

FINANCING YOUNG AND ELDERLY DEPENDENTS: THE CASE OF INDIAN PUBLIC POLICY

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In this paper the author explores the monetary benefits of young and elderly dependents under the public policy that introduced age into the National Accounts of India, the framework of the National Transfer Accounts. The results of the study indicate that the net monetary gain of young dependents is more than seven times higher than that of elderly dependents. It is suggested that there is a need to reorient the country's fiscal policy in order to meet the demand for sustainable social security in the face of impending population ageing in the decades ahead. A desirable policy strategy would be to convert all social assistance programmes into a single long-term national social security programme, the scope of which would encompass various aspects of intergenerational equity, raise the level of entitlement to match actual need and make national social security a universal programme.

JEL Classification: J11, J14, J18.

Key words: Fiscal burden, life cycle deficit, public transfers, tax policy.

I. INTRODUCTION

Institutionalization of public welfare programmes varies considerably within and between countries and continents. Public policies regulate the goods and

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services that are furnished to citizens and the monetary value of the goods and services that varies from economy to economy. Public institutions mediate intergenerational transfers for health care, social security and other welfare programmes by collecting direct and indirect taxes, generating revenue and borrowing money. The fiscal policy of a country has to be sensitive to its age composition as the nature of public goods and services to be provided depends on the country's age structure in addition to other factors. A change in the age structure of the population is likely to trigger substantial shifts in prioritization of public funding. With the gradual ageing of India's population, one of the implications of the change in the country's age structure is an increased demand for health care and social security. In formulating the fiscal policy of a developing country such as India, the Government has to address a number of pressing issues, such as financing education, health care, social security, unemployment, infrastructure and intergenerational equity; it is for these reasons that needs-based prioritization of programmes is a challenging task. Therefore, an attempt has been made in the present paper – in the light of the interface of public programme priorities, fiscal policy and age composition – to evaluate (in cash or in kind) the receipt of such benefits by individuals through public programmes and the payments made by individuals for such programmes. The monetary value of inflows to individuals and outflows from individuals considered in this study is consistent with National Income and Product Accounts. The study is focused on age dependent groups, that is, the young (0-14 years) and the elderly (60 years and older). In the study, the long-run fiscal dependency burden of the working-age population (15-59 years) for supporting both young and elderly dependents is also examined. In this regard, fiscal dependency is defined as the ratio of the aggregate monetary transfer to that received from the public programmes.

While contributing to the literature on ageing, this study also brings to light the need for reorientation of the fiscal policy of India to meet the demands of a steadily ageing population. Based on the analysis of the monetary value of intergenerational transfer using the framework of National Transfer Accounts (Mason and others, 2009), it is argued that in the country's fiscal policy insufficient attention has been paid to the ageing of the population while prioritizing public programmes to maintain intergenerational equity. The net gain of the population aged 60 years and older from public in cash or in-kind transfers, including social security, in excess of their contribution to public programmes, largely in the form of direct and indirect taxes, is less than 2 per cent. The paper is also focused on the urgent need for broadening and revamping the social security system in view of the persistently high level of the per capita life cycle deficit, the excess of consumption over labour income during the post-retirement period.

A better understanding of old-age consumption and the taxation system is helpful in the process of strengthening fiscal policies for an ageing population. There are four reasons for government tax-transfer programmes – raising revenue, redistributing income, correcting market failures and paternalism. The present study has futuristic relevance in view of the fact that most of the 36 states and union territories, except for eight states, recently attained the replacement level of fertility (about 2.1 children per woman), and the expectation of life at birth currently ranges from 65.8 to 68.1 years. In the eight demographically trailing states, the gap in fertility and life expectancy compared with that in the so-called forward states is narrowing (ORGI, 2011), and it is expected that these states would join the convergence trajectory within a decade. Under the prevailing pace of demographic transition in India, population ageing is inevitable and the proportion of the population aged 60 and older is projected to touch 19.1 per cent of the total population in 2051; the current figure is 8.1 per cent. In absolute terms, the number of people in the age group 60 years and older is expected to increase from 96.5 million to 298.2 million during the period 2011-2051 (Rajan, 2010). Much of this increase in life expectancy has been due to the success of mass immunization programmes in controlling infectious diseases, which dramatically reduced the number of children and young adults dying each year from such diseases as measles, diphtheria and tuberculosis, as well as neonatal conditions. Meeting the consumption needs of an ever-increasing elderly population in India will remain a challenge both for the public (Government) and for private households.

When the public pension scheme was first introduced in developed countries, social and economic conditions were different from those that exist today – elderly people were typically poor compared with those in the working-age group, and public pensions as an insurance against an impoverished old age were non-existent. Today social security and other pension benefits, particularly the rapid post-war growth of institutionalized retirement plans, have become the major source of retirement income in developed countries (Crawford and Lilien, 1981). Many developing countries, including India, are in situations comparable to those in developed countries in the past as far as the economic conditions of older persons are concerned, for many social security programmes have not only limited coverage and but in other places have yet to take root.

In this study the need is reiterated for studying the long-term implications of the inevitable ageing of the population on one hand, and declining proportion of young dependents on India's fiscal policy on the other. This study gives a brief account of major social assistance programmes that exist in India, followed by a description of the country's tax system. It also furnishes background on the National Transfer Accounts framework adopted for estimation of the life cycle deficit and

intergenerational transfers, together with a description of the method for projection of the fiscal burden of supporting young and elderly dependents. The results are presented in two parts, first on the life cycle deficit and intergenerational public transfers, and second on the long-term fiscal implications of the current public support for young and elderly dependents. In the conclusion of the paper, there is a discussion of the findings of the study and their policy implications.

