The authors explained that this change could be due to the slowdown of economic growth that led to income instability for the younger generation, while the elderly received a steady pension income.

The slowdown of the Taiwanese economy has not been as serious as in Japan, and the National Pension Program was not yet introduced until 2008. Therefore the changes observed in intra-household transfers between 1985 and 2005 are likely to be associated with rapid family nuclearization (Tung et al. 2006).

As a consequence, more elderly live separately from adult children, and the proportion of households whose head was age 65 and above increased from 4.49 percent to 15.75 percent between 1985 and 2005. Some of these households are one-person households, and some are grandparent(s)-grandchildren households without adult children. Tung and Lai (2011) found that these two types of households call for special policy attention because they could be at risk of poverty.

**Conclusion**

This paper reaches two main conclusions. First, between 1985 and 2005, the consumption level of an elderly increased slightly from 86 percent of per capita consumption at ages 15–64 to 88 percent between 1985 and 2005. This small increase came mainly from higher health consumption of the elderly, which rose from 9 percent of total consumption to 17 percent within the two decades, while the provision of NHI alone accounted for 7 percentage points of total elderly consumption in 2005. One must interpret rising health consumption cautiously, however, as the results are influenced by health costs, service quality, health status, and life expectancy. Furthermore, higher health consumption may not be the same as an improvement in general welfare. Setting health consumption aside, other consumption of the elderly declined relative to the per capita consumption at age 15–64 within the two decades, which seems to suggest that the welfare of the elderly may not have improved.

Second, in 1985, old-age consumption was supported largely by family transfers and labor income. Twenty years later, consumption was supported more by asset income and public programs, while the role of family support and labor income had diminished considerably. This trend seems to be heading toward the pattern of Western countries and

Japan, but a major difference is that the elderly in the Taiwanese economy remain as net receivers of familial transfers. If economic stagnation continues and young adults face increasing income instability, then the elderly may have to provide private transfers to their adult children as they do in Japan, especially when the elderly have a steady flow of pension and asset income.

How is economic security for the elderly likely to change in the future? Since future elderly people are the young and even the unborn today, it is important to consider all age groups in attempts to predict the future. During the period of the first demographic dividend, an increased proportion of the population at working ages made a strong contribution to economy growth. The conventional measure of the demographic dividend compares the population age 15–64 with the other age groups. A high proportion at working ages suggests that a lot of people are available to support the young and the old. This measure, however, does not reflect the productivity and the consumption levels of all age groups (Cutler et al. 1990). Lee and Mason (2006) define effective workers and effective consumers taking into consideration the actual labor-force participation, hours worked, unemployment, productivity, and consumption of individuals at all ages. When productivity increases more than consumption, the economy reaps the benefits of the added working-age population, generating the demographic dividend.

Based on individual consumption and productivity in 2005, the economy benefited from the first demographic dividend between 1972 and 2013. Today, the window of opportunity provided by the first dividend is coming to an end. The good news is that the economy can benefit from a second demographic dividend. The baby boomers who were born after the Second World War are becoming the elderly now, and they tend to possess more assets than the previous generation. If the elderly continue to have high savings that provide the basis for capital deepening, labor productivity can improve, leading to a second dividend (Lee and Mason 2006).

The second dividend will not occur automatically, however. One possible pitfall is that as more assets are accumulated, their value may decrease. A second possible problem is that the financial market can be extremely risky (*Economist* 2011). Whether the economy will enjoy a second demographic dividend is still an open question. Therefore, it is important for the government to design and implement social

protection programmes to provide a basic income to all in need of such protection and comprehensive medical care, especially the vulnerable.

**References**


Barro, Robert, 19074, "Are Government Bonds Net Wealth," *Journal of Political Economy*, 82(6), 1095-1117.

Casey, B. and A. Yamada, 2002, "Getting Older, Getting Poorer? A Study of the Earnings, Pensions, Assets and Living Arrangements of Older People in Nine Countries," *OECD Labor Market and Social Policy Occasional Papers*, 60.

Cheal, David J., 1983, "Intergenerational Family Transfers," *Journal of Marriage and Family*, 45(4), 805-813.

