

## HOW SUSTAINABLE IS THE FAMILIAL SUPPORT OF ELDERLY IN ASIA?

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### Abstract

This paper examines the extent of familial monetary support to elderly in China, India, Indonesia, Japan, Korea, Philippines and Thailand representing Asian countries with diverse public social security and assistance programs for elderly. Using National Transfer Accounts framework found Japan to experience the highest and China has the lowest lifecycle deficit (LCD). Except Indonesia consumption of public and private goods and services at old ages is fast increasing. In Japan public transfer support 50.6 percent of LCD of 65 plus and 37.2 percent is met by asset-based reallocations while the corresponding figures in Indonesia and India 81.3 and 69.6 percents and just 1.2 and 2.3 percents respectively of LCD is supported by transfer from public programs. Public support of 65 plus population in South Korea constitutes 28.2 percent of the LCD and 36.1 percent is met by asset-based reallocation. In Asian countries elderly LCD support is based on asset-based reallocation.

### Introduction

In traditional societies investment in children is considered as long term saving for old age (Willis, 1980). Living in extended joint families and dependence on children has been the social norm of familial support of elderly in Asian countries. This is evident from a number of researches on the role of family in old age security particularly from that of Chen & Silverstein (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. The existing literature serves as the basis to comprehend the significance of family in supporting elderly but do not provide any quantitative assessment of the extent of monetary support elderly received from co-residing household members. As support system of elderly in any economy is the interplay of public policies and unwritten social cultural norms governing family ties (Becker & Murphy 1988), it is important to assess the extent of upward monetary transfer from children to elderly via intra-household transfer in the context of meeting consumption in excess of income, that is, the lifecycle deficit.

Monetary support either familial or through public social security programs and other policies to elderly are crucial for the wellbeing of elderly. Post retirement stage of life is characterized by increasing cost of healthcare due to deteriorating health and limited or no income. A number of social and economic propositions have explored the basis of intergenerational familial support. Becker's family model (1974, 1991) assumed that each household's head uniformly redistribute resources among family members so that surplus members' resource flows to deficit members keeping altruism motive. The more altruistic the head is the more is the investment in children without expecting any return (Becker & Tomes, 1976). Altruism can also motivate children to transfer resource to their old parents in households where parents have instituted social value of transfer (Lee et al; 1994). Implicit assumption of altruism model of family transfer is that needy family members received more than what they transfer to other members. Among others who emphasized on quid pro quo motive on 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 their own children. Though Caldwell (1976) and Goode (1963) hypothesized that over the lifecycle intergenerational flow of resources is initially from young to old, a number of

empirical findings (Kaplan 1994; Lee 2000; Preston 1982) suggest that net resources flow from old to young except in developed societies. Family members transferring resources to help another member in times of need explained the long-term role of transfers among kin as a source of insurance.

The present paper seeks to provide empirical evidence of intergenerational monetary support to elderly through public social security and familial transfers in the form of intra-household transfers and validate some of the propositions mentioned in the aforesaid literature. An accompanying objective of the study is to project the implications of the current levels of familial and public monetary transfers in terms of the ratio of benefits to contributions for selected Asian countries, namely, China, India, Indonesia, Japan, Philippines, South Korea and Thailand. This paper shall answer the research questions: What is the source of financial support of elderly? Who provide monetary support? How sustainable is the support?

### **Why Asia matters?**

Asian countries in particular China, India, Indonesia, Japan, Philippines, South Korea and Thailand are fast aging and old age dependency ratios in these countries are escalating unprecedentedly. Secondly, public funded social security policies and coverage of elderly in Asia are not as strong as in the Europe and other developed countries. Thirdly, traditional norms specially living arrangement in extended family is fast dwindling.

### ***Size of elderly population***

Old age dependency rates have increase alarmingly in the recent past and expected to increase further in Asia particularly in the two most populous countries of the world China and India besides the most aged nation Japan being in this region. Japan the country with the highest proportion of 60 plus elderly is also in Asia, presently constitutes 34 percent of its population and projected to be 37 percent in 2030, 42 percent in 2050 and remains more or less at this level till 2100 according to World Population Prospects (United Nations 2015). Thailand too is fast aging with 19 percent of its population is presently above 60 years which escalates to 26 percent in 2030, 39 percent in 2050 and 40 percent in 2100. For the present world's most populous country China the share of 60 plus population is 17 percent and projected to reach 25 percent in 2030, 36 percent in 2050 and 40 percent in 2100. Whereas in South Korea the proportion of 60 plus population for the corresponding years are 14, 19, 24 and 33 percents respectively while for India the figures are 10, 12, 19 and 35 percents respectively. The two population giants of the world China and India accounted together translates into huge absolute numbers of 60 plus of elderly constituting about 20 percent of the world's population in 2015. The population of 60 plus in Indonesia has shown an increasing trend from 9 percent at present to 14 percent in 2030, 19 percent in 2050 and 29 percent in 2100. The share of population 60 years and above in the Philippines the youngest of the seven countries focus considered in this paper is also steadily raisin from 8 percent now to 10 percent in 2030, 14 percent in 2050 and 26 percent in 2100. About a quarter of the present elderly population of the world live in the aforesaid seven Asian countries and is exploding further. Though the economies of many of these countries are improving over the years it will be tremendous pressure on these countries to meet the social security needs of ever increasing elderly population.

### ***Inadequate social security***

Pension and social security cost burden increases with rising of elderly population but most Asian countries have low social security coverage and incidence rates. There is considerable variation in social security systems in China, Indonesia, India, Japan, Korea, Philippines and Thailand. The retirement age varies from 55 years in Indonesia and Thailand, 55-65 years in India to 65 in Japan, Korea and Philippines and 55-60 years in China. There is intra-country heterogeneity in India retirement age varies by states while in China by sex, rural-urban and white-blue collar jobs.

Japanese public pension is based on tiers system, first is the National Pension Program (NPP) payable at 65 years after 40 years of contribution (OECD 2011) and a minimum of 25 years contribution is required for entitlement adjusted for the years of contribution. NPP pays flat pension of 792, 100 Yen annually. Earning related pension in addition to the NPP is the Employees' Pension Insurance Program (EPIP) and covers private sector workers but not self-employed and civil servants as the later is covered under a similar scheme. Individuals qualify for benefits at age 60 with at least 25 years of coverage and receive benefits (Social Security Administration, 2011). Employer-provided pensions represent the third tier; these plans cover about two-thirds of private sector EPIP participants (Oshio and Oishi, 2004). The coverage of the Basic Pension is universal, i.e. it is intended to cover all residents 20 years old or above in Japan including foreigners. The insurer of the National Pension and the Employees' Pension Insurance is the government. More than 60% of the elderly households in Japan depend entirely on the public pension benefits for their income. From 2000, Japan introduced the Long-Term Care Insurance for elderly. The insurance system covers the long-term care of the elderly, which was previously provided partly through the health insurance system and partly by the welfare measures for the elderly (NIPSSR 2011). Aging has put tremendous pressure on Japan's social security mounting to 9.8 percent of the GDP and coping with it increasing level of productivity and labour force participation rate.