II. SOCIAL SECTOR AND SOCIAL ASSISTANCE PROGRAMMES

The Government undertook major economic reforms in 1991 that included accepting the private sector's role as a leading engine of growth, placing greater reliance on market forces and opening the economy to international trade, foreign investment and foreign technology (Ahluwalia, 2005). The fiscal responses to the crisis took the form of a major liberalization on both the domestic and the external fronts (Panagariya, 2008). The economy as a whole now is much more integrated with the rest of the world: the current account is fully open, while the capital account is substantially so (Acharya and Mohan, 2010).

Social sector

The social sector is the foremost prioritized area and includes social services and rural development. Social services comprise, among other things, education, health and family welfare, water supply and sanitation. The overall policy framework for social sectors in India is laid out by the central Government; however, the state governments have considerable flexibility in designing policies and have almost exclusive control of the delivery of those services (Alluwalla, 2010, p. 285). In India, budgetary expenditure at the central and state levels can be broadly categorized into two parts: first, the social and economic expenditure, with the broad objective of expanding social opportunities and improving the social indicators of education and health, as well as the nutritional standards of the general population; and second, those expenditure programmes that are directly targeted at the alleviation of poverty (Radhakrishna and Ray, 2005, p. 35).

According to the constitution of India, health is a state subject, while education is in the concurrent list, which means that the responsibility lies with both the central and state governments. To ensure free education for the primary level of schooling, that is, until the child is 14 years old, the centrally sponsored *Sarva Shiksha Abhiyan* (Programme for the Universalization of Elementary Education) and mid-day meal schemes have been adopted. While the schemes are designed typically for the poorer states or states with weak infrastructure for the delivery of public services, they encourage reform around decentralization in all the states (Ahluwalia,

2010). Grant allocation under the programme is meant for improvement of school infrastructure, building resource centres, teachers' training, innovative education and teachers' salaries. However, overall expenditure on health and education constitutes only 1.3 per cent and 3 per cent, respectively, of GDP and is miniscule compared with the country's huge population.

Started in the late 1970s, the Integrated Rural Development Programme was the first major self-employment programme in India. The programme was aimed at providing beneficiaries with assistance in the form of bank credit and government subsidy so as to help them in obtaining sustainable income-generating assets. The target groups of the programme were families below the poverty line in rural areas comprising the landless and small and marginal farmers, agricultural labourers and rural artisans. The Annapurna Scheme is yet another centrally funded means-tested plan to provide elderly persons with food security.

Currently, the most significant programme is the National Rural Employment Guarantee Act, which was launched in 2005; it is now called the Mahatma Gandhi National Rural Employment Guarantee Act. The objective of the scheme is to enhance livelihood security in rural areas by providing every household with at least 100 days of guaranteed wage employment in a financial year.

The Public Distribution System is one of the instruments for improving food security at the household level in India. The Government has been supplying six essential commodities through the system: wheat, rice, sugar, edible oils, kerosene and soft cake (a kind of Indian bread) at below-market prices. The link between economic growth, poverty alleviation programmes and poverty alleviation in the Indian context is contested in view of the persistence of widespread poverty. There has been criticism and differences of opinion on the efficiency of the system in its implementation and methods of estimation; no two opinions are the same on the programme's success in reducing poverty.

Pension and social security

Pension policy in India has traditionally been based on financing through employer and employee participation, and coverage is restricted to the organized sector. The centre and state governments in India have been provisioning to benefit their superannuating employees with the help of an inflation-adjusted post-retirement pension cover with the benefit rate fixed at about 50 per cent of the terminal wage (Alam, 2004). The pension policy of the organized sector is solely funded by the Government and is a "pay-as-you-go" system. The additional retirement benefits include the Employee Provident Fund, Employee Pensioner Scheme and Gratuity to Employees arrangement. Contributions to the Fund receive tax rebate/credit/relief up

to 15 per cent of the amount contributed subject to a ceiling, and lump-sum partial withdrawals for emergency purposes are tax free (Rajan, 2007). A similar provision applies to the above-mentioned Scheme. Pension benefits or annuities are taxable. The Gratuity arrangement ensures that employees will receive a non-taxable lump-sum amount on retirement, incidental death or termination.

Since 1995, cash transfers to poor elderly persons or social assistance have been among the most important poverty alleviation programmes for the ageing population in India. This programme is one of the components of the National Social Assistance Programme, the three components of which are: National Old Age Pension Scheme (NOAPS); National Family Benefit Scheme (NFBS); and National Maternity Benefit Scheme (NMBS). Under NOAPS, persons older than 65 years who are destitute in the sense of having no regular means of income were entitled to receive Rs. 75 per month (US\$ 1 = about 60 rupees) (India, Ministry of Social Justice and Empowerment, 1999; 2000); the amount has since been enhanced to Rs. 200 per month. To the middle of the ninth plan (1992-1997), old-age pension schemes were treated as the sole domain of state governments. Although the social security programmes in India are in the form of a large number of programmes and schemes across sectors involving various ministries, the Ministry of Social Justice and Empowerment is entrusted with the nodal responsibility for care of the elderly. In realizing the need for wider coverage and raising the entitlement level of workers in the non-formal economy, that ministry commissioned the Old Age Social and Income Security (OASIS) Project to suggest a sustainable social security scheme for workers from the unorganized sector. As described in detail by Ahuja (2003), OASIS recommended: (a) the individual should save and accumulate assets within a portable "individual retirement account", the minimum contribution being Rs. 100 per contribution and Rs. 500 in total accretions per annum; (b) converting these modest contributions into reasonably large sums in an almost risk-free manner; and (c) buying annuity plans upon retirement from the accumulated amount.

