39th Summer Seminar on Population
Population, Development and Policy:
A Follow up Workshop

# FINAL PRESENTATION
# INDIA-NTA

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1 July 2008

## Introductory remarks

Summary of work done since last presentation on 19th June

- Construction of NTA for India for the year 2004-05
- Work completed: Estimation of lifecycle deficit, public age reallocation, private transfers , and demographic dividend
- On-going work: Estimation of private-asset based reallocations
- New estimations are based on new dataset: India Human Development Survey 2005 – Grateful thanks are due to Professor Andrew Mason for helping us in providing with this data – Professor Sonalde Desai for permission to use and cite this data

Our presentation is on work completed with focus on:

**PUBLIC RESOURCE ALLOCATION AND INTER-GENERATIONAL EQUITY: EVIDENCE FOR INDIA BASED ON NATIONAL TRANSFERS ACCOUNTS**

## Scope and objectives

Intergenerational equity, broadly defined by equality between lifecycle consumption and income across young, working and elderly generations, is an important measure of distributional effects of macroeconomic performance.

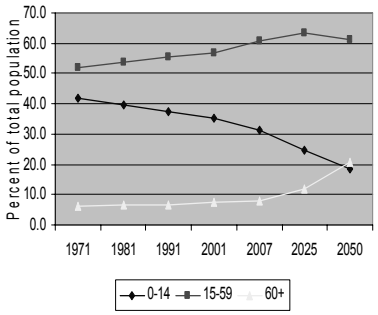
Public (or general government) sector is contributory for attainment for intergenerational equity by its resource allocation policies and programmes through the instruments of fiscal policy, viz., public expenditure, taxation, and debt.

This paper is an attempt to estimate the nature and magnitude of public sector's resource allocation on intergenerational equity in India for the year 2004-05, using the framework of National Transfer Accounts (NTA).

## Motivation for research

- Inter-generational equity and growth issues are relevant for India due to remarkable age structure changes, projected over next 40 years
- Role of public sector is changing due to changes in economic policies and programmes towards privitization and globalization – relevant for public age reallocations

Figure 1: Age structure transition in India: 1971-2050



## Public consumption expenditure in India (current prices)

| 1. Public consumption expenditure as percent of GDP | 1993-94 | 1999-00 | 2004-05 |
|---|---|---|---|
| 1.1. Total | 9.81 | 11.18 | 8.79 |
| 1.2. Health | 0.63 | 0.71 | 0.59 |
| 1.3. Education | 1.46 | 1.83 | 1.51 |
| 2. Percent of total (public and private) consumption expenditure | | | |
| 2.1. Total | 11.77 | 13.58 | 11.81 |
| 2.2. Health | 20.22 | 13.06 | 12.46 |
| 2.3. Education | 53.00 | 54.83 | 50.03 |
| 3. Percent within public consumption expenditure | | | |
| 3.1. Health | 3.38 | 6.63 | 6.27 |
| 3.2. Education | 1.76 | 2.12 | 2.30 |
| 3.3. Others | 94.86 | 91.25 | 91.43 |
| 4. Annual growth rate (%) of public consumption expenditure | 1993-94 to 1999-00 | 1999-00 to 2004-05 | 1993-94 to 2004-05 |
| 4.1. Total | 17.31 | 14.15 | 11.39 |
| 4.2. Health | 17.04 | 27.70 | 11.74 |
| 4.3. Education | 19.28 | 17.82 | 12.86 |

## Lifecycle consumption shares (%) by public and private sector, India, 2004-05

| Consumption | Age groups of population (years) | | | | | |
|---|---|---|---|---|---|---|
| | Total | 0-19 | 20-29 | 30-49 | 50-64 | 65+ |
| Public consumption | 18.57 | 25.67 | 16.97 | 14.32 | 13.26 | 13.60 |
| • Education | 3.19 | 6.25 | 4.84 | 0.01 | 0.01 | 0.00 |
| • Health | 1.24 | 1.14 | 1.08 | 1.44 | 1.33 | 1.30 |
| • Other | 14.14 | 18.28 | 11.05 | 12.87 | 11.93 | 12.31 |
| Private consumption | 81.43 | 74.33 | 83.03 | 85.68 | 86.74 | 86.40 |
| • Education | 1.87 | 4.23 | 2.01 | 0.00 | 0.00 | 0.00 |
| • Health | 5.11 | 4.31 | 5.06 | 6.21 | 5.15 | 4.78 |
| • Housing | 5.10 | 3.62 | 5.72 | 5.09 | 6.44 | 8.85 |
| • Other | 69.35 | 62.17 | 70.24 | 74.38 | 75.16 | 72.76 |