In China formal social security scheme Basic Old Age Insurance System for Employees (BOISE) was first introduced in 1951 by the then Communist government the coverage were limited to only employees of state owned enterprises (SOE) and collectively owned enterprises (COE) were applicable to almost all workers in urban areas including government employees and related sectors (Salditt et al., 2008). Five Guarantee Scheme (FGS) was introduced in 1956 shortly after BOISE to provide safety to rural with no income, no family support and no capacity for labour. On experimental basis in 1991 pension system for rural was introduced and the success and also sustained growth of the economy resulted in continuing in a more unified manner (Cai et al. 2012). Thus Chinese pension system is diverse and complex. It can broadly be divided into urban pension system, rural pension system and civil and public service pension system. The urban pension system is based on mandatory contribution and works under unfunded individual account and defined contribution in the form a social pool, 20 percent of salary by employers and 8 percent by employees (Leckie 2012). While the rural pension system is voluntary is also unfunded social pool from individual account and defined contribution, government contributing more than 30 Yuan per year and individuals 100 to 500 yuan per year. Pension expenditure is 2.3 percent of the GDP. The main issues of social security is large fragmentations by rural, urban and at provincial level variations and low unmatched spending as compared to the large size of aged population. On the other hand civil and public pension system is mandatory based on defined benefit which is 100 percent government financed.

In Korea National Pension Scheme (NPS) a general pension scheme covers majority of occupational groups, including white and blue collar workers, farmers and urban self-employed. Entitled benefit depends not only on the average lifetime income of the subscriber but also on the average income of all NPS participants (Kim 2006). NPS covered old-age, disability and survivors pensions and lump-sum refunds. Insured persons who made contributions for at least 10 years are entitled for old age pension on reaching 60 years, disability while contributing for disability pension, survivor pension on the death of insured person to the next kin and lump-sum refund to contributors for short period.

Korea introduced the Long Term Care Insurance (LTCI) for the elderly in 2008 and it includes home care, institutional care and cash benefits in exceptional cases, all these from 65 years relax for senile and mental patients (Lee 2015). LTCI is financially supported by LTCI premiums, state and local government budgets and co-payments. Long term care can be home based provided by recognized providers or health facility based where elderly can be admitted for treatment. Beneficiaries pay 15 to 20 percent of the service fees but the poor are exempted. Benefit ceiling of LTCI ranges from 760,000 to 1,097,000 Korean Won. National Basic Livelihood Security System (NBLSS) was introduced in 2000 to ensure basic minimum living standard of low income persons. Benefits under the NBLSS includes livelihood, housing, medical care, educational, childbirth, funeral and self-support assistances. Some of this assistance is provided in kind and others in cash. Just about 65 percent of the labour force contributes to the NPS and it is stiff challenge to expand. Today Korean government spend 2.6 percent of the GDP and the cost of NPS is yet to mature. The cost of NPS which covers private sector workers is project to reach 7.3 percent of GDP and that for government employees, private school teachers and armed forces 10.2 percent of the GDP by 2050. At present only 4 percent of the elderly are eligible for LTC.

Government funded means tested social safety net programme Jaringan Pengaman Sosial (JPS) was introduced in 1998 to assist poor households to meet basic needs for food, health and education at the time crisis (World Bank 2012). National Social Security Law (*Sistem Jaminan Sosial Nasional/SJSN law*) of Indonesia was planning to implement in 2009 but could only be implemented in 2011 under Law No. 24/2011 on Social Security Administrative Bodies (Badan Penyelenggara Jaminan Sosial or referred to as the BPJS law). It covers public health security and employment security during and in between employment. The public health security is available to both indigent people with no income at all or who are underprivileged with very low income which can meet only their basic needs (classified as beneficiary of insurance premium subsidy) and employees of private entities, foreign employees who have worked in Indonesia for at least six months, informal sector workers and non-employee workers and their family members (classified as non-beneficiary of insurance premium subsidy). The employment security covers occupational accident varying from 0.24 to 1.74 percent of monthly salary depending on the grade of employee, old age security of 5.7 percent of monthly salary and death security of 0.3 percent of monthly salary. 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 percent of workers in 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).

In the Philippines, Government Service Insurance Scheme (GSIS) covers workers in the public sector while those in private sector are covered by Social Security System (SSS) providing income support to public/private employees and their families in times of contingencies including death, old age and work related disability. Both GSIS and SSS are publicly managed and mandatory and defined-benefit schemes funded from the contributions of employers, employees and investment incomes from reserves (Manasan 2009). Basic monthly pension (BMP) under GSIS is the sum of 37.5 percent of average monthly salary of three years and 2.5 percent of average monthly salary for each year of service in excess of 15 years and the cap of BMP is 90 percent of the average monthly salary. The mandate of the SSS is to provide social security protection to all workers in private sector, self-employed, household helpers and foreign governments based in the country. The benefit under SSS is link with working years and it is either 300 Philippine Peso (PHP) plus 20 percent of average monthly salary plus 2 percent of average monthly salary for service in excess of 10 years or 40 percent of average monthly salary credit or 1200 PHP for who had work between 10 to 20 years or 2400 PHP for those who had work more than 20 years. About 79 percent of the labour force and 28 percent of the population 60 years and above are estimated to be covered under the defined benefit scheme.

In Thailand, government employees are covered by the Government Pension Fund (GPF), a defined contribution pension system and Old Age Pension, a pay-as-you-go financed state pension scheme covered private sector workforce. On realization that these social security schemes introduced in the 1990s were not adequate to supplement in 2008 a new mandatory retirement saving program National Pension Fund (NPF) was introduced. Pension scheme for public sector employees there are different schemes for central government officials, central government regular employees and local government officials as well as employees of state-owned enterprises. Central government employees can continue the old system based on defined benefit plan on a non-contributory basis or opt for the new scheme GPF. Those who have opted for GPF will receive the accumulated amount plus interest at the age of 60 years and tax exempted up to certain limits. In NPF the new mandatory retirement saving pension scheme for workers in formal sector employers and employees contribution rates shall increase phase wise from 3 to 6 percent is operated with individuals account. Prior to 1999 pension coverage for private sector workers do not exist except for the old age pension scheme which covered only for disability, maternity and sickness. It is replaced by the mandatory old-age pension scheme based on pay-as-you-go pension scheme that is financed by both the employer and the employee. The employee and employer contribute 3 percent of gross salary up to a ceiling and government contribute 1 percent. Pension under this scheme is payable at the age of 55 years and has to contribute to the scheme for at least 15 years. Presently about 9 million employees are covered by the scheme and still about 22 million workers in the informal sector workers are left out.