Tax system

Tax reform in India has been neither steady nor uniform. During the quarter century between 1965 and 1990, there was an unusually strong wave of tax reform globally as most countries in the world reduced their reliance on foreign trade taxes, introduced some form of value added taxation (VAT) on domestic taxes on goods and services and streamlined income and company taxes, partly in response to the imperatives of increasing global economic integration (Acharya, 2008, p. 156). Taxation is viewed as a major instrument in all countries to achieve greater equality of income and wealth. A direct tax system serves this purpose by enhancing rates of taxation on wealth and gifts. The personal income tax structure is progressive with

three or four tiers, with the top marginal rate being in the range of 30-40 per cent to promote compliance. Tax deduction at the source on income from wages, interest and dividends is prevalent.

A broad-based, consumption VAT, with a primary rate in the range of 10-20 per cent, is the main revenue earner among indirect taxes. Company taxation is comparable to the maximum personal income tax rate. Import tariffs are low (below 10 per cent) and are more or less uniform. Excise tax over the years has been the main source of revenue that is consistent, while taxes on corporations and on personal income have shown a rising secular trend; taxes from customs do not show any consistent pattern. Overall tax revenue collectively depicts a rising trend and constitutes 9.82 per cent of GDP. Table 1 shows public sector inflows and outflows for the accounting year 2004/05.

In the National Transfer Accounts framework, monetary values of all in cash and in-kind transfers are considered from the perspective of individuals. Thus, benefits received by individuals from public in cash and transfers are inflows to individuals. On the other hand, payment by individuals in terms of direct and indirect taxes are outflows from the perspective of individuals. Public surplus or deficit is revenue, including grants, minus expenses and minus net acquisition of non-financial assets.

Table 1. Public sector inflows and outflows, 2004/05, India

(In billions of rupees)

Particulars	Inflows	Outflows
Social transfer in kind (health, education and others)	3 191	
Social contributions/benefits not in kind	1 347	
Other current/cash transfers	1 052	
Direct taxes or taxes on income and wealth		
i) Personal income tax		554
ii) Corporation tax		841
Indirect taxes less subsidies		2 734
Other current transfers		210
Public surplus/deficit transfer		1 251
Total	5 590	5 590

Source: Ladusingh and Narayana (2011).

III. DEFINITIONS, DATA SOURCES, METHODOLOGY AND ASSUMPTIONS

Definitions and data sources

Life cycle deficit at each age is the excess of consumption over labour income of persons of that age. A distinction is made between publicly funded and privately funded consumption, with focus on health, education and other goods and services in one category. Labour income is the sum of compensation of employees, including net compensation of employees from the rest of the world, and two thirds of mixed income (income from own business enterprise). Public and private transfers and asset-based reallocations comprise the support systems to finance the life cycle deficit. Public transfer inflows are benefits received by individuals from the Government in kind or in cash for goods and services for targeted and untargeted programmes mandated by the constitution. The Government collects taxes and revenue from individuals to generate resources for funding public programmes, and this constitutes public transfer outflow for contributing individuals.

Consumption by sectors, life cycle deficit and public support considered in this study are consistent with National Income and Product Accounts. Macro-aggregate controls for consumption for health, education and other reasons for public and private households for the financial year 2004/05 have been compiled from the National Accounts Statistics (Central Statistical Organisation, 2008). Macro-aggregate control for labour income is the sum of compensation of employees, including net compensation of employees from the rest of the world, and two thirds of mixed income. The United Nations (2010) medium variant population projection by single year is used for the purpose of projection of long-run fiscal implications.

Micro unit level data on labour income and consumption for health, education and others (food, non-food, housing infrastructure, etc.) in the public and private sectors are required for charting age patterns of labour income and consumption by sectors in the Indian economy. The India Human Development Survey (IHDS) (Desai and others, 2008) conducted during 2004/05 is the source of microdata on labour income from wages and salary and from self-employment, household expenditure on education, health care, food, non-food, house rent, money borrowed, household credit, enrolment status of children by public-private ownership of educational establishments, treatment status and place of treatment of individuals for minor and major morbidities. The IHDS is a nationally representative survey covering 200,000 individuals from more than 41,000 households spread over 1,503 villages and 971 urban localities; a multistage stratified sampling design was adopted for the survey.

Methodology and assumptions

Based on the empirical evidence of countries with diverse economies involved in the multi-country National Transfer Accounts project in this study, age allocation of private expenditure on food is based on an equivalence scale, which is taken as 0.4 for children younger than 4 years of age, then increasing linearly from 0.4 to 1 for individuals between 4 and 20 years and having a constant value of 1 thereafter for individuals 20 years and older. The age profile of food consumption is then estimated applying the equivalence scales to the household expenditure as available in IHDS. For the age allocation of non-food expenditure, housing and durables, the same equivalence scale has been adopted as in the case of food expenditure. When it comes to methodology for age allocation of public expenditure on education and health, corresponding age patterns have been used; they have been taken from the microdata source, which contains information pertaining to age. For public expenditure for purposes other than health, education and social security, the age allocation is on a per capita basis.

To scale the age allocations of public and private consumption consistent with the National Income and Product Accounts (NIPA) for each sector, namely education, health and others, the population-weighted procedure has been used and adjusted age profiles have been worked out as:

$$C_{ix}^a = (NIPA)_x \frac{C_{ix} N_i}{\sum_i C_{ix} N_i}$$

where C_{ix} is the unadjusted age profile for sector x and specific for age i and N_i is population of age i . $(NIPA)_x$ is the expenditure for sector x , available in National Accounts Statistics.

The methodology adopted here is based on the approach followed in a multi-country project that included India on National Transfer Accounts,¹ as outlined in Mason and others (2009), with modifications to suit available data in India at the micro and the macro levels. For completeness, it is reproduced and explained below.