Chou, Shin-Yi, Jin-Tan Liu, and James K. Hammitt, 2003, "National Health Insurance and Precautionary Saving: Evidence from Taiwan," *Journal of Public Economics* 87, 1873-1894.

Cox, Donald and George Jakubson, 1995, "The Connection between Public Transfers and Private Interfamily Transfers," *Journal of Public Economics,* 57, 129-167.

Cutler, David M., James M. Poterba, Louise M. Sheiner, and Lawrence H. Summers, 1990, "An Aging Society: Opportunity or Challenge?", *Brookings Papers on Economic Activity*, 21(1): 1-74.

Davis, Kingsley and Pietronella van den Oever, 1981, "Age Relations and Public Policy in Advanced Industrial Societies," *Population and Development Review*, 7(1): 1-18.

*Economist*, 2011.09.24, "The Effect of Ageing on Asset Prices May Make the Rich World's Problems Worse," *Economist*. (retrieved from http://www.economist.com/node/21530077)

Jan, Huo-Sheng, Yi-Ren Wang, and Hui-Ru Hsiao, 2002, "Old-Age Economic Security Policies," *Research Report on National Politics,* She-hui (Yan)091-019. (In Chinese.) Retrieved from http://old.npf.org.tw/PUBLICATION/SS/091/SS-R-091-019.htm on January 1st, 2013.

Lai, Mun Sim and Meechai Orsuwan, 2009, "Examining the Impact of Taiwan's Cash Allowance Program on Private Households," *World Development*, 37(7), 1250-1260.

Lee, Ronald and Andrew Mason, 2006, "Back to Basics - What Is the Demographic Dividend?" *Finance and Development*, 43(3), 1-9.

Lee, Ronald and Andrew Mason (eds.), 2011, *Population Aging and Generational Economy: a Global Perspective*, Cheltenham, UK: Edward Elgar.

Lee, Shiang-pin and Mei-ling Wang, 1998, "Changes and Determining Factors of Elderly Monetary Income: 1989-1993," *Humanity and Social Science Collections*, 10(2), 267-288. (In Chinese)

Lo, Joan, 1985, "Economic Conditions of Taiwanese Elders," *Fourth Social Science Workshop Proceedings*, 18, 53-72. (In Chinese)

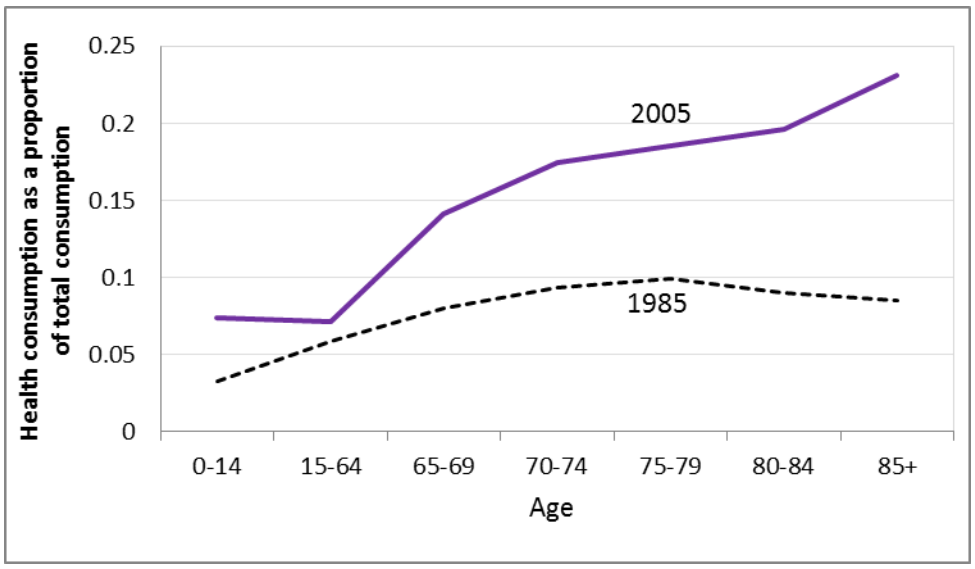
Ogawa, Hiro, Andrew Mason, Sang-Hyop Lee, An-Chi Tung, Nicole Mun Sim Lai and Rikiya Matsukura, 2011, "Very Low Fertility and the Rising Cost of Children in Japan and Other East Asian Countries", paper presented in the 2011 Population Association of Taiwan Conference, Academia Sinica in Taipei City, 28-29 April 2011.