## Public investment and savings

| Indicators | 1993-94 | 1999-00 | 2004-05 |
|---|---|---|---|
| 1. Percent of GDP | 8.7 | 10.6 | 9.5 |
| 2. Percent of gross domestic capital formation | 8.6 | 8 | 10.1 |
| 3. Percent of gross domestic savings | -13.4 | -20.6 | -8.3 |
| 4. Taxes | 15.88 | 15.93 | 17.67 |
| • Direct | 2.94 | 3.52 | 4.95 |
| • Indirect | 12.94 | 12.90 | 12.72 |
| Interest payments | 4.58 | 5.22 | 6.02 |

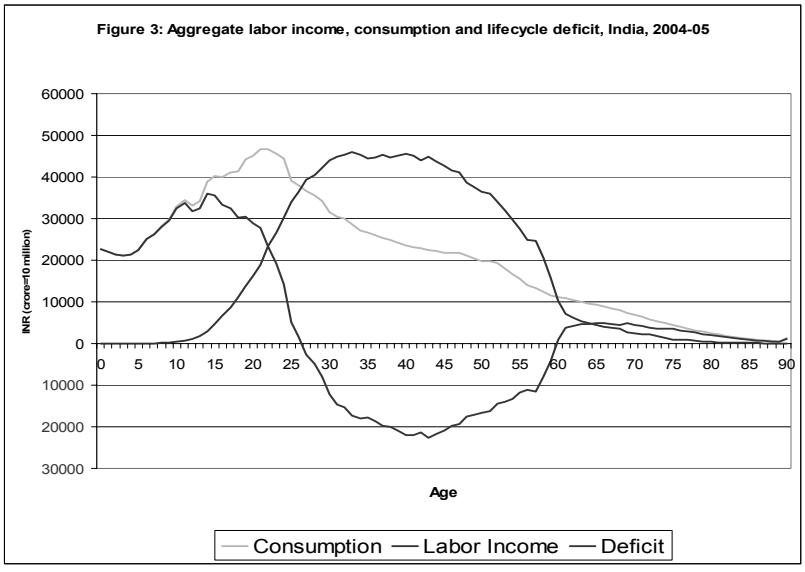
# NTA FRAMEWORK

- Estimation of aggregate controls - age profiles - lifecycle deficits - age reallocations by transfers and asset-based reallocations
- We present our results of estimation with LCD

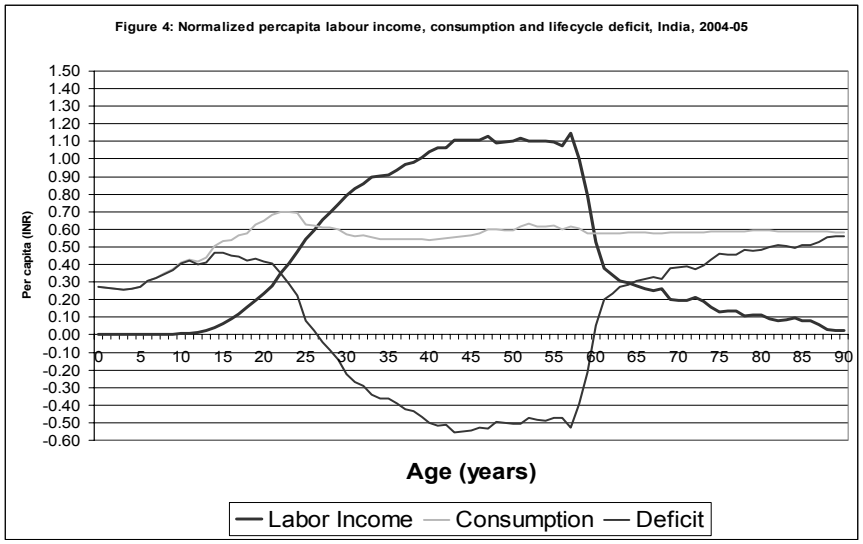
# Aggregate income controls

| Aggregate controls | Estimated value [INR in crore at current prices] |
|---|---|
| **1. Labour income** | 924207 (100.00) |
| • Compensation of employees | 664294 (58.33) |
| • Mixed income | -3966 (41.92) |
| • Net compensation of employees from ROW | 1584535 (-0.25) |
| **2. Asset income** | 706172 (100.00) |
| • Operating surplus | 485158 (68.70) |
| • Mixed income | 332147 (47.03) |
| • Net entrepreneurial and property income from ROW | -18409 (-2.61) |
| • Net indirect taxes | -92724 (13.13) |

# Estimation of LCD



## Normalized per capita LCD




## Summary of results-LCD

- LCD is evident for all age groups, except for working population in the age group of 30-49 years and 50-64 years.
- Highest LCD is evident for young age dependents (age group 0-19 years) rather than for old age dependents (age group 65+ years). LCD in age group 0-19 years is about 8 times higher than for the old age group (65+ years).
- The deficit age groups call for age reallocations from the surplus age groups to finance their excess consumption over labour income. This reallocation, as it is related to public sector, is analyzed below.

