

**7th GLOBAL CONFERENCE OF NATIONAL TRANSFER ACCOUNTS  
11-12 June 2010: East-West Centre, Honolulu, Hawaii (USA)**

**Economic effects of population ageing on India's  
public finance: Evidence and implications based  
on National Transfer Accounts**

**M.R. Narayana  
Institute for Social and Economic Change  
Bangalore 560072, India**

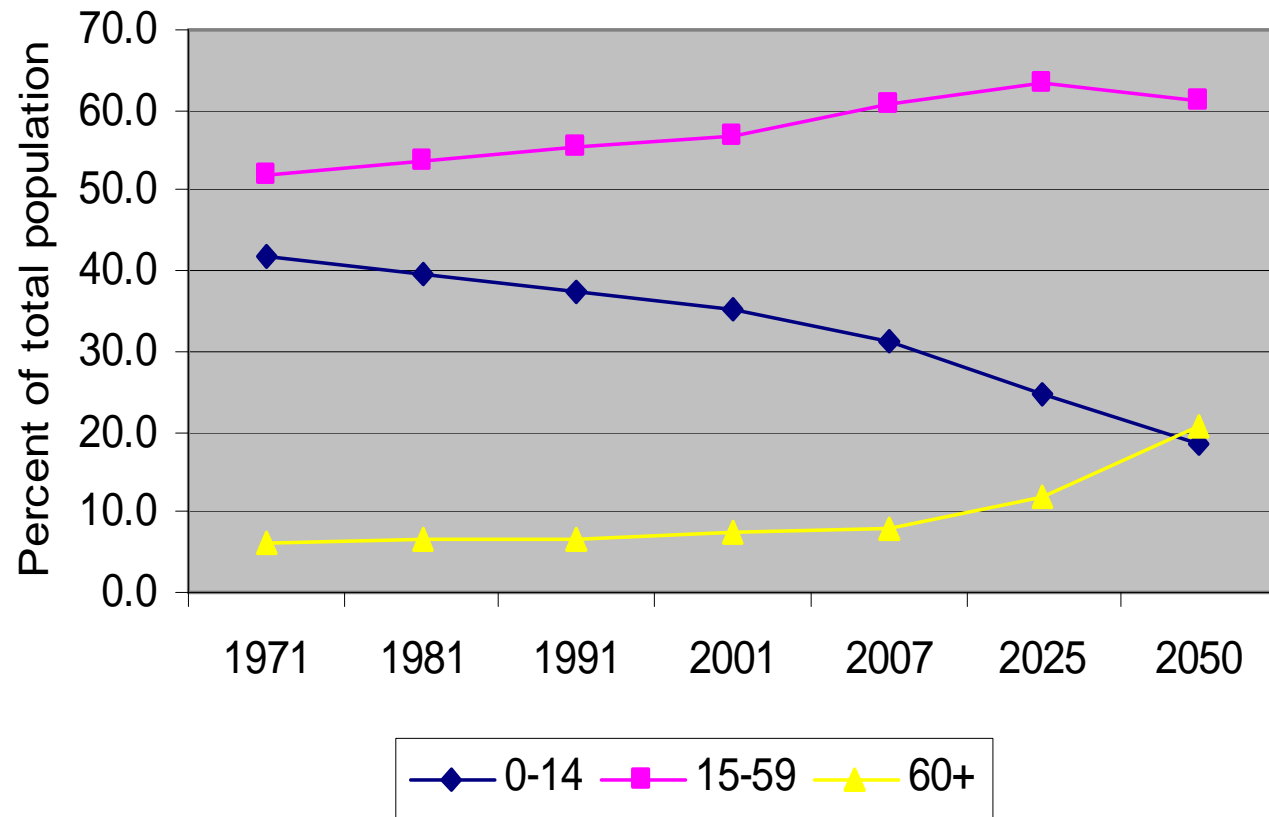
**11 June 2010**

## Research questions

- Does population ageing matter for India?
- What does public sector contribute for welfare of elderly in India?
- How to distinguish and combine the public sector activities as they are related to elderly?
- What are the long term economic implications of population ageing on Indian public finance?