Shueh, Cheng-Tai, 2008, "Family Changes and Elderly Household Economic Conditions," *DGBAS Monly*, 635, 57-63. (In Chinese)

Tung, An-Chi, 2011, "Consumption over the Lifecycle: An International Comparison", in Ronald Lee and Andrew Mason (eds.), *Population Aging and Generational Economy: A Global Perspective*, Cheltenham, UK: Edward Elgar, pp.136-160.

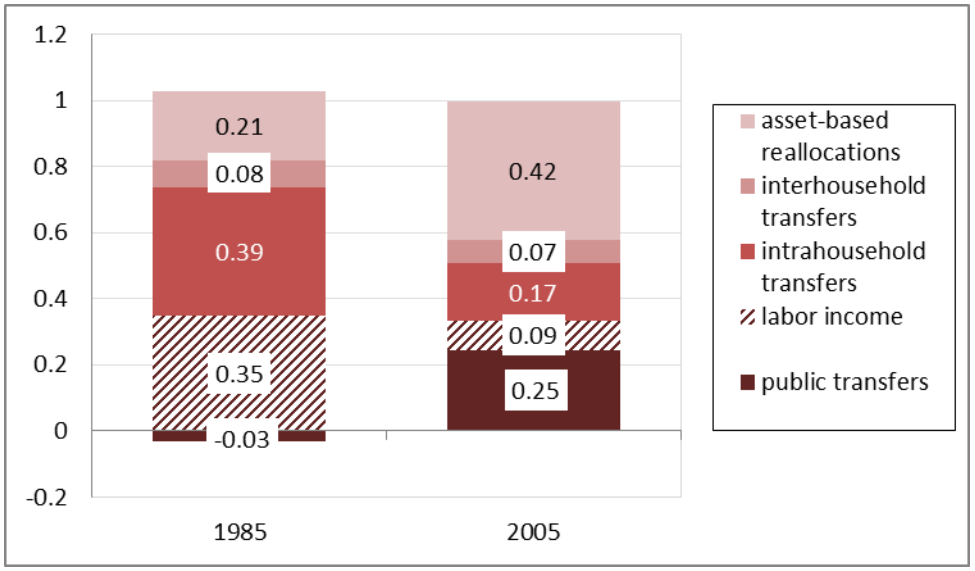
Tung, An-Chi, Chao-Nan Chen and Paul K. C. Liu, 2006, "The Emergence of the Neo-Extended Family in Contemporary Taiwan," *Ren Kou Shue Kan* (《人口學刊》), vol. 32, pp.123-152.

Tung, An-Chi and Nicole Mun Sim Lai, 2011, "Living Arrangements and Support for the Elderly in Taiwan," in Ronald Lee and Andrew Mason (eds.), *Population Aging and Generational Economy: a Global Perspective*, Cheltenham, UK: Edward Elgar, pp.488-499.



