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Maharana**

**Journal of Population Ageing**

ISSN 1874-7884

Population Ageing

DOI 10.1007/s12062-017-9192-4

**Journal of  
Population  
Ageing**

Sarah Harper and  
George Leeson  
*Editors*

Volume 6  
Number 3  
2013  
CODEN PRPR08  
ISSN 0167-5923

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# How Sustainable is the Familial Support of Elderly in Asia?

Laishram Ladusingh<sup>1</sup> · Barsharani Maharana<sup>2</sup>

Received: 16 February 2017 / Accepted: 3 July 2017  
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**Abstract** This paper examines the extent of familial monetary support for the elderly in China, India, Indonesia, Japan, Korea, the Philippines, and Thailand, representing diverse public social security and assistance programs for the elderly across Asian countries. Using the National Transfer Accounts framework, Japan was found to experience the highest and China the lowest lifecycle deficit (LCD). Except Indonesia, the consumption of public and private goods and services at old ages is fast increasing in the Asian countries. In Japan public transfer supports 39.4% of the LCD of the 60 plus population and private asset-based reallocation, which includes liquidation and sale of assets, finances 33.7%. On the other in Indonesia and India LCD of elderly is largely 70.5 and 63.9% respectively are met by private asset-based reallocation. Public support for the 60 plus population in South Korea constitutes 22.9% of the LCD, whereas 52.6% is met by asset-based reallocation. The corresponding figures for China are 41.3 and 32.2% respectively.

**Keywords** Ageing · Familial support · Transfers · Asset reallocations · Social security

## Introduction

Living in extended joint families and dependence on children has been the social norm of familial support for the elderly in Asian countries. This is evident from a number of researches on the role of family in old age security particularly from Chen & Silverstein

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✉ Laishram Ladusingh  
ladusingh2010@gmail.com; <http://www.iipsindia.org>

Barsharani Maharana  
barsha.iips@gmail.com

<sup>1</sup> International Institute for Population Sciences, Deonar, Mumbai 400088, India

<sup>2</sup> National Family Health Survey-4 Project, International Institute for Population Sciences, Deonar, Mumbai 400088, India

(2000) for mainland China, Hermalin et al. (2002) for the Philippines, Thailand, Taiwan, and Singapore, Lillard & Willis (2002) for Indonesia, and Rajan & Kumar (2003) for India. However the sustainability of the traditional familial support system in Asia is under increasing stress due to falling fertility and the fading of the joint family system. Japan is the oldest population in Asia where half of the population is older than 47 years followed by median age of 41 years in Korea, 38 and 37 years in Thailand and China respectively whereas the median age of Philippines is just half than that of Japan while that in Indonesia and India are 28 and 27 years respectively (United Nations, 2015). Life expectancy in Japan and Korea the oldest of the aforesaid Asian countries is well above 80 years now while that in China and Thailand it is 75 years and that in the other three countries India, Indonesia and Philippines it stands at 68 years. In the case of the oldest two countries Japan and Korea very low total fertility rate of 1.40 and 1.26 children per woman is making the support system of elderly a blinking future. China and Thailand with total fertility rate of 1.54 too will soon fall in the path of the oldest Asian countries, while Philippines with the highest total fertility rate of 3.04 and India and Indonesia having the total fertility rate of 2.48 are still having opportunity of reaping demographic dividend. The downward convergence to fertility rate shall exert persistent strain on public pension systems of Asian countries sooner than later. This is coupled with limited social security measures for the elderly in Asian countries (Mujahid 2012), with the exception of a few. In this context, an empirical assessment of the interplay of the familial support system and the public welfare policies postulated by Becker & Murphy (1988) is expected to provide an answer to how sustainable the familial support for the elderly in Asia is in meeting consumption in excess of income— that is, the lifecycle deficit.

The findings of this study shall also be important to validate some of the propositions on the intergenerational support for the elderly from the perspective of diverse Asian economies. Among the notable propositions in literature are Becker's family model (1974, 1991), which assumed that each household's head uniformly redistributes resources among family members so that surplus members' resources flow to deficit members in keeping with the altruism motive. The more altruistic the head is, the more is the investment in children without expecting any returns (Becker & Tomes 1976). Altruism can also motivate children to transfer resources to their old parents in households where parents have instituted the social value of transfer (Lee et al. 1994). The implicit assumption of the altruism model of family transfer is that needy family members receive more than what they transfer to the other members. Propositions that emphasize on the quid pro quo motive in familial transfer are found in the works of Bernheim et al. (1985). Cox's (1987) proposition reflects transfer of money to parents from adult children in exchange for caring for their own children. Caldwell (1976) and Goode (1963) hypothesized that over the lifecycle, the intergenerational flow of resources is from the young to the old; however, a number of empirical findings (Kaplan 1994; Lee 2000; Preston 1982) suggest that the net resources flow from the old to the young except in developed societies. Family members transferring resources to another member in times of need explain the long-term role of transfers among kin as a source of insurance. These propositions are based on the experience of a few select countries, and it is not certain whether they are relevant for contemporary Asian countries. The behavioural aspects of intergenerational familial support highlighted in

the aforesaid propositions are also expected to reflect implicitly in the results of this study.

In the light of the foregoing discourse, the present paper seeks to provide empirical evidence of intergenerational monetary support for the elderly through public social security and familial transfers in the form of intra-household transfers and also seeks to validate some of the propositions mentioned in the above-mentioned literature. This paper shall answer the research questions: What is the source of financial support for the elderly? Who provides monetary support? How sustainable is the support?

