

*“Opportunities and Challenges of the Demographic Transition for Meeting the  
2030 Agenda and the Sustainable Development Goals”*

**12th Global Meeting of the National Transfer Accounts Network**

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**INTERGENERATIONAL EQUITY, POVERTY AND INEQUALITY  
FOR THE ELDERLY: EVIDENCE FROM INDIA**

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**Technical Session (15.40 to 16.20)**

***Older Persons through the NTA Lens***

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## Research questions

1. What does intergenerational equity mean? How useful is the NTA methodology to measure it?
2. How do we relate the standard measure of inequality (e.g., Gini coefficient) to the NTA-based concept, definition and measurement of intergenerational equity?
3. What are the impacts of inequality-adjusted distributions of labour income and consumption on inter-generational equity and economic growth in the NTA framework?
4. Why does intergenerational equity, poverty and inequality specially matter for elderly population?
5. What implications do the above analyses have for current and future social security measures for the elderly?

# Intergenerational equity

The concept of intergenerational equity is contextual.

- In Generational Accounting methodology, it is defined and measured by Generational Balance between current and future generations by fiscal policy instruments (e.g., taxes and subsidies). This is a case for inter-generational equity in inter-temporal context.
- In the context of NTA\* and at a given point in time, inequality between income and consumption, as measured by the nature and magnitude of the lifecycle deficit/surplus, between generations (identified by age groups) may be a measure of intergenerational inequity. And, equity is attained by inter-age allocations such that LCD is zero for all generations.
- Our focus is on explaining the relationship between NTA's intergenerational equity, official poverty levels and standard measures of inequality across generations, with special reference to elderly.
- However, we are aware that NTA's LCD, official poverty rate in India and standard measure of inequality are different, both conceptually and methodologically.

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*\* NTA's Generational economy includes (NTA Manual, 2013)*

(a) Economic flows across generations or age groups and (b) Intergenerational distribution of income or consumption that results from these flows

# Proposed framework for inequality-adjusted NTA's LCD

- We propose Sen's welfare measure of adjusting per capita income for inequality to calculate inequality-adjusted NTA's LCD by labour income (LY) and consumption (C). All NTA profiles refer to 2004-05 and are sourced from Narayana's paper in *Population Research and Policy Review*, 34(3), 2015.
- Sen's welfare function:  $W=Y(1-G)$ , where Y is per capita income, G is a measure of relative inequality. Or, W is a measure of inequality-discounted per capita income or "that level of per capita income which, if shared by all, would produce the same welfare (W) as the value of W generated by the actual distribution of income."
- We adjust NTA's per capita total labour income (LY) and calculate inequality-adjusted per capita labour income (LY\*) by age as follows:

$$YL_i^* = YL_i(1-G_i),$$

where  $G_i$  is Gini coefficient at age i.

Accordingly, impact of LY\* on LCD is calculated (C is per capita consumption).