In the National Transfer Accounts framework, the life cycle deficit, the excess of consumption (C) over labour income (Y) is balanced by intergenerational public and private transfers and public and private asset-based reallocation as:

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

¹ www.ntaccounts.org.

where τ_g^+ and τ_f^+ are intergenerational public and private transfer inflows, and similarly, τ_g^- and τ_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 Government acts as an intermediary body in welfare states for direct or indirect intergenerational transfer of resources between age groups. Current government in-transfers (τ_g^+) consist of in-kind transfers for health, education and other consumption and cash transfers. Current government out-transfers (τ_g^-) consist mainly of the incidence of tax payment.

Private intergenerational inflow transfers $\tau_f^+(x)$ to meet consumption needs for education, health and others (food and non-food, excluding housing) at the household level for members whose labour income falls short of consumption requirements are supported by intergenerational outflow transfers $\tau_f^-(x)$ from members who have disposable income. In addition to intrahousehold transfer, National Transfer Accounts flows include interhousehold inflows and outflows.

The last term [$Y^A(x) - S(x)$] in the National Transfer Accounts flows represents asset-based reallocation, and is further disaggregated into public and private. Asset-based reallocations are equal to asset income less savings. Public asset income can include net interest and royalties for land and other rural resources and services. Private asset income includes one third of mixed income, operating surplus of corporations, rental value of owner-occupied houses, income from dividends, interest and other properties, and is assigned to the household head as a matter of fact for private transfer at the household level where the head of household acts as intermediary.

From the household survey, microdata consumption expenditure for health care, education, food and other items are available at the household level but not at the individual level. In the absence of individual-level information on the monetary value of consumption and information on who provides and who receives monetary support between members of a household, it is assumed that, if the disposable income of all household members combined exceeds the total consumption of all members combined, the surplus is transferred to the household head and is saved. On the other hand, if total disposable income is less than the total consumption, the household head supports the excess consumption. It is further assumed that, for calculating intrahousehold transfer to members who have a life cycle deficit, members with disposable income are taxed at a flat rate, regardless of age, by the head and transferred to the members with a deficit.

IV. LIFE CYCLE DEFICIT AND INTERGENERATIONAL SUPPORT

Life cycle deficit, the excess of consumption of public and private goods and services over labour income consistent with NIPA for the accounting year 2004/05 for India, is shown in the upper panel of table 2. The consumption of private and public goods and services for health, education and other purposes by the population aged 60 years and older and younger than 15 years is 2.8 and 63.1 times their respective labour income, while the consumption for the age group 15-19 years is 1.6 times the labour income, and overall consumption is 1.3 times the labour income. Life cycle surpluses of those aged 30-44 years and 45-59 years are evident as they consumed less than their aggregate labour income, that is, 0.68 and 0.71 times their respective aggregate labour income. The population aged 60 years and older and younger than 15 years consumed 9.7 per cent and 21.8 per cent, respectively, of the total consumption. The share of public consumption on the whole was 16.2 per cent of the total consumption; for elderly and young dependents in the age groups 60 years and older and younger than 15 years the shares of public consumption were 26.6 per cent and 14.3 per cent, respectively. The age pattern of aggregate consumption captures the age distribution of the Indian population, which has a large number of children (younger than 15 years) and a not so sizeable but increasing population of persons 60 years and older.

Table 2. Aggregate labour income, consumption patterns, life cycle deficit and intergenerational support system, by broad age groups, 2004/05, India

(In billions of rupees)

	Total	0-14	15-29	30-44	45-59	60+
Life cycle deficit	4 295	4 248	2 168	-2 053	-1 316	1 248
Consumption	19 756	4 316	5 855	4 484	3 177	1 924
Public consumption	3 192	1 150	862	517	387	276
Private consumption	16 565	3 166	4 993	3 967	2 790	1 649
Labour income	15 461	68	3 687	6 537	4 493	676
Intergenerational support for life cycle deficit						
Net public transfers	0	651	-199	-414	-101	63
Net intrahousehold transfers	0	3 421	2 434	-2 649	-2 543	-663
Net interhousehold transfers	340	0	76	77	93	94
Asset-based reallocation	3 955	175	-144	933	1 234	1 757
Intergenerational reallocation	4 295	4 248	2 168	-2 053	-1 316	1 248

Source: Author's computation.

