# Public Expenditure on Old-Age Income Support in India: Largesse for a Few, Illusory for Most

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# Highlights

- At least 85 percent current workers are not members of any pension scheme, and in their old age likely to remain uncovered or draw only social pension
- Of all elderly 57 percent receive no income support from public expenditure, and 26 percent collect social pension as part of poverty alleviation
- 11.4 percent of the elderly draw defined benefit as government ex-workers (or their survivors), cornering 62 percent of system expense
- The system for old age income support entailed 11.5 percent of public expenditure, and sub-national governments bear more than 60 percent
- Contributory program funds invested in government paper soak-up 40 percent of all interest payment of sub-national governments

# Public Expenditure on Old-Age Income Support in India: Largesse for a Few, Illusory for Most

**Mukesh Kumar Anand∗ and Rahul Chakraborty∗∗**

## Abstract

Policy enunciation often remains hostage to a program-centric approach for planning and reform in developing countries. Old-age income support in India faces such a policy predicament. Extant studies deciphering related public expenditure thus carry limitations on (a) system expanse, (b) corresponding data collation, and therefore (c) depth of resource conscription. Benchmarking to the five-pillar architecture advanced by World Bank for old-age income support system, this paper traces (a) public expenditure, (b) average benefits, (c) workers included, and (d) elderly covered, under each pillar in India.

The constituents for respective pillars in India are heuristically identified and data on expenditure by federal and sub-national governments are collated or estimated using government finance accounts and annual reports. Workers and elderly covered under each pillar are estimated using data drawn from diverse sources on identifiable groups.

The study finds that, the extant system in India presents a larger and rising burden on sub-national governments, with implications for macroeconomic balance. In 2013-4 the elderly comprised 8.6 percent of the population and old-age income support system entailed 11.5 percent of public expenditure of combined federal and sub-national governments. Less than two percent of it constituted co-contributions in the nature of capital expenditure. Only 43 percent of 118.36 million elderly drew benefit from public expenditure and more than 85 percent workers remain excluded from the system. Including those drawing social pension, 70 percent of all beneficiaries collect less than the rural poverty line drawn at INR 11016 per annum.

The paper suggests (a) capping defined-benefit for exceptionally privileged, (b) reform of regulatory paradigm to harmonize contributory schemes, dissolve exclusive (section, sector, or region-based) approach and adopt inclusive principle to widen coverage, (c) unrequited sustained contribution by government for low-income earners and underprivileged, and (d) assimilation of information technology enablers for effective and efficient targeting of social pension. Pension policy reform anywhere, often faces arduous implementation, and extant processes in India merely tinker with inception of an essentially long gestation procedure.

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# **Acknowledgments**

# List of Abbreviations

ACA: Additional Central Assistance
ACFS: Australian Centre for Financial Studies
*Anna.*: *Annapurna*
APY: *Atal* Pension *Yojana*
ATPFS: Assam Tea Plantations Provident Fund, Pension Fund, and Deposit Linked Insurance Fund Scheme
Ben.: Benefit
bn.: Billion
BPL: Below poverty line
CAG: Comptroller and Auditor General
CGA: Controller General of Accounts; cf.: confer
CMPFS: Coal Mines Provident Fund and Miscellaneous Provisions Scheme
Cols.: Columns; Contr-mand.: Mandatory contribution program
Contr-vol.: Voluntary contribution program
CRISIL: Credit Rating Information Services of India, Limited
CSO: Civil society organizations
DA: Dearness allowance
DB: Defined benefit
DC: Defined contribution
DDG: Detailed demand for grants
DEA: Department of Economic Affairs
DLI: Deposit linked insurance
DP: Disability Pension
DPS: Disability Pension Scheme
DR: Dearness relief
EPFS: Employees Provident Fund and Miscellaneous Provisions Scheme
est.: estimated
Exp.: Expenditure
FB: Family Benefit
Fed.: Federal
FF: Freedom Fighters
FFPS: Freedom Fighters' Pension Scheme
GDP: Gross Domestic Product
GoI: Government of India
Govts.: Governments
GPF: General Provident Fund
Gr.: Group
GSDP: Gross State Domestic Product
INR: Indian Rupee
IPD: Implicit pension debt
IPOP: Integrated Programme for Older Persons
IT: Information Technology
JKPFS: Jammu and Kashmir Employees Provident Fund Scheme
Max.: Maximum
MB: Maternity Benefit
MIPAA: Madrid International Plan of Action on Aging

MMGPI: Melbourne-Mercer Global Pension Index

mn.: million

MoC: Ministry of Coal

MoF: Ministry of Finance

MoHA: Ministry of Home Affairs

MoL&E: Ministry of Labour and Employment

MoRD: Ministry of Rural Development

MoSJ&E: Ministry of Social Justice and Empowerment

MoSPI: Ministry of Statistics and Programme Implementation

MPCE: Monthly per capita expenditure

mthly.: monthly

NCRB: National Crime Records Bureau

Non-contr.: Non-contributory

NPS: National Pension System

NSAP: National Social Assistance Programme

NSI: National Savings Institute

NSSF: National Small Savings Fund

NSSO: National Sample Survey Office

OAP: Old Age Pension

OAPS: Old Age Pension Scheme

OASIS: Old Age Social and Income Security

P0: Pillar-0

P1: Pillar-1

P2: Pillar-2

P3: Pillar-3

P4: Pillar-4

PFRDA: Pension Fund Regulatory and Development Authority

PP: Political prisoners

PPF: Public Provident Fund

PRIs: *Panchayati* Raj Institutions; Pub. Sec.: Public Sector

RBI: Reserve Bank of India

SCSS: Senior Citizens Savings Scheme

SPFS: Seamen's Provident Fund Scheme

SSSPS: *Swatantrata Sainik Samman* Pension Scheme

Sub-nat.: Sub-national

trn.: trillion

UN-ESCAP: United Nations Economic and Social Commission for Asia and the Pacific

USD: United States Dollar

Vol. Sch.: Voluntary Schemes

WP: Widow Pension

WPS: Widow Pension Scheme.

# 1. Introduction

Policy to serve certain objectives normally envisages administrative action on a set of synergizing programs. However, in developing countries, programs often precede policy enunciation. Further, these are introduced in patches with isolated administration. As such, these programs then gain centrality over policy. More disconcertingly in developing economies, even research agenda and reform proposals could also become program-centred, with policy then held hostage. Old-age income support in India appears to face such a policy predicament.

In an annual cross-country comparative study on pension systems, India consistently ranks close to the bottom, despite gradual increase in number of countries in the study-sample from 16 in 2011 to 34 in 2018 (see, *Melbourne-Mercer Global Pension Index* (MMGPI), for example, Mercer, 2018). Apparently, the system in India needs some reorganization for societal redress of elders' vulnerability from meagre income support.

Programs constituting old-age income support (in short, pension) system, in India typically target certain sections, sectors, or regions. Such segmentation often induces a myopic vision for reforms. However, to suggest or undertake reforms and strengthen the redress mechanism for the vulnerable, the system must be viewed and assessed by benchmarking against some agreeable architecture. On this, the Word Bank had first propositioned a benchmark for a three-pillar architecture (The World Bank, 1994; pillars 1, 2, and 3 in *Figure 1)*. Since then, the design has evolved into a five-pillar version (Holzmann *et al.*, 2005). The attributes of each pillar in the Indian system however, may not necessarily conform respectively to all attributes as presented in *figure 1*.[1]

**Figure 1. Edifice for Social Security**

| |
|---|
| **Pillar-4**: Intra-family - intergenerational financial and non-financial support; In-kind – social programs, *say*, for nutrition, health |
| **Pillar-3**: Personal insurance – voluntary, funded, personal savings, taxed at normal rates |
| **Pillar-2**: Savings and co-insurance – mandatory, funded, personal savings or occupational plans, Regulated, taxed at lower rates |
| **Pillar-1**: Redistribution – mandatory, tax financed, taxed at lower rates |
| **Pillar-0**: Poverty alleviation – universal, basic income, flat, tax financed, tax exempt |

*Source*: Authors' interpretation of the distinctive features of the respective pillars in a 'mature' system. See also CRISIL-PFRDA, 2017.

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[1] Note that a later statement of policy for elderly has no explicit mention to adopt or develop a 5-pillar approach. However, this paper intends to assess whether willingly or otherwise, the as-implemented system could mimic a reasoned design.

*Caveat*:   This is illustrative only. The compartmentalization in different countries could vary from the description contained in the World Bank proposed system. In particular, a 'mature' system does not necessarily allude to any 'market-based', 'capitalist', or 'socialist' forms.

Towards drawing a benchmark on India for the year 2013-4,[2] this paper traces public expenditure directed at old-age financial / income support by (a) type of benefit (*direct* to current pensioners, and *indirect* to current workers but earmarked for their future pension), and (b) level of government (federal, sub-national). Importantly, the paper flags certain distributional and systemic imbalances by presenting estimates on (c) annual average benefits to distinguishable groups of pensioners under those programs, (d) proportion of workers that are included as members, and (e) proportion of elderly covered under differing source programs. A pan-India public expenditure estimate on old-age income support has been attempted in CRISIL-PFRDA (2017). This paper fixes certain gaps in that estimate also by carefully discerning system expanse, refining data collation, and corresponding resource conscription.

The next section discusses some operational attributes of old-age income support system, the related macro-economic concerns, and the 'vulnerable' population. The expansion in social-pension (poverty alleviation) programs is discussed in *section 3*. *Section 4* analyses the defined benefit (DB) pension component, while a rudimentary assessment of the contributory and hybrid (with benefit and contribution, both defined) schemes is presented in *section 5*. The compartmentalized analysis in sections 3 to 5 is synthesized in *section 6* to underline the growing asymmetry in burden sharing between levels of government. Finally, *section 7* concludes with an assessment that highlights infirmities in the extant edifice and some suggestions for policy action. Three appendices (A – C), one each corresponding to sections 3 to 5, are supplemental but include some details on chronology of program-specific attributes.

## 2.    Support System and Identification of Vulnerable

A social protection system encompasses both direct (income) and indirect (consumption) support. The latter in India, for example, includes (road and rail) transportation and basic telephone service. Often, state-owned commercial corporations are obliged to offer such services at subsidized rates for the elderly, among others. Such consumption subsidies can often only be regressive. Further, some services, like public health, entailing significant public expenditure are accessed freely by all (or all poor) including elderly. Segregating the element of such public expenditure benefitting only elderly may be tricky, unless appropriate accounting systems are in place. Thus, an estimate for public expenditure on indirect (consumption) support to the elderly (that provides free or subsidized services) entails a nuanced analysis. This exceeds the scope of this paper which essentially concerns with public expenditure on direct (income) support in the form of pension. And, in a developing economy like India, even that may pose significant challenges.

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[2] This is the latest year for which we could collate coherent data or derive comparable estimates to cover the whole exercise. However, wherever available, later year data are presented in the tables.

### 2.1 Income-Support System for Elderly

Direct (income) support for the elderly includes financial payments towards (a) unrequited welfare obligation, and (b) earned pension rights. Payments for unrequited welfare obligations are often a supplemental cash benefit for poor-elderly and destitute. Earned pension rights could be based on *work contribution*, or *financial contribution*, or *both*.

Note that, financial payment (including, cash or bank deposit) may yet require the beneficiary to access market and / or the financial system. In several instances, for the very old and infirm this could be challenging, particularly in a developing economy like India. Government of India (GoI, 2011a) states that,

> '[A]bout 65 percent of the aged had to depend on others for their day to day maintenance. The situation was worse for elderly females with about only 14% to 17% being economically independent in rural and urban areas respectively …' (p 11)

Thus, *intra-family* and *in-kind* support (recall Pillar-4 in *Figure 1*) provides the critical *last-mile-connectivity* and is integral for elders' sustenance from a social security system.[3]

#### 2.1.1 Essentials of System Architecture

'Nuclearization' of families and households (see for example, Wong, 1975; Goldstein and Beall, 1986; Ruggles, 1994; Chattopadhyay and Marsh, 1999; Chant 2002; Backman, 2008) has been underlined in several reports on India (see for example, *Old Age Social and Income Security* (OASIS, 2000), *Situation Analysis of the Elderly in India* (GoI, 2011a), and *HelpAge* (HelpAge India, 2015)). Often, changes in structural composition of 'average family', may accompany reassigning of inherent filial bonds. This could aggravate vulnerability (see *Sub-section 2.2*), particularly of elderly.[4] Newspapers frequently report incidents of assault on those living in only-old persons households (see for example, '44% Elderly Abused … ', 2017). Reported-crime against senior citizens, has also increased (GoI, 2016a, 2015a; see also Mishra and Patel, 2013; GoI, 2009; Saxena, 1999).[5] And, there is heightened evidence (even if anecdotal) on abuse of older persons within the family (see HelpAge, 2014; Giridhar *et al.*, 2014).

A *National Policy for Older Persons* was drawn in 1999 (GoI, 1999) and later revised into *National Policy for Senior Citizens* of 2011 (GoI, 2011b). This aims at safeguarding elderly by adopting measures to enhance their perception on *secured* existence, along

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[3] This last-mile-connectivity role is analogous to one in physical-network systems for delivery of service and accrual of benefit. The *intergenerational and informal ties*, constitute the *network* in a social system. While of immense interest, it is hard to trace intra-family private transfers. These are not included in the discussion in this paper that concentrates on related public expenditure only.

[4] In its generic use, the term *elderly* denotes persons whose dexterity to perform normal tasks may be ebbing. However, unless otherwise stated in this paper, they constitute those aged 60 years and above.