$$LCD_i^* = C_i - LY_i^*$$

Or, consumption inequality-adjusted per capita consumption (C\*) results in

$$LCD_i^{**} = C_i^* - LY_i$$

If LY and C are inequality adjusted, we get

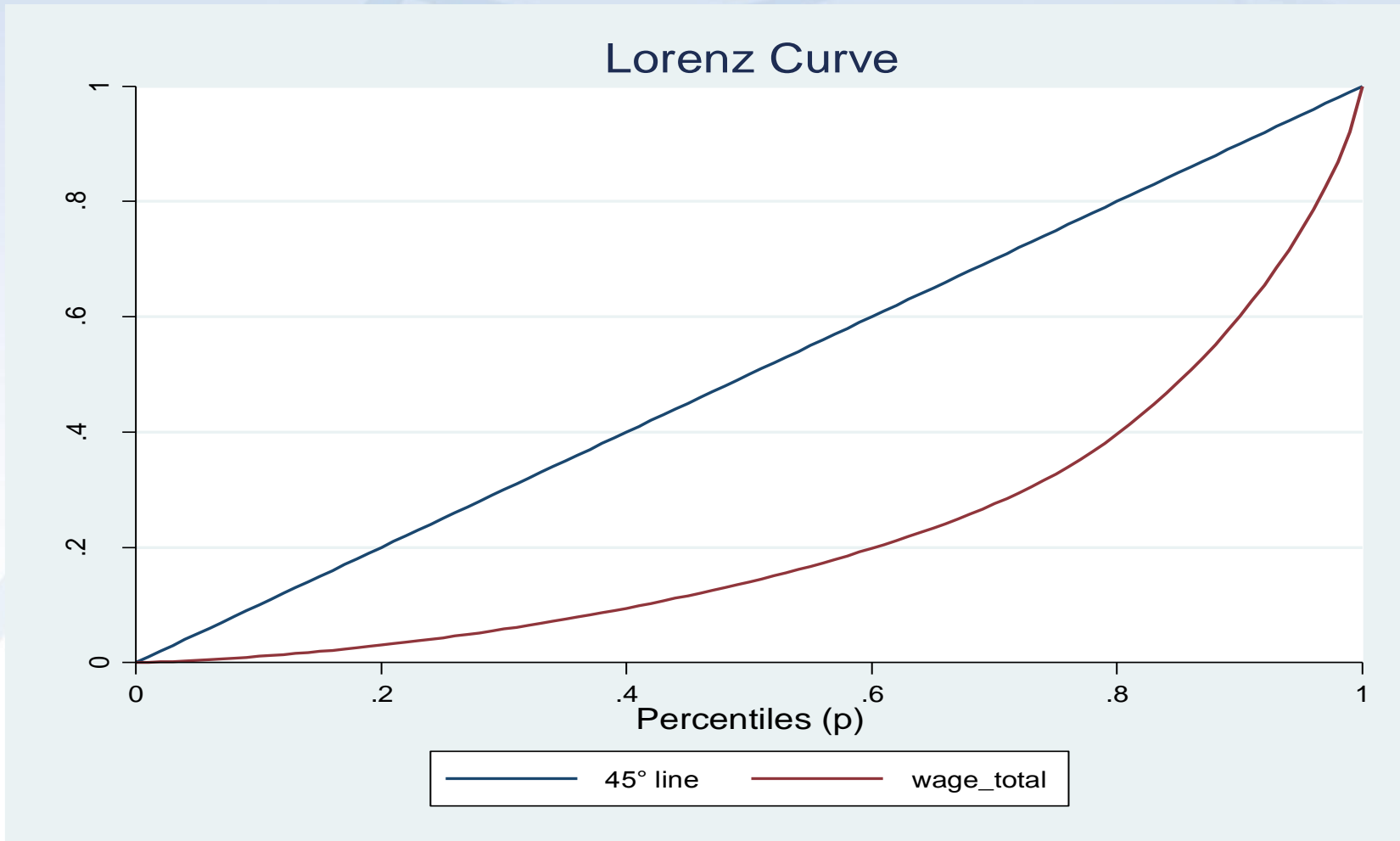
$$LCD_i^{***} = C_i^* - LY_i^*$$

**Inequality in distribution of labour  
income by age and generations; and  
implications for LCD**

## Income inequality labour income

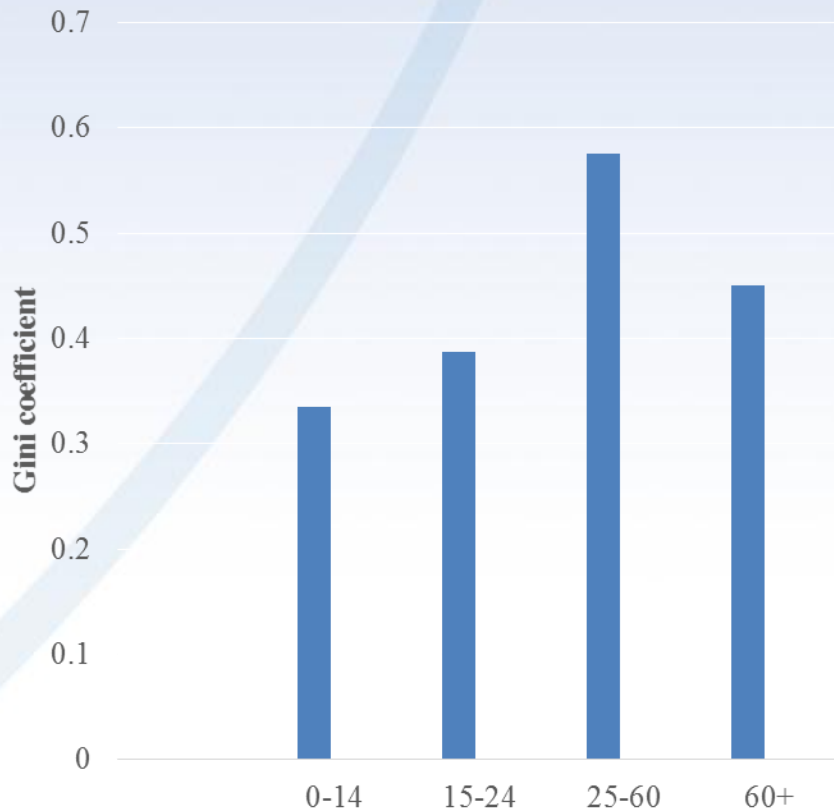
- Database: NSS 61<sup>st</sup> Round: Employment and Unemployment Situation in India (2004-05)
- Labour income: Total labour income from wages and salaries from all types of employment
- Inequality: Gini coefficient by each age (0 to 90 years) and by age groups [young (0-14 years), youth (15-24 years), adults (25 to 60 years) and elderly (60 + years)]
- All calculations are at national level