Pension schemes in India are mostly employment linked and predominantly with workers in the organized sector. The social security provisions are constitutionally enacted under the laws (i) The Employees' Provident Funds & Miscellaneous Provisions (EPF & MP) Act, 1952; (ii) The Employees' State Insurance (ESI) Act, 1948; and (iii) The Payment of Gratuity Act, 1972. The major pension schemes are Government Employees' Pension Scheme (GEPS), Employees' Pension Scheme (EPS) and Employees' Provident Fund (EPF). GEPS is a defined-benefit and pay-as-you-go system and government employees make no contribution but forgo employer's contribution in the provident fund account. The minimum monthly entitled pension is Rs. 1250 and there is ceiling. Besides, there are provisions for health disability and family pension. EPS is also defined-benefit and pay-as-you-go system for workers earning below Rs. 5000 a month. From the employer's contribution into the EPF 8.33 percent goes to the EPS and Government makes 1.16 percent of the contribution and the maximum monthly benefit is Rs. 5000. The minimum and maximum benefit of the scheme is Rs. 250 and Rs. 5000 per month adjusted for length of service. EPF is fully funded defined contribution scheme for workers in the private unorganized sector. Employees contribute 10 to 12 percent of monthly wage and employers also makes contribution out of which amount in excess of the EPS contribution is credited to employee's EPF account. Benefit is lump sum payment at the time of retirement. All these schemes covered death and disability. The 1950s and 1960s witnessed the launch of public assistance schemes by state governments for persons facing virtual destitution. The then undivided state of Uttar Pradesh was the first to introduce an old-age pension scheme in 1957. Other states then introduced old-age pension schemes, but the timing varied (Bose 2006). National Old Age Pension (NOAP) was launch in 1995 to provide comprehensive old age poverty alleviation as a major component of the National Social Assistance Programme, but it was not meant to take over state responsibilities. Destitute person 65 years and above are eligible for NOAP and entitlement in the beginning was Rs. 75 per month and has now been enhanced to Rs. 200 (Ladusingh 2013). Government introduced New Pension Scheme (NPS) from 2004 which is a defined contribution scheme wherein employees joining service afterwards have to contribute minimum of 10 percent of their salary and there is a matching 10 percent contribution by the government. According to Asher (2006) NPS is equivalent of the individual retirement account in USA. About 90 percent of the labour force are in unorganized sector and to extend social security to workers in this sector Government of India (GoI) passed Unorganized Workers Social Security Act (UWSSA) in 2008. This is tied with three schemes, namely, Rashtriya Swasthya Bima Yojana (RSBY), Aam Admi Bima Yojana (AABY) and

National Pension Scheme- Swavalamban (NPS-S) which are health insurance, life insurance and pension scheme respectively largely for the population below the poverty line and workers in unorganized sector. Low spending accounting for less than one percent of the GDP in pension tells the inadequacy of social security coverage. The benefit of the NPS is tilted in favour of workers in formal sector as they have regular source of income and the benefit of targeted social assistance schemes is too meagre to meet the minimum subsistence level.

### ***Changing Living Arrangement***

In countries where the social security system is inadequate elderly depends on the socio-cultural practice of co-residence in extended families. The assessment of changing living arrangement of elderly in the traditional Asian countries is pertinent to consider when it comes to the welfare of elderly.

The traditional living arrangement of the Japanese elderly is patri-lineal and patri-local. In 1975, more than half 54.4 percent of the elderly in Japan were in generational households. The rate, however, had dropped to 15.3 percent of the total households with the elderly by 2012 Kumagai (2015), while that of living alone and 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). According to Confucian principle of filial piety Chinese adult children are expected to care for their elderly parents. Co-residence with adult children, specially the eldest traditionally was the source of social security in China. Children either continued to stay in parents home or in the vicinity of parents even after marriage and elderly used to move to live with one of their children when they cannot care themselves (Korinek, Zimmer, and Gu 2011). However rapid population aging, rural to urban migration and one child family norm is posing threat to the traditional familial support of elderly (Gu, Dupre, and Liu 2007). Chinese Longitudinal Healthy Longevity Survey (CLHLS 2005) found 64.12 percent of elderly co-residing with children, while 21.62 percent were either living with spouse or alone in the vicinity of children and 9.62 percent live alone or with spouse but in the vicinity of children (Sereny 2011). The traditional family pattern of Korea has often been described as a stem family in which multi-generation family members live together with the elderly supported by the young generation. Confucianism emphasizes filial piety in vogue for hundreds of year has been the bedrock of Korean society is eroding with time. Today many older Koreans do not live under same roof as their children and grandchildren. Out of the six million senior citizens over 65 in South Korea, as many as 1.19 million live alone, which is 2.2times increase compared to a decade ago (the National Statistics Office, 2012). Domingo (1994) claimed that aging is a low priority issue for the Philippine government, and Filipinos rely on the family, especially female members, for support. Children are expected to fulfil a debt of gratitude, or utang na loob, to their parents as they grow older. Further changes in the family, such as later marriage among females, and the resulting lower fertility, have implications to care giving for the elderly in the country. In 17 years from 1990-2007 the proportion of elderly living with working adult children has decline from 85 to 81 percent, while elderly living with other elderly has increased from 50 to 54 percent and living alone has increase marginally from 4 to 6 percent (Racelis et al., 2012). As of 2012, a recorded 6.8 million of the 90 million country population are 60 years old and above, growing at a rate of 4.39 percent from 1995 to 2000 (Manila Bulletin 2012). The family has been the most important support system for older people in Indonesia and most older people co-reside with at least one child; the urban elderly are more likely to live with their children, while the rural elderly are less likely to live with their children (Kadar et al., 2012). Adioetomo et al.(2014) using 2010 Census have found that 54.8 percent of older

persons lived with their single or married offspring in one of two basic living arrangement types, which comprises of 18.3 percent living in a two generation households and 36.5 percent living in multigenerational households. Most Thai people are Buddhists who believe in the concept of repayment for their parents' goodness and usually live with their parents. Over two thirds of older persons live in multigenerational households although living in three or more generation households has decreased substantially from 47 percent in 1994 to 34 percent in 2011 (Knodel et al., 2013). Despite these changes, a majority of older persons (57 percent) live with a child and only 9 percent live in single person households and elderly living alone has doubled from 4.3 percent in 1986. Extended families where members share the common property of the family and grandfather was the authority in family matters and defiance of elders was unthinkable were the family system in India. Elders in traditional Indian families were highly respected for their experience, wisdom and children look after their well-being. In today's changed scenario, the family support for elderly is dwindling as elderly living alone or with spouse is escalating. Analyzing NSSO 52<sup>nd</sup>. round (1995-96) data Chaudhuri and Roy (2007) found that older persons who live alone was 4 percent and rise to the corresponding figure of 12.8 percent 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. Life cycle deficit (LCD) across ages is the excess of consumption over labour income, it is high for children and elderly while for individuals in the prime working age consumption is less than their income. Consumption can be public funded, self financed, finance 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, 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. In 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

$$C(x) - Y^l(x) = \tau_g^+(x) - \tau_g^-(x) + \tau_f^+(x) - \tau_f^-(x) + Y^A(x) - S(x) \quad (1)$$

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. NTA method captured 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 edge other methods of intergenerational familial and public economic support system of a specified economy.