## **Why Asia Matters**

Asian countries, in particular China, India, Indonesia, Japan, the Philippines, South Korea, and Thailand are ageing fast, and the old age dependency ratios in these countries are escalating unprecedentedly. Secondly, public funded social security policies and the coverage of the elderly vary considerably and are limited in many of these Asian countries. Thirdly, traditional norms, such as living with the extended family, are fast declining.

## **Size of the Elderly Population**

The two population giants of the world – China and India –taken together account for a huge absolute number of 60 plus elderly population, constituting about 20% of the world's elderly population in 2015. The most aged nation, Japan, is also in this region. At present in Japan, 60 plus adults constitute 34% of its population, and this number is projected to be 37% in 2030, 42% in 2050 and to remain more or less at this level till 2100 according to World Population Prospects (United Nations, 2015). Thailand too is ageing fast, with 19% of its population presently being above 60 years and estimated to escalate to 26% in 2030, 39% in 2050 and 40% in 2100. For the present world's most populous country, China, the share of 60 plus population is 17% and projected to reach 25% in 2030, 36% in 2050 and 40% in 2100. For South Korea, the proportion of 60 plus population for the corresponding years is 14, 19, 24 and 33% respectively, while for India, the figures are 10, 12, 19 and 35% respectively. The population of 60 plus in Indonesia too shows an increasing trend from 9% at present to 14% in 2030 and from 19% in 2050 to 29% in 2100. The share of population of 60 years and above in the Philippines, the youngest of the seven focus countries considered in this paper, is also steadily rising from 8% now to 10% in 2030, 14% in 2050, and 26% in 2100 (Mujahid 2006). About a quarter of the present elderly population of the world lives in these seven Asian countries and is exploding further. Though the economies of many of these countries have been improving over the years, they will be under tremendous pressure to meet the social security needs of the ever increasing elderly population.

## **Inadequate Social Security**

Most of the aforesaid Asian countries have low social security coverage and with greying of population the ratio of retirees to workers is rising steadily. There is considerable variation in social security systems in China, Indonesia, India, Japan,

Korea, the Philippines, and Thailand. The age of retirement from government jobs varies from 55 years in Indonesia and Thailand to 55–65 years in India and from 65 years in Japan, Korea, and the Philippines to 55–60 years in China. There is intra-country heterogeneity in retirement age – in India, it varies by states, while in China by sex, rural-urban, and white-blue collar jobs.

Japanese public pension is based on a tiered system comprising of the National Pension Program (NPP), payable at 65 years after 40 years of contribution (OECD 2011); the earning related pension is the Employees' Pension Insurance Program (EPIP), which covers the private sector workers but not the self-employed and the civil servants (Social Security Administration 2011) and employer-provided pensions represent the third tier; covered about two-thirds of the private sector EPIP participants (Oshio and Oishi 2004). In 2000, Japan introduced the Long-Term Care Insurance for the elderly (NIPSSR 2011). Ageing has put a tremendous pressure on Japan's social security, amounting to 9.8% of the GDP and compelling it to increase productivity and labour force participation rate.

Korean pension system comprises of the National Pension Scheme (NPS) – a general pension scheme covers a majority of the occupational groups, including white and blue collar workers, farmers, and urban self-employed and also covers old-age, disability and survivor pensions (Kim 2006), the Long Term Care Insurance (LTCI) for the elderly introduced in 2008 (Lee 2015) and National Basic Livelihood Security System (NBLSS) introduced in 2000 to ensure basic minimum living standard for low income persons. Today, the Korean government spends 2.6% of the GDP, and the cost of NPS is yet to mature. The cost of NPS that covers private sector workers is projected to reach 7.3% of the GDP, and the one for government employees, private school teachers and armed forces 10.2% of the GDP by 2050. At present, only 4% of the elderly are eligible for LTC.

In China the urban pension system is based on mandatory contribution and works under an unfunded individual account system and as a defined contribution through a social pool, with contributions of 20% of the salary by the employers and 8% by the employees (Leckie 2012). While the rural pension system is voluntary, it too is an unfunded plan, which works through a social pool and individual accounts as a defined contribution. The pension expenditure is 2.3% of the GDP. The main issues of social security are large rural, urban and provincial level variations and low unmatched spending as compared to the large size of aged population.

In Thailand, government employees are covered by the Government Pension Fund (GPF) – a defined contribution pension system, and the Old Age Pension – a pay-as-you-go financed state pension scheme covering the private sector workforce and a new mandatory retirement saving program called National Pension Fund (NPF) introduced in 2008. Presently about 9 million employees are covered by the scheme, with about 22 million workers in the informal sector workers being still left out.

Government Employees' Pension Scheme (GEPS) in India is for the government employees and National Old Age Pension (NOAP) launched in 1995 is to provide comprehensive old age poverty alleviation as a major component of the National Social Assistance Programme (Bose 2006). The government introduced the New Pension Scheme (NPS) in 2004, which is a defined contribution scheme wherein employees joining service after 2004 have to contribute a minimum of 10% of their salary, and there is a matching 10% contribution by the government. Unorganized Workers' Social

Security Act (UWSSA) was introduced in 2008 for workers in the unorganized sector. Low spending accounting for less than 1 % of the GDP in pension tells the inadequacy of the social security coverage in India.