# Lorenz curve for labour income distribution (Gini coefficient for the distribution is 0.563)

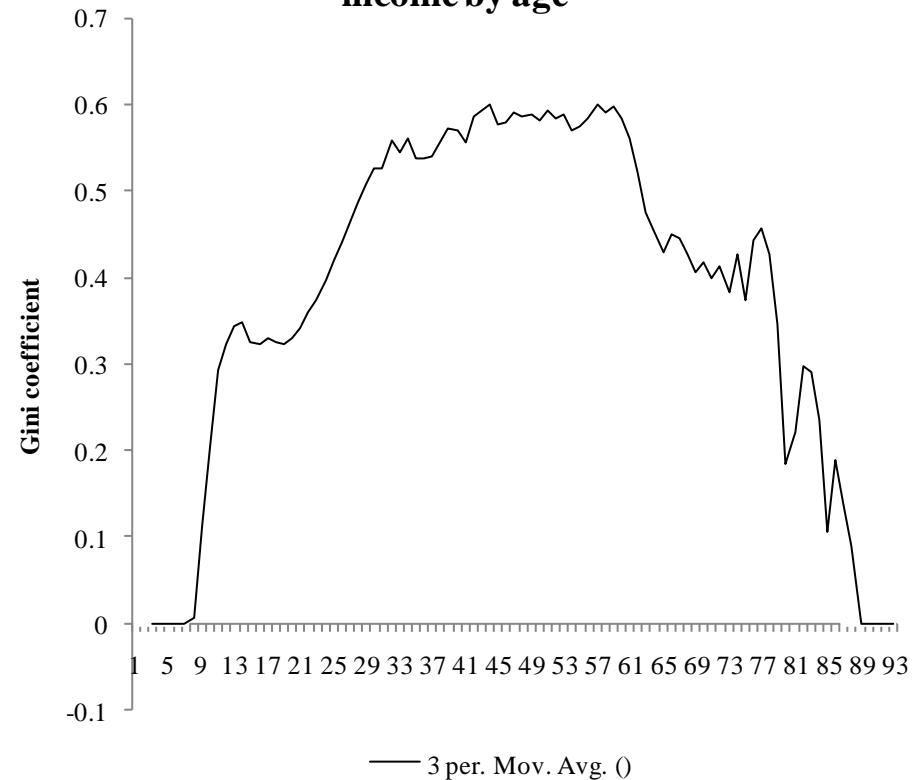


# Inequality in distribution of labour income by age and generations

Inequality in distribution of total labour income by generations

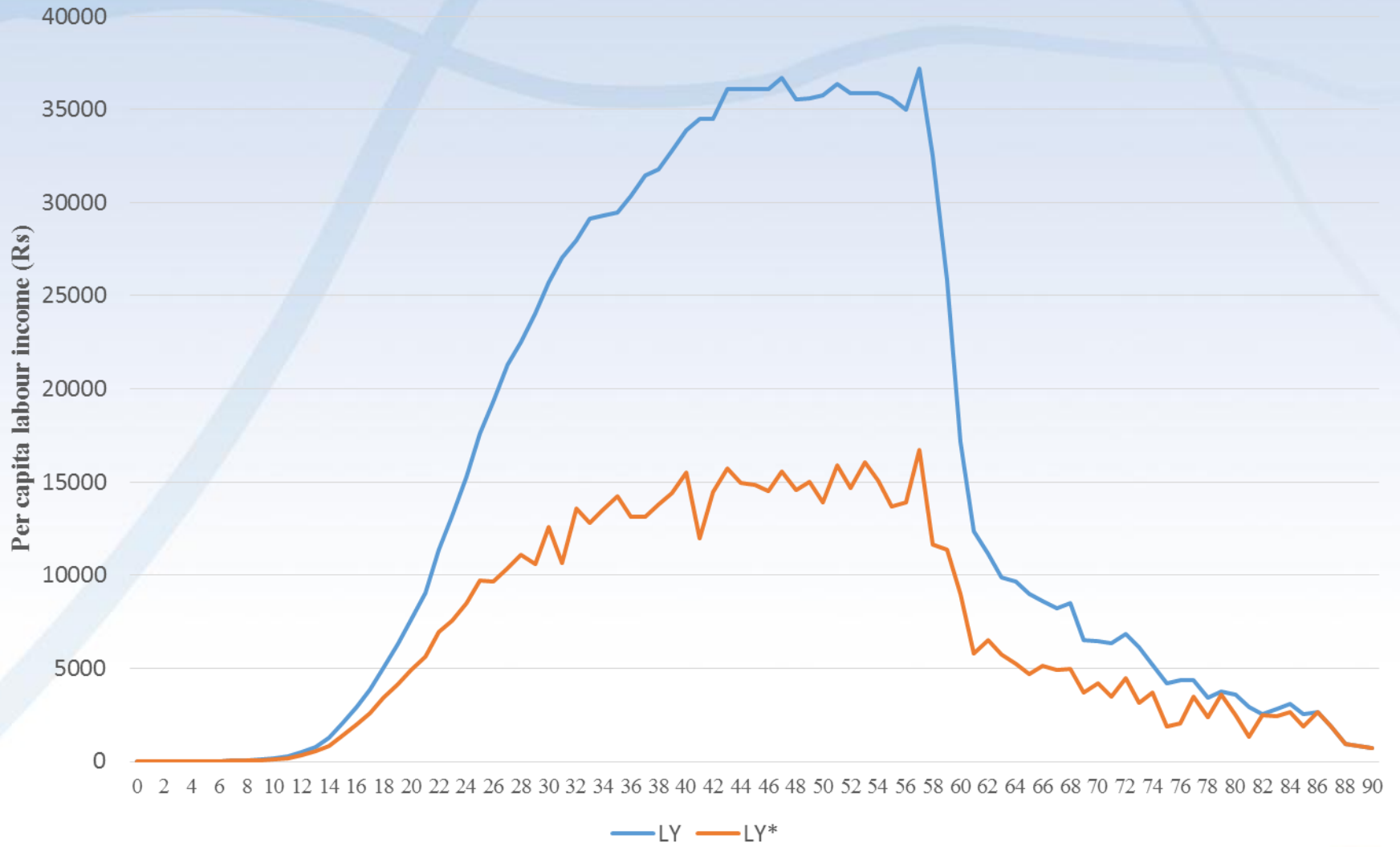


Inequality in distribution of total labour income by age

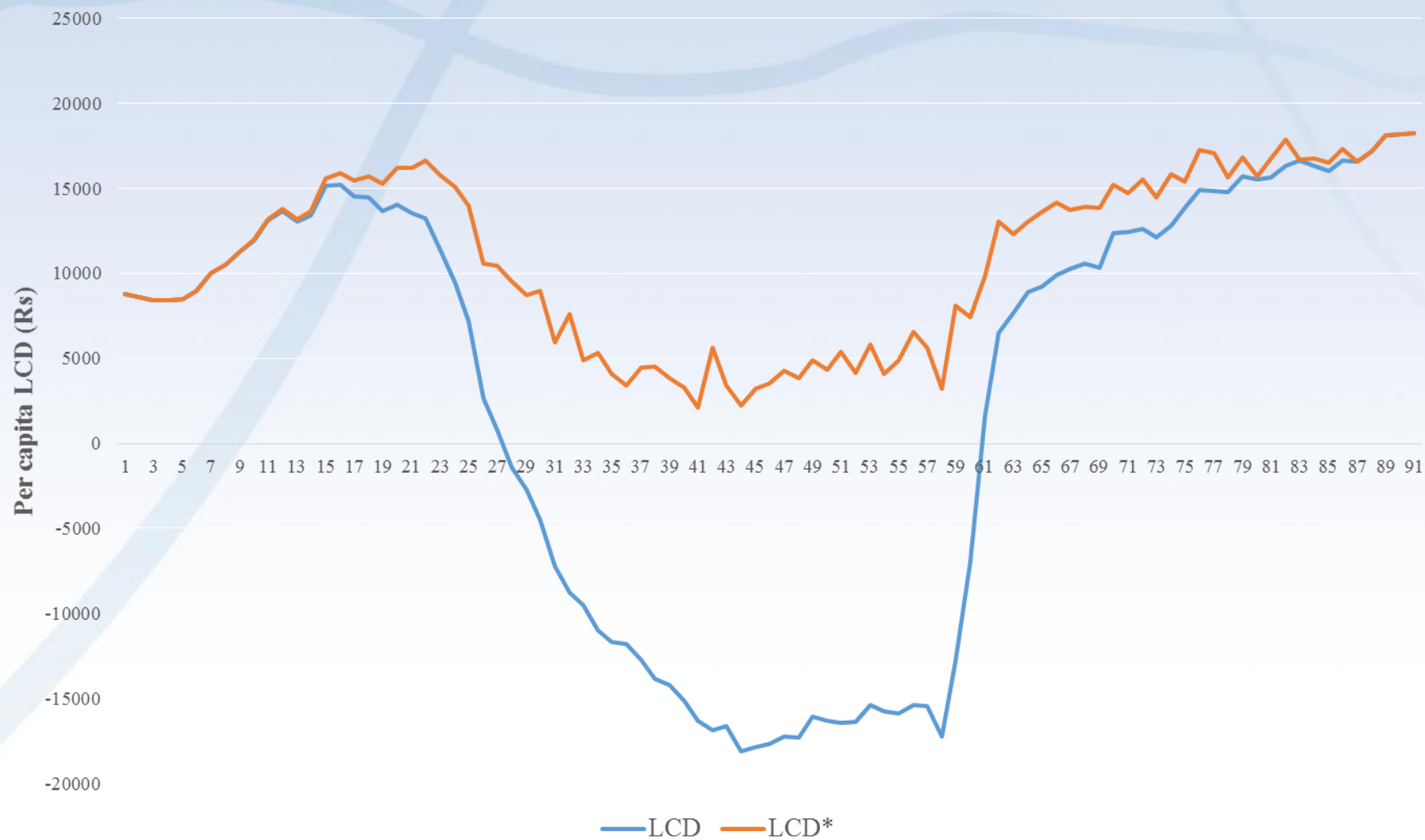




NTA-based per capita labour income with (LY\*) and without (LY) inequality adjustments

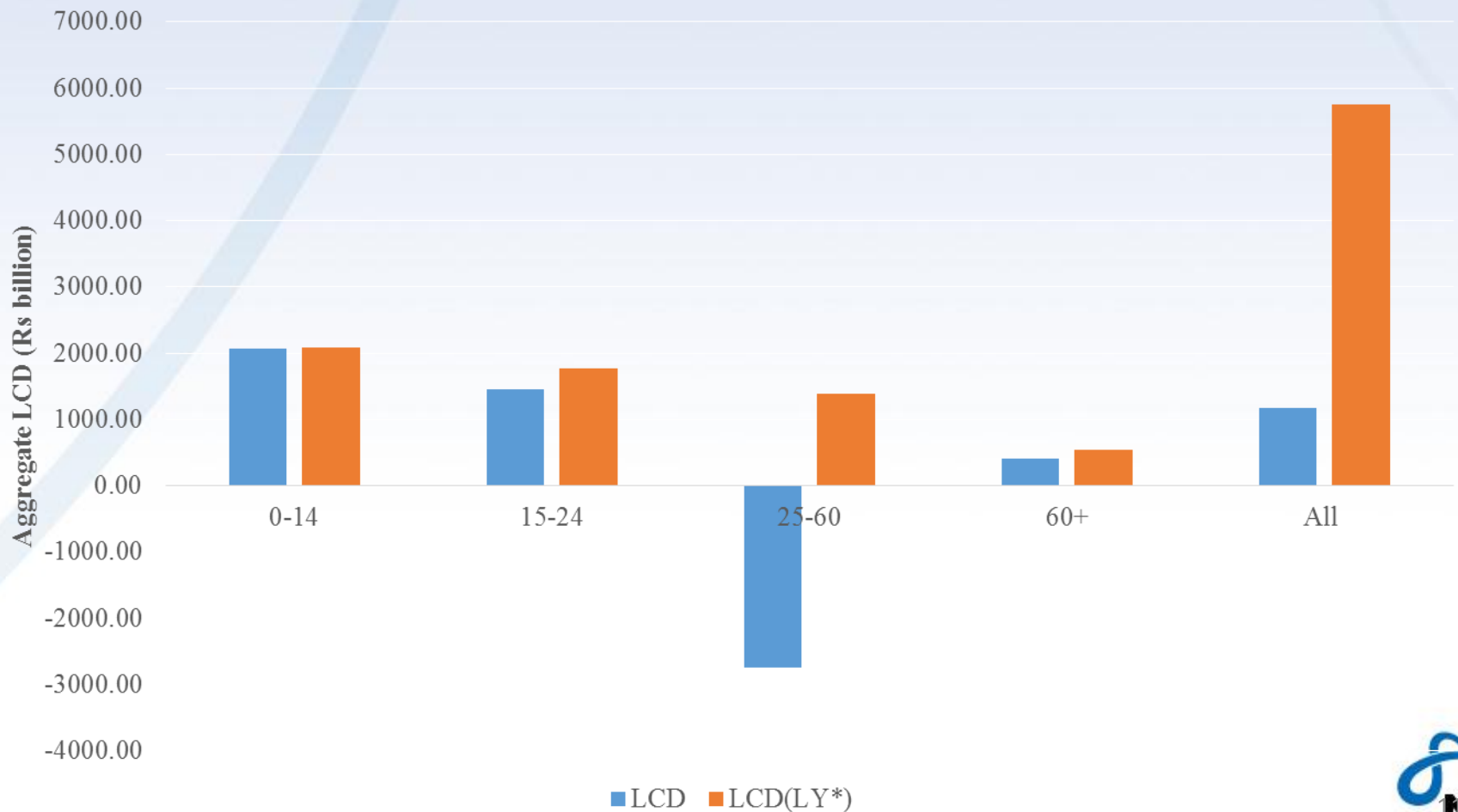


## Per capita LCD with (LCD\*) and without (LCD) adjustment for income inequality



# Main result: Nature and magnitude of LCD changes across generations (especially adult age group and total (or all ages) LCD)