[5] In contrast, the figure for the nation as a whole depicts a decline in reported-crime rate, although it is a steeply higher rate than the crime rate against senior citizens.

dimensions of (a) health, (b) finance, and (c) decent / dignified living. GoI has also prom-ulgated the *Maintenance and Welfare of Parents and Senior Citizens Act of 2007* that as-signs familial responsibility and a legal recourse for elderly who may have faced abuse. The legislative actions aim at protecting the elderly and soften the adversity due to social transformation.[6] Further, programs have also been advanced to alleviate financial de-pendency of elderly.

Pillar-4 of the social security edifice, that involves intra-family and intergenera-tional support, has evidently eroded and / or undergone significant transformation. The emerging voids (including, on the familial fabric) may be covered by developing public systems of income support. For the foreseeable future in India however, pillars 0-3 may evolve only as supplement or complement, and not as substitute to the ubiquitous (alt-hough floundering) pillar-4 (Lloyd-Sherlock, 2000).[7] The system architecture in India corresponding to the 5-pillar version is summarized in *Box 1*.

Pillar-3 caters to persons who (voluntarily) practice thrift to insure later-life sus-tenance. But, when thriftiness is incentivized (by co-contribution) from the employer or the state, then it transforms into pillar-2 of the architecture. Practice of thrift may how-ever, face impediments. Thus, pillar-1 secures income as DB against (meritorious) public service rendered in the past. Pillars 2 and 1 then essentially cover 'paid' workers. But, there may yet be a significant number of erstwhile 'unpaid' workers and more that are already facing vulnerability (or are incapacitated, see *sub-section 2.2*). These, particularly the poor among elderly, may be encompassed under pillar-0. Thus, *redistribution* and *pov-erty alleviation* pillars constitute an intrinsic architectural feature in a 'social security' sys-tem.

Note that, pillars 3 and 2 constitute a *pre-retirement initiative* with vulnerability-avoidance mechanism, while pillars 1 and 0, both constitute (*in-situ*) *post-retirement re-dress* mechanism.[8] However, the chronology in unveiling of architecture depends signifi-cantly on whether the politico-economic discourse encourages either a 'citizenship' or 'charity' paradigm for social protection (see Kidd, 2017).[9] Some details on the attributes of the rolled-out programs in India, are included in the appendices only. The differing pil-

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[6] Legal and juridical processes often serve to resolve by separation, division, and incarceration and may shut the door on reconciliation and assimilation. Unless the resolution mechanism is cautionary, it may interfere with, or worse, even accelerate the imminent social / familial transformation (see for example, Kakwani and Subbarao, 2007).

[7] GoI (2011a) [p13] reports that, both in rural and urban areas, among the economically dependent elderly, almost 85 percent of men and women were financially supported by their own children. Note that pillar-4 is largely outside the public expenditure system. And, the minuscule public expenditure on *in-kind* provisioning targets few among the relatively poor. Its discussion in this paper, is merged with that on pillar-0 in *section 3.* But, wherever possible, we clearly distinguish and identify (coverage, ben-efits, beneficiaries, and public expenditure) components for all five pillars, particularly in figures that appear in the concluding section of this paper.

[8] Put differently, the vulnerability-avoidance and *in-situ* components complement each other in the design but conform respectively to preventive and curative intervention. Expenditure on the former would normally constitute a capital contribution, while the latter entails 'current' (or revenue) expendi-ture.

[9] A large number of developed countries follow the citizenship paradigm while a range of low and mid-dle income countries are moving towards it.

lars however, not only enlarge coverage, but also focus on balancing of system architecture. Issues in pursuit of this balancing, that are discussed next, also contribute to sustainably strengthen the social fabric.

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**Box 1.    Income Support System for Elderly in India**

This presents a summary description of the extant administration corresponding to the structural features envisaged in a 5-pillar architecture. For each pillar the different schemes or components are enlisted with corresponding implementing line agency and basic details.

- Pillar-0: Poverty Alleviation (Social) Programs
    - National Social Assistance Programme (NSAP): Administered by the Ministry of Rural Development (MoRD), GoI in co-ordination with respective state governments (see *Appendix A* for details).
- Pillar-1: Public-service programs
    - Freedom Fighters' Pension (*Swatantrata Sainik Samman* Pension) Scheme (SSSPS): Administered by the Ministry of Home Affairs (MoHA), GoI
    - Defined benefit (DB) plan for defence personnel
    - DB plan for federal government civilian employees that joined service before January 01, 2004.
    - DB plan for state government employees in service prior to the state's ascension to National Pension Scheme (NPS).
- Pillar-2: Mandatory, Co-contributory (Employer – Employee) programs
    - NPS for Civilian employees joining federal government service on or after January 01, 2004, administered by Ministry of Finance (MoF), GoI
    - NPS for state government employees joining service on or after the respective date of ascension to the NPS, administered by the department of finance of respective state governments
    - Schemes operating as hybrid Defined contribution (DC)-DB plans include,
        - (a) Coal Mines Provident Fund and Miscellaneous Provisions Act (CMPFS), 1948, administered by Ministry of Coal (MoC), GoI
        - (b) Employees Provident Fund and Miscellaneous Provisions Act (EPFS), 1952, administered by Ministry of Labour and Employment (MoL&E), GoI
        - (c) Assam Tea Plantations Provident Fund, Pension Fund, and Deposit Linked Insurance Fund Scheme (ATPFS), 1955
        - (d) Jammu and Kashmir Employees Provident Fund Act (JKPFS), 1961, administered by Ministry of Labour, Government of Jammu & Kashmir, and
        - (e) Seamen's Provident Fund Act (SPFS), 1966, Directorate General of Shipping, GoI
- Pillar-3: Personal (voluntary) plans
    - General Provident Fund (GPF): managed by respective government departments, accessible to only regular public sector employees,
    - NPS-Private: savings-investment in long-term schemes managed by fund managers (under Pension Fund Regulatory and Development Authority (PFRDA) oversight) – open to all citizens; A co-contributory plan for corporates is also available.
    - *Atal* Pension *Yojana* (APY) (or Atal Pension Plan, erstwhile NPS-lite or *Swavalamban* schemes) with limited-period federal government co-contribution, MoF, GoI
    - Public Provident Fund (PPF): Open to all citizens, accessible through banks and post-office network, administered by National Savings Institute (NSI), Department of Economic Affairs (DEA), MoF, GoI
    - Senior Citizen Savings Scheme (SCSS): A slightly higher rate of interest (than on term-deposits); Ceiling on deposits by / for the elderly; Accessible through Banks and post-office network and administered by the DEA, MoF, GoI.
- Pillar-4: Intra-family and In-kind transfers
    - *Annapurna* Scheme: Implemented as part of NSAP by MoRD, GoI (see *Appendix A*).
    - Integrated Programme for Older Persons (IPOP): Implemented by the Ministry of Social Justice and Empowerment (MoSJ&E), GOI, supported by local government and civil society organizations (CSO).

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### 2.1.2    Key Macro-economic Concerns

Differing pillars in the pension system place differing demand on public funds. For example, pillars 0 and 1, are financed exclusively out of current revenue. These extend direct benefit to the elderly. In contrast, development of pillars 2 and 3 consists in participation and contributions, particularly of non-elderly.

Pension promise (to a current non-elder) creates an inter-generational financial obligation or an implicit pension debt (IPD). Payment to the corresponding elder (in future) mimics the economic consequences of *interest* payment towards IPD (Bovenberg and Petersen, 1992; Kane and Palacios, 1996; Dornbusch, 1999; Wang, 2016). Further, in a system constituting of overlapping generations, current (non-elderly) workers' contributions facilitate capital accretion (Vittas, 1996). And, this entails appropriately designed regulations mandated to motivate 'inclusion'.

Paternalistic attribute of pillars 0 and 1, may rapidly increase *direct* costs (of current public expenditure). And, it may raise *indirect* cost, if it also results in budget deficit that add to public debt and further raise cost of servicing it (see also, Blanchard *et al.*, 1990). However, development of pillars 2 and 3 could earmark assets (financial and physical) for such costs in future and keep the current burden to a minimum.[10] Further, by promoting economic growth these may enhance capacity to absorb costs of servicing public debt and further stabilizing it (Holzmann, 1997; Thomas and Spataro, 2014).

In India, a rise in expenditure on account of pillar-1 (DB) programs may have fortuitously co-synchronized with rise in deposits in public account (see also, Anand *et al.* 2004).[11] Further, maintenance of contributory program funds in public account also helped governments to funnel these to finance their expenditure program (see for example, GoI, 2017a; McKinnon, 1996). But, deposit holders with public accounts may also exert pressure to maintain or even raise the interest rate. Governments may then take recourse to neutralize this pressure by being 'inflation agnostic', while exercising stringent controls on capital (both inflow and outflow). For some decades until the 1990s, that system posed little macroeconomic concern, with *seigniorage* contributing to cap growth in public debt as a proportion of GDP (Buiter and Patel (1992); see also Raju, 2002). Reforms that reset contours for macro-economic stabilization have continually constricted *seigniorage* and more recently also sets bounds for inflation (GoI, 2015b). Thus, unless a high rate of growth sustains, there is clear and present danger that public debt in India could start rising rapidly (see also, an interview of Lord Adair Turner, in "India's main challenge … ", 2017).

It is a matter of moot analysis, whether the old-age income support system in India also contributed to fiscal profligacy and stunting of capital market (see Alda, 2017)? Or, whether capital controls may have inhibited economic growth (see, Alesina *et al.*, 1993)? These however, exceed the scope of this paper.

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[10] These assets may be suitably redeemed (or liquidated) to generate a steady flow of requisite income at an appropriate time in future. Empirical research often extols benefits from such deepening of financial system (on India see for example, Hinz and Rao, 2003; James and Sane, 2003; and Shah, 2003).

[11] A simple correlation co-efficient between public expenditure on DB programs (1987-8 to 2014-5) and next period public account receipts (1988-9 to 2015-6) exceeds 0.92.

## 2.2 Identifying the Vulnerable

The roll-out of programs for the respective pillars and the enunciation of policy may be staggered, but in most countries, a perception of *dependency* (and its perverse corollary, *vulnerability*) along its various dimensions has been the principal forerunner to foster social security.[12] Some *dependency* may hold virtue, by being mutually reinforcing, and enriching. But, financial dependency to satisfy basic human needs, arising out of income inadequacy (poverty) is deemed reprehensible and a societal malaise. Concern with poverty therefore occupies center-stage in addressing 'vulnerability'.

### 2.2.1 Income or Consumption Dimension - Poverty

As per the erstwhile Planning Commission of India, there were 269.3 million poor persons in 2011-2, constituting 21.9 percent of Indian population. Manifestation of poverty among *elderly*, *disabled*, and *widowed* casts a relatively longer and darker shadow on public policy discourse (see UN, 2002). And, poverty rate among is unlikely to be lower than that for population as a whole them (see Pal and Palacios, 2011; Srivastava and Mohanty, 2012).

The census of 2011 (Table C-13, Census of India, 2011) reveals that there were 103.9 million *elderly* (female:male :: 52.8:51.1), constituting 8.6 percent of the population. The *disabled* faced with physical or mental challenges, in 2011 (Table C-20, *ibid*) numbered 26.8 million constituting 2.21 percent of Indian population. Further, there were more than 43 million *widowed* women in the 18+ age group (Table C-2, *ibid*). Applying the population poverty rate on the sum of elderly, disabled, and widowed (after adjusting for double counting), the number of poor-vulnerable in 2011 is estimated at 26.54 million (see *Table 2* in *Section 3*).[13]

The expected draught on public resources for pillar-0 programs is critically contingent on an annually estimated figure for the number of poor. In contrast, development of pillars 2 and 3 is critically contingent on demographic indicators for *dependency* that are discussed next.

### 2.2.2 Demographic Dimension - Dependency Ratios

Researchers working on issues of social security often track changes in *age-dependency*, that serve as summary indicator for improving / worsening *a-priori* conditions. For example, over three decades between 1981 and 2011 in India, *age-dependency* (persons

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[12] In common parlance, children, elderly, disabled, poor, orphans, widows, victims of abuse, *etcetera* may be included among the vulnerable in a society. This perhaps derives from their need for physical, mental, emotional, spiritual and other forms of support.

[13] Note that, the headcount estimate of poverty uses the official poverty line of Indian Rupee (INR) 816 (INR 1000) for rural (urban) monthly per capita expenditure (MPCE) in 2011-2 (see GoI, 2014a). Thus, the average annualised urban poverty line was roughly drawn at one-sixth of per capita GDP (and for that year, translates to about USD 250). A public outcry on the adopted poverty line, forced the government of the day to constitute an *expert group* that suggested a revised poverty line of INR 972 (1407) for the rural (urban) MPCE. The revised annualized urban poverty line for 2011-2 (about 353 USD) translates to less than one-fourth of per capita GDP. The corresponding estimate for headcount of poor, numbers 363 million persons and constituted 29.5 percent of the population.

less than 14 and above 60, per 1000 persons of the remainder) ratio has declined from 783 to 597, depicting an 'improvement'. However, for the same period *old-age dependency* (persons above 60, per 1000 persons between 15 and 59) has risen from 116 to 137 (or, its inverse, the *support* ratio, that is, persons between 15 and 59 per person above 60, has declined from 8.6 to 7.3), depicting a 'deterioration' (from respective censuses).