A government-funded means-tested social safety net programme –Jaringan Pengaman Sosial (JPS) – was introduced in 1998 in Indonesia (World Bank 2012). National Social Security Law (*Sistem Jaminan Sosial Nasional/ SJSN law*) of Indonesia was to be implemented in 2009 but could only be implemented in 2011 under Law No. 24/2011 on Social Security Administrative Bodies (Badan Penyelenggara Jaminan Sosial, referred to as the BPJS law). It covers public health security and employment security during and in between employment. A large portion of the population is still not covered by the present pension arrangement. The benefit is confined to civil servants, military and 25% of the workers in the formal sector (Muliati 2013). About 12% of the total workforce is covered for pension and/or old-age benefits, and 40% of the population is currently covered for health insurance, including formal sector workers under compulsory health programs and poor informal sector workers under the Askeskin program (ADB 2007).

The Government Service Insurance Scheme (GSIS) in the Philippines covers workers in the public sector, while those in the private sector are covered by the Social Security System (SSS). Both GSIS and SSS are mandatory, publicly-managed defined-benefit schemes, funded from the contributions of employers, employees and investment incomes from reserves (Manasan 2009). The mandate of the SSS is to provide social security protection to all workers in the private sector, the self-employed, the household helpers and the foreign governments based in the country. About 79% of the labour force and 28% of the population 60 years and above are estimated to be covered under the defined benefit scheme.

Pension schemes, characterised by low benefit levels, limited coverage and still evolving social security in many of the aforementioned Asian countries, are inadequate for sustaining their ever growing elderly populations.

### **Changing Living Arrangement**

In Asian countries do not have well functioning established pension system (Park 2009), traditionally transfer from adult children is the main source of income of older persons (Hermalin et al. 2002; Chen and Silverstein 2000; Agree et al. (2005).

In 1975, more than half 54.4% of the elderly in Japan were in multigenerational households. This, however, had dropped to 15.3% by 2012 Kumagai (2015), while the number of those living alone and those living only with spouse increased from 3.8% to 12.0% and from 7.0% to 27.8%, respectively. The percentage of co-residence is generally lower in urban areas, among employees, and younger generations and is expected to decrease further (Koyano 2015). However rapid population ageing, rural to urban migration and one child family norm is posing a threat to the traditional familial support for the elderly (Gu et al. 2007). Chinese Longitudinal Healthy Longevity Survey (CLHLS 2005) found 64.12% of the elderly to be co-residing with children, while 21.62% were either living with spouse or alone in the vicinity of children and 9.62% were living alone or with spouse without children in the vicinity (Sereny 2011). Today many older Koreans do not live under the same roof as their children and grandchildren. Out of the six million senior citizens over 65 years in South Korea, as

many as 1.19 million live alone, which is a 2.2times increase compared to a decade ago (the Korean National Statistics Office 2012). In 17 years from 1990 to 2007, the proportion of the elderly living with working adult children in the Philippines has declined from 85 to 81%, while the proportion of the elderly living with the other elderly has increased from 50 to 54% and that of the elderly living alone has increased marginally from 4 to 6% (Racelis et al. 2012). Adioetomo et al. (2014) using the 2010 Census found that 54.8% of the older persons in Indonesia lived with their single or married offspring in one of two basic living arrangement types, with 18.3% living in two-generation households and 36.5% living in multigenerational households. Over two thirds of older Thais live in multigenerational households although living in three or more generation households has decreased substantially from 47% in 1994 to 34% in 2011 (Knodel et al. 2013). Despite these changes, a majority of the older persons (57%) live with a child and only 9% live in single person households, with the number of the elderly living alone having doubled from 4.3% in 1986. Elders in traditional Indian families were highly respected for their experience and wisdom, and children looked after their well-being. In today's changed scenario in India, the family support for the elderly is dwindling as the elderly living alone or only with spouse is escalating. Analysing NSSO's 52nd round data (1995–96), Chaudhuri and Roy (2007) found that the proportion of the older persons who live alone was at 4%, which figure rose to 12.8% in 2010 (Arokiasamy et al. 2011).

## Methods

Economic lifecycle of individuals can be studied more comprehensively in terms of age patterns of labour income and consumption. Lifecycle deficit (LCD) across ages is the excess of consumption over labour income. It is high for children and the elderly; while for individuals in the prime working age, consumption is less than their income. Consumption can be public funded, self-financed, financed by other members of the household, or borrowed. On the other hand, LCD of individuals can be financed through familial support by intra- and inter-household transfers, and asset-based reallocation – that is, income from savings and assets and public transfers either in cash or in kind through various government programs and targeted interventions including social security. From the perspective of an individual in the National Transfer Accounts (NTA) framework (United Nations 2013), the balancing of excess of consumption ( $C$ ) over labour income ( $Y_l$ ) over the lifecycle by intergenerational public and private transfers and public and private asset-based reallocation is represented as:

$$C(X) - Y^l(X) = \tau_g^+(X) - \tau_g^-(X) + \tau_f^+(X) - \tau_f^-(X) + Y^A(X) - S(X)$$

Where  $\tau_g^+$  and  $\tau_f^+$  are intergenerational public and private transfer inflows and similarly  $\tau_g^-$  and  $\tau_f^-$  are corresponding transfer outflows. These transfers are from the perspective of individuals.  $Y_A$  is the asset income from capital, property and credit, and  $S$  is the saving treated as residuals. The NTA method captures the familial and the public transfers and asset-based reallocation of the population of a country integrating



age into the National Accounts. It therefore has an edge over other methods of intergenerational familial and public economic support system of a specified economy.