## Public sector age reallocations

Main results

- Transfers – Inflows, outflows, and Net inflows: Per capita profiles
- Asset-based reallocation – Per capita profiles
- Financing of consumption by public age reallocations
- Burden of financing of public transfers

## Public transfer account-Aggregate

| Public age reallocations (INR in crore at current prices) | | Age groups | | | | |
|---|---|---|---|---|---|---|
| | Total | 0-19 | 20-29 | 30-49 | 50-64 | 65+ |
| Public net transfers | 0 | 106151 | 1201 | -53550 | -34261 | -19542 |
| Inflows | 445888 | 204168 | 88014 | 96222 | 38208 | 19276 |
| • In-kind transfers | 342542 | 159268 | 69985 | 70977 | 28174 | 14138 |
| • Cash transfers | 103346 | 44901 | 18028 | 25245 | 10035 | 5138 |
| Outflows | 445888 | 98017 | 86812 | 149772 | 72469 | 38818 |
| • Taxes | 504622 | 111212 | 98410 | 169430 | 81866 | 43704 |
| • Other revenues (public sector surplus) | -58734 | -13195 | -11598 | -19658 | -9397 | -4886 |

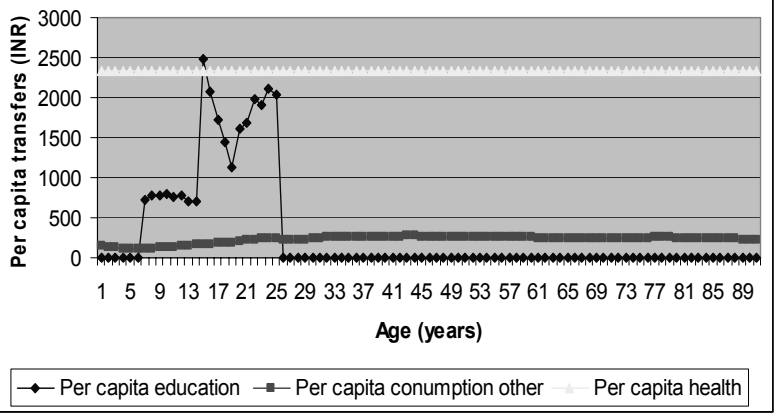
# Public transfer - Inflows

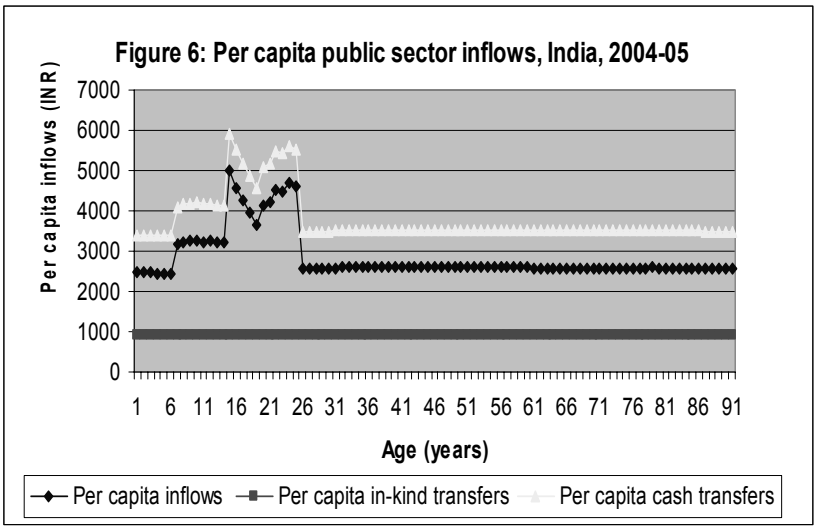
Except for public education consumption, all other public consumptions are allocated for all ages.

This is especially relevant for public consumption other and cash transfers which are allocated on per capita basis.

Hence, the shape of the age profile public sector in-kind transfers is determined by the age profile of public education consumption.