At an aggregate level, a decline in the measure of age-dependency seems desirable. At a micro level however, that may be contingent upon change in size and structure of an 'average family' (recall discussion in *Section 2.1.1*). The magnitudinal change and corresponding inference may also be contingent upon the choice of 'age-bracket' to 'assign' dependency. This may sometimes produce conflicting signals.[14] However, these metrics facilitate inter-regional / inter-country comparison. Further, directional changes in the metric may signal for caution, and policy design must support its evolution.

A complementary measure, referred as *economic dependency* (estimated as, the number of non-earners per 1000 earners) is perhaps more relevant. Census data over years suggests that, economic dependency also declined, from 1725 in 1981 to 1513 in 2011. Compared to age-dependency however, economic dependency appears less propitious. *First*, unlike age dependency, economic dependency suggests that the number of dependents exceeds the number of earners, *second*, in respective years the magnitude for economic dependency exceeds twice the magnitude for age-dependency, and *third*, in three decades between 1981 and 2011 age-dependency declined by 23.8 percent but, economic dependency declined by only half that rate (by 12.3 per cent).[15] Going forward, the challenge in further reduction of economic dependency ratio may be profoundly linked to the challenge in compressing pillar-0 or in growing pillars 2 and 3. And starting with pillar-0, in the next three sections the paper traces public expenditure through the system architecture in India.

## 3.    Social Pension for Poverty Alleviation

Presently, social pension (pillar-0) in India constitutes in a roster of sub-national schemes that are sought to be synchronized with the NSAP (see *Box 1*, also *Appendix A*). NSAP is a means-testing based program. Means-testing is primarily to identify persons below poverty line (BPL, see *section 2.2.1*). In addition, a vulnerability attribute is utilized to identify those eligible for NSAP. Such attributes currently in use include *physical* (and *mental*) condition, like (i) age, (ii) disability; *social* condition, like (iii) widowhood; and *familial* condition like, (iv) death of bread-winner. The extant version of NSAP thus, is in

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[14] For example, if *young dependents* include those less than 19 (instead of less than 14), and *old dependents* include those above 65 (instead of 60 and above), then utilizing the same census data, age-dependency for 1981 and 2011 turns out to be respectively 1082 and 806. The absolute numbers are markedly higher although still portraying a decline in dependency over decades. However, this choice of a cut-off age appears less gratifying to allow complacency in initiating policy reform.

[15] The *earners* and *non-earners* are, alternatively (but often very loosely), identified respectively as *workers* and *non-workers* (or respectively as *employed* and *un-employed*). Contrary to the trend observed from the last few Censuses, economic dependency using National Sample Survey Office (NSSO) data portrays an increase, particularly between 2003-4 and 2011-2.

consonance with the provision in Madrid International Plan of Action on Aging (MIPAA) that implores nations to establish non-contributory pensions and disability benefit systems (UN, 2002).

Prior to introducing NSAP in 1995, the federal government, in 1992, started an IPOP. In 2015-6, nearly 25 years after introduction, IPOP reached only 22975 beneficiaries with expenditure of INR 273 million (see, GoI, 2016b). Intended to deliver comprehensive support, IPOP acquiesced with only select *in-kind* features and together with *annapurna* scheme, constitutes the minuscule public-component in pillar-4 (see *Box 1*).[16] More recently a discussion on *basic income* for all, has also been revived by the Economic Survey for 2016-7 (GoI, 2017b). If adopted, that could serve as pillar-0 of social security with universal outreach.

*Table 1* presents the number of beneficiaries from NSAP along with the estimate of expenditure. Federal government expenditure on NSAP (*Column 7, Table 1*) constituted 0.39 percent of its total expenditure in 2010-1 and grew to 0.52 percent in 2013-4. Corresponding expenditure by combined sub-national governments (*Column 8, Table 1*) grew from 0.32 to 0.38 percent of their total expenditure. Thus, overall government expenditure on NSAP benefits grew from 0.35 to 0.46 percent between 2010-1 and 2013-4.[17]

### Table 1: NSAP - Scheme-wise Beneficiaries, Government Expenditure

| Year | Beneficiaries,^ mn. | | | | | Exp. (all schemes), bn. INR | |
|---|---|---|---|---|---|---|---|
| | Pension Scheme | | | *Anna.* | FB | Fed. Govt.* | Sub-nat. Govts.** |
| | OAP | WP | DP | | | Actual | Est. |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 2009-10 | 16.33 | 3.21 | 0.70 | 1.02 | 0.34 | 51.09*** | 34.23 |
| 2010-1 | 17.06 | 3.43 | 0.73 | 0.97 | 0.34 | 51.58 | 34.56 |
| 2011-2 | 21.38 | 3.63 | 0.79 | 0.78 | 0.34 | 65.90 | 44.15 |
| 2012-3 | 22.71 | 4.96 | 1.09 | 0.84 | 0.39 | 78.82 | 52.81 |
| 2013-4 | 22.33 | 6.20 | 1.58 | 0.78 | 0.28 | 91.11 | 61.04 |
| 2014-5 | 22.98 | 6.33 | 1.09 | 0.93 | 0.29 | 70.83 | 43.48 |
| 2015-6 | ~ | ~ | ~ | ~ | ~ | 86.13 | 52.87 |

**Source:** ^: Table 35.8, GoI (2015c). *: (a) up to 2013-14: GoI (2015d, 2015e, 2014b, 2014c, 2013a, 2013b, 2012a, 2012b, 2011c; and (b) for 2014-15 and 2015-16: GoI (2017c, 2016c).

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[16] Note, that *annapurna* scheme is administered as a component of NSAP, see *col. 5, Table 1,* also see *col. 3* of *Appendix Table A.2* in *Appendix A* for details). However, IPOP is the first such (pillar-4) public program backed by the central government and envisaged to promote active and productive ageing through engagement of CSOs with *panchayati raj* institutions (PRIs are the third level of government in Indian federation). For details see http://www.socialjustice.nic.in/writereaddata/UploadFile/IPOP%202016%20pdf%20document.pdf

[17] A description of the approach to estimate this expenditure is included in *Appendix A*. Social pension benefit from different sub-national governments are summarised in *Appendix table A.1*. And, *Appendix table A.2* traces the evolution, from inception (till date), of federal government benefit for NSAP.

***Notes***: OAP: Old Age Pension; W: Widow; D: Disability; Anna.: Annapurna; FB: Family Benefit. Number of beneficiaries are rounded-off; Federal benefits were last revised in October 2012. We assume no change in social pension benefit of respective sub-national governments. **: The ratio of federal and sub-national expenditure is assumed to hold constant at 3:2. For details please see Appendix B. ***: Does not include grants-in-aid to Union Territories.

A 'province' is referred as 'state'. 'State' constitutes the second level of government in Indian federation and often used to denote 'state government'. Unless otherwise indicated, sub-national as collective noun includes states and 'union-territories'.

trn.: trillion; bn.: billion; mn.: million; 1 trn. = 1000 bn.; 1 bn. = 1000 mn. = 100 crores.

One of the indicators to assess administrative efficiency in program implementation, constitutes in comparing number of eligible with number of beneficiaries. As an example, the schema to estimate number of eligible persons after adjusting for overlap among scheme components and eliminating duplication for 2011-2 is presented in *table 2*.[18]

### Table 2: Estimate of Eligible by Scheme, Age-group, and Gender, 2011, mn.

| Age Gr. | 18 - 39 | | 40 - 59 | | 60 - 79 | | 80+ | | Sum (cols. 2 - 9) |
|---|---|---|---|---|---|---|---|---|---|
| Gen. | M | F | M | F | M | F | M | F | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| OAP + *Anna.* | | | | | 10.03 | 10.24 | 1.16 | 1.32 | 22.74# |
| WP | | | | 3.02 | | 4.62 | | 0.91 | 8.55# |
| DP | 0.29 | 0.21 | 0.17 | W 0.01 / O 0.11 | 0.11 | W 0.07 / O 0.04 | 0.03 | W 0.02 / O 0.02 | 1.06# |
| Total Eligible* | 0.29 | 0.21 | 0.17 | 3.13 | 10.03 | 10.24 | 1.16 | 1.32 | **26.54** |

*Source:* Authors' approximations based on Tables C-2, C-20, and C-21 in Census, 2011

*Notes:* Age Gr.: Age group; Gen.: Gender; M: Male; F: Female; W: Widows among females; O: Other-than-widows among females.

#: Total eligible for the scheme without adjusting for duplication

*: Total eligible by gender and age-group across any scheme, adjusted for duplication.

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[18] For eligibility criteria and other details see *col. 6* of *Appendix Table A.2*.

The cell-values indicate the maximum possible eligible persons for a pension scheme (given by the row header) from that age-group and gender given by the column header).

Cells with an arrow-head are a proper super-set of the cell with the corresponding arrow-end. Cells with an arrow-end are grey-color filled and their value is excluded from column-totals (to eliminate duplication) for total eligible. All eligible may be considered for only one (Old-age, Widow, or Disability) pension, and normally the one offering highest benefit.

The number of eligible are estimated at 26.54 million (last row in *Table 2*). And, beneficiaries across all pension categories number 26.58 million (*cf. Table 1*, sum of *cols. 2 to 5* for 2011-2). In broad concurrence with the primary survey based finding of Drèze and Khera (2017), the analysis in this paper based on census data affirms convergence between number eligible and number benefitting from NSAP.[19] This close match also translates onto a strong correspondence between budgetary allocation and actual public expenditure. However, this does not guarantee a low or negligible error in scheme administration. For example, in the case presented above, the match in 'numbers' is necessary but not sufficient to ensure a match in 'identity of eligible' and 'identity of beneficiary'. In such a situation, appearance of type-II error (wrongful inclusion of ineligible) necessarily translates onto type-I error (wrongful exclusion of eligible) too. Efforts to detect, correct, and minimize the 'true' extent of type-II and type-I errors may be boosted with support from an 'identity-authenticated' enumeration and transactions procedure.[20] More importantly however, the desideratum for poverty alleviation, is a 'reliable' estimate of the number of poor in the population. This crucially depends, in turn, on where one draws the poverty line. Thus, instead of a poverty rate of 21.9 percent, if the *expert group* estimate of 29.5 percent were to be true (*cf. footnote 13*), especially for the elderly, then there could be more than 30.6 million elderly poor in India. In that case, more than a quarter (30.6 – 22.7 = 7.9) of the potentially eligible perhaps remain excluded. Such level of type-I error may be unacceptable.

Next, one finds that in 2013-4, states offering social pension lower in value than the corresponding (standardized) federal benefit, constituted 47 percent of population but almost 61 percent of all poor.[21] Further, the differential is pronounced in states ranked lower on the metric of per capita gross state domestic product (GSDP). This is unsurprising, as GSDP predominantly influences the capacity of a sub-national government to mobilize (and subsequently allocate) resources for redistributive transfers. But, that also curtails the effectiveness of this design of redistributive program in alleviating poverty.

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[19] The authors' find 'nothing like the scams that plague many other….' in program delivery (*ibid.*: 566). However, in the context of introduction of APY, in conjunction with extant NSAP, we find no reason to hold their view that, '[A]s things stand, central and state governments are pulling in different directions'. APY is aimed at those in working-age group while NSAP targets elderly and vulnerable.

[20] The 0.15 percent *excess inclusion* (type-II) error in NSAP in 2011-2 however, does not necessarily cause any type-I error.

[21] Population and number of poor, both pertain to 2011-2. Further, we discuss only aggregate government expenditure on NSAP and not the distribution over specific components of NSAP or the disparity in federal government expenditure across sub-national constituents.

Thus, effectiveness (in the limited sense of poverty alleviation) is contingent upon (i) efficient implementation and (ii) adequacy of benefit (see also, Drèze and Khera, 2017). And, in the long run, this envisages a decline in proportion of targeted population and further that the target reduces to a smaller absolute number. Adjudging such programs entails a more nuanced analysis and exceeds the scope of this paper.

## 4.     Defined Benefit Programs

Most countries in the world accord some patronage to their ceding public servants, with rules that define retirement benefits as state (social) obligation (pillar-1). The practice has origins in erstwhile monarchies, where *meritorious* public servants were *rewarded* benefits upon retirement (Anand, 2007). However, the reward then was drawn only at the 'pleasure' of the benefactor and, often co-terminus with death of benefactor or beneficiary. That arrangement often retained a heavy lid on both state obligation and benefits. In the present world, not only the modern states are longer-lived (than average for an erstwhile monarchy) but also the obligation may extend beyond the life of the public servant. And, if not adequately calibrated, this could cause a sharp escalation in resultant benefits.

Such programs in India, cover (a) veteran freedom fighters, (b) all ex-defence workers (federal government services), and (c) ex-civilian workers (both federal and state government services) from cohorts that joined service before the respective governments' ascent to NPS (see *Box 1*, and also *Section 5*). The reward provides with regular periodicity, a defined benefit that is indexed to conserve its value for upkeep of status until death. Further, it provides an insurance cover for the (supportive) dependent family of the ex-worker. In legal phraseology, DB acquired an interpretation of *rights-based pension* or *deferred compensation for past services*. It constitutes pillar-1 of the architecture (see *figure 1*, *cf. Box 1*) and even preceded the introduction of pillar-0 pension program for poverty-alleviation (discussed in *Section 3*).