# Population ageing

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

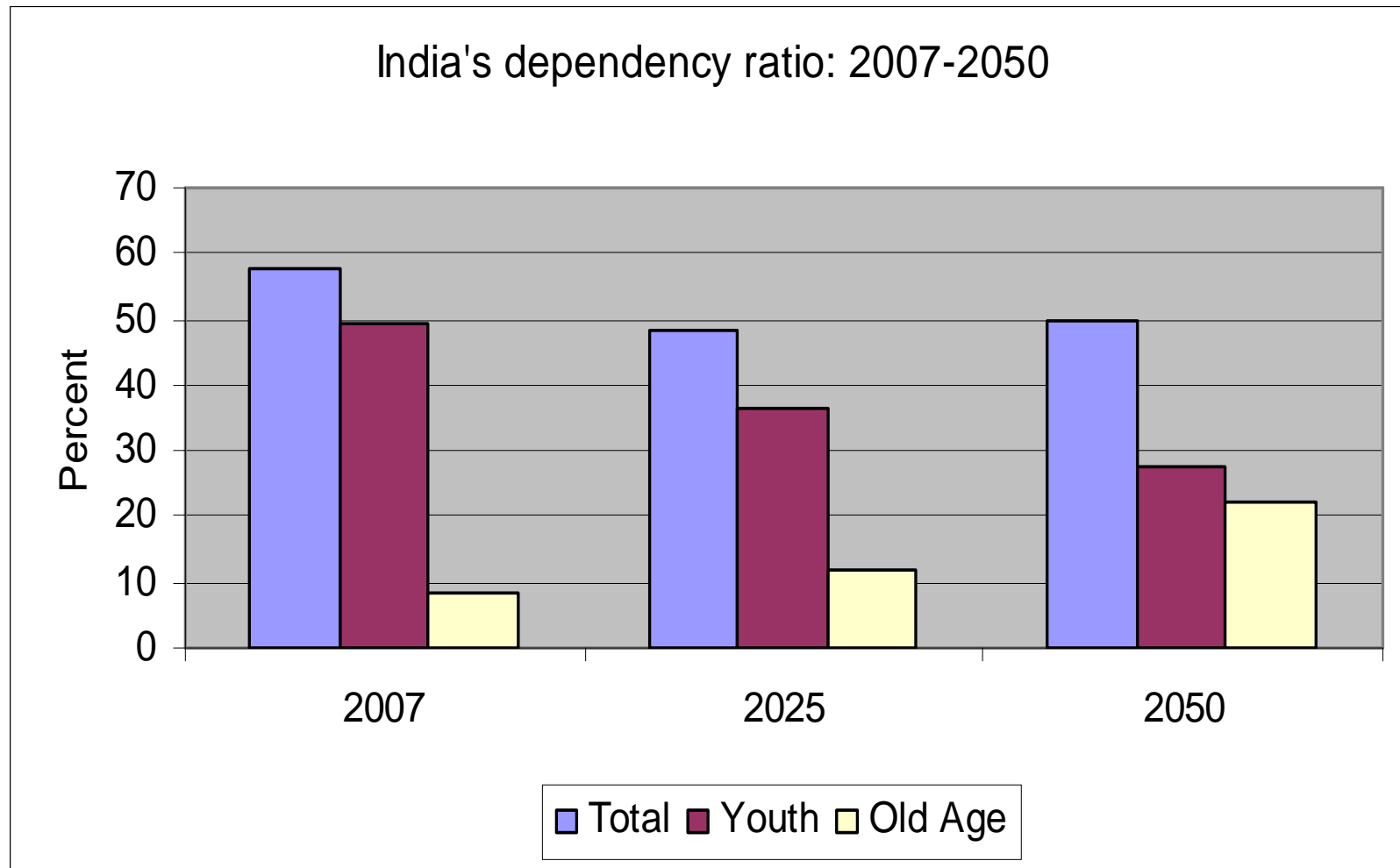


# Age structure transition in India: Current status and long term projections

(Source: World Population Ageing, 2007, United Nations)

Age structure (Broad age groups: years)	Percent of total population		
	2007	2025	2050
0- 14	31.2	24.5	18.3
15-59	60.7	63.5	61.0
60+	8.1	12.0	20.7
Total population (millions)	1134	1395	1593

# Ageing and dependency



# India's public sector

Indicators	1999-00	2004-05
<b>1. Public consumption expenditure as percent of GDP</b>		
1.1. Total	10.88	8.70
1.2. Health	0.69	0.54
1.3. Education	1.85	1.48
<b>2. Public consumption expenditure as percent of total (public and private) consumption expenditure</b>		
2.1. Total	13.38	11.93
2.2. Health	18.36	14.51
2.3. Education	58.10	49.71

# Public support for India's elderly

1. Pension schemes for Government employees
2. Contribution to social security of employees in the public sector enterprises
3. National Old Age Pension Scheme (NOAPS) 1995 – Social Assistance Programme
4. Annapurna Scheme 1999 – Eligible old people not covered by NOAPS – 10 kg of food grains supplied free of cost
5. Non-age specific public expenditure programmes (e.g. poverty alleviation schemes, and affirmative actions)
6. Welfare programmes by specific departments for senior citizens (e.g. concessions in bus/train fares, and special interest rate on bank deposits)
7. Insurance schemes for unorganised labourers and small producers (e.g. small coffee growers)

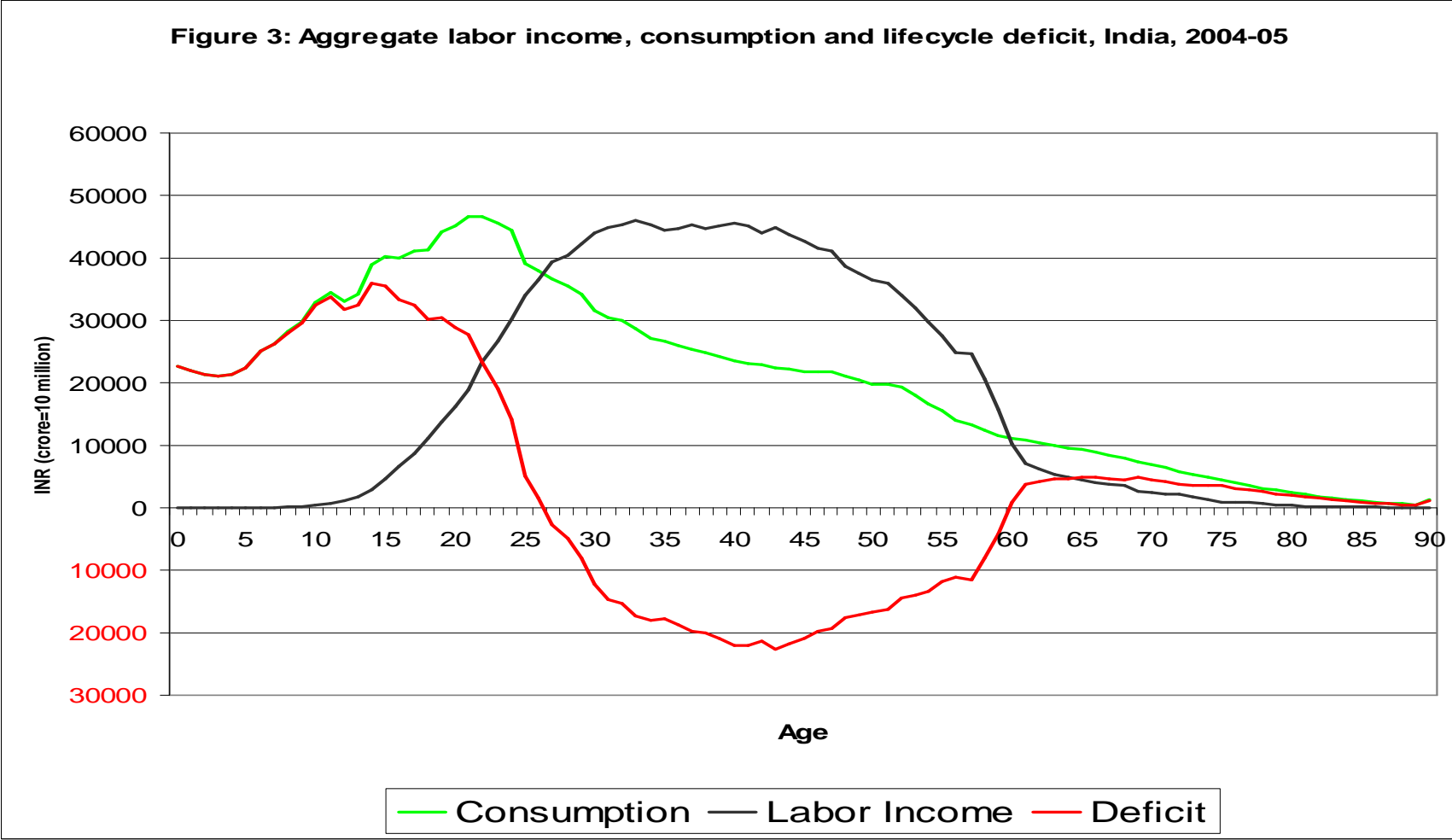
# Methodology

NTA – for estimation of public sector's inflows and outflows for elderly and relate them to lifecycle deficit and instruments of financing consumption in 2004-05 – Major database: India Human Development Survey 2004