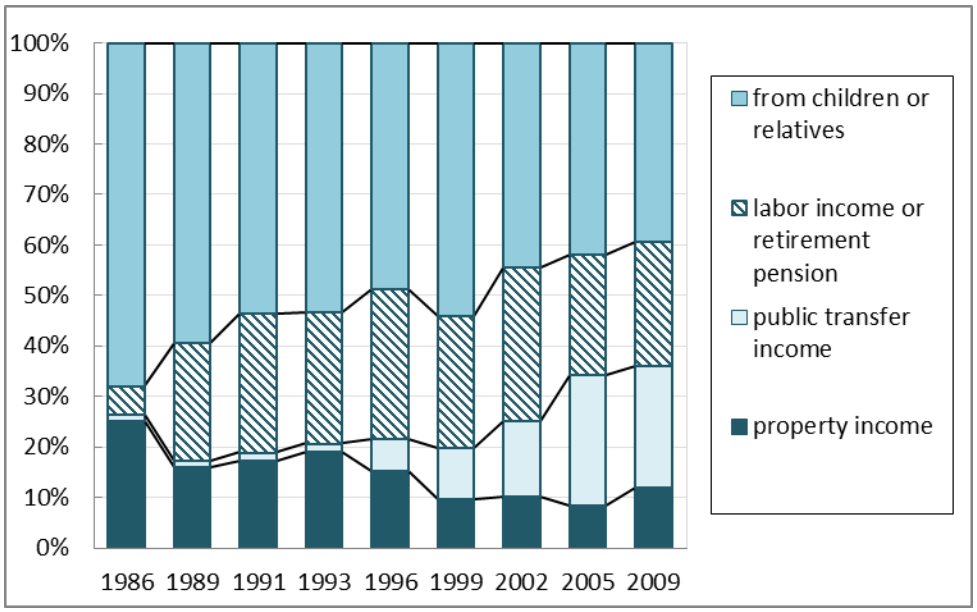

*Source:* authors‘ calculation

Figure 1. Health consumption as a proportion of total consumption, 1985 and 2005



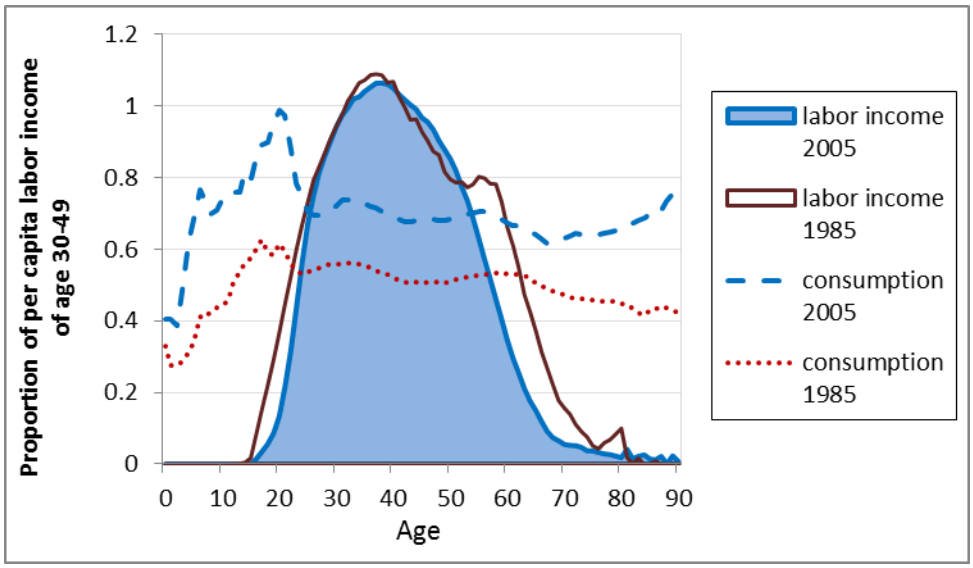

*Source:* authors‘ calculation

Figure 2. Finance of consumption for persons aged 65+, 1985 and 2005



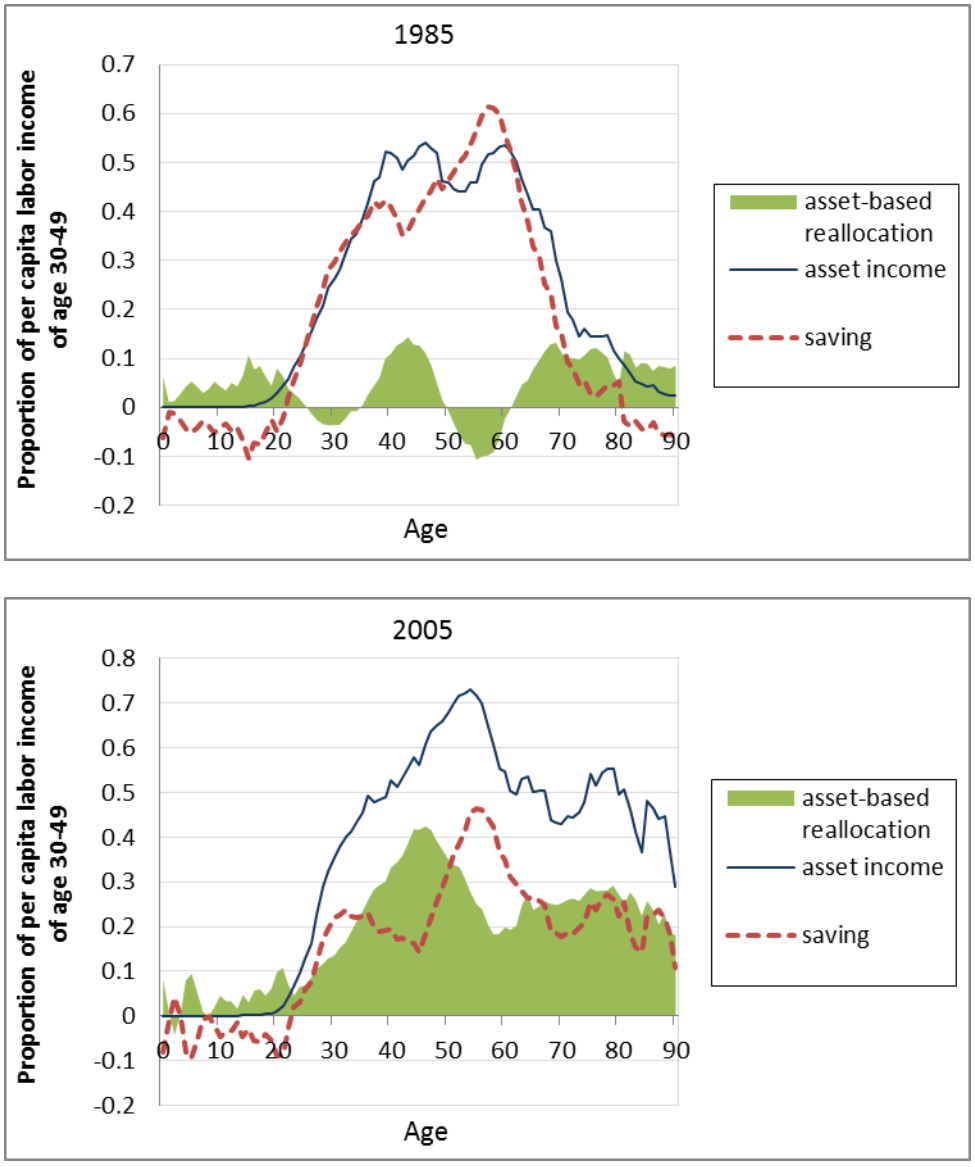