## Sources of Data

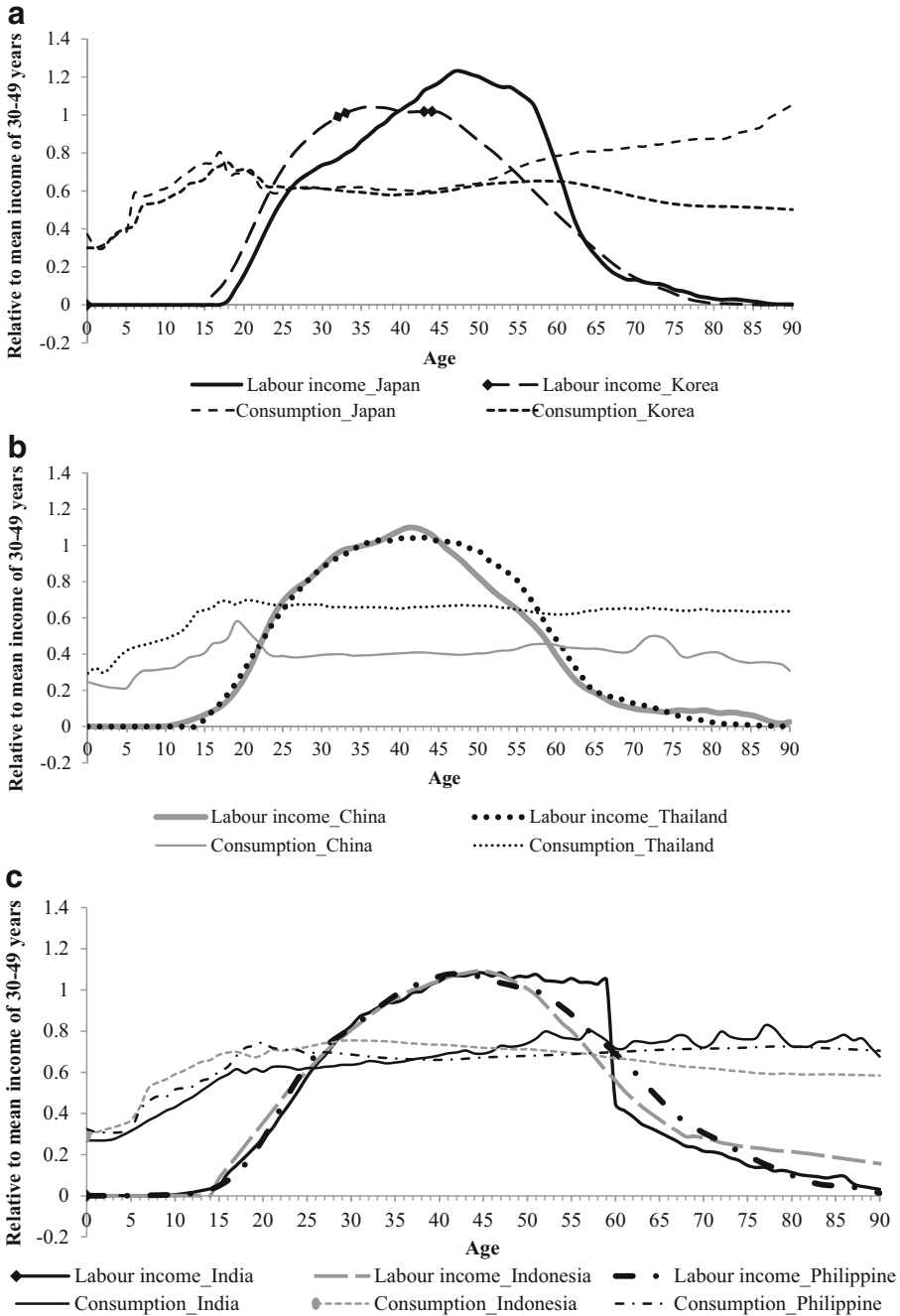
Age specific labour income ( $Y_i$ ); private consumption (CF) comprising consumption for health (CFH), education (CFE) and others (CFX); public consumption (CG) the totality for health (CGH), education (CGE) and others (CGX); familial transfer inflows (TFI) and outflows (TFO); public transfer inflows (TGI) and outflows (TGO); and asset-based reallocations private (RAF) and public (RAG) used in this study are available in the NTA Project ([www.ntaccounts.org](http://www.ntaccounts.org)). NTA estimates of these age specific profiles of familial and public consumptions, transfers and reallocations are based on average values of persons in each age group, which are adjusted for National Income and Product Accounts (NIPA) and are comparable across countries. The reference accounting year of NTA age specific data for the seven Asian countries in this study for China is 2002 (Li et al., 2011), India is 2004 (Ladusingh and Narayana 2011), Indonesia is 2005 (Maliki 2011), Japan is 2004 (Ogawa et al. 2012), Philippines is 1999 (Racelis and Ian Salas 2011), Korea is 2000 (An et al. 2011) and Thailand is 2004 (Phananiramai 2011). Population and projections by age for the Asian countries considered in this study are from United Nations (2015) World Population Prospects: Revision for medium variant projection.