Budget forecasting model of Tim Miller – for long run forecasting of population ageing effects on fiscal policy



# Lifecycle deficit, India, 2004-05



## Main results from NTA estimations LCD for elderly, 2004-05

LCD, income and consumption indicators	Total – All Ages (INR in crore)	Elderly population (Age group: 65+) (INR in crore)	Share of elderly (%)	Consumption share by components within total elderly consumption ((%)
<b>Lifecycle deficit (LCD)</b>	260265	70175	26.96	
➤ <b>Consumption</b>	1844800	103921	5.63	100.00
➤ <i>Public consumption</i>	342542	14138	4.13	13.60
• Education	58795	0	0.00	0.00
• Health	22805	1347	5.91	1.30
• Other	260942	12791	4.90	12.31
➤ <i>Private consumption</i>	<b>1502258</b>	<b>89783</b>	<b>5.98</b>	<b>86.40</b>

# LCD for elderly

- 2.45 percent of India's GDP in 2004-05
- 8 times bigger than the LCD for young dependents (0-14)
- Surplus generating age group: 26-64.  
This does not include elderly.

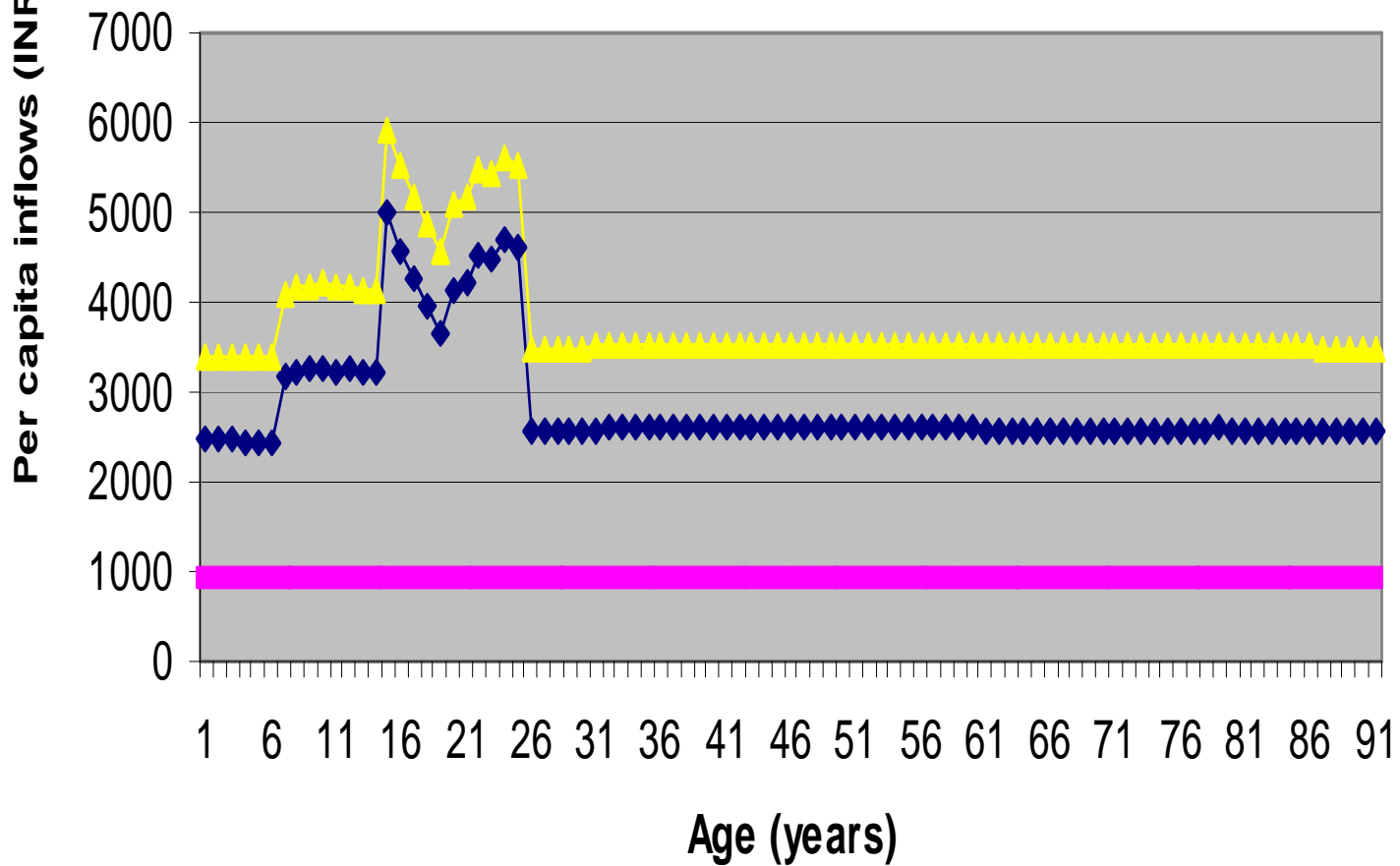
## Aggregate public sector inflows, India 2004-05

Public age reallocations	Total – All ages (INR in crore)	Inflows for elderly (Age group: 65+) (INR in crore)	Share of inflows for elderly (%)
Public net transfers	0	-19542	0.00
Inflows	445888	19276	4.32
• In-kind transfers	342542	14138	4.13
• Cash transfers	103346	5138	4.97