### 4.1     Freedom Fighters' Pension

A defined benefit pension scheme was introduced in 1969 for political prisoners (PP). Rechristened as Freedom Fighters' Pension Scheme (FFPS) in 1972, it finally evolved into SSSPS in 1980. *Appendix B* summarizes the chronology of changes in scope of beneficiaries and federal government basic pension benefits under SSSPS. The scheme entailed federal government expenditure of INR 7.8 billion in 2014-5 (*col. 2, Table 3*) and benefitted roughly 38 thousand persons. However, more than two-thirds among them were dependent beneficiaries (see, http://mha.nic.in/sites/up-load_files/mha/files/ListFF_DD_01032017.pdf).[22]

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[22] In December 2016, the beneficiaries constituted of 13015 freedom fighters and 24445 dependents The beneficiaries on June 30, 2015 (March 2017) constituted of 11690 (12657) freedom fighters and 26291 (24699) dependents. The dependents in the respective years constituted of 24792 (23127) spouses and 1499 (1572) dependent daughters.

Some state governments contribute additionally, to felicitate their respective awardees. In 2014-5, this entailed an additional expenditure of INR 2.2 billion by all-combined state governments (*col. 3, Table 3*). On average, since 2010-1, expenditure by states' constitutes about one-fifth of total expenditure on welfare of freedom fighters' (*cf. cols. 2&3, Table 3*).

### Table 3: Public Expenditure on Pension of Ex-workers from Public Sector and Welfare of Freedom Fighters, bn. INR

| Year | Freedom Fighters Welfare | | Public Sector | | | Total Defined-Benefit | |
| | | | Federal Govt. | | State Govt. | | |
| | Federal | State | Defence | Civil | | Federal | State |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1987-8 | 0.6 | 0.3 | 12.1 | 3.7 | 15.6 | 16.5 | 15.9 |
| 1990-1 | 0.5 | 0.3 | 16.7 | 4.6 | 30.7 | 21.9 | 31.0 |
| 2000-1 | 2.4 | 0.8 | 102.4 | 41.4 | 259.7 | 146.2 | 260.5 |
| 2010-1 | 7.1 | 1.8 | 373.4 | 194.0 | 1077.3 | 574.5 | 1079.1 |
| 2011-2 | 8.2 | 2.0 | 375.7 | 226.6 | 1268.0 | 610.5 | 1270.0 |
| 2012-3 | 7.7 | 2.0 | 433.7 | 249.0 | 1426.4 | 690.4 | 1428.4 |
| 2013-4 | 8.3 | 2.3 | 455.0 | 277.9 | 1597.8 | 741.2 | 1600.1 |
| 2014-5 | 7.8 | 2.2 | 604.5 | 311.6 | 1766.8 | 923.9 | 1769.0 |
| 2015-6 | 7.9 | 2.3 | 602.4 | 341.9 | 1970.8 | 952.2 | 1973.0 |

*Source*:  GoI; Respective State Finance Accounts, various years; Sourced from NIPFP data-bank.

*Notes*:  Excludes expenditure on contributions to pension funds, provident funds, NPS. State govt. and civil (federal) include ex-members from respective legislative and juridical services.

### 4.2 Government Service Pension

Government employees under the DB system, are entitled to retirement benefit that has two components, namely, (i) one-time (or terminal) and (ii) regular (or periodic).[23] For both the components, payment to *eligible beneficiary* (ies) is formula-based consideration on (a) *eligible* (length of) *service* and (b) *eligible pay*.[24]

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[23] One-time (terminal) benefits accrue only to fresh retirees (during the year). It includes (i) encashment of earned leave, (ii) gratuity payment, and (iii) commutation of pension. Expenditure on *pensions and other retirement benefits,* as reported in government finance accounts, is an eclectic mix on type of benefits and type of beneficiaries. While not discussed in this paper, it may be useful to undertake an analysis of expenditure on *pensions and other retirement benefits* based on the chronology and evolution of rules for each type of benefit.

[24] Most, if not all, types of benefit are subject to a respective *minimum floor* and a *maximum ceiling*. Eligible beneficiaries include member pensioners or their *eligible survivors*. There are guidelines for computing *eligible service* and *eligible pay*. Further, *eligible pay* for beneficiaries of federal government

Federal government expenditure on retirement benefits multiplied almost 58 times in the 27 years between 1987-8 and 2014-5. But, over that period, corresponding expenditure on ex-defence personnel and ex-civil servants grew at a trend rate of respectively 15.3 and 19.2 per cent per annum. Consequently, the ratio of federal government expenditure on defence pensions to that on civilian pensions that stood at more than three in 1987-8, dropped below two in 2014-5 (*cf. cols. 4&5, Table 3*).[25]

Next, the ratio of federal to all-states combined expenditure on retirement benefits for their respective employees was evenly poised in 1987-8 (compare *cols. 4 plus 5* with *col. 6, Table 3*). But, expenditure of states on this account grew at 18.9 percent per annum between 1987-8 and 2014-5. And, it rolled over 113 times in the intervening 27 years. Consequently, the ratio of federal to states' expenditure stood at 1:2 in 2014-5. But, importantly in two out of every three Indian states, expenditure on DB-pension since 2012-3, has risen in criticality as a functional expense, and surpassed expenditure towards *interest* payment (on impact of rising debt-servicing cost see for example, Hicks, 1991; Rangarajan and Srivastava, 2003, 2005).

Data on account of expenditure on DB-pensions are apparently incontrovertible. However, data relating to 'number' of current and ex-workers in government, most often is conjectural. This resonates across all governments in the Indian federation. Consecutive reports by each of the central pay-commissions and finance-commissions have lamented this lacuna, respectively for the federal and sub-national governments. These could be confounding, unless cogently organized, particularly when discussing average (pension) benefit, worker coverage, and pension beneficiaries across pillars (see *Figures 3, 4, & 5* in *Section* 6).

## 5.   Contributory Programs

Persons that are members of a contributory program may have a pension account or a provident fund account or both.[26] Individual accounts are accredited with *contributions* by (a) members and employers both, in mandatory (pillar-2) accounts, and (b) members only, in case of voluntary (pillar-3) accounts (see, *Figure 1* and *Box 1*, also *Appendix C* for a brief on the extant working of pillar-2 & 3 in India). Public expenditure on

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ex-employees is indexed 100 per cent on both inflation and wages. Inflation indexation is bi-annual, while wage-indexation is subsequent to recommendations of a central pay commission (and practically, a decadal venture). Sub-national governments may differ significantly among each other and with federal government, on some attributes of their respective DB schemes.

[25] Note that, in Indian *Finance Accounts*, revenue or current expenditure includes contributions to provident funds, gratuity and pension funds. This is erroneous. Contribution for future pensions should be included under appropriate heads for *capital expenditure*. In this paper, such contributions are included as public expenditure on pillar-2 programs (see, *Section 5*, and *Figure 2* in the concluding section).

[26] In the extant dispensation, individuals may also operate multiple pension and provident fund accounts. There is no fundamental difference in design of pension or provident-fund accounts, except at the final settlement (maturity or withdrawal) stage, when provident fund may be redeemed as a lump-sum, while a part or whole of pension account may be redeemed only as an annuity plan (see *Appendix C*).

contributory programs constitutes of (a) government *co-contribution* for pension of (a1) their respective employees, (a2) private sector workers under other mandatory programs, (a3) low-earners to inculcate thrift and incentivize voluntary programs,[27] (b) *interest expense* on investment in government bonds and securities sourced respectively from funds with (b1) pillar-2 mandatory programs and (b2) pillar-3 voluntary programs.[28] *Table 4* presents these for the last few years and the following analysis proceeds to cover dimensions of expenditure by (a) function (namely, capital or current), (b) level of government, and (c) pillar-type.

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[27] Present contribution amount is, the smaller between (a) 50 per cent of the individual's annual contribution, and (b) INR 1000, and for a limited period upto 2019-20 only.

[28] Note that, *a* is in the nature of capital expenditure, and *b* constitutes current expenditure. Further, government capital contribution for individuals is credited only into operational pension fund accounts (*not* in provident fund accounts).

**Table 4.  Public Expenditure by Levels of Government on Contributions and Interest on Retirement Funds, bn. INR**

| Year | Contribution | | | | | | Interest payment | | | | | |
| | Mandatory schemes | | | | | Vol. sch. | Mandatory sch. | | Voluntary schemes | | | |
| | Federal | | | | States | Federal | | | Federal | | | States |
| | Private sector | | | Pub. sec.[a] | Pub. sec.[a] | NPS – APY[d] | Federal[e] | States[e] | | | | |
| | ATPFS[b] | CMPFS[c] | EPFS[b] | | | | | | PPF[f] | SCSS[g] | Others[e] | Others[e] |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2009-10 | 0.16 | 0.29 | 9.94 | 5.92 | 3.61 | ~ | 118.71 | 401.57 | 171.74 | 40.97 | 125.29 | 148.88 |
| 2010-1 | 0.17 | 0.29 | 13.00 | 6.70 | 7.77 | 0.50 | 152.51 | 424.00 | 132.75 | 50.05 | 131.86 | 167.23 |
| 2011-2 | 0.17 | 0.27 | 13.50 | 9.35 | 10.01 | 0.30 | 135.58 | 456.73 | 145.39 | 54.00 | 144.00 | 187.05 |
| 2012-3 | 0.15 | 0.24 | 14.00 | 12.10 | 21.11 | 0.90 | 138.38 | 436.37 | 172.30 | 36.21 | 175.73 | 222.83 |
| 2013-4 | 0.35 | 0.22 | 19.98 | 16.08 | 33.12 | 1.35 | 140.87 | 443.95 | 194.16 | 31.34 | 171.83 | 251.82 |
| 2014-5 | 0.11 | 0.22 | 23.00 | 20.02 | 63.91 | 1.75 | 138.91 | 482.69 | 214.90 | 29.15 | 205.23 | 276.39 |
| 2015-6 | 0.18 | 0.22 | 35.40 | 23.44 | 70.69 | 3.51* | 120.93 | 507.86 | 246.89 | 24.52 | 206.98 | 298.04 |

*Sources*: a: Finance accounts, respective years, NIPFP data-bank; b: GoI 2017d, 2016d, 2015f, 2014d, 2013c, 2012c, and 2011d; c: GoI 2017e, 2016e, 2015g, 2014e, 2013d, 2012d, and 2011e; d: GoI 2017f, 2016f, 2015d, 2014b, 2013a, and 2012a; e: authors' own calculation based on data from GoI 2017g, 2017h, 2016g, 2015h, 2015i, 2012e, and 2011f (respective vol. III, Table 77-A: 2049); f: GoI 2016h, 2015j, 2015k, 2014f, 2013e, 2012f, and 2010 (Statement 16 for respective years); g: authors' own estimates based on GoI Finance Accounts of respective years.

*Notes*: *: Includes APY and *Swavalamban* (erstwhile scheme merged into APY); Contributions for Federal/State government public sector employees include contributions to gratuity, pension and provident funds and for the defined contribution scheme. These are aggregated over the minor heads **107**, **108** and **117** under the major head **2071**. Interest payments on SCSS are estimated based on opening balances of the schemes under the Savings Deposits of National Small Savings Fund and the annual interest rates of the respective schemes. Interest payment to 'Others' (federal and states) are aggregates of payments under minor heads **104** '*Interest on state provident funds*' and **108** '*Interest on Insurance and Pension Funds*' (under major head **2049**). Interest payment for mandatory schemes (federal and states) are aggregated over the payments under the minor heads **109** and **117** (under **A-2049-03**) and **118**, **121**, **122**, **123** and **125** (under **A-2049-01**) adjusting for PPF and SCSS payments.

### 5.1 Resource Conscription and Burden Sharing by Levels of Government

In 2010-1, pillar-2&3 programs together entailed public expenditure of INR 1.09 trillion (sum of *cols. 2 to 13, Table 4*). Only three percent of it was on account of capital (*contributions*) expenditure (sum of *cols. 2 to 7 / sum of *cols. 2 to 13, Table 4*), with the remainder on account of current (*interest*) expenditure (sum of *cols. 8 to 13 / sum of *cols. 2 to 13, Table 4*). There apparently has been some moderation in rate of interest since then (see Table 123; RBI, 2017). As a result by end of 2014-5, the share of *contributions* more than doubled to almost eight percent, and total public expenditure on pillar-2&3 programs grew more than one-third to reach INR 1.46 trillion.

Between the federal and the combined-sub-national governments', the latter (*col. 6 / sum of *cols. 5&6, Table 4*) accounted for more than 75 percent of expenditure relating to 'mandatory contribution' for government employees. In turn, these programs (sum of *cols. 5&6 / sum of *cols. 2 to 7, Table 4*) cornered more than three quarters of public expenditure on *contributions*. Voluntary (pillar-3) programs garnered merely two percent (*col. 7 / sum of *cols. 2 to 7, Table 4*) and the remainder (more than 20 per cent) were credited into 'other'[29] mandatory (pillar-2, *sum of cols. 2 to 4 / sum of cols. 2 to 7, Table 4*) programs.

Federal and sub-national governments, also incur *interest cost* towards investments flowing into respective government bonds. On such flows from mandatory (pillar-2) programs, in 2010-1 interest expenditure was shared in the ratio 26:74 (*col. 8 : col. 9, Table 4*) between federal and combined-sub-national governments. In that year, analogous sharing of interest expense for voluntary (pillar-3) programs was in the ratio 65:35 (sum of *cols. 10, 11, and 12 : col. 13, Table 4*). The corresponding ratio in 2014-5 stood at 22:78 for mandatory programs and at 62:38 for voluntary programs.