Impact of inequality-adjusted labour income on aggregate LCD by generations



**Poverty and inequality in consumption  
by age and generations and implications  
of consumption inequality on LCD**

# Official (or Planning Commission's) estimation of poverty

Poverty is measured by persons below the official poverty line

Official poverty line is defined by monthly per capita consumption expenditure (MPCE)

MPCE is calculated by household (HH) consumption expenditure divided by household size or per capita HH consumption expenditure – not adjusted for age-specific consumption requirements (e.g., NTA's Equivalent Scale for private consumption other than education and health)

MPCE is calculated by two reference periods and, hence, there are two measures of official poverty

First, **30 days reference period or Uniform Recall Method** – HH expenditure over a period of 30 days recall period; this expenditure includes all items except clothing, footwear, education, medical care (institutional), and durable goods

Second, **365 days reference period or Mixed Recall Method** – HH expenditure over 365 days recall period for 5 excluded items above plus 30-day recall period for all other items

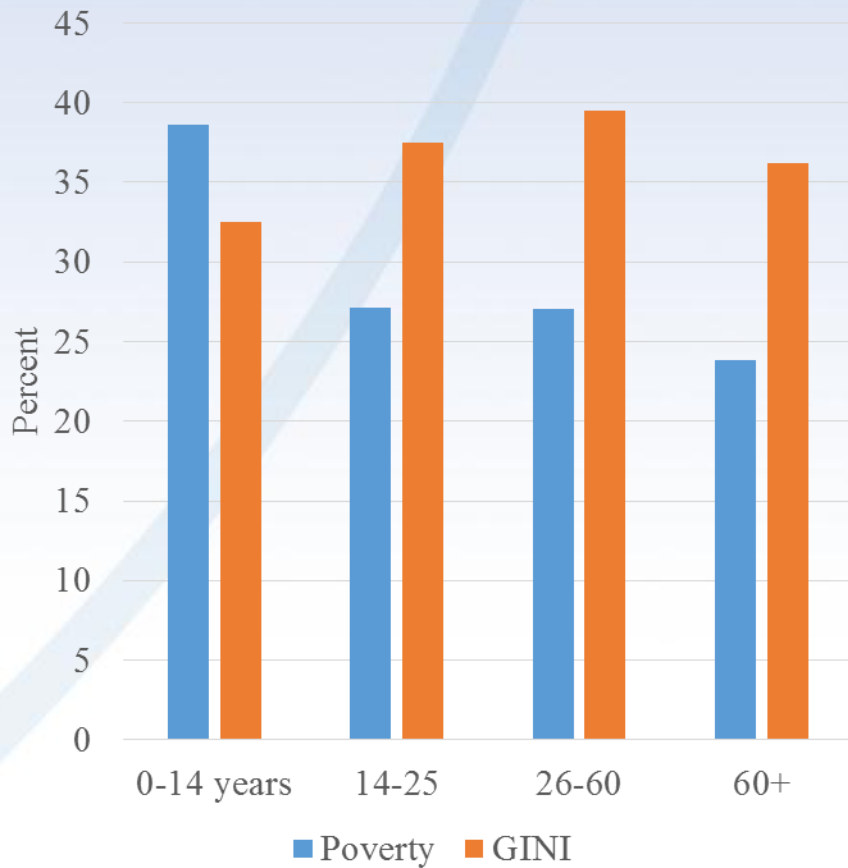
The official poverty line was Rs.356.30 (US\$7.93) for rural India and Rs.538.60 (US\$11.99) for urban India in 2004-05

# Consumption-based poverty and inequality by age

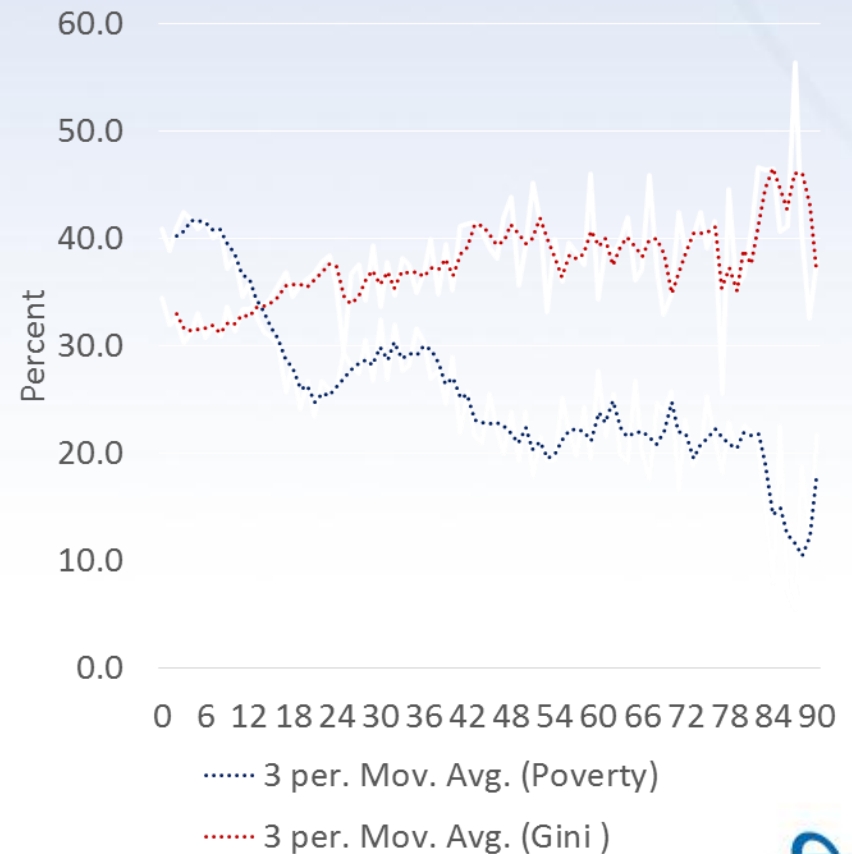
- Database: NSS 61<sup>st</sup> Round: Levels and Pattern of Consumer Expenditure 2004-05
- Poverty levels (or percent of population below the official poverty line) are calculated – combined for rural and urban India – by individual age (0 to 90 years) and by age groups [young (0-14 years), youth (15-24 years), adults (25 to 60 years) and elderly (60 years or more)]
- Inequality: Gini coefficient by each age and age groups above, calculated for the same consumption base used for official poverty estimations
- All calculations are at national level