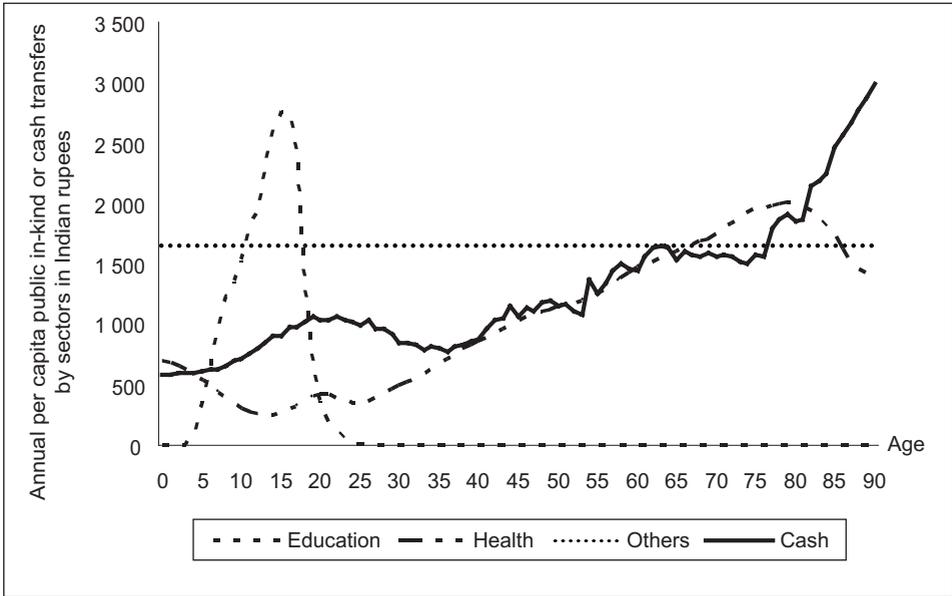
Transfers in the National Transfer Accounts framework refer to reallocation from one age group to another, which involves no explicit *quid pro quo*. The direction of transfers can be from the younger to the older population and vice versa. The inflows and outflows are considered from the perspective of individuals as beneficiaries and contributors. Public and private transfers and asset-based reallocations form the support system. Public transfer inflows are benefits received by individuals from the Government in kind or in cash for goods and services for targeted and untargeted programmes mandated by the constitution. The Government collects taxes and revenue from individuals to generate resources for funding public programmes and this constitutes public transfer outflow for contributors. The net sum of aggregate public transfer inflows and outflows is zero. The same is the case for intrahousehold transfer – inward and outward transfers balance out. Aggregate public and private transfers with other components of intergenerational support for the life cycle deficit are shown in the lower panel of table 2. It is evident that young dependents (younger than 15 years) have the support of their life cycle deficit from both public and private transfers, but the magnitude of support from private transfers is more than five times that of support from public transfers. On the other hand, elderly dependents who are more than 60 years of age do not get support from intrahousehold transfers although they have a net gain from public transfers and interhousehold transfers. It should be noted that elderly dependents have to rely on asset-based reallocations to support their life cycle deficit.

V. FINANCING OF PUBLIC CONSUMPTION

In the accounting year 2004/05, the totality of public social in-kind transfers (education, health and others), other current transfers and social benefit transfers not in kind was Rs. 5,590 billion and the corresponding shares are 57.1 per cent, 18.8 per cent and 24.1 per cent, respectively. The age pattern of annual per capita benefits from public transfers by sectors is shown in figure 1. Other public transfer accounts for infrastructure, defence, research and development are for mass consumption, and they benefit everyone equally.

The benefit for public transfers for education goes to school-age children, while that for advancing age per capita, again from public transfers for health care, increases; a similar pattern is evident in the case of cash benefits from cash transfers. The slight hump in cash transfers in the 15-30 year age group is a reflection of maternity programmes. The social contribution/benefit (not in-kind public transfers) shows an increasing trend with advancing age dominating over all other public transfers. This is an indication of the rise in public expenditure that may be inspected with population ageing. The share of benefits of public transfers for young

Figure 1. Annual per capita public transfers, by sectors, 2004/05, India

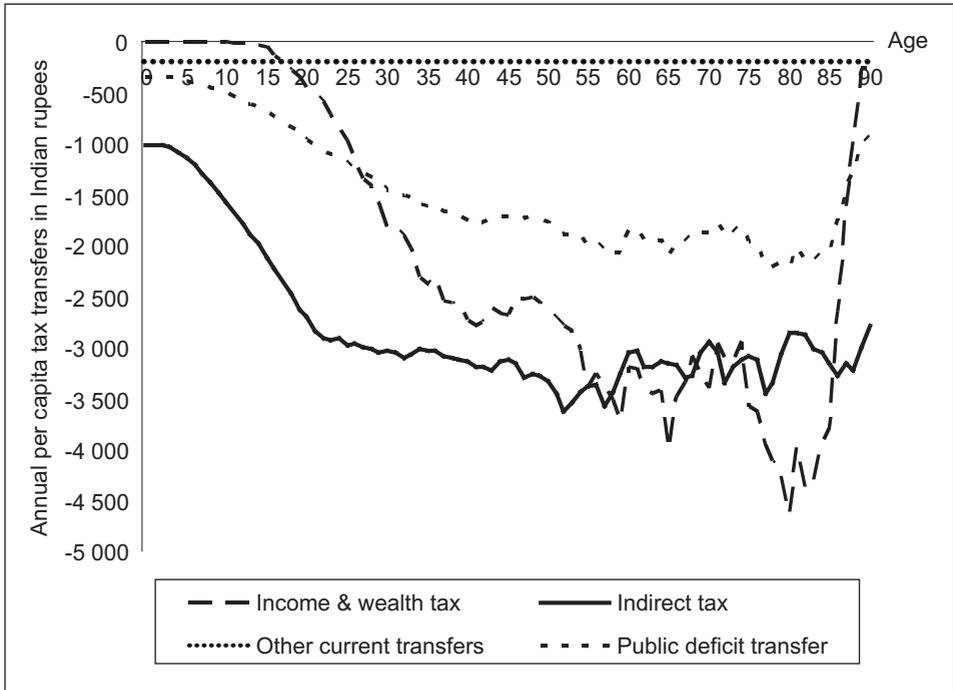


Source: Author's computation and figure.

dependents in the 0-14 year age group, and elderly dependents in the 60 years and older age group are 25.1 per cent and 13.9 per cent, respectively, of the total transfers.

However, the age pattern of net gain from public transfer inflows for various programmes under the current fiscal policy can be ascertained by considering the public transfer outflows to the Government. The revenue of the Government from income, wealth and corporation taxes, indirect tax, other current transfers and public deficit transfers constitute 24.9 per cent, 49 per cent, 3.7 per cent and 22.4 per cent, respectively, of the total collection of Rs. 5,590 billion. Figure 2 depicts the age pattern of per capita annual payments to the Government in the form of taxes. Tax payments from the perspective of individuals are out-transfers to the public (Government) in National Transfer Accounts terminology, and age patterns are shown below the axis for this consideration. Age patterns of tax payments are based on information from microdata from the household survey and adjusted to macro-aggregates for the accounting year 2004/05, as shown in table 1. Payment to the public by way of other current transfers on a per capita basis is age invariant. Indirect tax payment constitutes nearly half of the total revenue collection of the Government, and it is evident that even children contribute to indirect tax payments.