As compared to 2010-1, in 2014-5 apparently the burden of interest cost for both mandatory (pillar-2) and voluntary (pillar-3) programs, may be gravitating away from federal government onto the combined-sub-national governments. Closer scrutiny revealed that, this *within-pillar* change in proportion is neutralized by *between-pillar* (2 and 3) change. That is, the ratio of interest expenditure between mandatory (pillar-2) and voluntary (pillar-3) programs, that stood at 54:46 (sum of *cols. 8 and 9 : sum of *cols. 10 to 13, Table 4*) in 2010-1, had reversed in 2014-5 to 46:54. That is, the balance for interest expense on contributory programs had started to weigh heavier on the side of voluntary (pillar-3) programs. Consequently, for the entire period between 2010-1 and 2014-5, interest expense ratio between federal and combined-sub-national governments remained almost unchanged at 44:56 (sum of *cols. 8, 10, 11, and 12 : sum of *cols. 9 and 13, Table 4*).

### 5.2 Declining Growth in Membership with Schemes

Expenditure on contributions is critically dependent on membership with these programs. It is however confounding that, as with DB programs (discussed in *section 4*), there is scant data on members and beneficiaries in public domain for most voluntary and

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[29] These are presented as *private sector* mandatory schemes in *table 4*.

mandatory contributory programs (see *Appendix C*). Available information depicts wide difference in membership across differing mandatory programs. For example, as per the annual report of Employees Provident Fund (EPF) for the year 2015-6, there were 171.4 million provident fund members.[30] In comparison, there were less than 68 thousand members with SPFS.

An obvious reason for widely differing membership derives from the mandate for respective programs. These define *exclusive* domains, for example, (a) *region-exclusivity*, as in JKPFS of 1961, (b) *sector-exclusivity*, as in, CMPFS of 1948 and SPFS of 1966, or even (c) *combined region and sector exclusivity*, as in, ATPFS of 1955. The EPFS of 1952 covers firms from a list of pre-defined industries, but only those with at least a specified number of employees. Thus even under the EPFS, coverage discriminates among firms based on nature and level of factor employment. The government-sector model, under NPS had 4.58 million (1.66 Federal and 2.92 combined-sub-national) members at end-March 2016. Mandatory programs other than the EPFS and NPS, in 2015-6 covered an estimated 1.67 million members only.

Membership with voluntary programs does not fare any better. The all-citizens scheme (under NPS) mustered less than 0.22 million subscribers and APY[31] garnered about 6.96 million by March 2016 (see, PFRDA, 2016). The number of accounts in public provident fund (PPF) scheme and senior citizens saving scheme (SCSS) are estimated at respectively 14.0 and 1.7 million.[32] More importantly growth, if at all, in membership has been decelerating in these programs. These seem to be struggling with operational legacies. Sparse data in public domain further constrains analysis.

### 5.3    Regulatory Reform: Only More of the Same

In 2003 the PFRDA was entrusted to evolve an NPS. The extant NPS rubric constitutes (a) all-citizens model, (b) government-sector model, (c) corporate model, and (d) APY. All except the government-sector model, may be categorized as pillar-3 programs.[33] The government-sector model is further compartmentalized, respectively for employees with (b1) central government, (b2) central autonomous bodies, (b3) state government, and (b4) state autonomous bodies. Thus, even under the oversight of PFRDA, *exclusive-domain* mandates continue to proliferate. Consequently, extant contributory schemes

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[30] Note that, this is the number of 'accounts' that include active and dormant members. The contributing members however, constitute between one-fifth and one-fourth of all accounts, and in 2015-6 numbered 37.6 million. Next, as per the (nineteenth) actuarial valuation report for the year ending March 31, 2015, there were 34.55 million active and 96.52 million inactive members under the pension scheme of EPFS. Further, there were 5.1 million pension beneficiaries, of whom a little over 30 percent were survivor pensioners.

[31] Named after Atal Bihari Vajpayee, erstwhile Prime Minister of India, 1999-2004.

[32] The approach adopted to arrive at these estimates is detailed in sub-section on *Voluntary programmes* in *Appendix C* and, involves an assumption that average outstanding balance in bank-held accounts is similar to the average in post-office held accounts. In reality, these may differ significantly and former may likely be higher. Moreover, individuals may hold and operate multiple PPF accounts. Thus, numbers reported here, constitute the *maximum* estimate for number of accounts / members with these schemes.

[33] NPS corporate model is not mandatory, but has a co-contributory design and garnered 0.47 million members by end-March 2016.
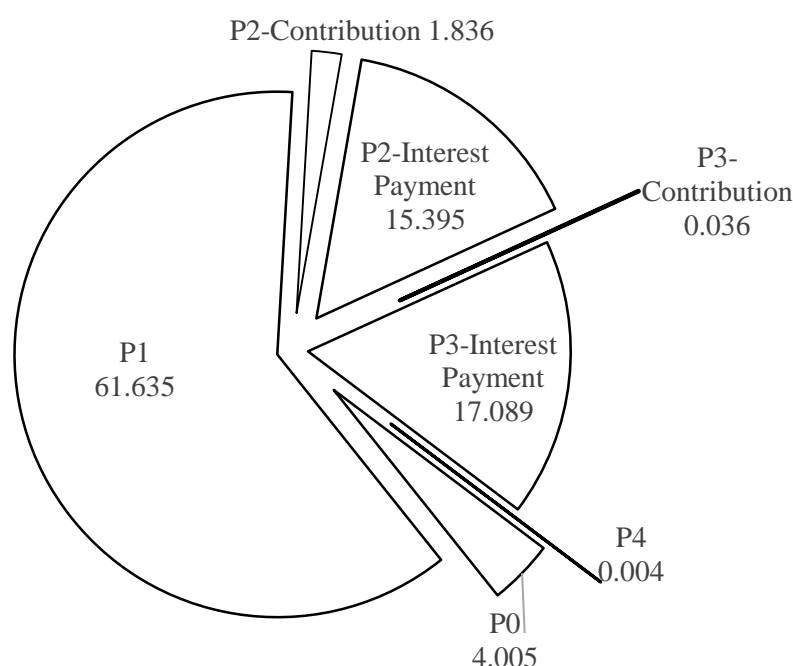
may be constrained to grow their membership, and thereby 'coverage' of workers of an expanding labor force.

## 6. Synthesis of Pillars to Decipher Micro and Macro-economic Repercussions

The analysis of differing individual pillars in sections 3 through 5 is synthesized in this section, for a system-wide portrayal. In 2013-4, total public expenditure (combined federal and sub-national governments) was close to INR 33 trillion and constituted around 30 per cent of GDP for the year. Old-age income support entailed INR 3.8 trillion, constituting about 11.5 percent of total public expenditure for that year.

*Figure 2* presents the pillar-wise distribution of public expenditure for 2013-4. *Contributions* are in the nature of capital expenditure and constitute less than two percent (1.887) of public expenditure related to old-age income support. Of the remainder (98.113 percent) that constitute revenue expenditure, nearly a third (32.482 percent) is on account of *interest* payment.

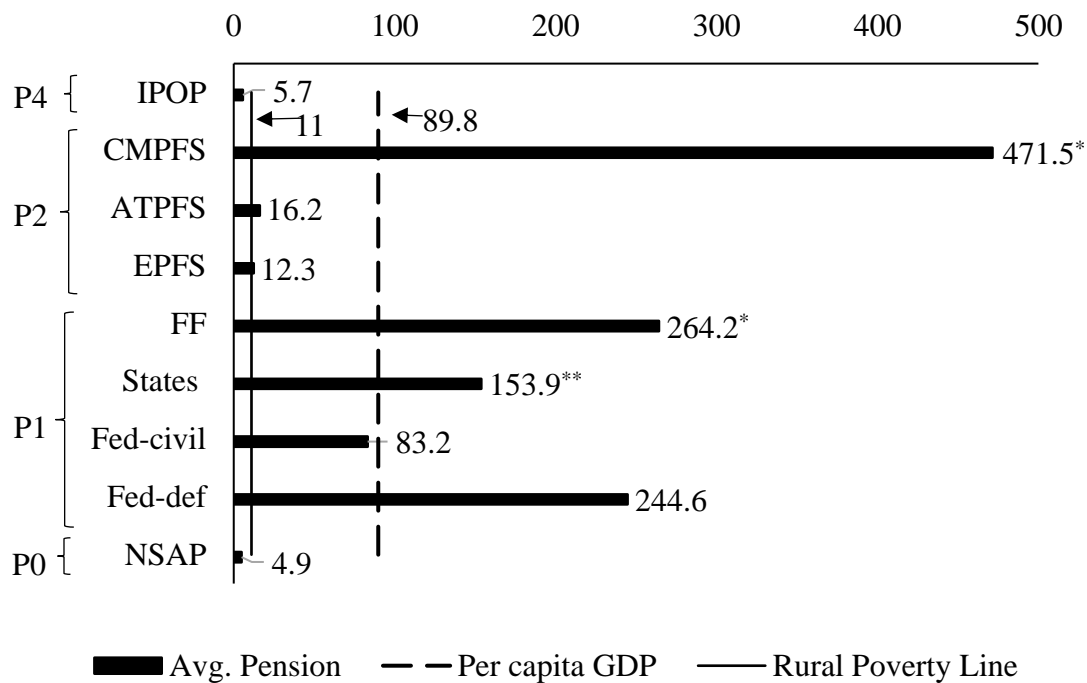**Figure 2: Distribution of Public Expenditure on Old-age Income Support, 2013-4, percent**



*Source*: NIPFP data-bank; GoI, 2016b, 2016g, 2015g, 2015j, and 2014d.
*Notes*: P0, P1... relate to respective pillar-0, pillar-1...; Authors' computation; For P0 see also *Appendix B*.

### 6.1 Diverging Benefits, Patchy Coverage

The estimated annual average benefit accruing to cohorts from differing programs are portrayed in *figure 3*. These have a wide range, but for almost 70 percent of beneficiaries in 2013-4, the annual average benefit is around or less than even the rural poverty line. Annualized and inflation adjusted rural poverty line was drawn at INR 11016 for 2013-4 (*cf. footnote 13, Section 2.2.1*). Beneficiaries drawing such meagre amounts include not only those covered under social programs (NSAP) but also under some mandatory contribution programs. The remainder, less than 30 percent of all elderly beneficiaries from non-contributory (pillar-1) and CMPF schemes, draw average annual pension (close or) higher than average per capita GDP estimated at INR 89796.

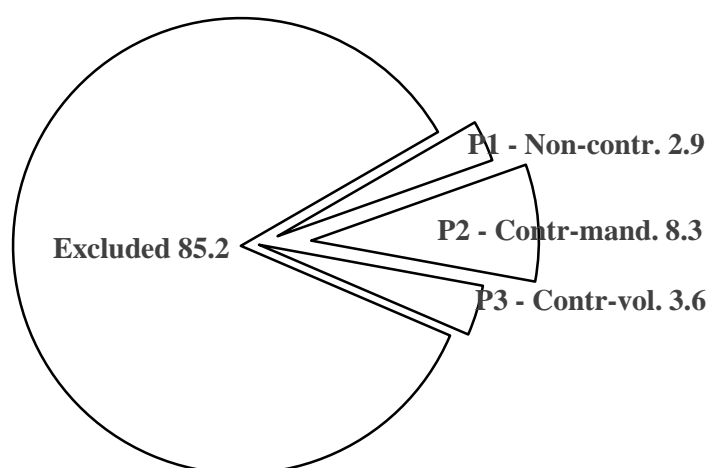**Figure 3: Average Annual Pension Benefit, 2013-4 (thousand INRs)**



*Source*: Poverty line: GoI, 2014a; Inflation and Per capita GDP: RBI, 2017; P4: GoI, 2016b; P2: Annual reports of ATPF (2013-4), CMPF (2014-5), EPF (2014-5); P1: GoI, 2015c, 2015j, 2015l, 2015m, NIPFP data-bank, P0: same as for *Table 1*.

*Notes*: Authors' computation; Based on data collated for expenditure on pension payments and number of pensioners. 2011-2 poverty line is inflation adjusted to update for 2013-4. Number of pensioners from sub-national government service (in pillar-1) is estimated using the number of state-government workers (GoI, 2015c) and average 'system dependency ratio' of 0.71. This ratio is estimated as average of ratios for Bihar, Gujarat, Maharashtra, Odisha, Rajasthan, Telangana (2016-7), Uttar Pradesh (2015-6), Kerala (2014-5), and Punjab (07-8). These states account for about 57 per cent of Indian population and about 50 per cent of all state government workers.
*: Relates to 2014-5; **: Relates to 2011-2.

As per Table B-1 of census 2011, there were 481.9 million workers. Assuming exclusivity in membership of workers across different programs, *figure 4* reveals that 85.2 percent (or 410.6 million) workers remain excluded. In reality a larger proportion (and therefore a larger number too) may likely be excluded as some members with non-contributory or mandatory contribution programs may also be members of voluntary contribution programs.[34] Moreover, some in voluntary contribution programs may not be in the workforce (for example, some PPF members may not have joined workforce yet or may have exited it). Further, worker population in 2013-4 is also likely to be larger than in 2011. However, such large-scale of 'exclusion' may only propagate inter-generational inequity and the finding is consonant with the literature on casualization (informalization) of labor (workforce) in India (see for example, Amin, 2009; Thomas, 2012; Goldar and Aggarwal, 2012; Ramaswamy, 2015; see also http://nceuis.nic.in/nceus_earlier_reports.htm).