## Aggregate public sector outflows for elderly, India, 2004-05

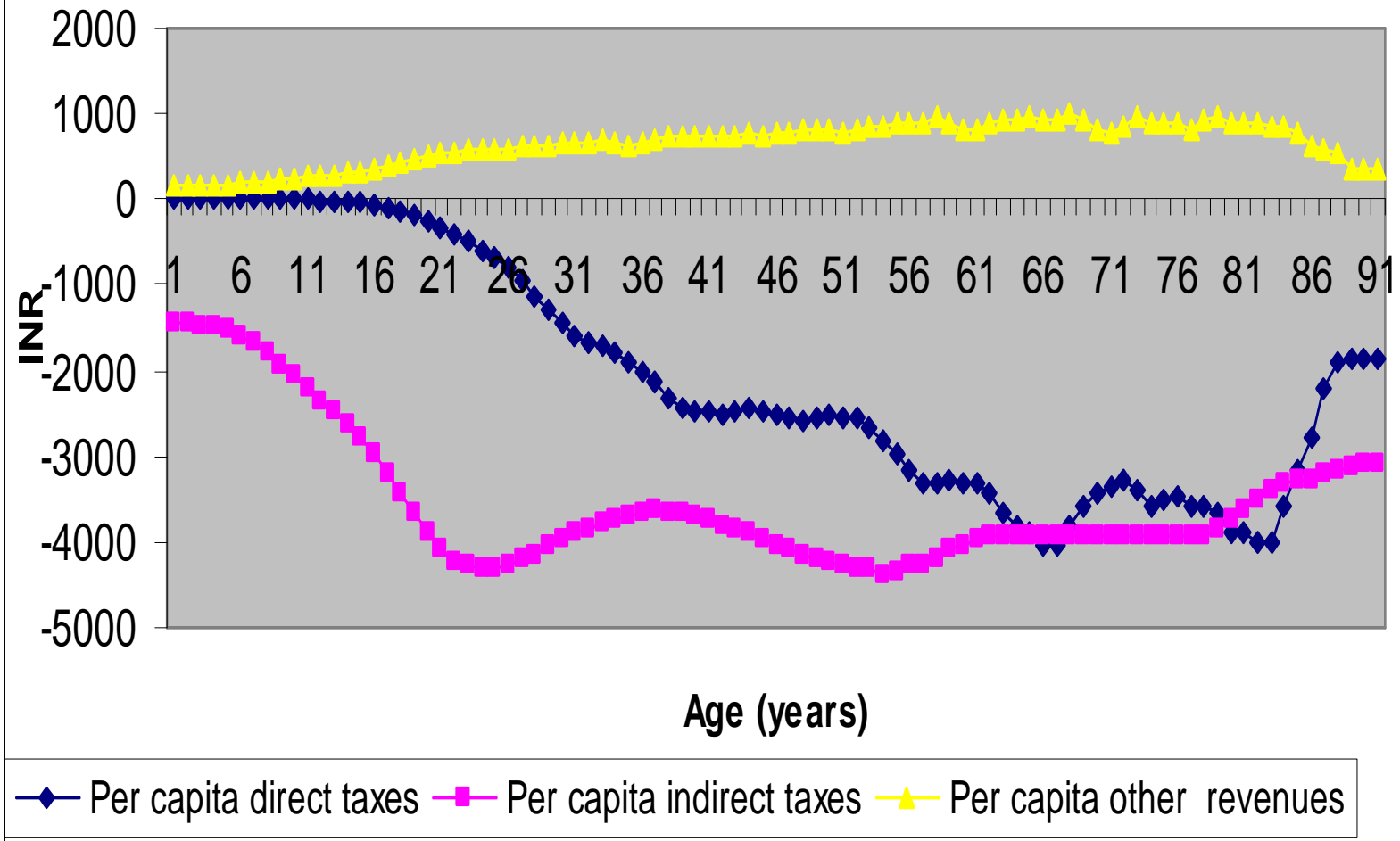
Public age reallocations	Total outflows – All ages (INR in crore)	Outflows for elderly (Age group: 65+) (INR in crore)	Share of outflows for elderly (%)
Outflows	445888	38818	8.71
• Taxes	504622	43704	8.66
➤ Direct taxes	141235	22227	15.74
▪ Income tax	49268	1050	2.13
▪ Corporation tax	91967	21177	23.03
➤ Indirect taxes	363387	21704	5.97
• Other revenues	58734	4886	8.32

**Figure 2: Per capita public sector inflows, India, 2004-05**

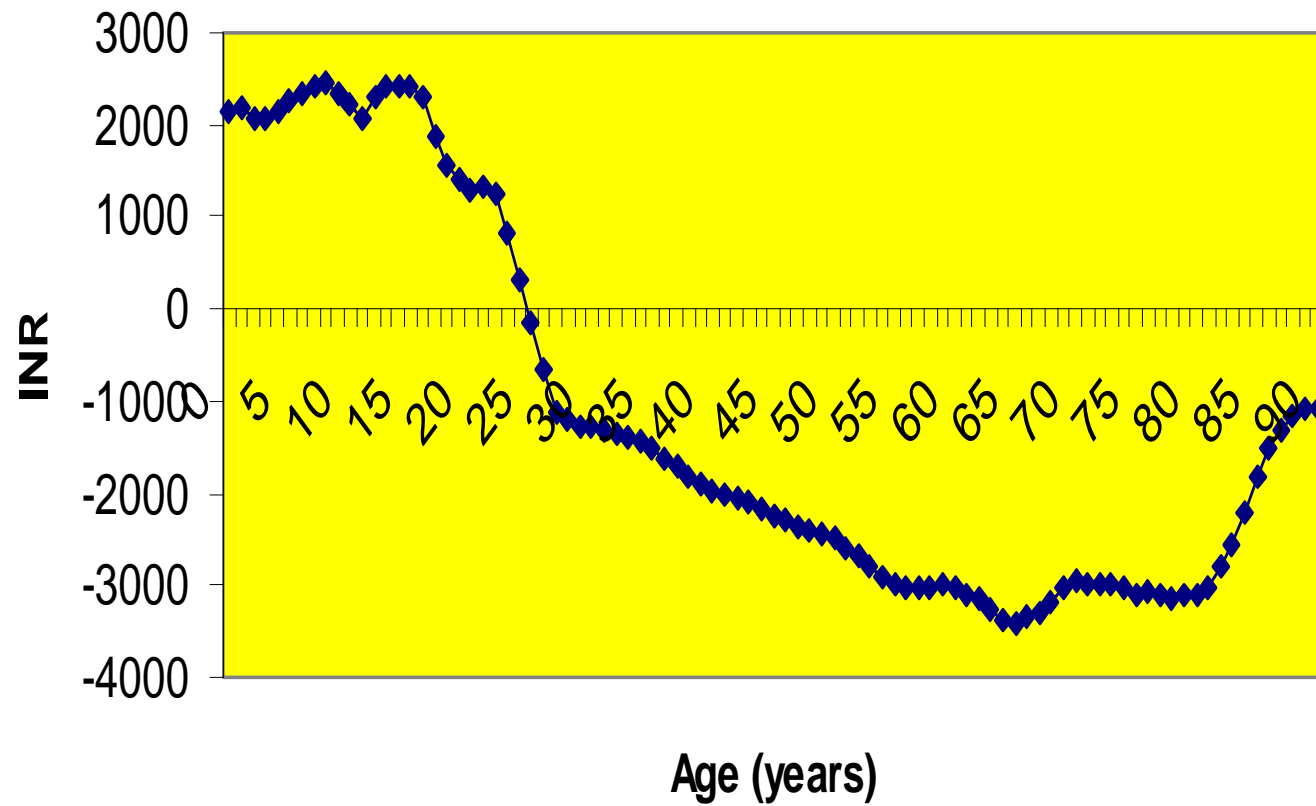


◆ Per capita in-kind transfers    ■ Per capita cash transfers    ▲ Per capita public inflows