## Results

### Pattern of Lifecycle Deficit

The interplay of familial support system and public welfare measures is reflected in the lifecycle deficit (LCD), define as the excess of consumption over labour income by age of individuals. Consumption considered here includes both private (household) and public (government) expenditures on health, education and others, while labour income comprises of wage return to labour and two-thirds of mixed income. Age profiles of labour income, consumption, intergenerational private and public transfers and asset-based reallocation are normalized by the average labour income of persons in the age group 30–49 years for the purpose of cross country comparisons as described in National Transfer Accounts Manual (United Nations 2013). On the basis of predominance prevailing mode of support of elderly the seven countries focus in this study are categorised as public, familial, and asset-based support oriented countries. Japan and Korea have social security system much well founded than the other countries and can be categorised as predominantly public support countries, while China and Thailand are viewed to belong to the category of familial support countries. On the other hand, the elderly in India, Indonesia, and the Philippines rely extensively on asset-based reallocation, and as such these countries are categorized as private asset-based countries.

As patterns of per capita consumption and labour income the two components of lifecycle deficits for Japan and Korea are shown in Fig. 1a, those of China and Thailand in Fig. 1b, and those of India, Indonesia, and the Philippines in Fig. 1c. Consumption



**Fig. 1** a Age patterns of labour income and consumption in Japan and Korea. b Age patterns of labour income and consumption in China and Thailand. c Age patterns of labour income and consumption in India, Indonesia and the Philippines

particularly at younger ages and at older ages reflects the contribution of public programs for human resource development and for social security and long term care

of elderly. Labour income on the other hand is moulded by labour productivity and labour market conditions among other factors. On the whole income is the key driver of private consumption and saving and also depends on the distribution of income. For Japan, the consumption relative to the mean income of 30–49 year persons starts rising from 50 years and shoots up sharply from 60 years, reflecting a high cost of social security and universal healthcare for the elderly population. Escalating cost of healthcare of elderly in Japan unfolded from the present study corroborates with the findings of Muramatsu and Akiyama (2011). High investment in human resource development in this country is evident from the high consumption in the school going age groups, which is equivalent to 60–80% of the mean income of 30–49 year olds. This consumption pattern of the elderly and the young dependents has made Japan the country with the highest LCD among the seven Asian countries considered in this study. Though Korea is among the fast ageing countries in Asia, its consumption among the elderly population is much lower than that in Japan; however, its consumption among children relative to the mean income of 30–49 year olds is almost at par with Japan. Thus the LCD of Korea is much lower than that of Japan.

China the most populous country is the second largest economy of the world (World Bank 2015) and its education system is not only immense but also is diverse. Education is state-run, with little involvement of private providers in the school sector, and increasingly decentralised. Labour incomes of China and Thailand relative to the mean income of 30–49 year olds are very similar till mid-forties; then up to about 75 years, that of Thailand is marginally higher than that of China, and thereafter, China's takes over that of Thailand. The level of consumption throughout the lifecycle is the lowest in China, though it is 60% of the average income of 30–49 year olds at 18 years corresponding to higher secondary education.

The consumption is about 40% of the average income of 30–49 year olds during the working age group and it dips down in the post retirement age. As a result, China has the least LCD among the countries mentioned here. Public investment for education in China is remarkable and gradually converging to average of OECD countries. Feature of consumption in China noted here is corroborated by the fact that though the public education expenditure is rising from 2.4 to 2.98% of GDP during 1998–2006 (Ministry of Education, 2013), overall consumption as a share of GDP is declining (Barnet and Brooks 2010). One reason for low consumption is the rising of household saving rates and the other being the declining trend of per capita household income (Aziz and Cui 2007). But in Thailand, the consumption by the elderly in the post retirement period is steadily on the rise, almost equivalent to 70% of the average income of 30–49 year old persons.

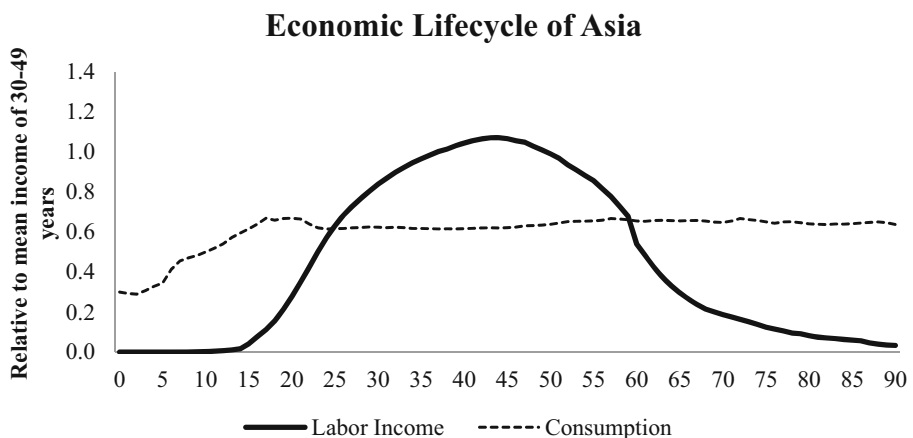
For the three countries – India, Indonesia and the Philippines – normalized labour income up to 45 years of age is very similar, but thereafter it drops sharply for India and more gradually in the case of Indonesia and the Philippines. There is a marked difference in the consumption pattern of these countries, particularly in the post retirement age. In India and the Philippines, consumption relative to the mean income of 30–49 year olds marginally increases from the level of pre-retirement consumption, but in Indonesia it dips down below the level of pre-retirement consumption. The LCD of India is less as compared to these two countries.