Figure 2. Annual per capita tax payment, 2004/05, India



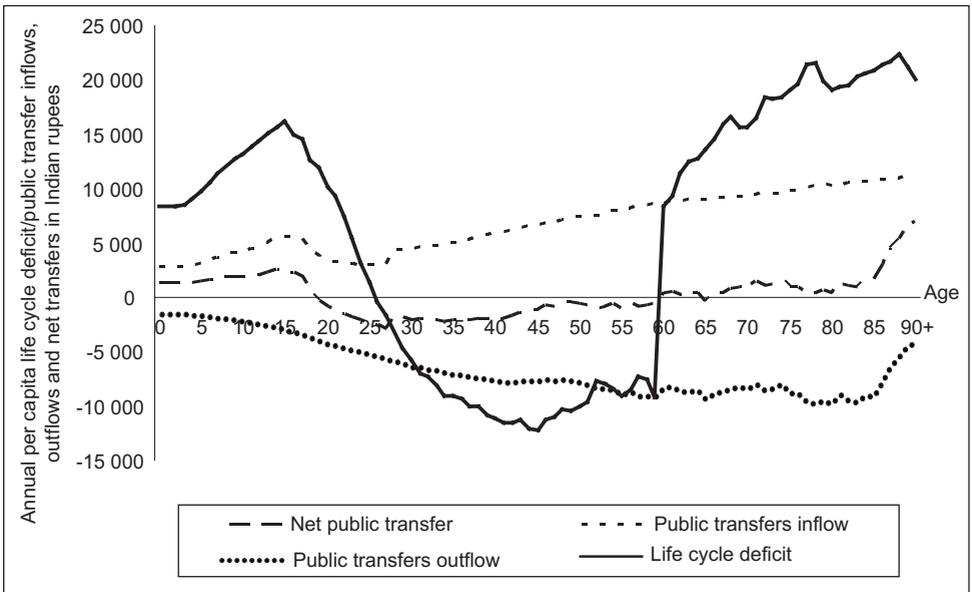
Source: Author's computation and figure.

One noticeable feature is that the burden of tax payment is heavily concentrated in working age groups. The age patterns of income and wealth taxes are characterized by a steady rise with age, and it remains high even at older ages. The contribution of the population younger than 15 years and 60 years or older constituted 13.4 per cent and 12.8 per cent, respectively, of the total tax payment in fiscal year 2004/05. The net gain of young dependents from public transfer inflows and outflows outweighs the net gain of elderly dependents, although for an economy, public transfer inflows and outflows balance out.

All public transfer inflows shown in figure 1 and outflows in figure 2 taken together, and the net of the inflows and outflows, together with the life cycle deficit, for fiscal year 2004/05 are shown in figure 3. It is evident from the age pattern of public transfer inflows that the fiscal policy of India is age-sensitive; it is more for school-age children and thereafter the per capita public transfer benefit accelerates with advancing age. At the same time, public programmes depend heavily on resource mobilization from taxes, with the burden spread to the population from the

late teens to late early eighties but dropping in the late eighties. In looking at the age patterns for net of public transfers, inflow and outflow, it is noted that the population in the age group 60 years and older gains marginally from the current fiscal policy of the Government. However, this falls far short of their life cycle deficit and they have to live predominantly on asset-based reallocation, as shown in table 2. On the other hand, net benefit of fiscal policy largely for human resources development and newborn care programmes goes to children younger than 20 years, but again the public investment is too small to contribute a significant share in the totality of public and private consumption, as is evident from the gap between net gain from public programmes and the life cycle deficit. An analysis of public monetary transfer inflow and outflow from the perspective of individuals shows that the fiscal policy of India does not prioritize the need for health care, pension and social security of the elderly population (60 years and older), thereby ignoring human resources development.

Figure 3. Age patterns of annual per capita life cycle deficit, public transfer inflows, outflows and net public transfers, 2004/05, India



Source: Author's computation and figure.

VI. FISCAL IMPLICATIONS

For projection of implications of the ongoing fiscal policies, the age profiles of per capita monetary values of public transfer inflows to individuals and per capita monetary values of public transfer outflows from individuals are used to compute the net public transfer gain of individuals in the age groups 0-14 years and 60 years and older. Keeping the net per capita gain estimated for the financial year 2004/05 constant throughout the projection period, the future implications of fiscal policy are projected, multiplying the per capita net gain with United Nations population projections (United Nations, 2010).

Following Ruggeri and Zou (2007) for projection of net benefit from government policies by dependent population, $g_{0-14} = E_{0-14} - R_{0-14}$ and $g_{60+} = E_{60+} - R_{60+}$ are defined as the per capita net public transfer gain of young and elderly dependents in the age groups 0-14 years and 60 years and older, from the excess public expenditure E over the public revenue R collected from the two respective age groups, then total net gain of the dependent population in the year t is:

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

where $r = \frac{g_{0-14}}{g_{60+}}$, $P_d^a = P_{60+} + r P_{0-14}$, P_{0-14} is the population 0-14 years of age and P_{60+} is the population 60 years and older.