# Consumption poverty and inequality by age and generations (URP data)

Consumption (URP based) poverty and inequality by generations, India



Consumption (URP based) poverty and inequality by age, India



# Consumption and poverty by age and generations (MRP data)

Consumption (MRP based) poverty and inequality by generations, India

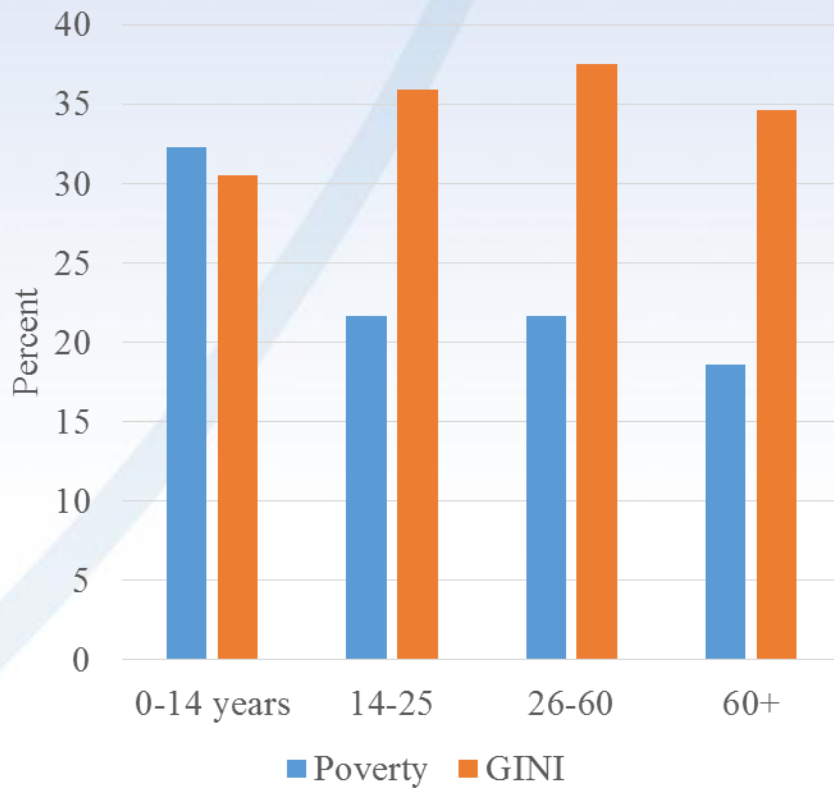
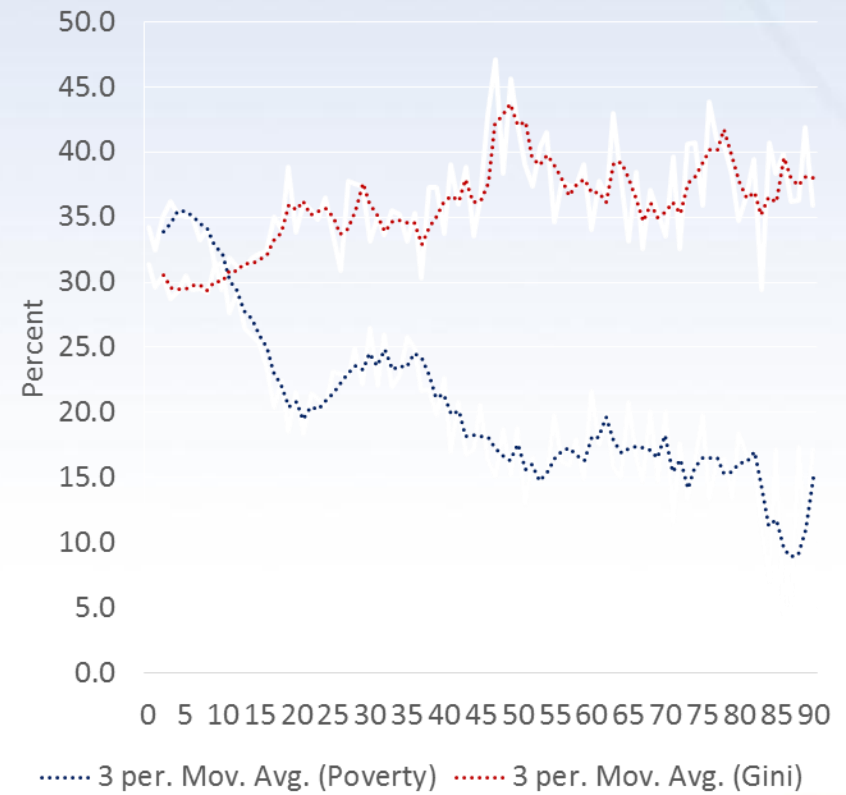
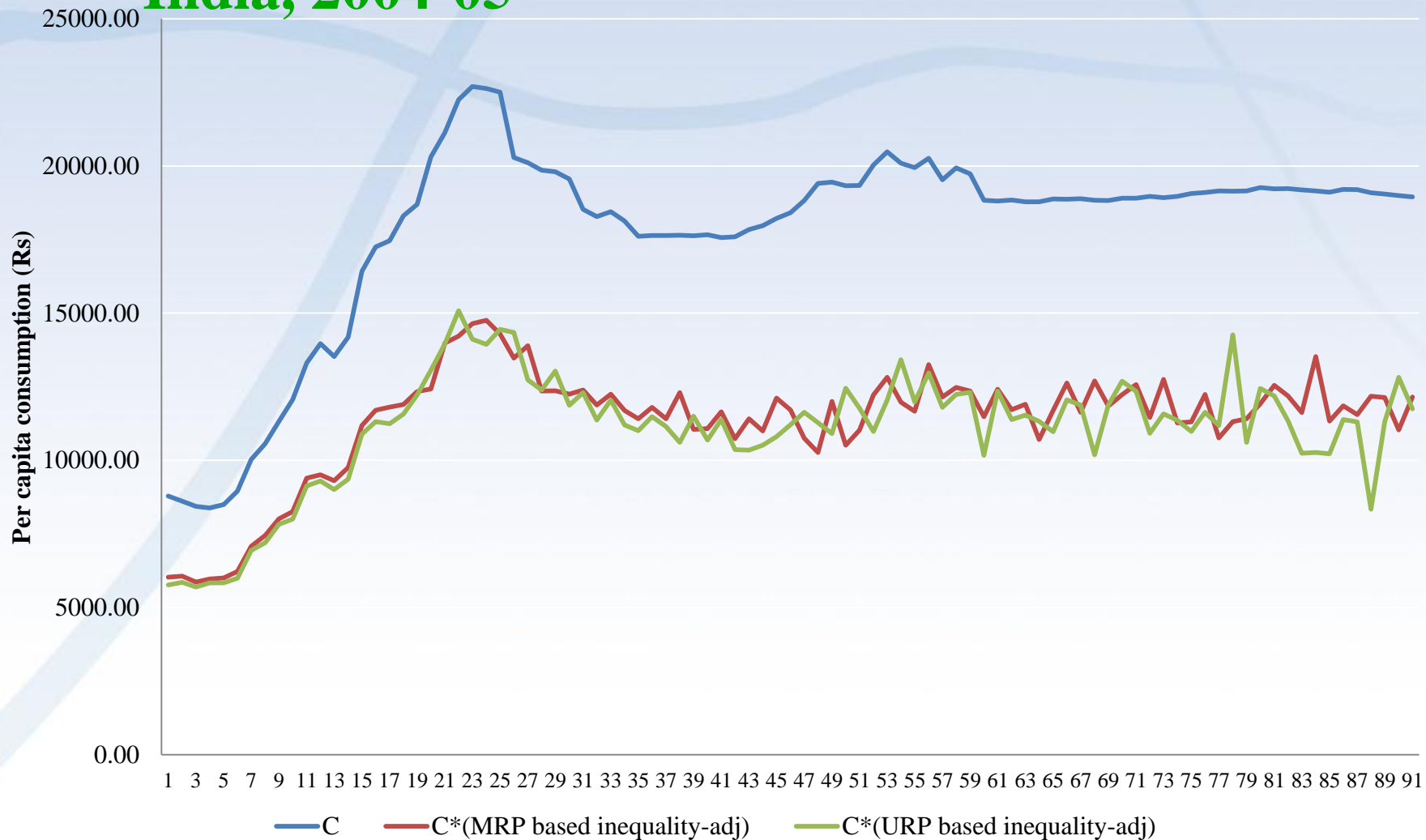