**Figure 5: Per capita public in-kind transfers, India, 2004-05**






## Public transfer - outflows

Private consumption other is allocated according to equivalent scale for all individuals including children and is the basis for allocation of indirect taxes.

Direct which are allocated either for labour income or asset income earners.

Allocation of non-tax revenues (or public sector surplus/deficit) is dependent on age profiles of both direct and indirect taxes.

Hence, age profile of total public transfer outflows includes all ages.

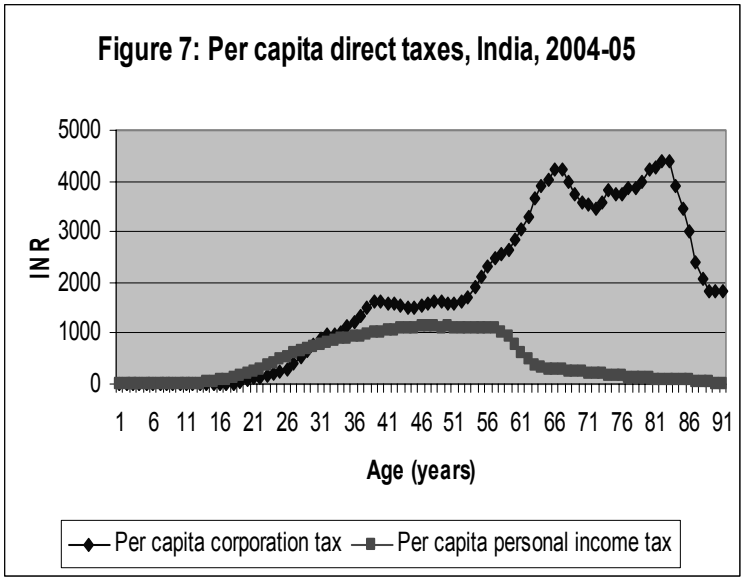


Figure 7: Per capita direct taxes, India, 2004-05
5000
4000
3000
2000
1000
0
INR
1 6 11 16 21 26 31 36 41 46 51 56 61 66 71 76 81 86 91
Age (years)
Per capita corporation tax
Per capita personal income tax

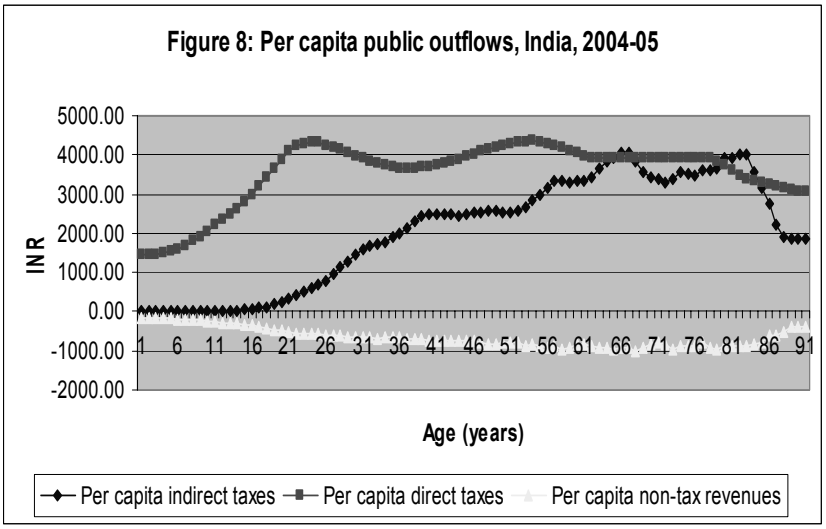
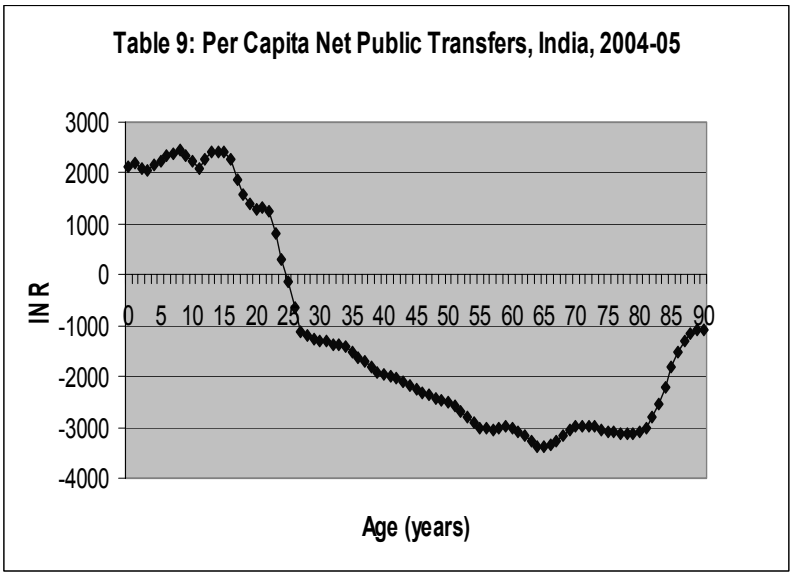