Figure 3: Per capita public outflows, India, 2004-05

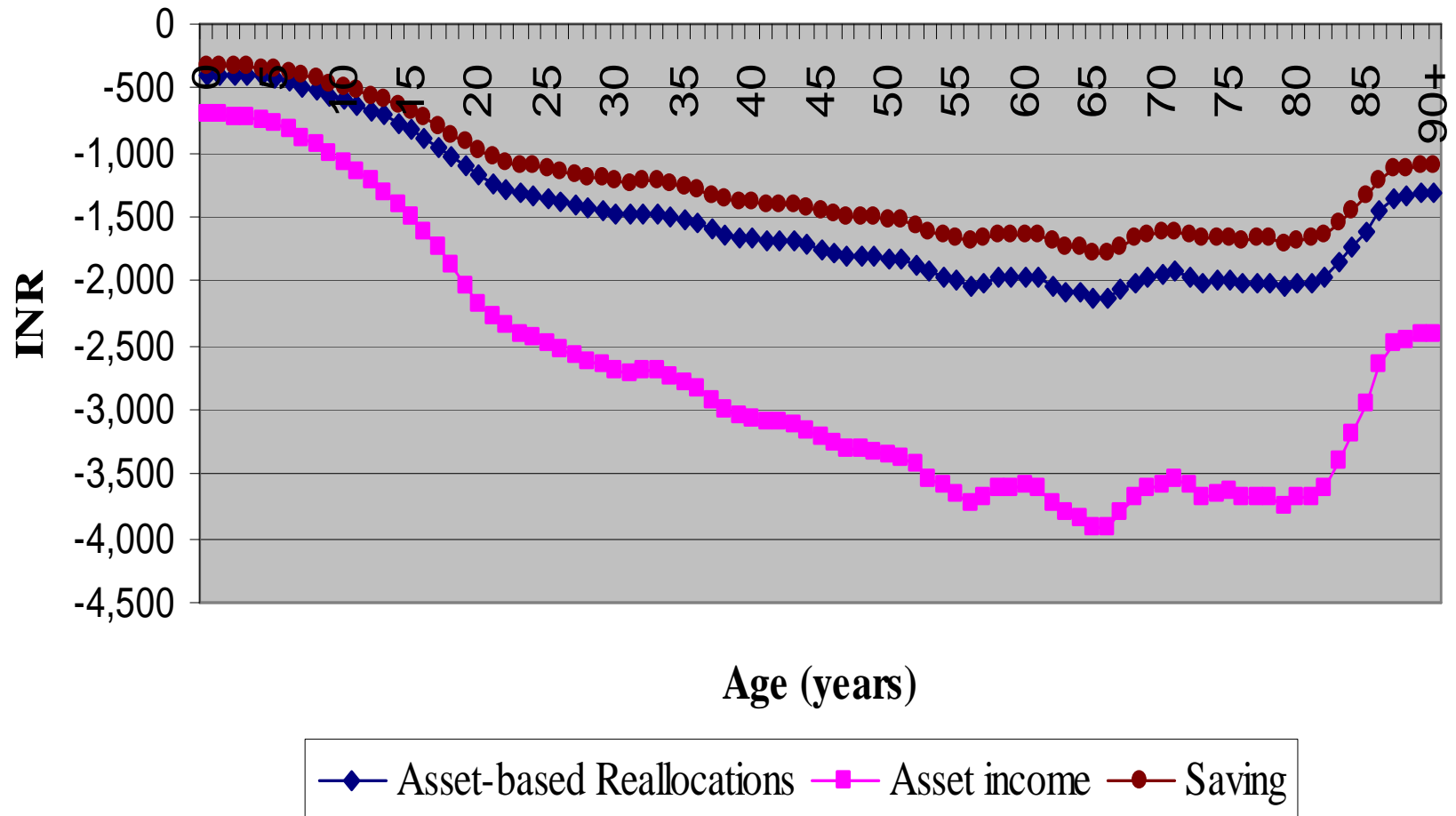


**Figure 4: Per capita net public transfers, India, 2004-05**





**Figure 5: Per capita public asset-based reallocations,  
India, 2004-05**



# Financing elderly consumption

Sources of finance	Extent of financing consumption (%)
1. Labor income	32.47
2. Public sector age reallocations	-29.27
• Public transfers	-18.80
• Public asset-based reallocations	-10.47
3. Private sector age reallocations	96.80

# Main conclusions

- Net public transfers to elderly are strongly negative, because the taxes paid by the elderly substantially exceed the benefits they receive. Or, outflows from the elderly are greater than those required to fund transfers because they pay both interest on previously accumulated public debt and paying off that debt.
- The heavy burden on the elderly is attributable in part to India's tax system and partly on the absence of programs that provide specific and universal support to the elderly.

## Budget forecasting model

The model aims at forecasting the impact of population ageing through the fiscal policy instrument, viz., taxes, expenditure and debt, from 2005 through 2100.

The model uses the age profiles of labour income and public sector inflows in 2004-05