Figure : Consumption (MRP-based) poverty and inequality by age, India

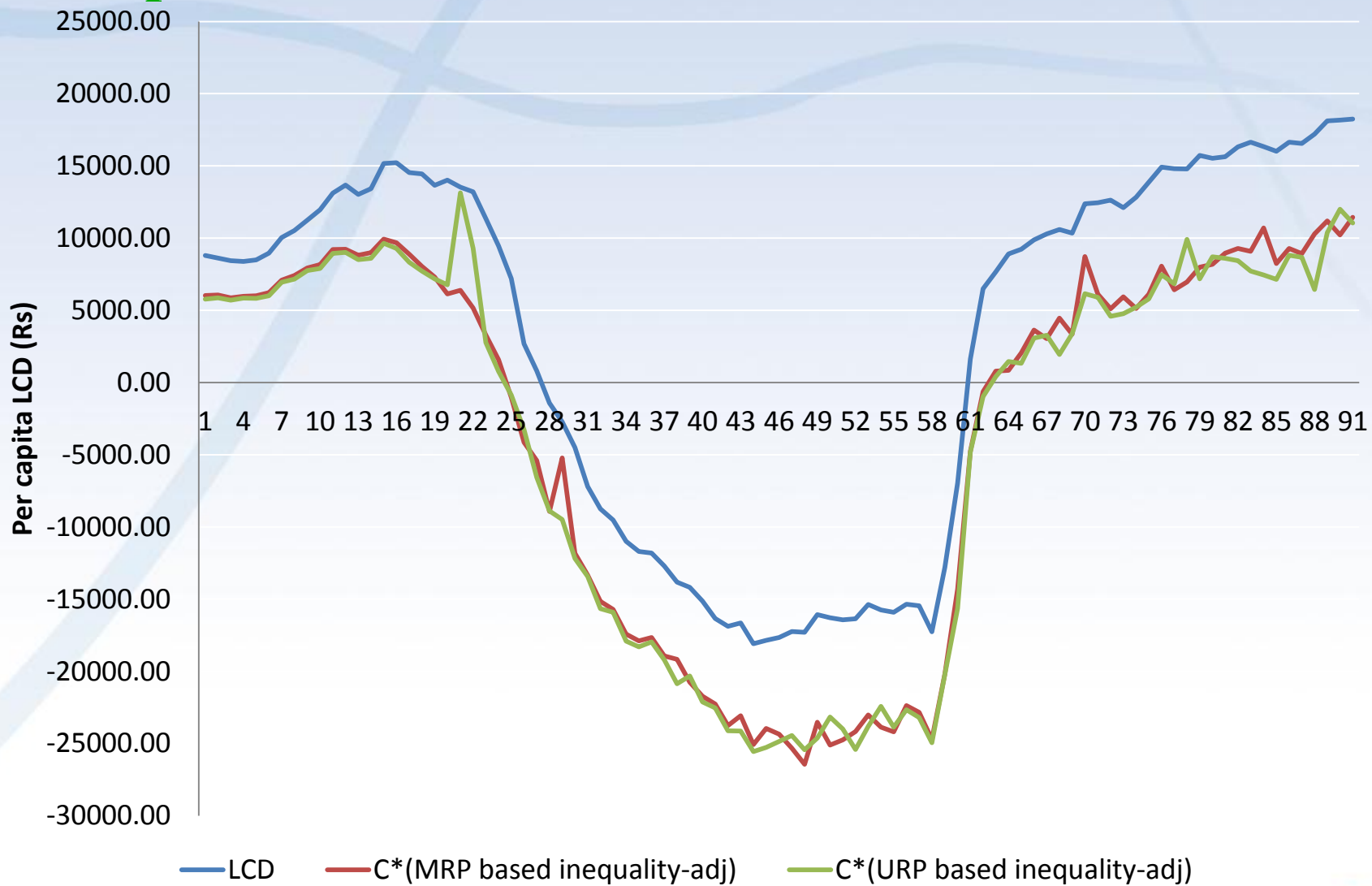




# Inequality-adjusted per capita consumption, India, 2004-05

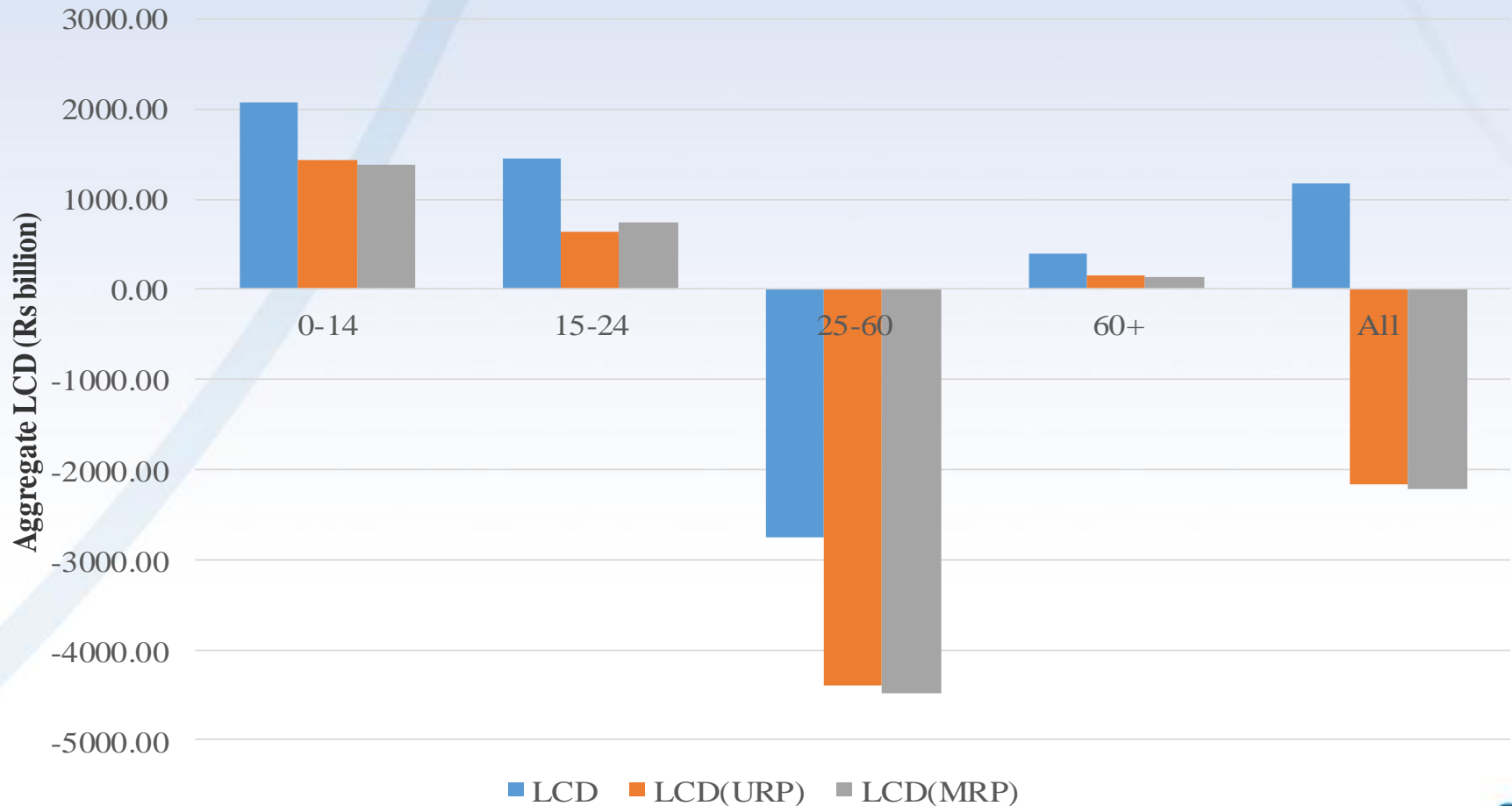


# Impact of inequality adjusted consumption on per capita LCD



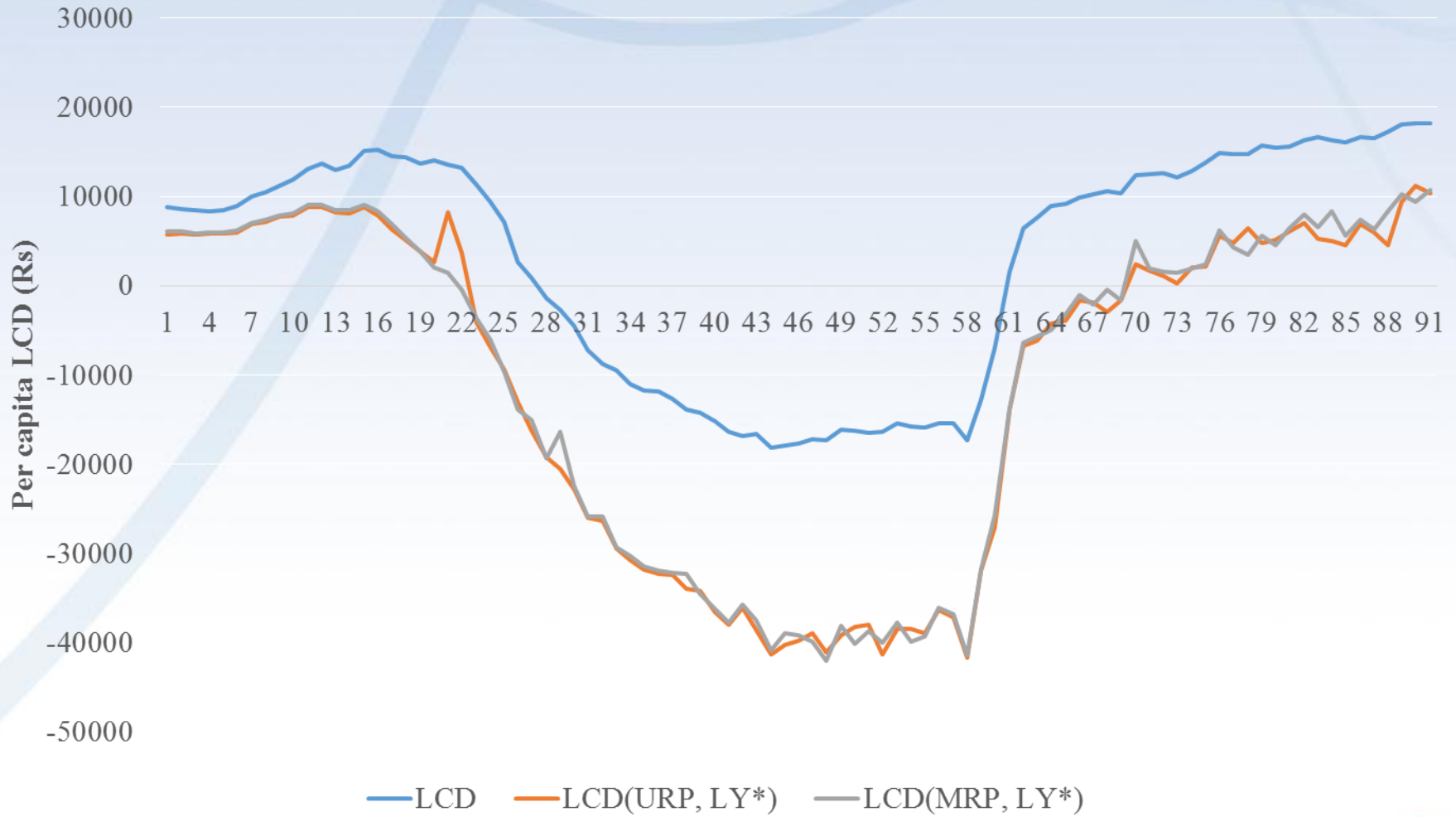
**Main result: Nature and magnitude of LCD changes across generations (especially adult age group and total (or all ages) LCD. These results are in contrast with income-inequality adjusted changes in LCD across generations**

**Impact of inequality-adjusted consumption on aggregate LCD by generations**



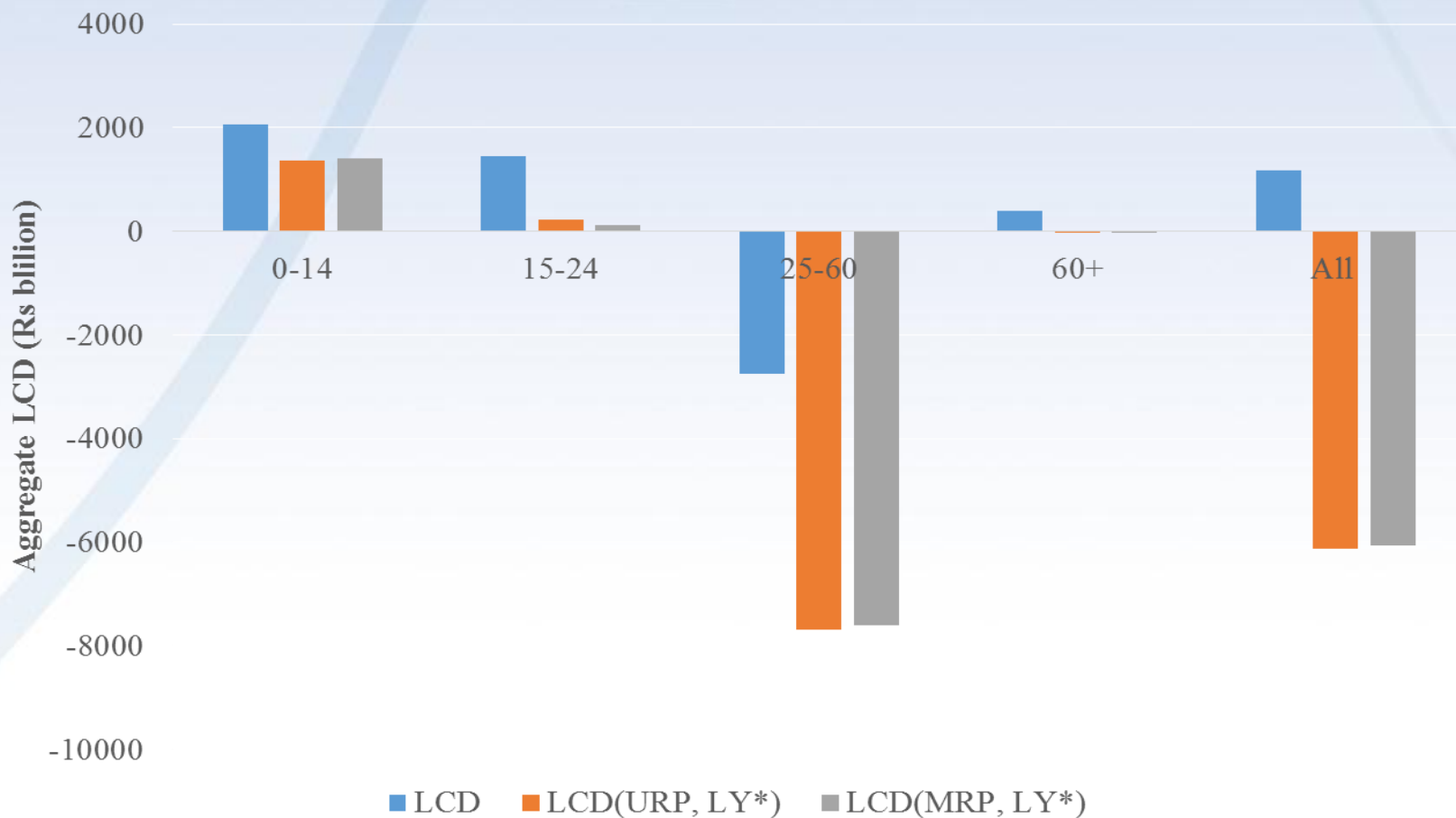
**Combined implications of  
inequality-adjusted labour income  
and consumption on LCD or inter-  
generational equity**