*Source:* Tabulated from the Survey of Elderly Condition, Ministry of Interior

Figure 3. Sources of income for persons aged 65+, 1986-2009



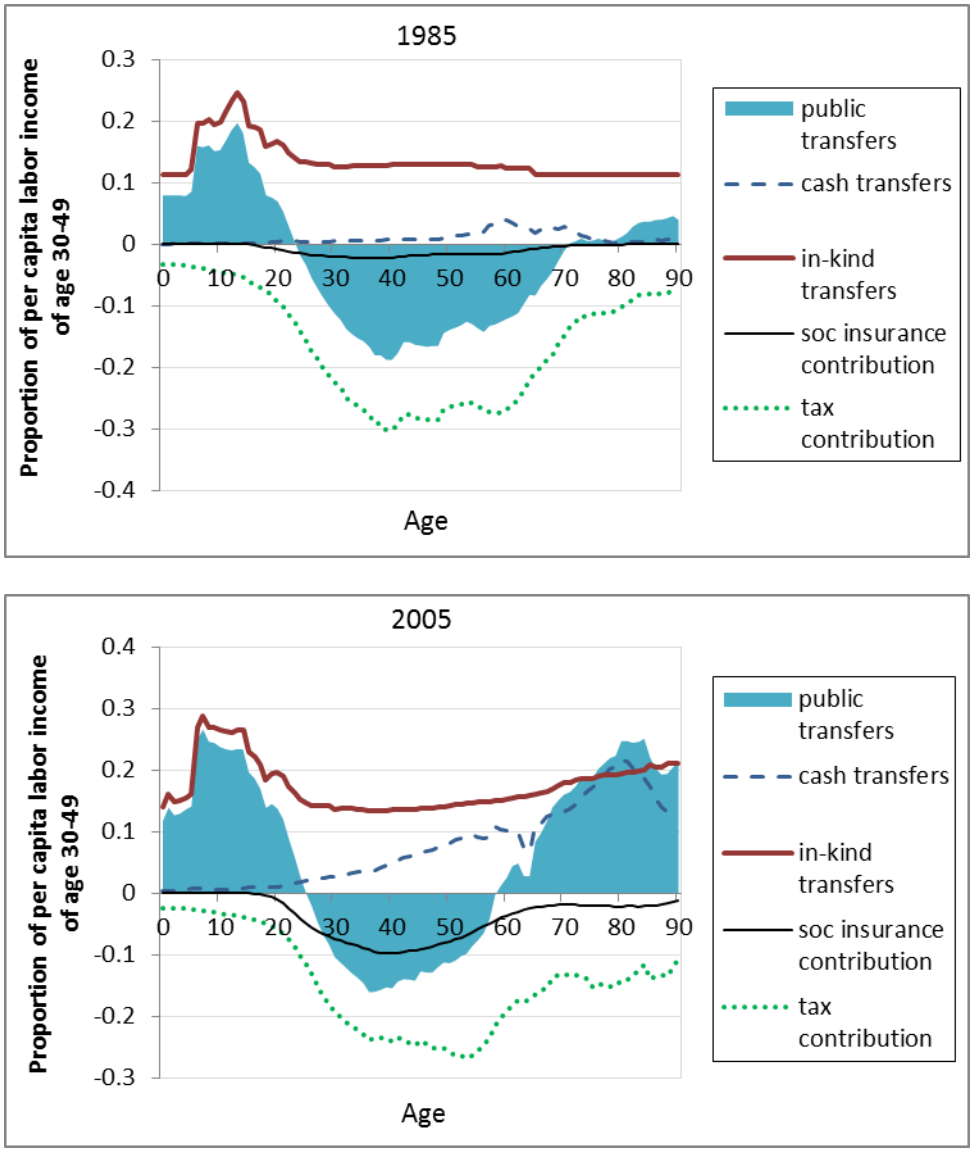

*Source:* authors‘ calculation

Figure 4. Per capita consumption and labor income by age, 1985 and 2005