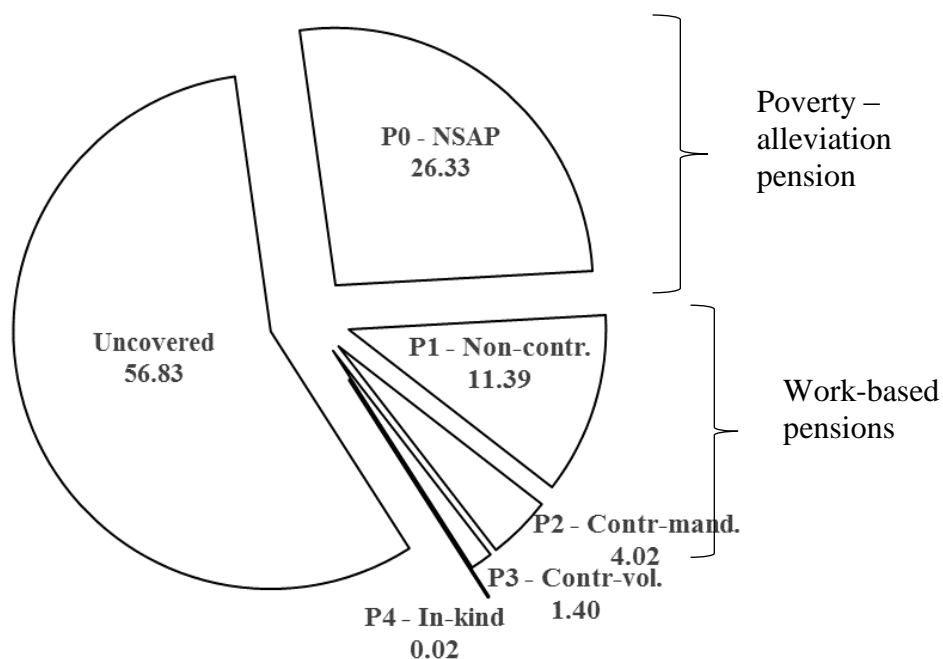**Figure 4.  Distribution of Workers by Membership with Programs, percent**



*Source*: Table B-1, Census of India, 2011; GoI (2015c, 2015n); Annual reports of ATPF (2013-4), CMPF (2014-5), EPF (2014-5), JKPF (2012-3), PFRDA (2013-4).

*Notes*:    Worker population from census; Membership with mandatory schemes from respective annual reports - that pertain to differing, but proximate, years – We assume membership to be not significantly different in 2013-4.

Exclusion of a present-day worker from membership of an old-age income support program translates into non-coverage for that later-day elderly. In the extant system, only the (later-day) elderly living in BPL-households may receive a solatium (NSAP) towards poverty alleviation. And, as shown in *section 3*, the reported number of (elderly) beneficiaries of social pension from NSAP, closely corresponds to estimated number of elderly poor.

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[34] Note that members of payroll-group based voluntary schemes are a sub-set of the members with DB or DC programs and not shown here.

**Figure 5. Distribution of Elderly Population by Source Program of Income Support, percent, 2013-4**



*Source*: NSAP: sources as in *Table 1*; Non-contr.: non-contributory (defined benefit) program (a) pensioners from federal (civilian and defence) services from report of the seventh central pay commission, (b) authors' estimates for state government service pensioners;* Contr-mand.: Mandatory contribution program, Annual reports of ATPF (2013-4), CMPF (2014-5), EPF (2014-5), and PFRDA (2013-4); Contr-vol.: Voluntary contribution program, NSI Annual report (2014-5), GoI, 2016b, 2015j.

http://www.hindustantimes.com/patna/bihar-government-employees-pay-revision-report-by-may-15-kang/story-Cb5xUVjIFstAu9Wj20NjaN.html

http://www.business-standard.com/article/economy-policy/gujarat-announces-4-da-to-govt-employees-pensioners-all-you-need-to-know-117051100263_1.html

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http://www.business-standard.com/article/current-affairs/18-lakh-uttar-pra-
desh-government-employees-on-strike-116090200229_1.html
http://prc2014.kerala.gov.in/reports/10thPayCommissionReport.pdf
http://taxclubindia.com/UPLOAD/fifth/fifth%20pay%20commission%20re-
port%20punjab.pdf

*Notes*: *: see notes for *figure 3*.

The elderly (60+) population in 2013-4 was estimated at 118.36 million. Assuming (a) beneficiaries are only elderly and (b) there is no duplication among beneficiaries from the different programs, *figure 5* reveals that 56.8 percent of elderly are not included in income support programs that entail an element of public expenditure. The actual proportion of elderly remaining uncovered is however, higher. For example, about 14 percent from among NSAP beneficiaries are non-elderly (widows and disabled). Moreover, some member pensioners from DB programs (particularly, among ex-defence workers) and some survivor pensioners from DB and mandatory contribution programs may also be non-elderly.[35] Further, most beneficiaries from voluntary contribution programs are likely a subset of beneficiaries from mandatory contribution programs or defined benefit program. These adjustments could raise the proportion of uncovered elderly to two-thirds their count, closely conforming to the estimate from survey based study on *Situation Analysis of the Elderly in India* (*cf.* GoI, 2011a). Importantly, they depend solely on intra-family informal arrangement, and that does little to assuage intra-generational inequity in income support for elderly.

Further, in 2013-4, the sum of proportions of elderly (see *Figure 5*) that are (a) uncovered (56.8 percent) or (b) covered under social assistance program (26.3 percent), also bears a strong 'contemporaneous' correlation with the proportion of workers 'excluded' (*Figure 4*) from membership of old-age income support programs (85.2 percent). Given the decades-long gestational requirement, this only confirms imperceptible increase in proportion of 'included' workers in the last couple of decades or more. Further, undertaking the adjustments discussed earlier for *figures 4 and 5*, could only strengthen the correspondence between 'proportion of excluded workers' and the 'proportion of uncovered elderly plus covered-poor among elderly'.

### 6.2    *Rising Burden on Sub-national Governments*

In *section 5* it was discussed that a relatively higher share (56 percent) of interest burden for pension and provident fund deposits is borne by the sub-national governments. Interest payment towards such deposits constituted 21.84 percent of total interest expense of combined federal and sub-national governments. For the federal government it constituted 13.84 percent of total interest expense, but the corresponding figure for the combine of sub-national governments was 39.60 percent.

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[35] Survivor pensioners constitute about 21 and 26 percent respectively of federal-civil and federal-defence pensioners, and some among them may be non-elderly.

A relatively higher burden (around 60 percent) of public expenditure on old-age income support is borne by sub-national governments. This derives on account of (a) defined-benefit pension for relatively larger number of ex-workers and (b) interest servicing expense on relatively larger proportion of directed investments from contributory programs. Further, the proportion borne by sub-national governments appears to be rising gradually from 61 percent in 2010-1 to 63 percent in 2013-4. This carries ominous signals for sub-national finance in the foreseeable future. That analysis exceeds the scope of this paper but has ramification for public debt management and macroeconomic stability.

# 7.    Summing up

This paper draws upon a five-pillar architecture to benchmark analysis of old-age income support system in India. For each pillar, the paper identifies the different component programs and collates corresponding public expenditure by federal and sub-national governments, including on limited *in-kind* (pillar-4) public provisioning. The paper traces public expenditure that eventually translates into (or forms a part of) periodic and terminal benefits for the elderly / pensioners in India. This includes expenditure on (a) solatium in social assistance programs (*Section 3*), (b) deferred compensation in non-contributory programs (*Section 4*), (c) incentivizing contribution for workers participating in voluntary programs, (d) co-contribution for employees included in mandatory programs, and (e) interest payments towards investment of funds from contributory (mandatory and voluntary) programs in government bonds and securities (c, d, and e are dealt-with in *Section 5*).

Interest costs (*e* above) on public borrowing, or on investment of funds accumulated in pension and provident schemes, are completely ignored in UN-ESCAP (2015) and CRISIL-PFRDA (2017). This paper, not only collates interest cost, but in deciphering federal and sub-national expenditure and their distribution over different pillars, it also overcomes other limitations (for example, inclusion of sub-national public expenditure on NSAP) and avoids some pitfalls (for example, by reallocating public expenditure for defined contributions onto pillar 2). In turn, that facilitates an improved estimate on average benefits, signifying the disparity arising out of differences in provisioning and administration of each pillar.

## *7.1    Assessment*

Discussion in the introductory section and synthesis of the system in *section 6* affirm that, pillar-4 pertaining to *in-kind* and *intra-family* support predominates in the extant Indian society. This may also be interpreted as a passive outcome of a largely under-developed formal system. But, non-financial and inter-generational familial support may be virtuously supplemented with formal system support from complementary public expenditure. However, nearly 62 percent (proportion for P1 in *figure 2*) of total public expenditure on old-age income support benefitted about 11.4 per cent (proportion drawing defined benefit pensions in *figure 5*) of elderly that comprise only of ex-workers (or

their survivors) from government.[36] The number (and type) of beneficiaries under this pillar-1 increased over years. And, benefits for those already covered were further liberalized through indexation (for example, wage and inflation).

In contrast, participation in pillar-2 programs was evidently muted, with mandate only for specific sectors, or regions, or just sector in a region (See also, Stelten, 2011; Rajasekhar *et al.*, 2017). Further, little was admitted towards widening coverage under voluntary (pillar-3) programs for several decades. Consequently, both pillar-2 and pillar-3 appear stunted.[37] The old-age income support system was expected to be revitalized with the constitution of PFRDA in 2003. However, the idealized features (including on taxation, vesting, and withdrawal) that *ab initio* were argued as *sine qua non* of NPS, have been progressively watered down. The euphemistically named *national* pension system has been rolled out with *factional* attributes. Consequently, features of NPS plans have gravitated towards those of legacy (pillar-2) DC-DB plans.

Continuing *exclusion* of a majority of workers from public-institution based old-age income support program may only contribute to a growing budget for NSAP-type poverty-alleviation pension program. A mandatory 'inclusion' program however, could be an insurance against poverty, and potentially obviate otherwise pre-ordained growth of NSAP. And, some changes in APY under the NPS rubric, could serve this end. A sustained and unrequited government contribution for low-earning workers is a *sine qua non*. This is because, income for a large majority is significantly lower than average GDP (see for example, studies on *inequality* by Sarkar and Mehta, 2010; Chancel and Piketty, 2017). And, that majority may also exhibit very low (even negative) propensity to save. Motivation for financial saving may dampen when it entails a 'long' lock-in period before withdrawals / redemption. For such workers, the annual government contribution could be such that over years of vesting and accumulation, it may yield an annuity that corresponds to some desired fraction (say, one-half) of likely poverty line at a future date.

Careful adoption of technological solutions offered by use of citizens' identifier (like, *aadhaar* number)[38] could minimize errors of omission (of eligible) and commission (of ineligible), and further reduce, or even eliminate duplication (Sharma, 2010). Use of bank accounts (including *Jan Dhan* accounts)[39] for electronic delivery of benefit could reduce cost of administration and enhance regularity (GoI, 2016i; CRISIL-PFRDA, 2017). Regular audits may help to continually improve coverage and weed-out identification errors. Fear of technology abuse or occasional failure can hardly be any justification to delay necessary correctives. Progressive adoption of these measures after speedy resolution of glitches identified during pilots could only enhance program efficiency and policy effectiveness.

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[36] Less than 0.3 percent of beneficiaries from non-contributory system are 'freedom-fighter' pensioners. More than one-third of federal government expenditure on own employees' compensation pertains to the 'deferred' component for DB pension (Anand and Chaudhury, 2007).

[37] This constrains availability of capital that in turn impacts potential economic growth (see Cottarelli, 2011; Asher, 2006) and thus may only aggravate intra- and inter-generational inequality in benefit dispensation (see Walker, 1990).

[38] Unique identification number.

[39] Low cost, zero balance savings (check-in) bank accounts to facilitate financial inclusion.

## 7.2 Suggestions

Continuing with the extant system dimensions could strain the social fabric. Constituent programs for delivering policy objective must therefore draw a balance between (a) paternalism – inherent in welfare programs with perverse incentive for labor / effort, and (b) motivation for thrift - that entails vigilant regulation for safety of savings and / or investment-risk mitigation.

The repertoire of actions, preferably in that order, must therefore *first,* rework on the *DB component* of the architecture by (i) evolving a reasoned 'eligible pay' to represent work-life contribution, and (ii) weaning it completely off wage indexation (see for example, Palacios and Whitehouse, 2006; Whitehouse 2009, 2016). *Second*, reform *regulation* paradigm to encourage 'inclusive' mandatory programs by (i) harmonizing rules across multiple regulators before their eventual integration and (ii) dissolving all considerations for regulatory distinction based on sector, region, scale, and number of workers in organization. The latter, in particular, could facilitate a 'common market' for labor. *Third*, signal state *commitment* to protect low-earning workers' by (i) encouraging work contribution with sustained (unrequited) financial contribution against participation, and further (ii) incentivizing financial thrift. And *last*, *utilize* IT-enabled interface for citizens'-identifier and banking for efficient program delivery and maintain effective policy orientation.

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# Appendix A.  National Social Assistance Programme

The NSAP was introduced on 15th August, 1995 as a federal government sponsored scheme to ensure minimum national standard in social assistance for the vulnerable and destitute that are below poverty line. MoRD, GoI serves as the nodal agency for NSAP. Programs with similar intent as NSAP however, were already operational in some states.