To analyse the implication of growing elderly population and declining young population over time with changing age structure fiscal burden of old and young dependents on working population as in Ladusingh (2013), we define  $G_{0-14} = E_{0-14} - R_{0-14}$  and  $G_{60+} = E_{60+} - R_{60+}$  as the net public transfer gain of young and old dependents in 0-14 years and 60 years & above, from the excess public expenditure (E) over the public revenue collected (R) from the two respective age groups, then total net gain of dependent population in the year t is

$$\begin{aligned} G_{d,t} &= (G_{0-14}P_{0-14} + G_{60+}P_{60+})_t \\ &= (G_{60+}(P_{60+} + rP_{0-14}))_t \\ &= (G_{60+} * P_d^a)_t \end{aligned} \quad (2)$$

where  $r = \frac{G_{0-14}}{G_{60+}}$ ,  $P_d^a = P_{60+} + rP_{0-14}$ ,  $P_{0-14}$  is population in 0-14 years and  $P_{60+}$  is population 60 years and above.

The fiscal net gain of dependent population is supported by working population  $P_{15-59}$  in 15-59 years, thus the fiscal dependency burden in the year t is

$$FDB_t = G_{d,t}/P_{15-59,t} \quad (3)$$

The fiscal dependency burden ratio in year t is

$$\begin{aligned} FBR_t &= \left( G_d * \frac{P_{0-14} + P_{60+}}{(P_{0-14} + P_{60+})P_{15-59}} \right)_t \\ &= (G_{60+} * A * PDR)_t \end{aligned} \quad (4)$$

where PDR is the population dependency ratio,  $A = \frac{P_d^a}{(P_{0-14} + P_{60+})}$

### Sources of data

Age specific labour income ( $Y_l$ ), private consumption (CF) comprising of 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), asset based reallocations private (RAF) and public (RAG) for the seven countries used in this study are available in 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 comparable across countries. 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 life cycle deficit***

Labour income and consumption profiles of the seven Asian countries, namely, China, India, Indonesia, Japan, Korea, Philippines and Thailand shown in figure 1 reveals considerable variation in the pattern of life cycle deficit (LCD) across these countries.

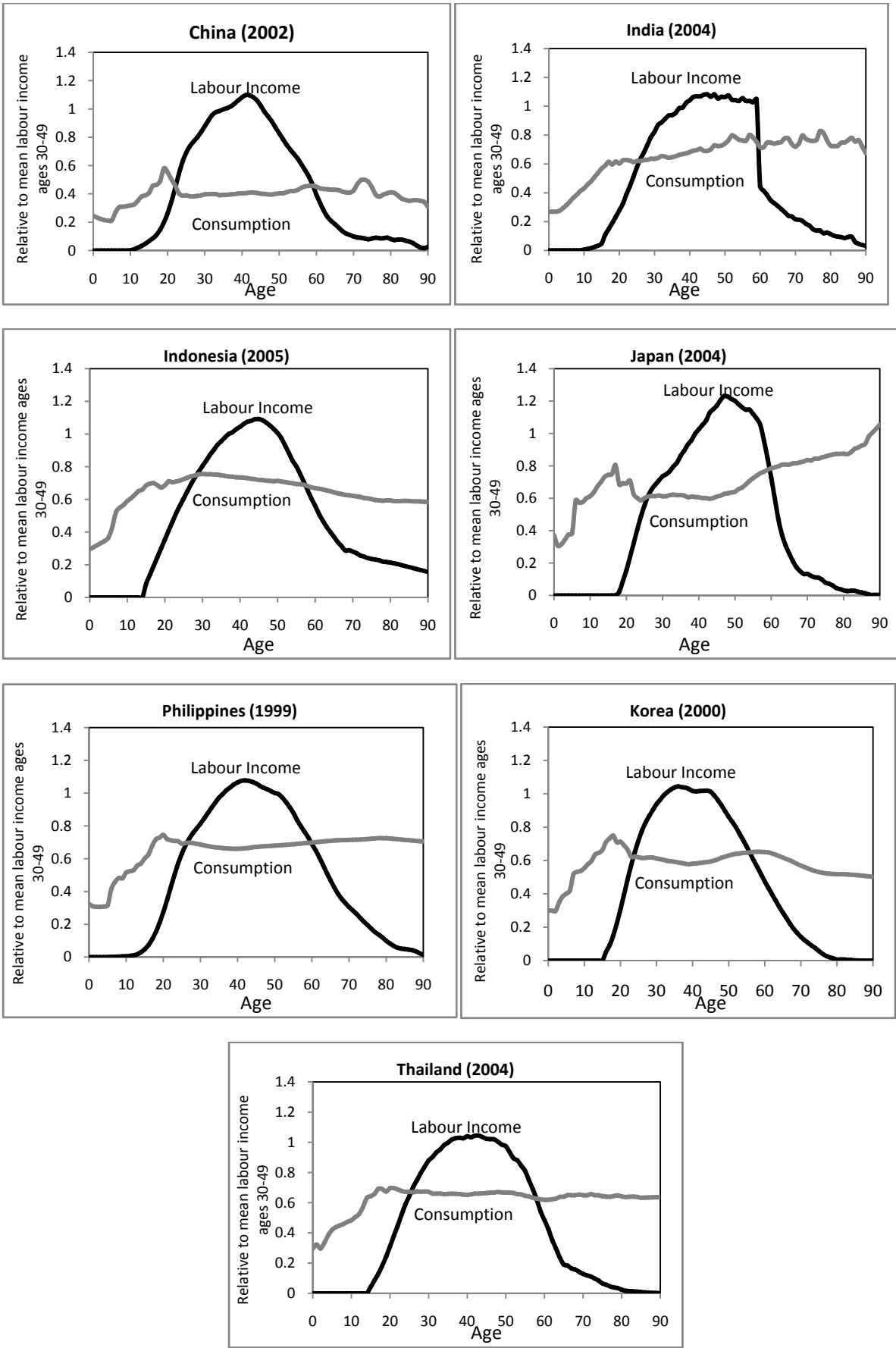


Figure 1: Age patterns of labour income and consumption of seven Asian countries

Consumption includes both private (household) and public (government) expenditures for health, education and others while labour income comprises of wage return to labour and two-third of mixed income. Labour income and consumption are normalized with the average labour income of persons in 30-49 years for the purpose of cross country comparison. For Japan the consumption relative to mean income of 30-49 year persons start rising from 50 years and shut up sharply from 60 years reflecting high cost of healthcare of elderly population which is even more than the average income of 30-49 year persons. High investment in human resource development in this country is evident from the high consumption equivalent to 60-80 percents of mean income of 30-49 years in school going age groups. These consumption patterns of elderly and young dependents has made Japan to categorize as the country with the highest LCD among the seven Asian countries considered in this study. The level of consumption throughout the lifecycle is the lowest in China, though it is 60 percent of the average income of 30-49 year persons at 18 years corresponding to higher secondary education, consumption is about 40 percent of the average income of 30-49 year during the working age group and dips down in the post retirement age. As a result China has the least LCD among the countries mentioned here.