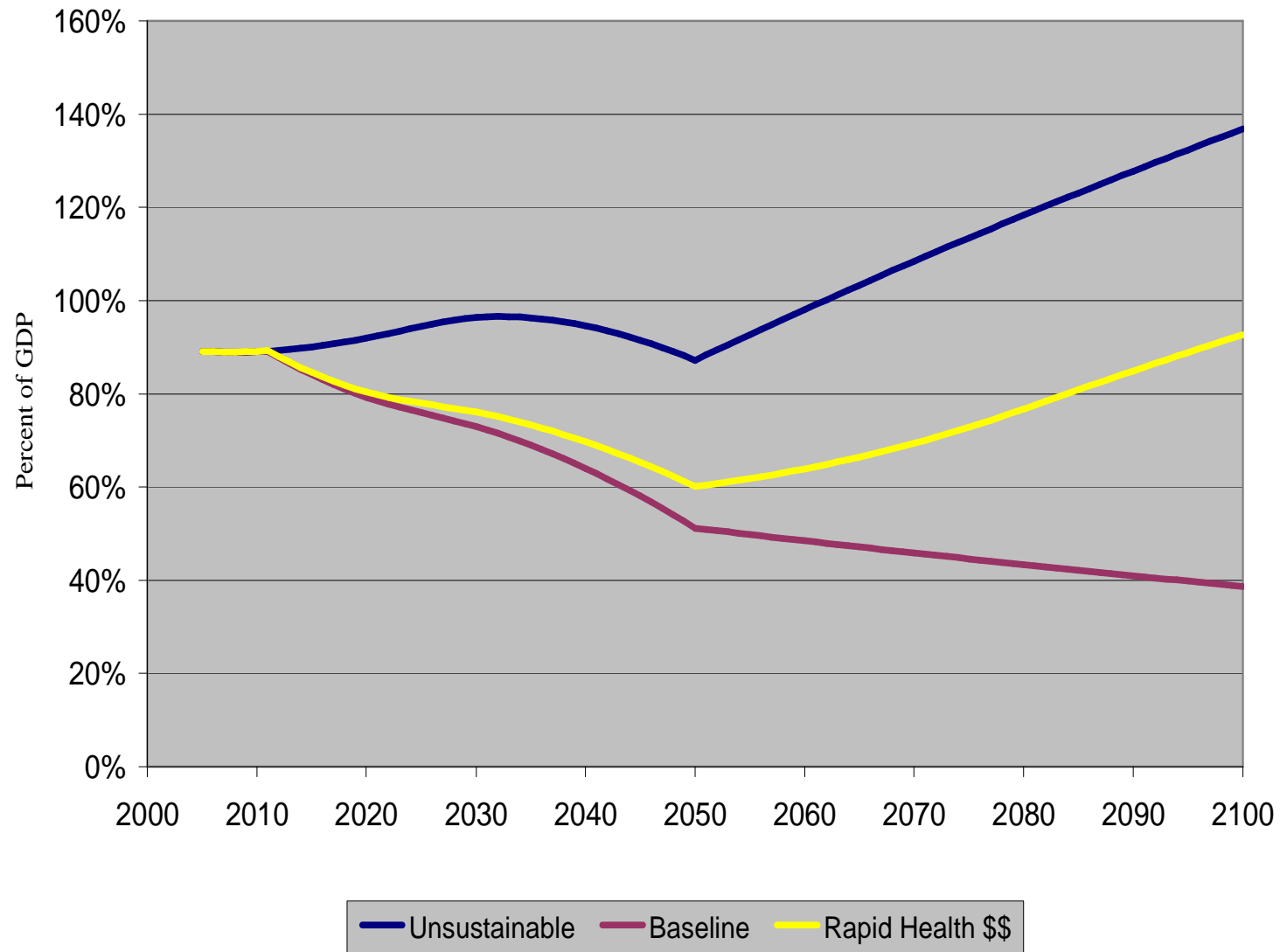
# Three policy scenarios

- ***The Unsustainable Scenario*** - Public debt above 80 percent of GDP – financing new fiscal burden of population aging by public borrowings or through the issuing of new debt.
- ***The Baseline Scenario*** - a combination of fiscal policies (i.e. tax and debt), which prevent an explosion of public debt or attain the sustainable level of debt
- ***The Rapid Growth of Health Spending Scenario*** - health spending per beneficiary is assumed to grow 1% faster than labor productivity.

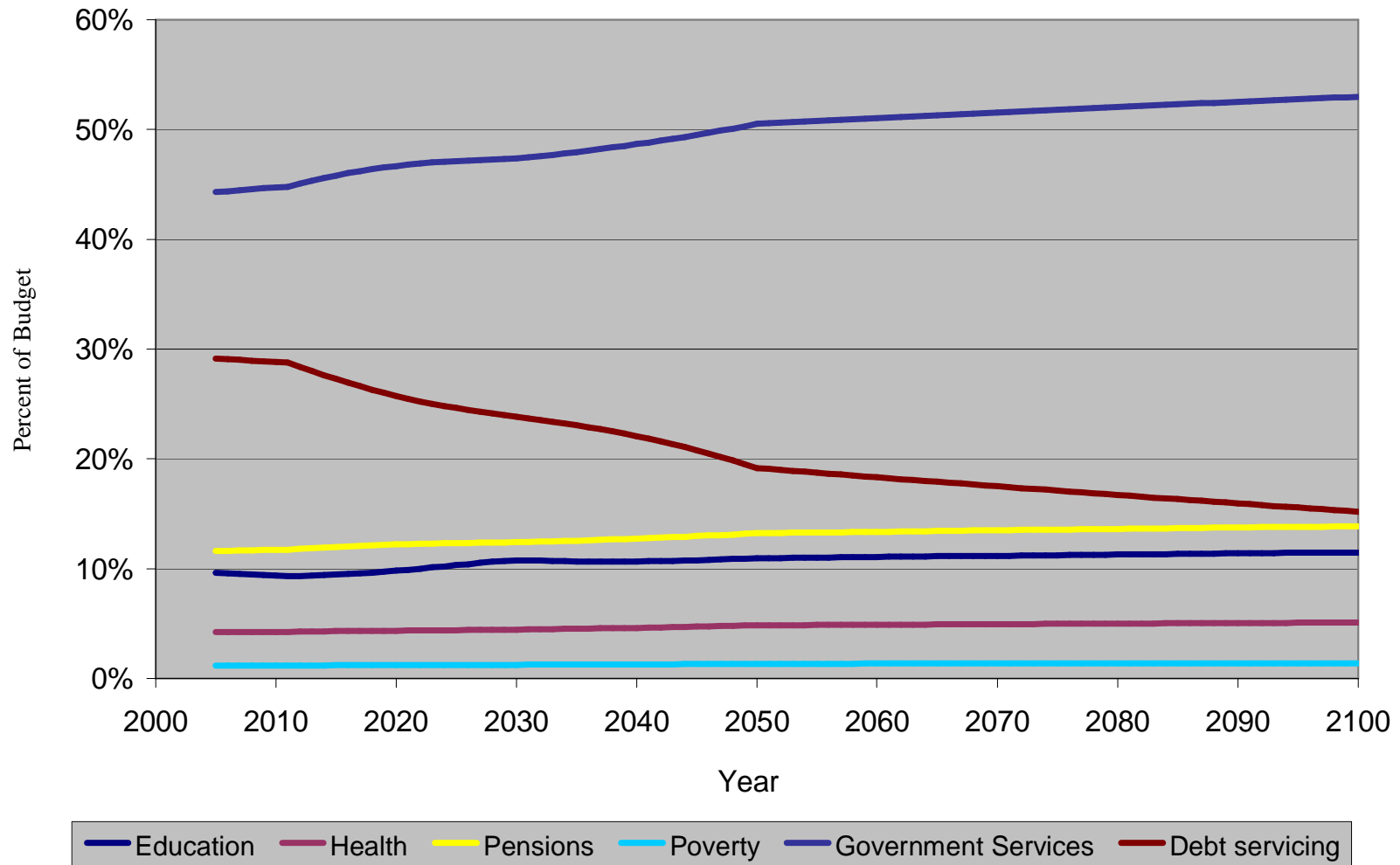
# Assumptions

- Aggregate labor income is derived using a fixed age shape of labor earnings which shifts upward over time at the growth rate of labor productivity, combined with a forecast of the population by age.
- GDP is derived by assuming a fixed ratio of GDP to aggregate labor income.
- Government revenues are assumed to be derived from taxes on labor income and are expressed as a fraction of GDP
- Aggregate government expenditures by Education, Health, Pensions, Poverty, and General Government Services are derived by using a fixed age shape of program benefits which shift upward over time at the growth rate of labor productivity, combined with a forecast of population by age.
- Rates of productivity growth, the interest rate, and the inflation rate are assumed to be unaffected by levels of government debt and taxation and the distribution of government spending.