Regardless of the differential in the levels of age patterns of labour income and consumption, all the Asian countries have some common features in the economic

lifecycle. These are: steadily rising consumption in the post-retirement period due to healthcare costs, lower investment in social security and social assistance programs for the elderly compared to investment in human resource development, and long spell of LCD in post-retirement life. Steep decline in labour income at advancing age, thereby increasing LCD due to lack of employment opportunities for the elderly, is also a common feature of the Asian countries. The age patterns of mean labour income and mean consumption shown in Fig. 2 capture the average feature of the economic lifecycle of Asian countries. It is noted that the gap between the consumption of goods and services during childhood and at old age is wide, indicating their dependence on familial and public support. The steady in the consumption in the post-retirement age in Asian countries reflects inadequate low social security systems in most of these countries.

Labour income besides work participation rates depends on wage returns and period of work availability, while consumption depends on labour income. The interplay of labour income and consumption dictate the number of years of income surplus as the crossing points of age patterns of labour income and consumption. The cross-over ages from young dependent consumer to earner and from earner to old dependent consumer for Asian countries are shown in Table 1. China has the longest – 37 years of – income surplus over consumption in the lifecycle as the entry to labour is as early as 22 years though the average age of leaving labour market is 59 years. As public education expenditure is high as noted in the preceding paragraphs, the crossover ages in China reflects low consumption level after school age. An average of 34 years of income surplus over consumption is noticed for India, Japan, and the Philippines as the age of becoming economically active and inactive for these countries is 26 years and 60 years respectively. Though the age entry to labour market in Thailand is the same as in India, Japan, and the Philippines, the age of retirement is 58 years, which has resulted in squeezing the years of surplus income to 32 years. For Korea too, the number of years of income surplus is the same as in Thailand as the retirement age is 56 years, the shortest period of all the Asian countries to be in the labour market.

The average years of income surplus over consumption is 29 years in Indonesia, the shortest in these Asian countries as the entry into labour market is late and retirement



**Fig. 2** Asian average age patterns of labour income and consumption

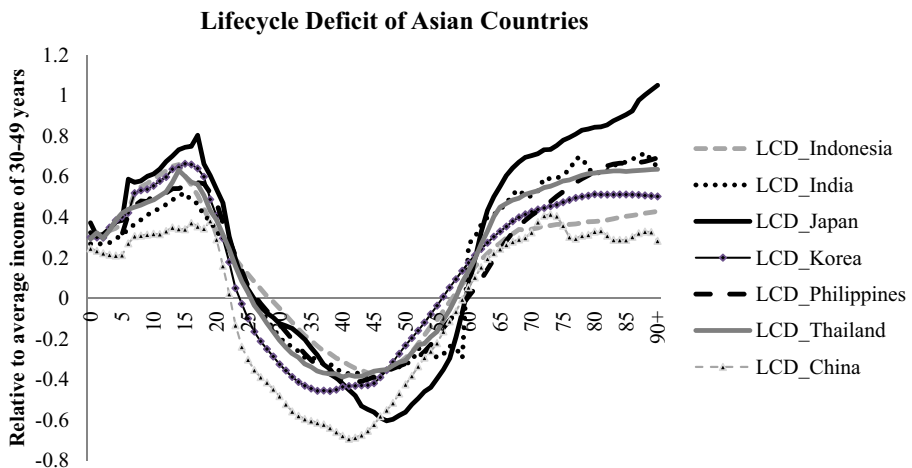
**Table 1** Cross over ages of labour income and consumption for Asian countries

Country	Consumer to earner Age	Earner to consumer Age	Years of income surplus
China (2002)	22	59	37
India (2004)	26	60	34
Indonesia (2005)	29	58	29
Japan (2004)	26	60	34
Philippines (1999)	26	60	34
Korea (2000)	24	56	32
Thailand (2004)	26	58	32

age is early. Though the age of entering and leaving labour market in India, Japan, and the Philippines are the same, the elderly in Japan are more secure than those in India and the Philippines due to strong public sponsored pension schemes and LTC. The Korean public sponsored social security system is also considered to be well-grounded among the Asian countries and the elderly have better social security during the retirement period as compared to India, the Philippines, Indonesia, China, and Thailand.

From the perspective of assessing the need for strengthening and putting in place a viable social security system for the elderly in Asia, the lifecycle deficits (the excess consumption over labour income) of these countries are shown in Fig. 3. LCDs are normalized with respect to average labour income of persons in the age-group 30–49 years.