Though Korea is among the fast aging country in Asia in terms of consumption of elderly population is much lower than that in Japan but consumption of children relative to mean income of 30-49 year persons is almost at par with that of Japan. Thus the LCD of Korea is much lower than that of Japan. In the Philippines, India and Thailand as well the consumption of elderly in the post retirement period is steadily on the rise almost equivalent to 70 percent of the average income of 30-49 year persons but human resource investment in terms of private and public consumption in India is much lower than that in the Philippines and Thailand. Thus the LCD of India is lesser as compared to these two countries. Consumption in post retirement in Indonesia do not show sign of rapid rise with age and also the level of income relative to mean of 30-49 year persons remains higher than in other Asian countries, thus contributing to low LCD.

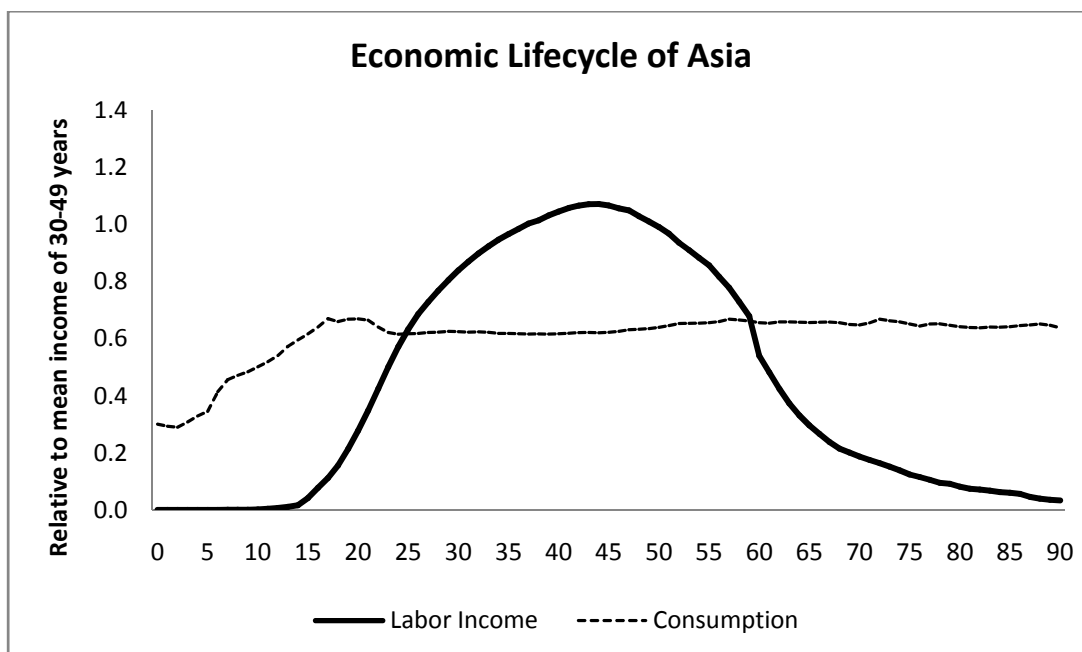


Figure 2: Asian average age patterns of labour income and consumption

Regardless of differential in the levels of age patterns of labour income and consumption, all the Asian countries have some common feature in the economic life cycle, these are, steadily rising consumption in the post retirement period due to healthcare cost, 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 elderly is also a common feature of the Asian countries. Age patterns of mean labour income and mean consumption shown in figure 2 captured the average feature of the economic life cycle of Asian countries. It is noted that the gap between consumption of goods and services during childhood and at old age is wide indicating that they depend on familial and public support. Number of years of income surplus over consumption can be ascertained from the crossing points of labour income and consumption profiles. This is the period in the lifecycle with potential to provide support to dependent children and elderly. 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. On the average 34 years of income surplus over consumption is notice for India, Japan and Philippines as the age of becoming economically active and inactive for these countries are 26 and 60 years respectively. Though the age entry to labour market in Thailand is the same as in India, Japan and Philippines the age of retirement is 58 years which resulted in squeezing the years of surplus income to 32 years and for Korea also 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.

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

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 at late and retirement age is early. Though the age of entry and leaving labour market in India, Japan and Philippines are the same due to strong public sponsored pension schemes and LTC elderly in Japan are more secured than those in India and Philippines. In Korea too public sponsored social security system is also considered to be well grounded among the Asian countries and retirement period for elderly have better social security compared to the Asian countries, such as, India, Philippines, Indonesia, China, and Thailand.

From the perspective of assessing the need for strengthening and putting in place a viable social security for the elderly in Asia the lifecycle deficit (the excess consumption over labour income) of these countries are shown in figure 3. LCD are normalized with respect to average labour income of