**Figure 6: Debt as percent of GDP, India, 2005-2100**

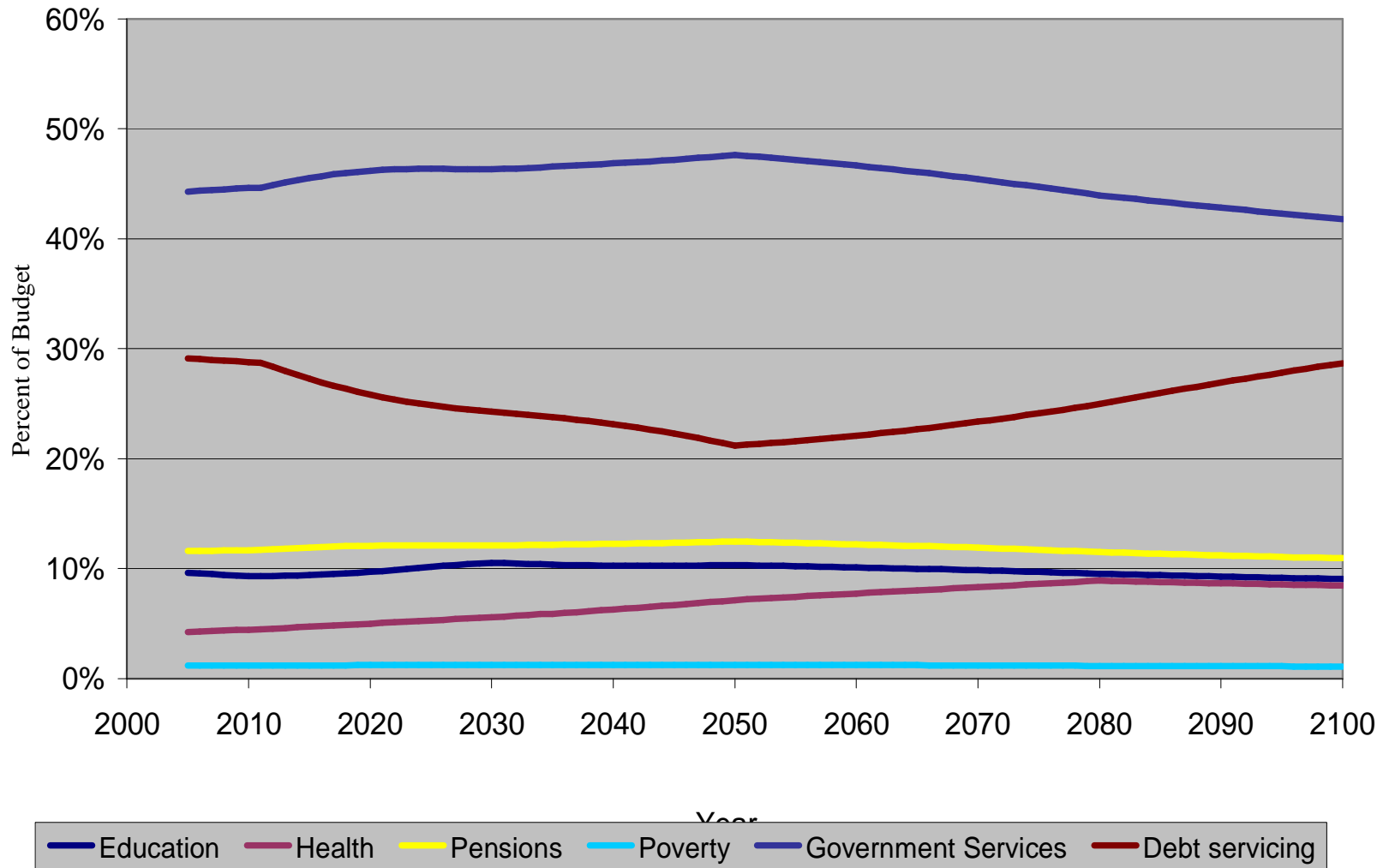


**Figure 8: Budget composition in the Baseline Scenario, India, 2005-2100**

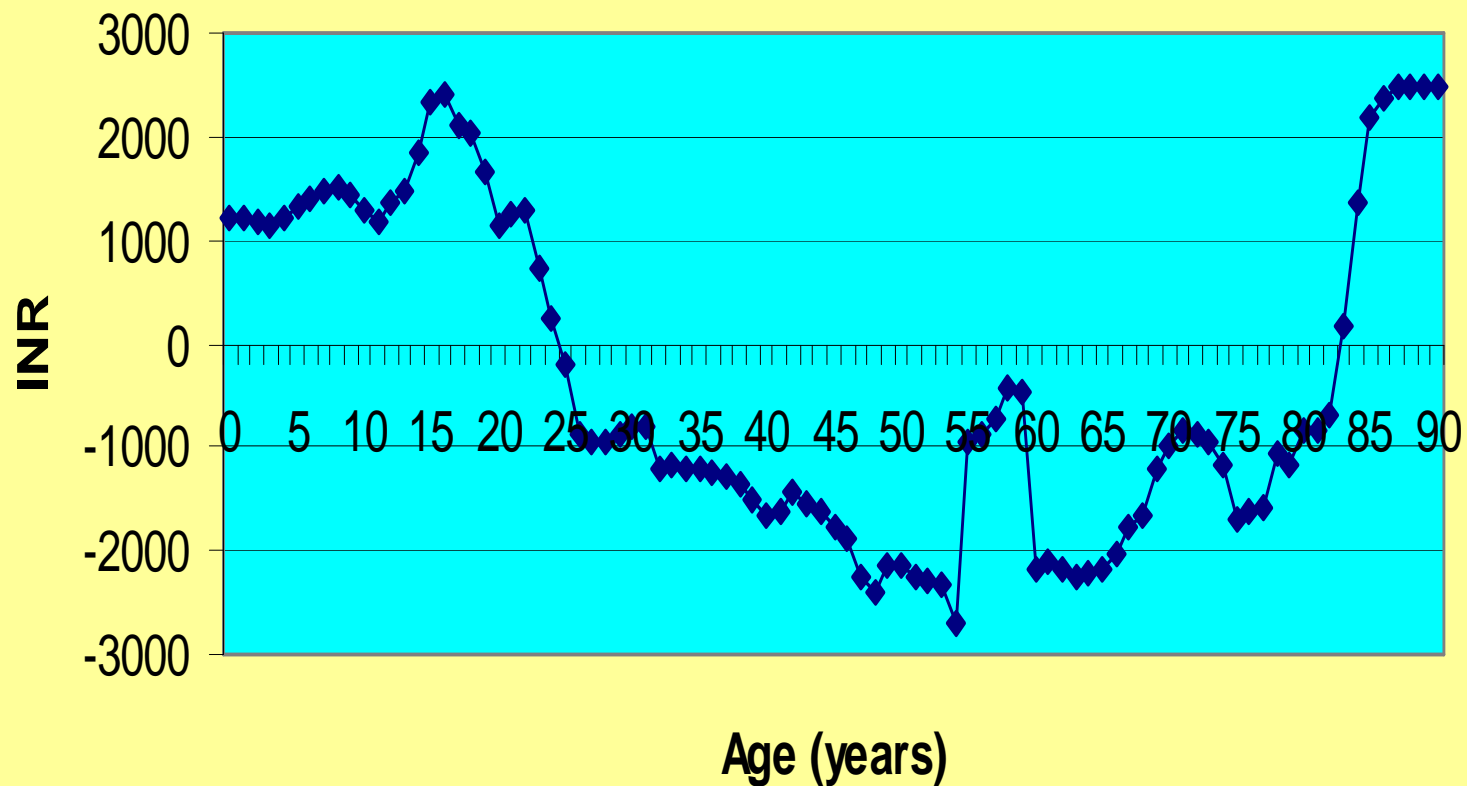




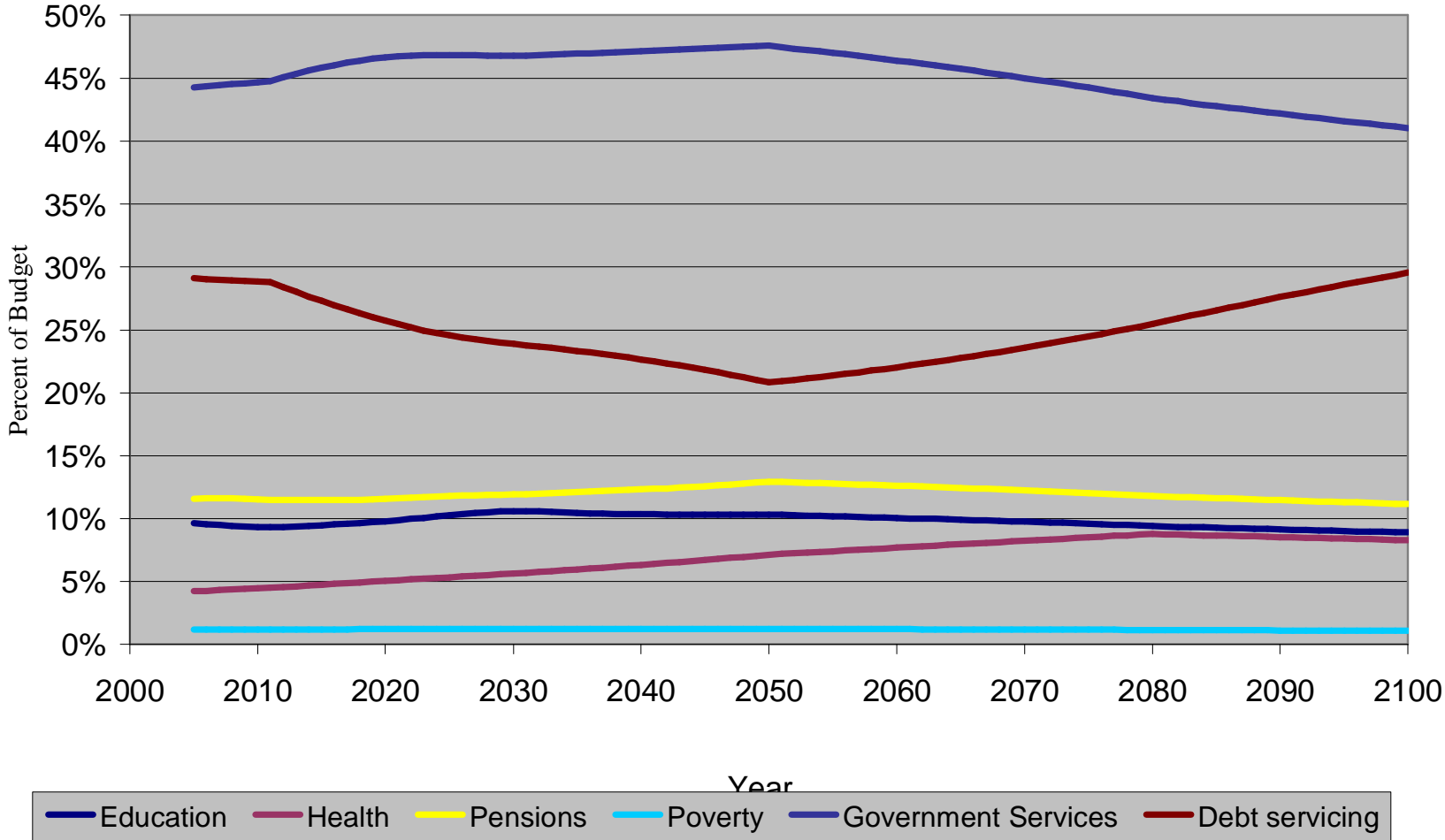
**Figure 9: Budget composition in the Rapid Growth in Health Spending Scenario, India, 2005-2100**



**Table 10: Per Capita Net Public Transfers, India, 2004-05 (with age-specific cash transfers)**



**Figure 11: Budget composition in the Rapid Growth in Health Spending Scenario, India, 2005-2100 (with age specific public cash transfers)**



# Main conclusion

In the absence of universal social security expenditure for elderly (e.g. old age pensions), the forecasting results in all the scenarios do not show the direction of population ageing effects on India's public finance in India.

THANK YOU