[40] At the sub-national level though, the programs may be implemented by one or more among the departments say, (a) Rural Development, (b) Social Welfare, and (c) Women and Child Development. The federal government's grant-in-aid, as additional central assistance (ACA) for NSAP, is in addition to social pension that the respective sub-national governments currently provide or may provide in future. Further, benefit varies significantly across the sub-national governments. *Appendix Table A.1* classifies the states into broad groups according to their respective provisioning of monthly benefit for OAP.

**Appendix Table A.1. Monthly Benefit (in INR) for OAP, Sub-national Governments**

| Benefit* | State / Union Territory |
|---|---|
| < 200 | Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Sikkim, Uttar Pradesh |
| = 200 | Gujarat, Jammu and Kashmir, Jharkhand, Tripura, Uttarakhand, West Bengal |
| > 200 to ≤ 600 | Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Haryana, Himachal Pradesh, Karnataka, Kerala, Lakshadweep, Maharashtra, Puducherry, Punjab, Rajasthan |
| > 600 | Andaman and Nicobar Islands, Delhi, Goa, Tamil Nadu |

*Source:* GoI, 2014g.

*Notes: \*:* Benefit as in 2013-14. As on August 15, 2017, there are 29 states and 7 union territories in India. Most sub-national governments periodically revise guidelines for eligibility and benefits. Revisions are often ad-hoc and not synchronized across sub-national governments or with the federal government.

The evolution of federal government contribution in NSAP benefit is traced in *Appendix Table A.2*. As per the last revision (in October 2012, see *col. 7, Appendix Table A.2*), among the less-than-80-year old beneficiaries, those drawing WP or DP receive a higher benefit as compared to OAP. All very-old (80+ years) beneficiaries however, receive an identical federal contribution that is higher, than for those less-than-80.

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[40] The sub-national components could carry a differing nomenclature and even broader coverage with more liberal eligibility conditions. For example, *NTR Bharosa* Scheme in Andhra Pradesh covers poor (vulnerable and infirm) among elderly, widows, weavers, toddy tappers, AIDS patients, and people with disabilities. In India, it is common while naming a government program or scheme to prefix it with the name of a constitutional position or a person who may have occupied such constitutional position. Often the same generic program may continue with differing names under differing regimes.

**Appendix Table A.2. Evolution of NSAP for Socially Vulnerable and Destitute,\* Eligibility Condition, Fed. Govt. Benefit (mthly.) in INR**

| Aug. 1995 | 1998 | Apr. 2000 | Nov. 2007 | Feb. 2009 | Apr. 2011 | Oct. 2012 |
|-----------|------|-----------|-----------|-----------|-----------|-----------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| **OAP**<br>Age: 65+<br>Ben.: 75<br><br>**FB**#<br>Age at Death: 18 – 64;<br>Ben.: Upon natural death - 5000;<br>Upon accidental death - 10000<br>**MB**<br>Ben: Max. twice, 300 per live birth | **OAP**<br>**FB**<br>Ben.: 10000<br>**MB**<br>Ben.: 500 | **OAP**<br>*Anna.*<br>Those *not* covered under OAP, Age: 65+, Ben.: 10kgs of food-grains<br><br><br>**FB**<br>**MB** | **OAP**<br>Ben: 200<br>*Anna.*<br>**FB** | **OAP**<br>*Anna.*<br>**WP**<br>Widow, Age: 40 - 64, Ben.:200<br><br>**DP**<br>Severe (≥ 80%) or multiple disability, Age: 18 – 64, Ben.: 200<br><br>**FB** | **OAP**<br>Age: 60 – 79, Ben: 200;<br>Age: 80+, Ben.: 500<br><br>*Anna.*<br>Age: 60+<br><br>**WP**<br>Age: 40 – 59, Ben.: 200<br><br>**DP**<br>Age: 18 – 59, Ben.: 200<br><br>**FB**<br>Age at death: 18 - 59 | **OAP**<br>*Anna.*<br>**WP**<br>Age: 40 – 79, Ben.: 300;<br>Age: 80+ move to OAP<br><br>**DP**<br>Age:18 – 79, Ben.: 300;<br>Age: 80+ move to OAP<br><br>**FB**<br>Ben.: 20000 |

*Sources:* NSAP Guidelines of October 2014. http://nsap.nic.in/Guidelines/nsap_guidelines_oct2014.pdf and NSAP Guidelines for respective years.

*Notes*: OAP: old-age pension, FB: family benefit, MB: maternity benefit, *Anna.: annapurna*, WP: widow pension, DP: disability pension. Except for FB and MB, reported values are monthly benefit in Indian Rupees.

FB is one-time only; MB is permissible at most twice per eligible female.

The header-row pertains to month and year of subsequent revisions. All continuing schemes at the time of revision are mentioned. Details (criteria and benefit) for each scheme is mentioned upon first introduction and only if there is change during later revision(s). MB was moved out of NSAP in 2001.

\*: Below poverty line; #: Death of primary bread-winner; Ben. (Benefit) accrues to eligible / eligible survivor.

The sub-national level contribution for WP and DP beneficiaries may also differ from the corresponding contribution for OAP beneficiaries.[1] Particularly, in 2013-4, several (if not all) sub-national governments appear to adjust their social pension contribution in a manner such that total (sum of federal and sub-national) contribution is equalized for all types of beneficiaries (namely, OA, W, and D).

**NSAP Expenditure:** **Tracking Federal Government Accounts, and Estimating for Combined-sub-national Governments**

Government finance accounts in India, relating to revenue expenditure are organized into the generic nested-functional classification shown in *Appendix Box A.1*.

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**Appendix Box A.1:  Generic Nested Functional classification of Government Accounts**

<Capital Letter> Sector Group

<(small letter)> Sector / Service Group Category

<4-digit No.> Major Head

<(2-digit No.)> Sub-Major Head

<3-digit No.> Minor Head

---

And, given the objective of NSAP, presentation of related accounts may follow the convention as shown in *Appendix Box A.2*.

We proceeded to decipher the relevant data from budget documents and DDG raised by the differing ministries and departments.[2] But find that accounting of relevant expenditure on NSAP may contravene desired convention shown in *Appendix Box A.2*. For example, in budget documents for the state of Assam, expenditure relating to NSAP is booked (with detailed budget code 0318) under *other expenditure* (*Minor head 800*), but nested under *other rural development programmes* (*Major head 2515*) in the service-group named *rural development* and categorized into the sector-group named *economic services*. Apart from violating the desired convention, this is erroneous because NSAP is a welfare measure that entails no presumption on expected return to warrant its (logical) inclusion as an *economic service*.

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[1] These are not presented here, but interested readers may trace this in GoI, 2014g.

[2] Until a few years ago, DDG for the respective ministries and departments accompanied the budget documents. Off late however, if at all, these are only available at the official websites of respective ministries. But, neither naming nor hosting of these documents follows any standard (amenable) convention.

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**Appendix Box A.2:  Generic Nested Functional classification of Government Accounts**

A General services

B Social services

   (g) Social Welfare and Nutrition

      2235 Social Security and Welfare

        (03) NSAP

          001 Direction and Administration

          101 Old Age Pension Scheme

          102 Family Benefit Scheme

          103 Maternity Benefit Scheme

C Economic Services

D Grants-in-aid and contributions

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This apparently may not be an isolated aberration. The desired convention could be contravened, not just across sub-national units but even within a unit across time. Budgetary processes could then obscure public expense accounts. For example, in some years for some states only the *direction and administration* expenditure (that is, operational expenses) are reported under NSAP, while the actual benefit disbursement may be booked elsewhere. Thus, despite a pan-India roll-out of NSAP, one may find that (a) for some states no expenditure is reported under NSAP, (b) for some others there may not be any expenditure corresponding to the minor heads (but only for aggregate sub-major head), while (c) in yet others expenditure under the sub-major head appeared to have dropped sharply before rising slowly over years. Thus, caution needs to be exercised in drawing inferences even with data collated from finance accounts. To circumvent such pitfalls, we arrive at the NSAP expenditure estimate by an alternative, more direct, approach described next.

Recall, that benefit rate contributed by federal government, for a given type of beneficiary, is uniform across the nation. We utilize data on number of beneficiaries across type of pension for elderly persons (a1) less than 80 and (a2) above 80 years. For each type of pension beneficiary, the product of (a) number of beneficiaries and (b) the benefit rate (*cf. col. 7, Appendix Table A.2*), gives the relevant expenditure by each benefit type.

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Their sum yields the federal government expenditure on NSAP benefits that is computed as INR 97.04 billion for a total of 31.71 million beneficiaries.[3]

An analogous exercise is undertaken to estimate the expenditure by each sub-national government on NSAP. We utilize data on (a) number of beneficiaries and (b) the contribution (benefit rate) by each sub-national government, for each type of beneficiary and for each age group, from GoI, 2014g (also *cf. Appendix Table A.1*). The product of (a) and (b) when summed across all types and age-groups, yields the expenditure on NSAP by the respective state. Summing across all states gives the NSAP expenditure of combined-sub-national governments on NSAP (that is, excluding ACA). This is estimated as INR 65.01 billion.

This approach though direct and desirable, may not be feasible without the relevant and detailed data on benefits and beneficiaries for the respective years. Compilation of relevant data has improved significantly in recent years but continues to present several limitations. Further, this includes benefit contribution expenditure only and ignores the expenditure relating to program implementation. We therefore collate the federal government actual expenditure (described next, say for 2013-4) and utilize only the estimated ratio between combined-sub-national governments and federal government (0.67:1) to estimate the formers expenditure on NSAP.

Note, that the federal budget for 2015-6 also reports actual expenditure for 2013-4 on the respective items. We take recourse to the DDGs that are presented along with the annual federal budget document for 2015-6. Actual expenditure of federal government on NSAP is constructed from three parts, (a) the grants-in-aid and contributions to states (under *Major head 3601* and *Sub-Major head 21*) in the DDG for the MoF (b) the grants-in-aid and contributions to union territories with legislature (namely, Delhi and Puducherry, as plan grant with *Major head 3602*) in the DDG of the MoHA, and (c) NSAP expenditure in union territories without legislature (namely, Andaman and Nicobar Islands, under *Major head 2235*) in the DDG of MoHA. The sum of these three components should ideally, correspond to total federal government ACA for NSAP. The values thus arrived at, for the federal government expenditure are presented for years 2009-10 to 2015-6 in *col. 7, Table 1*.[4]

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[3] The relevant year is not clearly mentioned but gives the number of beneficiaries by pension type (OA, W, and D) and age-group (< 80 or ≥ 80) for each sub-national unit. See, http://www.nsap.nic.in/ReportBenfAbstract.do?method=intialize, and

http://nsap.nic.in/Repo+rtBenfAbstract.do?method=showReportResult accessed on July 16, 2017.

[4] In the extant case however, it excludes Chandigarh, Dadra & Nagar Haveli, Daman & Diu, and Lakshadweep. Further, this approach got simplified with the GoI decision to abandon plan and non-plan distinction in classifying government expenditure on new and continuing programs. MoRD being the nodal agency for implementation of NSAP, the relevant expenditure since 2016-7 occurs in their DDG (and not in the DDGs of MoF or MoHA). Thus figures for 2014-5 and 2015-6 are presented in the relevant DDG of MoRD respectively for the years 2016-7 and 2017-8. And, for 2009-10 the ACA includes only the grants given to the states by the federal government.

While possible, analogous approach at the sub-national level may pose serious challenges. However, given the actual federal government expenditure, we estimate the combined-sub-national government expenditure from the ratio estimated above. Further, the ratio is assumed to remain unchanged but only over the period between 2010-1 and 2015-6.[5] The derived estimates for combined-sub-national government expenditure on NSAP are presented in *col. 8, Table 1*.

We also note that between 2011-2 and 2014-5, the number of beneficiaries of old-age and disability pension appear to fluctuate, while the number of widow pensioners appears to have risen sharply. Further, since 2013-4, the expenditure on NSAP appears to be moderating. There may be multiple reasons contributing to this, including adoption of technology-based solution for identification and benefit delivery. But, given that aggregate number of eligible beneficiaries is non-declining, there are reasons to suspect decline in efficiency of program delivery (see also, Drèze and Khera, 2017) despite the apparent reduction in NSAP expenditure.

Some inefficiency in program deliverable may be compounded by legacy issues from inappropriate categorization. In particular, this could be because, prior to April 2011, poor-widows between 40 and 64 years were eligible for WP, while all poor above 65 were eligible for OAP (*cf. col. 5, Appendix Table A.2*). In April 2011, eligibility for WP was restricted to poor-widows between 40 and 59, while all poor above 60 were eligible for OAP. As in case of WP, changes were introduced also for DP (*cf. cols. 5&6, Appendix Table B.2*). However, prior to the latest revision in October 2012, federal benefit rate was identical for all eligible (@ INR 200 per month for OA, W, or D) and there may have been some unattended issues in categorization when for example, a poor-disabled-widowed-elderly could be categorized in either of the three groups of pension beneficiaries. But, with differentiation in benefits across age groups (above or below 80) there is need for careful categorization by type of vulnerability (widow, disabled, and elderly). If implemented diligently, use of citizens' identifier based technology may facilitate requisite oversight.

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[5] This may be a conservative estimate for expenditure by the combined group of sub-national governments. In recent years, most (if not all) sub-national governments have revised their contribution rate. As a consequence, it is very likely that the aggregate ratio may be higher.

## Appendix B: Freedom Fighters' (FF) Welfare

The SSSPS is a token of recognition and appreciation for those who (i) suffered at the hands of erstwhile rulers and (ii) contributed to widen, strengthen, and secure the federal fabric of the Indian union (see, for a partial list of such events, http://mha.nic.in/sites/upload_files/mha/files/FFR-Annexure18-100513_0.pdf).