From the high LCD of school going age range, it is noted that in most of the Asian countries except for China, India and the Philippines, the investment in human resource development is high, ranging from 50 to 80% of the average labour income of 30–49 year olds. However the social security in the post-retirement age is inadequate

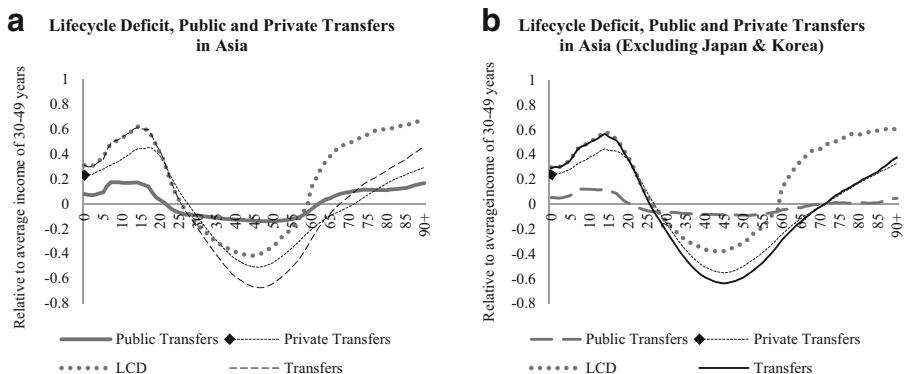


**Fig. 3** Lifecycle deficit of Asian countries

everywhere except in Japan. The LCD of the elderly is the highest in Japan, and it is more than the average labour income of persons in 30–49 years age range for the oldest old. The country also has the highest LCD for children, suggesting that support for the elderly is not at the cost of human resource development. This is made possible through the intergenerational monetary support for public social security as evident from the negative LCD, that is, surplus income of this age group. For that matter, in all the Asian countries persons in the working age group have surplus of income over consumption, which supports the elderly and the children through familial transfers and by way of taxes for supporting public sponsored social security programs. In spite of a working age population which is much larger than the elderly population, the public support for elderly is inadequate in the two population giants of the world China and India. Of the two countries as on 2009 public social spending amounting to 0.6% of the GDP in India is much lower than 2.5% in China (OECD 2014). On the other hand, though Korea has a commendable social security system, the extent of monetary support for the elderly is not as strong as in Japan, suggesting old age population and shrinking working age population.

The LCD is met by intergenerational public and private transfers and public and private asset-based reallocations as noted from the right hand side of eq. (1). The gap between the average LCD and the intergenerational transfers as means of support is shown in Figs. 4a average for all Asian countries and 4(b) average for Asian countries excluding Japan and Korea, where public sponsored social security system is well established.

It can be observed that in the Asian countries intergenerational public and private transfers completely cover the children's LCD and that familial support has a larger share than public support. However, for the post-retirement age, the gap between LCD and intergenerational public and private transfers is still wide. From Fig. 4a, it may be noted that public transfer after age 65 years contributes in meeting the LCD mainly because of public social security of the elderly in Japan and Korea. To show that public social security in the other Asian countries is inadequate to meet the LCD of the average elderly LCD, public and private transfers excluding Japan and Korea are shown in Fig. 4b. It is now noted from Fig. 4b that public transfer to the elderly is flat and is hardly above the zero line, conveying that in Asian countries other than



**Fig. 4** a Gap between lifecycle deficit and intergenerational transfers in Asia b Gap between lifecycle deficit and intergenerational transfers in Asia (excluding Japan & Korea)

Japan and Korea, old age support is solely in the form of familial transfers. The rest of the gap between LCD and intergenerational transfers is filled by largely private asset-based reallocations.

In the Asian countries considered in this paper, including Japan and Korea where public sponsored security system are fairly good, the contribution of private asset-based reallocation in filling the gap between LCD and intergenerational transfers for the elderly is significant. Figure 5 shows the sources for meeting the LCD of the 60 plus population for selected Asian countries. As discussed in the foregoing paragraph, Japan and Korea have a much better and well-established social security system. Intergenerational public transfers support 39.4% of the LCD in Japan, and it is 22.9% in Korea; but the contribution of intra- and inter-familial transfers in supporting LCD in these countries is almost negligible. However, private asset-based reallocation, which includes liquidation and sale of assets, finances 33.7 and 52.6% of the LCD of the elderly in Japan and Korea respectively. The support system in China is found to be founded on emerging public transfer constituting 41.3% of the LCD and 32.2% from private asset-based allocation. In contrast, in India, Indonesia, and the Philippines, public transfers hardly contribute anything in meeting the LCD of the 60 years and above population, and the main means of financing LCD of the elderly in these countries is private asset-based reallocation, which meets 63.9, 70.5, and 65.1% of the LCD in India, Indonesia, and the Philippines respectively. The other lifecycle feature of these three countries is that the net private transfers in the form of intra- and inter-household transfers to the elderly are negative, indicating that the elderly too contribute in supporting other household members, particularly the grandchildren for their education. For all these Asian countries, labour income largely finances the LCD – above 50% in