## Impact of inequality-adjusted per capita labour income and consumption on per capita LCD by age



# Main result: Remarkable changes in nature of LCD across generations and changes in nature and magnitude in total LCD

## Impact of inequality-adjusted labour income and consumption on aggregate LCD by generations

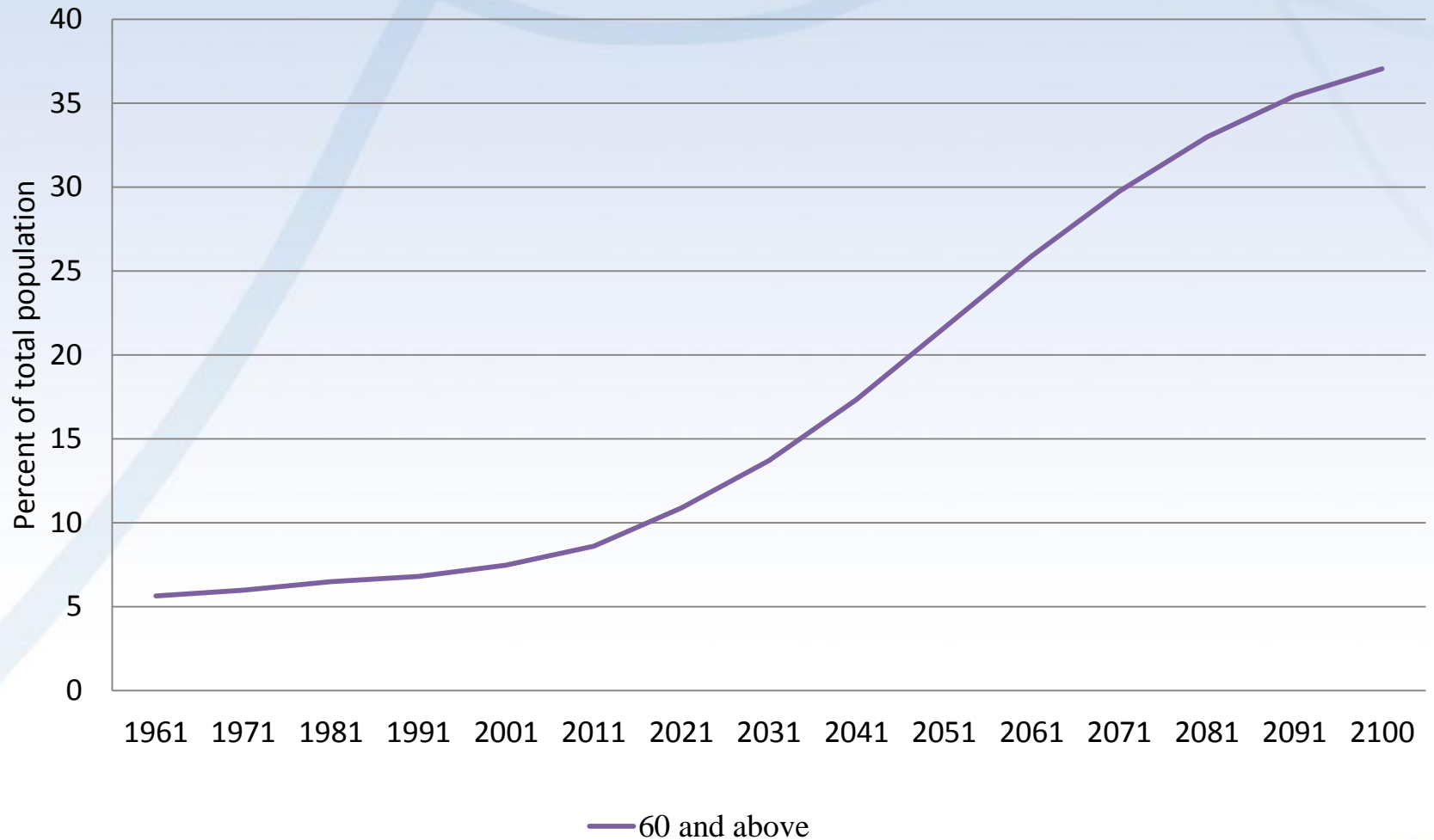


# Major conclusions and implications

1. Overall, poverty and inequality have differential impacts on income and consumption by age and generations. They are remarkable among India's elderly generation
2. Inequality in distribution of labour income and consumption is important for NTA-based policy analyses for two important reasons:
  - First, inequalities affect the nature and magnitude of inter-generational equity through changes in LCD across generations
  - Second, changes in inequality-adjusted labour productivity and consumption profiles have implications for determining the magnitude and duration of the demographic dividend through the Economic Support Ratio
  - Thus, reduction in inequality is essential for attainment of inter-generational equity and realization of potential demographic dividend
3. India's current policies for the elderly generation aim to increase income support through higher returns on savings and investments; increase the coverage of old age civilians pensions; and extend social security benefits for informal/unorganized workers. Current consumption support is mainly in the form of food security programmes for BPL (or below-poverty line) families. Elderly individuals benefit for these programmes by being members of BPL families. These programmes may raise fiscal sustainability issues due to population in India.

# Population ageing in India (Source: Census of India up to 2011 and United Nations after 2011)

Share of elderly (age 60 years and above) in India





# Implications for current policy debates in India

- Current estimates and discussions of India's poverty and inequality lack implications for inter-generational equity. Surprisingly, the recent **India Ageing Report 2017** (UNFPA, New Delhi) has no explicit reference to generational issues for the elderly by inequality and poverty
- India's Voluntary National Review Report "*On the Implementation of Sustainable Development Goals*" (United Nations, High-Level Political Forum, 2017) highlights India's policy approach and progress to attainment of SDGs. Surprisingly, there is no explicit approach to attaining the targets and indicators by age
- Thus, the introduction of age into poverty and inequality and relating them to inter-generational equity is a policy imperative for India
- **NTA is a useful methodology to analyse the relationships between inter-generational equity, poverty and inequality and to derive policy implications on equity and growth for India**

**THANKS  
&  
COMMENTS AND SUGGESTIONS ARE WELCOME**