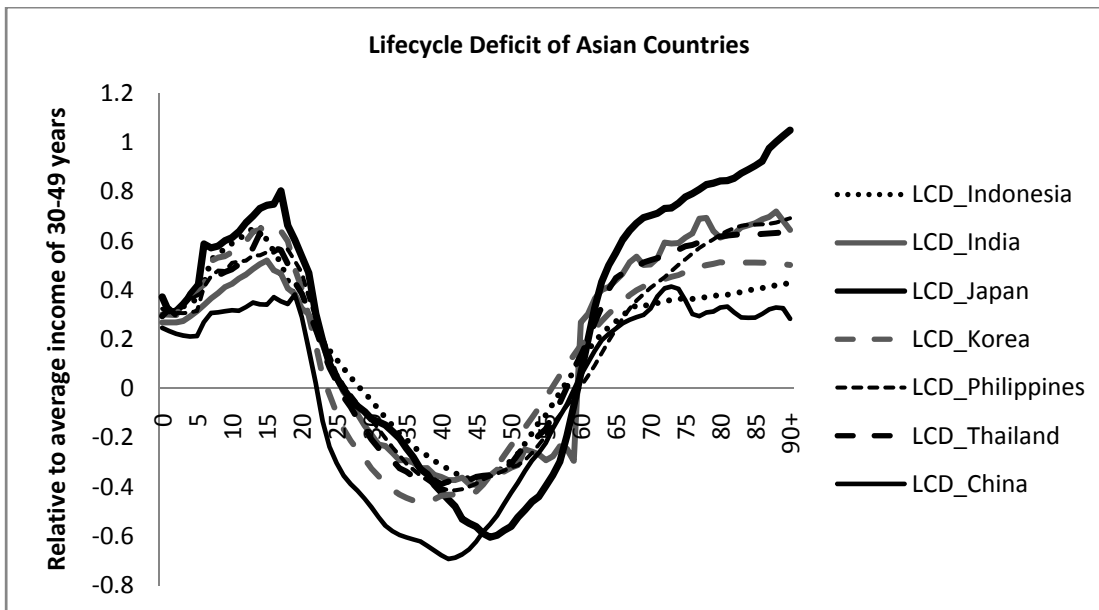


Figure 3: Lifecycle deficit of Asian countries

persons in 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 Philippines investment in human resource development is high ranging from 50 to 80 percent of the average labour income of 30-49 years. However the social security by public and familial support system to the elderly in post retirement age is inadequate except in Japan. LCD of elderly is the highest in Japan and it is more than the average labour income of persons in 30-49 years for the oldest old. The country also has the highest LCD for children as well suggesting that support to the elderly is not at the cost of human resource development. This is made possible through the familial monetary transfers and supporting public social security system by persons in working age as evident from the negative LCD, that is, surplus income, of this age group. For that matter in all the Asian countries persons in working age group have surplus of income over consumption which supports elderly and children through familial transfers and paying taxes for supporting public sponsored social security programs but the support is inadequate for many Asian countries, China and India in particular in spite of large working age population much larger than the elderly population. This is largely due to the lack of well grounded social security system. On the other hand though Korea has appreciable social security system the extend of monetary support to 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, public and private asset based reallocations as noted from the right hand side of equation (1). The gap between average LCD and intergenerational transfers as means of support are shown in figures 4(a) average for all Asian countries and 4(b) average without Japan and Korea, where public sponsored social security system is well established.

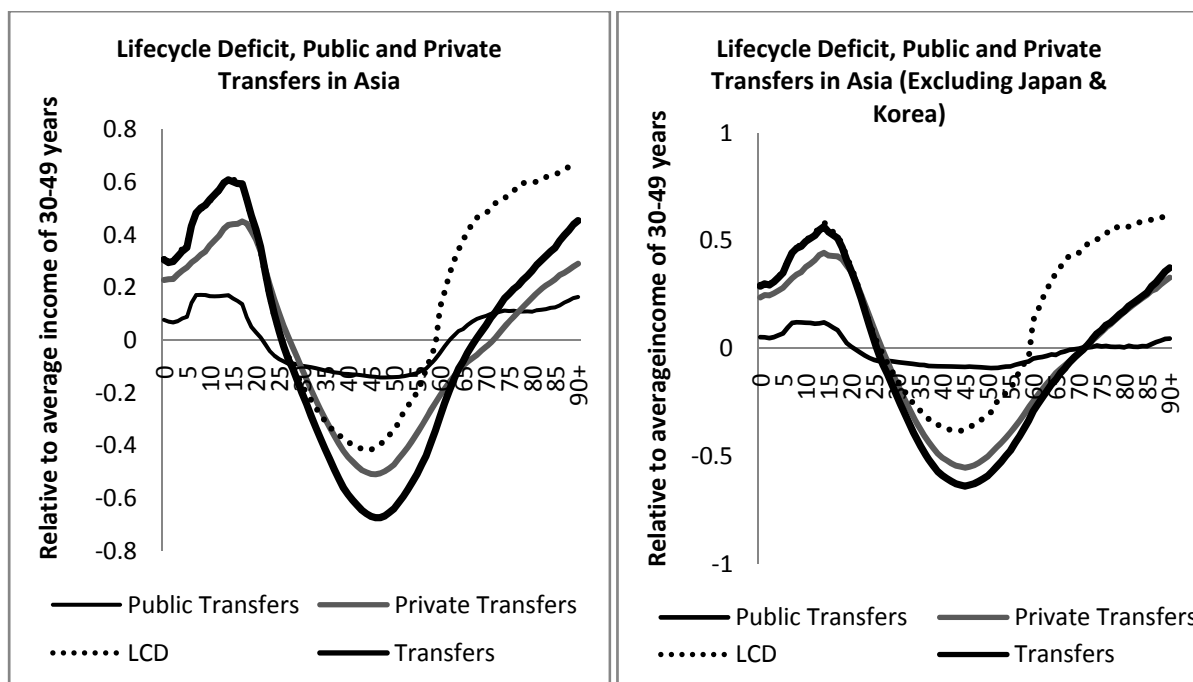


Figure 4(a): Gap between lifecycle deficit and intergenerational transfers in Asia

Figure 4(b): Gap between lifecycle deficit and intergenerational transfers in Asia (less Japan & Korea)

It can be observed that in the Asian countries as for the children intergenerational public and private transfers completely covered their LCD and familial support has larger share than the public support. However for post retirement age the gap between LCD and intergenerational public and private transfers is still wide. The gap in figure 4(a) is less due to the significant contribution of public transfers in Japan and Korea as compared to the gap in figure 4(b) which is the Asian average without Japan and Korea. It is also noted from figure 4(b) public transfer to elderly is flat and is hardly above the zero line conveying that in Asian countries other than Japan and Korea old age support is solely by 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 elderly are significant. Figure 5 shows the sources of meeting LCD of elderly 60+ years for selected Asian countries. As discussed in the foregoing paragraph Japan and Korea have much better and established social security system, intergenerational public transfer support 39.4 percent of the LCD in Japan and it is 22.9 percent in Korea but the contribution of intra and inter familial transfers in making up LCD in these countries are almost negligible. However private asset based reallocation which includes liquidation and sale of assets financed 33.7 and 52.6 percents of LCD of elderly. In contrast in India, Indonesia and Philippines public transfer hardly contribute anything in meeting the LCD of elderly 60 years and above and the main means of financing LCD by elderly in these countries is by private asset based reallocation meeting 63.9, 70.5 and 65.1 percents of the LCD in India, Indonesia and Philippines respectively. The other lifecycle feature of these three countries is that the net private transfer in the form of intra and inter household transfers to the elderly are negative indicating that elderly too