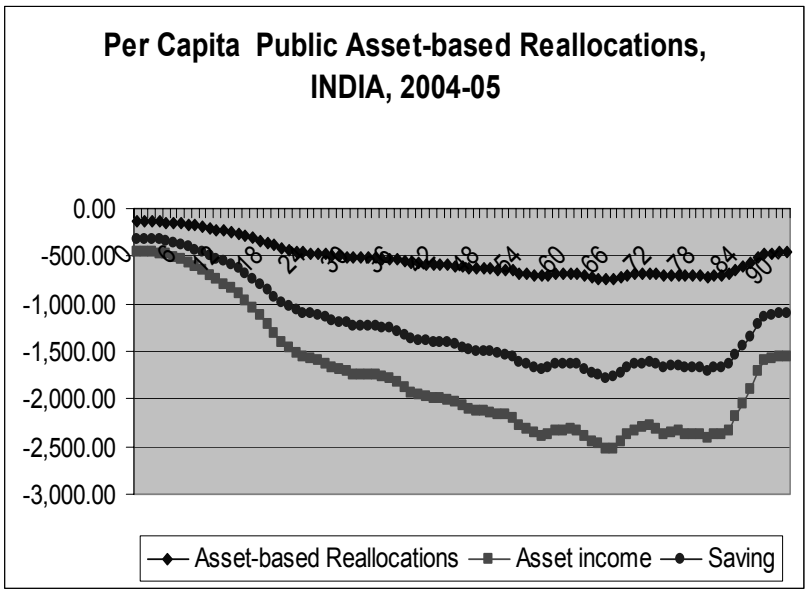
Figure 8: Per capita public outflows, India, 2004-05
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
-1000.00
-2000.00
INR
1 6 11 16 21 26 31 36 41 46 51 56 61 66 71 76 81 86 91
Age (years)
Per capita indirect taxes
Per capita direct taxes
Per capita non-tax revenues




## Public asset-based reallocations

(All variables are allocated by total taxes – combined age profiles of per capita direct and indirect taxes)

| Aggregate reallocations (INR in crore at current prices) | | Age groups | | | | |
|---|---|---|---|---|---|---|
| | Total | 0-19 | 20-29 | 30-49 | 50-64 | 65+ |
| Asset-based reallocations | -46295 | -10484 | -9070 | -15475 | -7408 | -3858 |
| • Income on Assets | -156535 | -35448 | -30668 | -52325 | -25048 | -13046 |
| • Less: Saving | -110240 | -24964 | -21598 | -36850 | -17640 | -9188 |




# Financing consumption for deficit age groups in India, 2004-05

| Sources of finance | Percent of total consumption | | |
|---|---|---|---|
| | 0-19 | 20-29 | 65+ |
| 1. Labour income | 8.48 | 74.65 | 32.47 |
| 2. Public sector age reallocations | 15.42 | -1.91 | -22.52 |
| • Public transfers | 17.11 | 0.29 | -18.80 |
| • Public asset-based reallocations | -1.69 | -2.20 | -3.71 |
| 3. Private sector age reallocations | 76.10 | 27.27 | 90.04 |

## Burden of financing public transfers

- A simple measure of determining the burden of financing public transfers is the ratio of net public transfers to labour income for the surplus age groups.
- This equals to -6.12 percent on those aged 30-49 and -10.86 percent on those aged 50-64 for India.
- The nature of this burden corresponds to US in 2000, but opposite to Taiwan in 1998.

## Conclusions

- Public resource allocations have impact on intergenerational equity. This is captured in NTA by the nature and magnitude of public age reallocations, and its financing consumption of lifecycle deficit age groups.
- Public sector inflows are contributory for equity of younger generation rather than for elderly.
- Public transfers have larger impact on intergenerational equity than public-asset based reallocations.
- Extensions: Comparison of public age reallocation effects (a) between 1999-00 and 2004-05 for India, and (b) between India and other countries in the NTA group.

THANK YOU