In government finance accounts (*cf. Appendix Box A.1*), expenditure on SSSPS appears as an eponymous category (Minor head: 107) under *other social security and welfare programmes* (Sub-major head: 60), listed under *social security and welfare* (Major head: 2235). Note that NSAP is also conventionally accounted under *social security and welfare* (*cf.* sub-section on 'identifying and estimating NSAP expenditure' in *Appendix A*). However, in the five-pillar organization of the social security system, we include SSSPS as a pillar-1 program (see *sub-section 4.1*) while NSAP is clearly a pillar-0 (*Section 3*) program.

Benefit under the scheme is exempt from income tax stipulation.[6] *In-cash benefit* constitutes of basic pension and (since 1997) *dearness relief* (DR, to adjust for inflation). Basic pension is revised intermittently and *Appendix Table B.1* presents the chronology of change for differing beneficiaries. As per the latest revision in August 2016, DR rate for SSSPS beneficiaries has been harmonized with *dearness allowance* (DA) rate for federal civil service pensioners (workers). *In-kind benefits* include (a) life-time free travel by railways for FF, spouse, and a companion, (b) waiver of telephone installation charges, (c) medical treatment of FF and eligible dependents, (d) quota in awarding dealership of petroleum products, *etcetera*.

Among differing beneficiaries from SSSPS, political prisoners (or their survivor spouse) receive the highest pension. The current maximum rate of basic (federal) pension is INR 30 thousand per month. And, the extant highest benefit (including DR) is INR 30600 per month. Erstwhile members of Indian National Army (*Azad Hind Fauj*) and others who suffered outside British India are included among *Other FF*. Basic pension for them or their survivor spouse, ranges between INR 26-28 thousand per month.

Some states namely, Andhra Pradesh, Chhattisgarh, Delhi, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Punjab, Rajasthan, Telangana, Uttarakhand, and Uttar Pradesh also supplement the federal reward particularly for beneficiaries from their respective states.

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[6] When introduced first in 1969, it stipulated a family-income ceiling of INR 5000 per annum for prospective beneficiaries. But this limit was abandoned soon thereafter. More recently in 2015, an income-ceiling of INR 12000 per month was re-introduced for eligibility to draw *survivor* pension.

**Appendix Table B.1: SSSPS Beneficiaries and Corresponding Monthly Basic Pension, Federal Government, INR**

| 1969 | Aug. 1972 | Aug. 1980 | Aug. 1992 | 1997 | Aug. 2005 | Oct. 2006 | Aug. 2016 |
|---|---|---|---|---|---|---|---|
| PP | FFPS<br><br>*Member*<br>200<br><br>*Survivor(s)*<br>Max. tot.:<br>200 | SSSPS<br><br>*Member*<br>300<br><br>*Survivor(s)*<br>Max. tot.:<br>300 | *Member*<br>Pol. Pris.:<br>1250<br>Oth. FF:<br>1000<br><br>*Survivor(s)*<br>Spouse:<br>1000 | *Member*<br>*(incl. spouse)*<br>Pol. Pris.: 4000<br>Oth. FF: 3000 -<br>3500<br><br>*Oth. survivor(s)*<br>Each UUD: 350*<br>Each Parent: 1000 | *Member*<br>*(incl. spouse)*<br>Pol. Pris.: 5000<br>Oth. FF: 4000 -<br>4500<br><br>*Oth. survivor(s)*<br>Each UUD: 1500<br>Each Parent: 1000 | *Member*<br>*(incl. spouse)*<br>Pol. Pris.: 7330<br>Oth. FF: 6330 -<br>6830<br><br>*Oth. survivor(s)*<br>Each UUD: 1500<br>Each Parent: 1000 | *Member*<br>*(incl. spouse)*<br>Pol. Pris.: 30000<br>Oth. FF: 26000 –<br>28000<br><br>*Oth. survivor(s)*<br>Max. tot.: 13000 -<br>15000 |

*Sources*: GoI, 2017i; http://parliamentofindia.nic.in/ls/lsdeb/ls10/ses4/17120892.htm; Bose, 2006; SSSPS, 1980; and Annual Reports of Ministry of Home Affairs, GoI (available from http://mha.nic.in/annualreports).

*Notes*: Max. tot.: Maximum total for all survivors combined; Pol. Pris.: Political prisoner; Oth. FF: Other freedom fighter; UUD: Unemployed unmarried daughter. Survivor / dependent beneficiaries include (a) spouse, (b) unemployed unmarried daughters' and (c) dependent parents. Oth. survivors constitute of *b* and *c* only. *: Only for the eldest UUD this was INR 600.

# Appendix C: Pillar-2 and Pillar-3 Contributory Programs

Both pillar-2 and pillar-3 schemes are completely regulated or controlled, and face similar tax dispensation. Prior to the setting-up of PFRDA, management and investment of funds were also relegated to the public sector. However, under PFRDA oversight, attempts are afoot to diversify investment portfolios.

A graded (excluding defence personnel) shift away from DB programs has been introduced in public sector employment in India. This may facilitate a rise in coverage under contributory programs, but it does little for the as yet uncovered segments to impact overall coverage of Indian population. The predicament resonates with the situation in several other countries with predominant non-contributory arrangement (see for example, Sundén, 2006; Beland and Shinkawa, 2007; "Falling Short", 2008; Yermo and Severinson, 2010; Wu, 2013; Thomas, 2016; Foster, 2018).

## Rate of Contribution in Co-contributory (pillar-2) Programs

Under NPS and for specified exceptions under EPFS, the *co-contribution* rate is 10 percent each.[47] However, a co-contribution rate of 12 percent, each for employer and employee, is prevalent in India. All schemes, except for JKPFS, SPFS, and NPS, trifurcate the *employer's contribution* into three accounts that are administratively classified into, (a) provident fund, (b) pension fund, and (c) deposit linked insurance (DLI) fund.[48] The *employees' contribution* is vested only into the provident fund account. The federal government also contributes into certain other mandatory schemes (for the relevant schemes and corresponding federal government expenditure see, *cols. 2, 3, and 4, Table 4*). However, the *federal government contributes* between 1.16 and two percent or some defined ceiling, but only into pension funds of the respective schemes.[49]

## Average Benefit on Provident Fund Redemption, and Annual Pension

Funds vesting in provident fund account of subscribers, attract an annually determined (statutory) rate of interest. However, during the contributory phase, withdrawals are allowed for specific purposes. For each such purpose withdrawal is permitted for a

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[47] For schemes not under the oversight of PFRDA, the cost of fund management is additionally borne by employers. Further, only EPFS and NPS provide an additional window for voluntary participation in pillar-3 programmes (see next sub-section on Pillar-3 schemes).

[48] The DLI offers a lump sum survivor benefit to mitigate financial trauma upon employee's death in harness, but not discussed in this paper.

[49] Note that this is distinguished from the federal government's contribution (as an employer) for its own employees.

specified maximum number of times and subject to retaining a minimum balance in account.[50] Balance in provident fund account, at the time of superannuation or cessation of service, is redeemed as lump-sum (one-time terminal benefit).[51]

In 2014-5, for CMPFS the final redemption amount was estimated as INR 1.5 million (or USD 24458). While for EPFS, this averaged less than INR 45 thousand (USD 823) in 2012-3. At about INR 98 thousand (USD 2048) for ATPFS in 2011-2, this appeared only a trifle better.[52]

SPFS, one of the two exceptions to the three-part design of schemes (*cf.* last subsection), constitutes only of provident fund account. Yet, average redemption value in SPFS was barely one-third of that under CMPFS in 2014-5 at INR 518 thousand (USD 8472). Under NPS, the other exception to the three-part design, all contributions pertaining to an employee are maintained in a unified individual account. And, it more or less imbibes the attributes of provident fund account. But, prohibits fully lump-sum redemption and mandates purchase of annuity from a specified proportion of balance in account. It is however, early to assess whether design of NPS would improve average redemption value.

Guidelines for vesting of funds collected in (pillar-2) pension accounts closely resemble those relating to provident fund accounts. Further, pension plans under contributory schemes (except NPS), assure a regular DB pension payment based on *eligible pay* and *eligible service* contribution. Thus, most contributory programs are essentially hybrid DC-DB plans. However, unlike the DB programs for government service, benefits under all hybrid DC-DB plans may not be indexed for inflation. A member pensioner in 2014-5 from ATPFS, CMPFS, and EPFS derived an average annual benefit respectively of INR 47151, 471523, and 14130 (see also, *figure 3* in the concluding section).[53].

## Sustainability

Mandatory contributory schemes in India have hitherto escaped serious scrutiny for their sustainability. Sustainability connotes solvency of the fund to deliver upon promised benefits. Thus, it entails a regular actuarial valuation. But, except for pension fund under the EPFS, valuation for other funds is not available publicly. Even for pension

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[50] Premature partial withdrawals are permitted for emergencies or anticipated events, concerning self or any other member of 'family', and pertaining to education, health, house-building, renovation, marriage etc.. Withdrawal rules prescribe that a minimum specified interval must elapse between two withdrawal events for the same or differing purposes.

[51] Registered trusts under EPFS may seek exemption to manage their own funds, but must (at the minimum) credit the member provident fund account balance with the annually determined statutory rate of interest.

[52] Publicly available information, especially concerning operational statistics, is often limited for most schemes. Further, there may be subtle differences in the scope of available statistics. And, there apparently are pitfalls in adducing analogous estimate on average redemption value across schemes for a given year, or for same scheme across different years.

[53] Annual average survivor pension was however much lower at INR 4,542 under ATPFS (ATPF Annual Report 2014-15).

fund under EPFS, the latest accessible valuation report is the thirteenth in the series that relates to 2008-9.[54] It painted a grim picture of underfunding to the extent of 57 percent of the corpus in that year. However, the 2015-6 annual report of EPF, while alluding to the nineteenth valuation report indicates a net surplus (of about 2.5 percent of total liability, see annual report of EPF 2015-6, pp. 26).

Sustainability of the hybrid DC-DB pension programs is often contingent upon non-decelerating growth in membership and / or contributions. Given the remit of the schemes, change in membership depends on (a) growth (in specific sector or region) and (b) change in technology (share of factor employment). The ratio of number of 'contributors' to 'beneficiaries' (system support ratio, *cf. section 2.2*) is one summary indicator on sustainability of a pension program (see Anand, 2007; Disney *et al.*, 2009). For the year 2014-5, it was estimated to be 28.6, 13.5, and 6.8 for pension schemes respectively under ATPFS, CMPFS, and EPFS. But, 'system support ratio' is inadequate singly to adjudge sustainability.[55] However, a declining value of the ratio, over years may signal for caution. In particular, a value less than one (or close) could be a critical sign of frailty of a program.

## Voluntary Programs

The NSI, originally christened as National Savings Organisation, was created in 1948 with the primary objective '... to promote the habit of thrift and savings among citizens of the country'. It was entrusted with the task '... of mobilization of savings for the National Savings Schemes of GoI, operated through post offices and selected branches of banks throughout the country'.[56]

All deposits received under National Savings Scheme are credited to the National Small Savings Fund (NSSF), a public account established with effect from April 01, 1999. All withdrawals by the depositors are made out of the accumulations of the fund. The balance in the fund is invested in special securities of the state and central governments as per the norms decided by the central government from time to time. With effect from December 01, 2011, minimum 50 percent of the net collection in the state or union territory with legislature are being invested in special securities issued by the concerned state or union territory governments. The remaining fund is invested in central government securities or lent to other union / state governments or in securities issued by infrastructure companies or agencies fully owned by the central government.

Among pillar-3 plans, the SCSS was introduced in 2004, and is of recent vintage compared to PPF that was inaugurated in 1968. These are implemented through the network of public sector banks and post-offices. Over the last few years, some flailing efforts have been made to expand coverage to the so called 'unorganized' sector workers (who in turn, depict a wide overlap with the large majority of self-employed and casual workers).

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[54] However, excerpts from later valuation reports are alluded in recent annual reports of EPF.

[55] One among the class of 'dependency' ratios, it is inverse of 'system dependency ratio'. Other such indicators on sustainability include, 'passivity' and 'replacement' ratios (see for example, Anand, 2007).

[56] See, http://www.nsiindia.gov.in/InternalPage.aspx?Id_Pk=66#

There is limited public access to the operational details of pillar-3 plans. As per GoI (2015k) (see particularly Statement No. 16, p 547), total outstanding balance on March 31, 2014 in all PPF member-accounts stood at INR 2.71 trillion. And, the corresponding balance in all SCSS accounts stood at INR 348. 6 billion. Membership with pillar-3 plans, while not clearly known, may have significant interface with those also covered under pillar-2 plans. From information in annual report of NSI for 2014-5, post-office held PPF and SCSS accounts numbered about 2.41 million and 1.07 million respectively with corresponding outstanding-balance aggregating INR 466.1 and 224.9 billion respectively. Thus, average balance on March 31, 2014 in post-office held PPF and SCSS accounts was INR 0.19 and 0.21 million respectively. Under fairly broad assumptions, these correspond to average value on redemption and compare well against the average redemption value from pillar-2 schemes.

In addition to these, the (NSI) also encourages creation of provident funds from payroll-based savings groups.[57] These, along with voluntary programs under the regulatory oversight of PFRDA constitute the extant pillar-3 in India. It includes (a) all-citizens model and (b) APY, redesigned NPS-lite or *Swavalamban* scheme.

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[57] These are common in public sector establishments but perhaps rare in private sector.

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