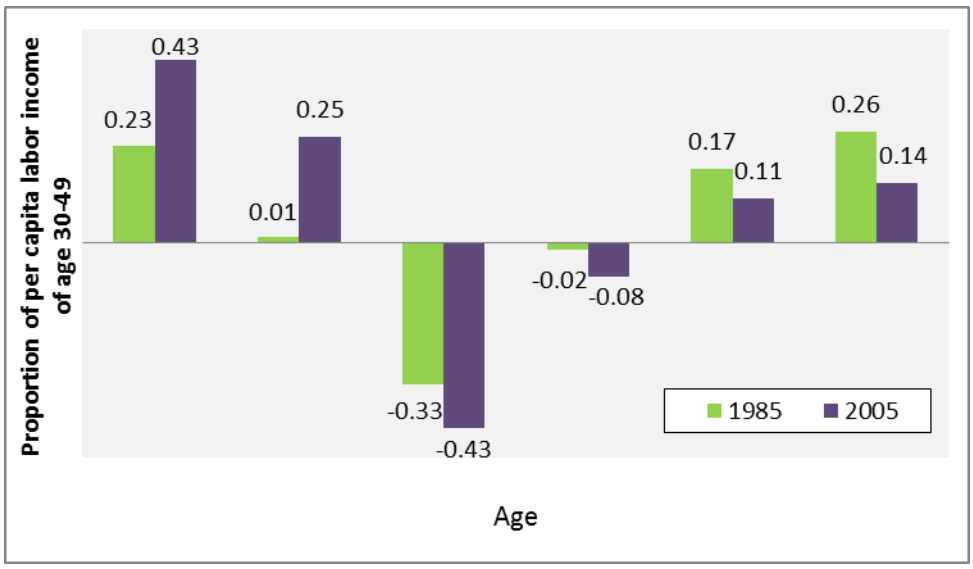

*Source:* authors‘ calculation

Figure 5. Per capita asset-based reallocations by age, 1985 and 2005




Source: authors‘ calculation

Figure 6. Per capita public transfers by age, 1985 and 2005




Source: authors‘ calculation

Figure 7. Per capita net intra-household transfers by age, 1985 and 2005