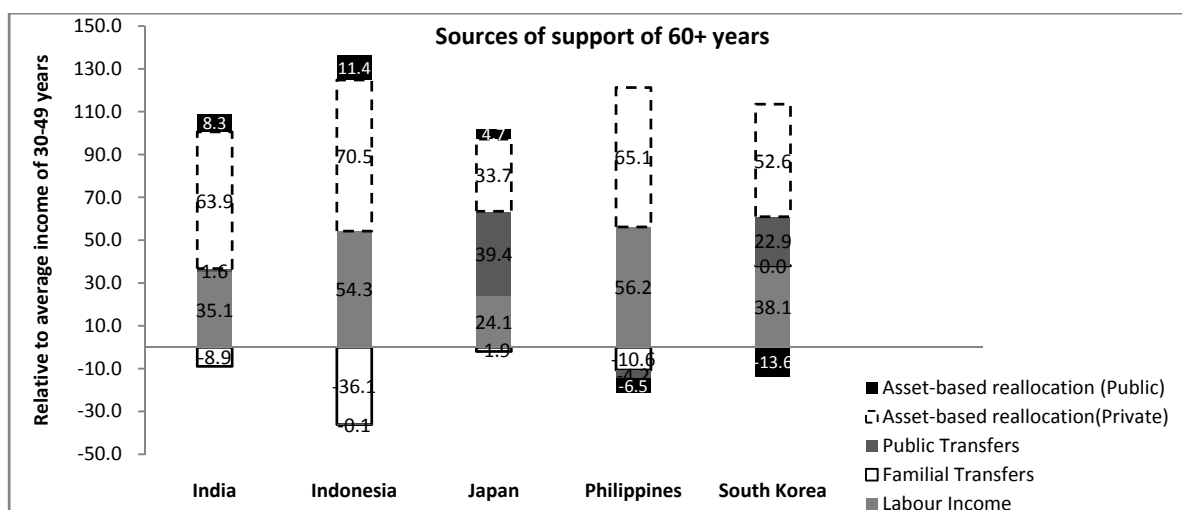


Figure 5: Sources of financing lifecycle deficit of elderly in selected Asian countries.

contribute in supporting other household members particularly grand children for the education. For all these Asian countries labour income largely financed the LCD above 50 percent in Indonesia and Philippines, marginally more than one-third in India and Korea and about one-fourth in Japan.

Elderly are both beneficiaries and contributors to public and familial supports and the net gain can be assessed by the ratio of monetary benefit to contribution. The values of this ratio projected to 2100 holding the per capita age specific monetary transfers and receipts multiplied by the projected population of United Nations (World Population Prospects, 2015) are shown in table 2. The ratio value of 1 indicates the

Table 2: Projected ratio of monetary benefit to contribution by 60 plus population in Asia from public and private intergenerational transfers

Asian Country	Support System	Year									
		2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
China	Public	2.35	2.35	2.36	2.57	2.47	2.63	2.58	2.51	2.61	2.55
	Familial	1.22	1.22	1.24	1.36	1.46	1.55	1.71	1.66	1.66	1.77
India	Public	1.04	1.04	1.04	1.05	1.05	1.05	1.06	1.06	1.07	1.07
	Familial	0.90	0.89	0.91	0.93	0.94	0.96	0.98	1.01	1.02	1.04
Indonesia	Public	0.99	0.97	0.98	1.00	1.02	1.02	1.03	1.03	1.05	1.05
	Familial	0.52	0.50	0.51	0.52	0.55	0.56	0.56	0.57	0.58	0.60
Japan	Public	2.26	2.50	2.55	2.54	2.65	2.79	2.74	2.71	2.73	2.74
	Familial	0.94	0.98	1.04	1.02	1.05	1.12	1.10	1.09	1.09	1.10
Korea	Public	1.85	1.81	1.80	1.96	1.92	1.92	1.97	1.96	1.97	2.00
	Familial	1.00	1.02	0.98	1.08	1.12	1.10	1.15	1.17	1.18	1.22
Philippines	Public	0.89	0.88	0.89	0.90	0.90	0.91	0.92	0.92	0.92	0.93
	Familial	0.90	0.90	0.91	0.93	0.94	0.94	0.96	0.98	0.99	1.00
Thailand	Public	0.79	0.79	0.80	0.83	0.85	0.86	0.87	0.87	0.88	0.88
	Familial	1.44	1.44	1.47	1.54	1.60	1.63	1.65	1.67	1.68	1.69

elderly get monetary benefit equal to the contribution. As of 2010 the monetary benefit received by 60 plus population from targeted public programs in the case of Japan, Korea and China is nearly double in Korea and more than double in Japan and Korea of the monetary contributions they made for public programs. For these countries the public benefit to contribution ratio increases steadily

over time and the benefit reach 2.74 times of the contribution by 2100 in Japan, 2.55 times in China and twice in Korea. This implies that if the current public sponsored programs continues the 60 plus old population get monetary benefit more than their monetary contribution to public programs but for country like China what matters is the rate of contribution and benefit are below the subsistence level. Elderly in China are luckier than in other countries as far as the familial monetary support by intra and inter household transfers. In 2010 the benefit of elderly in China is 1.22 times their monetary contributions and continuation of the same flow of familial support the benefit elderly received from familial transfer is expected to be 2.55 times their contribution for supporting other members. Thailand is the other country with generous familial support to the elderly and if the same level of monetary support continues the ratio of benefit to contribution is expected to rise from 1.44 in 2010 to 1.69 in 2100. Both the public and familial support systems to elderly in India and Philippines are not pro-elderly as the benefit to contribution ratio hovers at 1 and it is agreement with the preceding results that in these two countries elderly depend largely on private asset based allocation to finance the LCD. Indonesia is the only Asian country very weak familial support system to the elderly and even the public support programs are not benefiting the elderly, in this country too 60 plus population as seen from the preceding results survived on private asset based reallocation. Under the prevailing socio-cultural practices of supporting elderly and with the assumption of continuity of the current level of monetary support to elderly and monetary contribution of elderly to the family the familial support of elderly in Thailand and China is sustainable and it is just at the subsistence level for Japan and Korea. India, Indonesia and Philippines are the countries where evidence of sustainability of familial support to the elderly is in doubt.