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

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

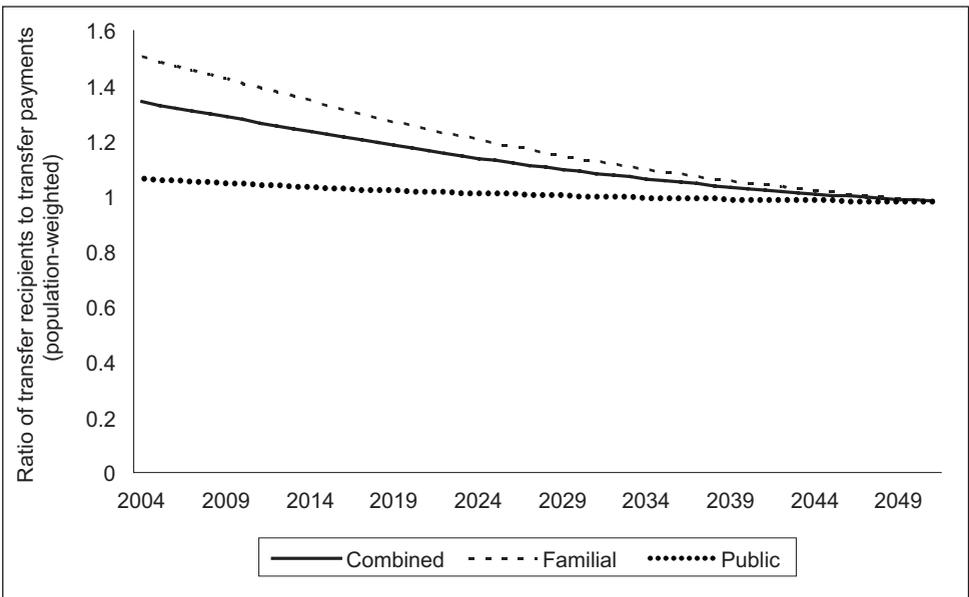
The fiscal dependency burden ratio in year t is:

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

where PDR is the population dependency ratio, $A = \frac{P_d^a}{(P_{0-14} + P_{60+})}$, and t is the suffix indicating the year of projection.

To examine the fiscal implications of the changing population age structure over time, the behaviour of the monetary transfer dependency ratio has been analysed, that is, the projected population-weighted ratios of transfer receipts from public programmes to transfer payments for public programmes in constant 2004/05 age schedules of public transfers inflow and public transfers outflow that were discussed in the preceding sections.

Figure 4. Projected monetary transfer dependency ratios for public, private and combined intergenerational transfers



Source: Author's computation and figure.

For comparative reference, similar projections based on private (household) intrahousehold monetary transfers inflow and outflow and on the combined (public and private) inflow and outflow are also studied. This monetary transfer dependency ratio (Miller, 2008) serves as a good measure of the level of support to the dependent population. Familial support to dependents was high in 2004, but is projected to decline by 58.5 per cent by 2051, as the young dependent population shrinks considerably in size with continued fertility decline.

Public sector dependency remained low throughout the period, as shown in figure 3 as fertility declines, thereby indicating the need for a change in the fiscal policy to meet the demands of an increasingly larger elderly dependent population.

The ratio of the net gain by young dependents in the 0-14 year age group to the net gain of elderly dependents 60 years and older, from public transfers inflow and

outflow, $r = \frac{g_{0-14}}{g_{60+}}$ over time at constant 2004 age patterns of net gain, can serve as

an indication of the need, in the face of declining fertility, to shift public policy for the

welfare of elderly dependents. The ageing factor $A = \frac{P_d^a}{(P_{0-14} + P_{60+})}$ incorporates the

difference in per capita public transfers gain by the young and elderly dependents and relative changes in the population of these two groups (Ruggeri and Zou, 2007), and

can be treated as a measure of the dependency ratio adjusted for the difference in public transfer gains. The fiscal burden ratio is the fiscal burden per dependent

person in a fiscal year, considering constant net gain from public transfers in 2004/05.

Table 3 presents the projected gain of young dependents relative to the net gain of

elderly dependents (r), ageing factor (A) and fiscal burden ratio (FBR) for the period

2004-2051 at 2004/05 constant public monetary transfer values. The purpose of this

analysis is to estimate the fiscal implications of age structure change holding the

2004/05 age schedules of public transfers inflow, outflow and net gain of public

transfers constant over the projection period 2004-2051.

Under the present fiscal policy of the Indian economy, the per capita net gain of young dependents (in the age group 0-14 years) from public transfers was 7.6

times that of elderly dependents (in the age group 60 years and older) in 2004. It is

projected to be 27.4 times higher in 2051, an increase of 259 per cent in aggregate

net monetary gain over that for the period 2004-2051. This indicates the lack of

emphasis of fiscal policy for the welfare of elderly dependents and suggests the need

for reorienting fiscal policy, taking into account the ageing of the population and the

decline in the number of young dependents. A desirable strategy would be to convert

all social assistance programmes into a single long-term national social security

programme with criteria to cover various aspects of intergenerational equity, to raise

the level of entitlement to match the actual need and to make national social security

a universal programme.

Evolving a universal national social security – not an assistance – programme

could be made a reality by systematic release of resources from public programmes

targeting young dependents, as their numbers will decline along with the drop in

fertility. The ageing factor is the ratio of the dependent population adjusted for relative

net gain of young dependents to the actual dependent population. It can be treated

Table 3. Relative gain of young dependents (r), ageing factor (A) and fiscal burden ratio (FBR), 2004-2051