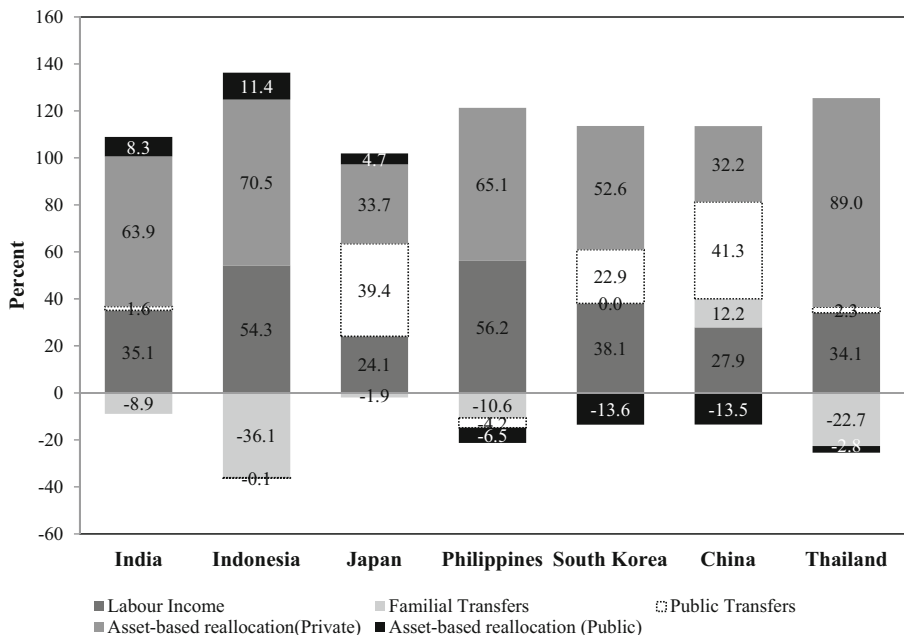


Fig. 5 Sources of financing lifecycle deficit of the elderly in selected Asian countries

Indonesia and the Philippines, marginally more than one-third in India and Korea, and about one-fourth in Japan.

## Conclusion and Discussion

Growing concerned of most Asian countries is to provide support to well-being of ever increasing elderly population. In view of the fact that social security of elderly in many of countries in Asia except for few are limited an attempt is made to assess the adequacy of the support system of the elderly provided by public programs and intergenerational familial transfers in China, India, Indonesia, Japan, the Philippines, South Korea, and Thailand. The results of the analysis using the framework of National Transfers Account (NTA) it is found that the extent of the lifecycle deficit (LCD) varies considerably among the seven among the Asian countries. The LCD of the elderly in the post-retirement age in the most aged population Japan is the highest, and the least for China, the population giant of the world. One of the feasible means to reduce LCD is to increase retirement age from public services and to make labour market elderly friendly. Legislative regulations can be considered to provide incentive to private sector companies in the form of tax rebate for employing specified minimum number of elderly. Public sponsored vocational training centres may be set up for skill enhancement of elderly to suit the changing labour market. The paper also provides an assessment of the contributions of public sponsored social security and other programs, familial intra- and inter-household transfers, and asset-based reallocations in meeting the LCD of elderly in the aforesaid Asian countries. The contribution of public transfers constitutes 41.3% of the LCD of elderly 60 years and older in China. While in Japan and Korea, the two countries with much more elegant social security systems of the elderly, 39.4% of the LCD of the 60 plus population in Japan is met by transfers from the public sponsored social security and other programs and while the corresponding figure is 22.9% for Korea. Contribution of familial transfer in China is 12.2% of the LCD but in Japan and Korea the contribution of intra- and inter-household transfers in supporting the LCD is almost negligible. In all these three countries with much sound social security systems, a large part of the LCD by asset-based reallocations and labour income. Familial support through intra- and inter-household monetary transfers to the old age population in China and Thailand is significant and is likely to remain so in the future. In Thailand, the elderly barely benefit from public sponsored welfare programs and social security, as a result of which the elderly dependence on familial support is inevitable. Both the countries are nearly completing the period of demographic dividend, but China has hopes with the recent relaxation of the one child norm. The elderly rely mainly on asset-based reallocations to finance the lifecycle deficit in India, Indonesia, and the Philippines, where 63.9, 70.5 and 65.1% of the LCD of the 60 years and above respectively are financed by private asset-based reallocations. The rest of the LCD is met by continuing to work in low paid jobs. The finding is contrary to the general belief that co-residence in Asian countries provides a safety net to the elderly. The need to increase coverage of social security in India, Indonesia and Philippines is evident from the results of the present study. However expenditure in social sector including social security and health except in Japan is not matching with the pace of aging of population in the other countries included in the discussion. About 25% of



government expenditure in Japan is spent for social security and health and second highest of 5% by Korea and China (Edes and Morgan 2014). The means to mobilise resource for increasing social security is to enhance tax revenue rate which is currently below 15% of the GDP in the aforesaid countries and very low compared to the OECD average of 34%. There is prospect of fiscal manoeuvring to increase tax revenue rate in India, Indonesia and Philippines the countries lowest public expenditure in social security and health as the window of demographic opportunity is still to phase out in these countries. Keeping cognisant of the fact that East Asia's share of global economy is growing from 20% in 1990 to 25% 2011 and projected to increase to 29% in 2017 (Oizumi 2013). Japan and Korea may consider adoption of liberal migration policy and develop closer ties with other Asian countries for sustaining social security of elderly. In India 'The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 (Government of India 2007)', was introduced to ensure familial support of elderly but enforcement is still not uniform across states in India. Likewise in Singapore under the Maintenance of Parents Act 5 when a parent is over 60 years old and he is unable to maintain himself through work or from his property or other sources, he can bring a civil action against his adult child (Republic of Singapore 1996). The support for elderly in any country cannot entirely depend on public programmes it is desirable that every country make legal provisions for familial support of elderly as in India and Singapore and implement in the right perspectives.

**Acknowledgements** Suggestions and comments of anonymous reviewers are very useful in the revision and improvement of the paper and are gratefully acknowledged. The authors also thank the participants of the Annual Meeting of Population Association of America 2016 held at Marriot Wardman Park, Washington, D.C., USA, for their valuable suggestions.

#### Compliance with Ethical Standards

**Conflict of Interest** There is no potential conflict of interest.

**Funding** This research is not funded by any organizations or institutions.

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