Table 3: Projected fiscal burden rate of working population to aging population in Asia

Year	China	India	Indonesia	Japan (in 000)	Philippines	Korea	Thailand
2010	495	855	557	936	2522	907	2933
2020	642	742	496	1149	2192	848	2204
2030	865	680	454	1273	1967	1009	1573
2040	1100	644	425	1458	1745	1122	1441
2050	1315	635	413	1607	1546	1129	1602
2060	1459	662	395	1646	1375	1238	1697
2070	1368	704	386	1531	1266	1295	1820
2080	1390	752	389	1493	1153	1335	2041
2090	1416	810	393	1491	1082	1428	2195
2100	1359	860	396	1489	1032	1470	2263

Note: The figures are in respective currency of each country

The fiscal burden of contribution to public sponsored social security and other targeted programs to support elderly are bear mainly by the working population. Per capita contribution by working population in 15-59 years to sustain the current level of benefit by elderly and young dependents in future, that is, the fiscal burden ratio (FBR) of working population for the Asian countries are shown in table 3. With the changing age structure the working age adult burden to sustain the current level of monetary benefits to elderly and children currently is 495 Yuan and likely to increase to 1395 Yuan in 2100. This is because 60 plus population in this country is ever increasing at a higher rate than the working population. Public social security system being the weakest of the Asian countries



discussed in this paper the fiscal burden ratio (FBR) is seen sliding down from 557 Rupiah per working adult in 2010 to 396 Rupiah in 2100 though demographic transition is pushing up the working age population. Philippines also do not have adequately established social security system and this reflected in the high dependence by elderly on private asset reallocation noted in the preceding results and constantly declining FBR of working population from 2522 PHP in 2010 to 1032 PHP in 2100 assuming that the current level of per capita transfers benefit and contribution to the public continues in the changing age structure of the population. Both Indonesia and Philippines have the opportunity to take advantage of demographic fortune of increase in working age population. Thailand and India are the two countries where public social security system is more in the form of assistance schemes and in these two working age population is still on the rise simultaneously with the increasing population of 60 plus. In these countries FBR of working population is nearly stable with slight decline 2020-40, it was Rs. 855 for India and 2933 Baht for Thailand in 2010 and Rs. 860 and 2263 Baht respectively in 2100. Among the Asian countries Japan and Korea have more pro-elderly and established social security system with the same current level of contributions as the size of population 60 years and above is huge as a result the FBR of working population increases from 907 won in 2010 to 1470 Won in 2100 in the case of Korea while the corresponding increase in FBR for Japan is 936 thousand Yen to 1489 Yen.

### **Conclusion and discussion**

The objective of this paper is to assess the adequacy of support system of elderly through public programs and familial social obligations in selected Asian countries. The results of the analysis using framework of National Transfers Account (NTA) clearly bring out the extent of lifecycle deficit (LCD) vary considerably even among the Asian countries. LCD of elderly in post retirement age is the highest for Japan the most ageing population and the least for China the population giant of the world. To answer the question raise in the paper, the extent of contributions of monetary transfers by public sponsored social security and other programs, familial intra and inter household transfers and asset based reallocations to meet the LCD are analyze. In Japan and Korea the two countries with established and generous public support system for the elderly, 39.4 percent in Japan and 22.9 percent in Korea of the LCD of 60 plus population are met by the public sponsored social security and other programs and even in these two countries elderly finance the large part of the LCD by asset based reallocations and labour income. The contribution of intra and inter household transfers in financing LCD in these two countries are almost nil. Like in countries in advanced economies familial support to elderly in Japan and Korea are dwindling out. In these countries continuation of the current social security programs shall increase fiscal burden ratio on working population and moreover for Japan the period of demographic dividend is already lapse and Korea too soon pass out the period of demographic fortune of increasing work force as can noted from figure 6. The two countries sooner or later have to open up to immigration to sustain social security. The timing of demographic dividend for the Asian countries is based on economic support ratio (ESR) defined as the ratio of population weighted monetary value of consumption to population weighted income. Familial support by intra and inter household monetary transfers to old age population in China and Thailand are still significant and also is likely to sustain in future. Though in China the monetary benefit elderly received from targeted public programs is more than their contributions the rate of contribution and benefit are below the subsistence level and coverage is limited. But for Thailand elderly barely benefits from public sponsored welfare programs and social security and elderly

dependence on family support is inevitable. Both the countries are nearly completing the period of demographic dividend but China has hope with the recent relaxation of one child norm. India,

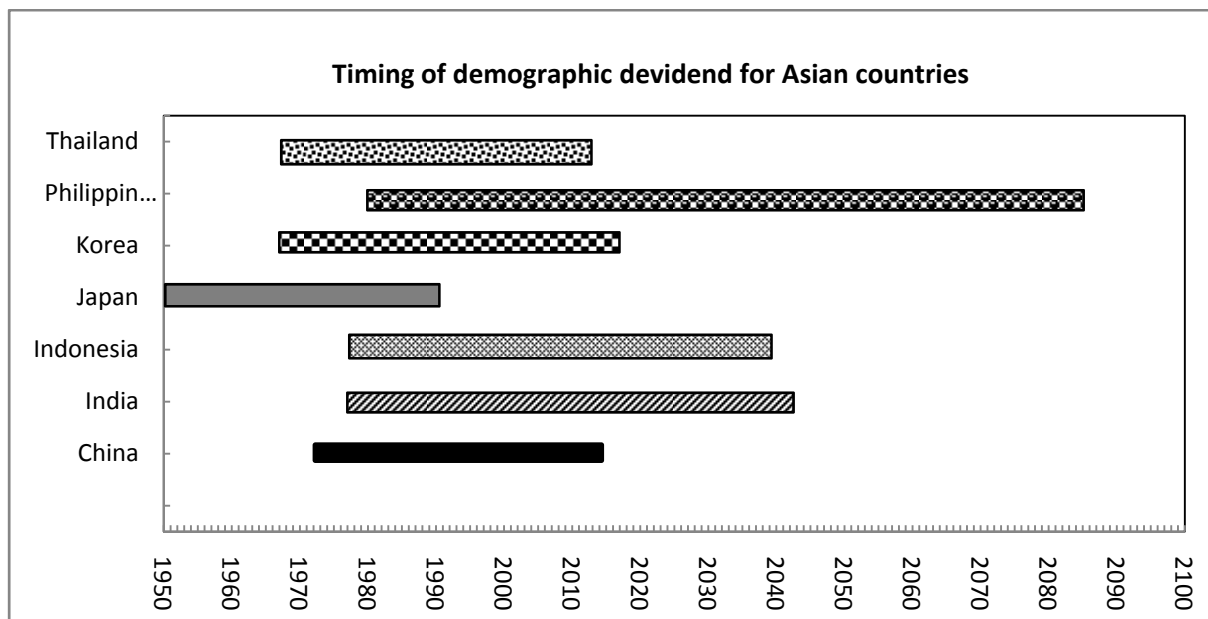


Figure 6: Timing of demographic dividend for Asian countries

Indonesia and Philippines are the three Asian countries where neither the public nor familial supports to 60 plus population are adequate. Elderly rely mainly on asset based reallocations to finance lifecycle deficit, 63.9, 70.5 and 65.1 percents of LCD elderly 60 years and above in India, Indonesia and Philippines respectively are finance 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 provide safety net to the elderly. These countries have to grasp the opportunity of demographic dividend and strengthen and make social security of elderly sustainable before phasing out of the window of opportunity.

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