Year	r	A	FBR (Rs.)	Year	r	A	FBR (Rs.)
2004	7.6	6.5	2 446	2028	10.3	7.3	1 750
2005	7.7	6.5	2 400	2029	10.6	7.4	1 727
2006	8.0	6.8	2 358	2030	10.8	7.4	1 704
2007	8.3	7.0	2 316	2031	11.4	7.8	1 681
2008	8.5	7.1	2 276	2032	12.0	8.1	1 659
2009	8.5	7.1	2 239	2033	12.5	8.3	1 638
2010	8.3	6.9	2 204	2034	12.9	8.5	1 618
2011	8.4	6.9	2 175	2035	13.1	8.5	1 599
2012	8.3	6.7	2 147	2036	13.9	8.9	1 580
2013	8.1	6.6	2 120	2037	14.6	9.2	1 563
2014	7.9	6.4	2 094	2038	15.1	9.4	1 547
2015	7.7	6.2	2 070	2039	15.4	9.5	1 532
2016	7.8	6.2	2 046	2040	15.5	9.4	1 518
2017	7.9	6.2	2 023	2041	16.5	9.9	1 503
2018	8.0	6.2	2 000	2042	17.4	10.2	1 489
2019	8.0	6.2	1 977	2043	18.0	10.5	1 476
2020	8.0	6.2	1 953	2044	18.5	10.6	1 463
2021	8.3	6.3	1 928	2045	18.7	10.5	1 452
2022	8.6	6.5	1 902	2046	20.2	11.2	1 439
2023	8.8	6.6	1 875	2047	21.6	11.8	1 426
2024	9.0	6.6	1 849	2048	22.8	12.2	1 415
2025	9.1	6.6	1 824	2049	23.8	12.5	1 404
2026	9.5	6.9	1 798	2050	24.3	12.6	1 394
2027	9.9	7.1	1 774	2051	27.4	14.0	1 381

Source: Author's calculation.

Note: FBR is per capita.

as a measure of the magnitude of the dependent population adjusted for net public transfers under the prevailing fiscal policy relative to the unadjusted dependent population. The ageing factor is projected to increase from 7.6 to 14 during the period 2004-2051, implying that public transfers adjusted for dependents was 7.6 times higher for the young and elderly dependents in 2004; it is expected to rise to 14 times higher in 2051 owing to the increasing size of the dependent population.

The fiscal burden ratio is the monetary burden of the working-age population (in the 15-59 year age group) per dependent population in the age groups 0-14 and 60+ years, assuming the same age patterns of public transfers in 2004/05 throughout the period of the projection. This only shows the consequence of age structure change. The monetary support provided by working-age population per dependent person for keeping in vogue current public programmes was Rs. 2,446 in 2004, which is projected to drop to Rs. 1,381 in 2051. At a constant level of age patterns in respect of public transfers, the effect of population ageing is compensated by the increase in the working-age population and declining fertility. This exercise supports the feasibility of evolving a universal national social security programme and the right time to act is now.

VII. SUMMARY AND CONCLUSION

In this paper the fiscal implications of age structure transition for India are explored, and the possibility of converting all social assistance into a universal national social security programme is examined. Age patterns of public (government) and private (household) consumption of goods and services and the age profile of labour income have a considerable bearing on the fiscal policy of an economy. The National Transfer Accounts framework (Mason and others, 2009), with adjustments to suit available macro and unit-level data, is used in the study.

In the accounting year 2004/05, public in-kind transfers constituted 16 per cent of the total consumption. Young dependents (less than 15 years of age) consumed 21.8 per cent of the public goods and services, whereas for elderly dependents (60 years and older) the figure was 9.7 per cent. For the social contribution/benefit, not in-kind public transfers, an increasing trend has been observed, with advancing age dominating all other public transfers. This is an indication of the expected rise in public expenditure likely to occur with population ageing. The share of benefits of public transfers for young dependents in the 0-14 age group, and elderly dependents in the 60 years and older age group are 25.1 per cent and 13.9 per cent, respectively, of the total transfers. This is an indication of how limited are the public programmes for elderly dependents and the very nominal public support available to meet their life cycle deficit. Public programmes depend heavily on resource mobilization from taxes, and the burden is spread to the population from the late teens to the early eighties but it drops for people in their late eighties. The contributions of the population younger than 15 years and 60 years and older constitute 13.4 per cent and 12.8 per cent, respectively, of the total tax payment in fiscal year 2004/05. The elderly population (60 years and older) gains nominally from the current fiscal policy of the Government; however, this falls far short of their life

cycle deficit, and they have to live predominantly on asset-based reallocation. The net gain of young dependents from public transfer inflows and outflows outweighs the net gain of elderly dependents, although for an economy, public transfer inflows and outflows balance out. From this count, in the fiscal policy of India due attention has not been given to the elderly population with regard to the provision of health care and enhancing the coverage and monetary value of social security. Although social security in India has been in place for quite sometime, it has yet to make its presence accountable.

Under the current fiscal policy of the Indian economy, the net gain of young dependents in the 0-14 age group from public transfers was 7.6 times higher than that of elderly dependents in the 60+ age group in 2004, and it is projected to be 27.4 times higher in 2051, an increase of 259 per cent in aggregate net monetary gain over the period 2004-2051. This indicates the need for reorienting fiscal policy, taking into account the ageing of the population and the decline in the proportion of young dependents. A desirable policy strategy would be to convert all social assistance programmes into a single long-term national social security programme with criteria to cover various aspects of intergenerational equity, to raise the level of entitlement to match actual need and to make national social security a universal programme. The ageing factor is projected to increase from 7.6 to 14 during the period 2004-2051, particularly because of the expanding size of the dependent population. This situation should send a signal that population ageing is not just about numbers but has considerable fiscal implications for the economy. The monetary support provided by the working-age population per dependent person for keeping in vogue current public programmes was Rs. 2,446 in 2004, but it is expected to drop to Rs. 1,381 in 2051. At constant level of age patterns of public transfers, the effect of population ageing is compensated by the increase in the working-age population and declining fertility. This exercise supports the feasibility of evolving a universal national social security programme, and the right time to act is now.

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