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IMPACT OF POPULATION AGEING ON INDIA'S PUBLIC FINANCE:
NEW EVIDENCE AND IMPLICATIONS

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Motivation

- Does population ageing matter for India's public finances, especially when programme specific public spending is not remarkable?
- Can the question be answered by using NTA methodology? If not, what additional method is required to answer the question?
- What is the policy usefulness of the analysis for long run fiscal policy or public finance of India?

To find plausible answers to the above questions is the key motivation for this research.

Projected Age structure transition in India:

(Source: World Population Ageing, 2009, 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

International ranking of India

Ranking by Ageing Index (among 192 countries) in 2007

India is 94th (26.1)

1st rank by Japan (201)
192nd rank by Niger (6.6)

Projected India's Ageing Index in 2050 is 105, lower than other BRIC countries: China (183.3), Brazil (118.7) and Russia (274.9)

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. Share of National Social Assistance Programme in the combined revenue expenditure of the Central and State Governments was about 0.17 percent in 2004-05. Total coverage of beneficiaries of the Programme was about 9.2 million with largest share of beneficiaries under the NOAPS (88 percent). These beneficiaries accounted for about 13 percent of total population in age group of 60-90 in 2004.

Main objectives

- Analysis of long run impact of population ageing on India's public finance through
  - ➢ estimation of the impact on public expenditure, revenue and debt; and
  - ➢ determination of fiscal sustainability in the context of population ageing in India?
- Derive select policy implications to meet with challenges of population ageing.

Key question to be answered: If population ageing has an impact on public finance, whether that impact is fiscally sustainable?

Throughout, fiscal sustainability refers to debt-GDP ratio that does not begin to rise.

Methodology

Integration of NTA and Budget Forecasting Model of Tim Miller.

Miller's' model aims at forecasting the impact of population ageing through the fiscal policy instrument, viz., taxes, expenditure and debt.

The model uses the labour income and expenditure age profiles based on public sector consumption or inflows from NTA.

The impact is assessed by three distinct policy scenarios.

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.

Scope and presentation of results

- Using the NTA methodology, public expenditure profiles are drawn for 2004-05 and the impact is forecasted from 2005 to 2050.
- Public expenditure profiles are for education, health, civilian pensions and other cash transfers, poverty and other social protection, government services
- Main results are presented by
- Shares and growth of expenditure on elderly
- Shapes of expenditure profiles
- Budget surplus/deficit and Fiscal Support Ratios under policy scenarios

Figure 3: Public debt as percent of GDP, India, 2005-2050

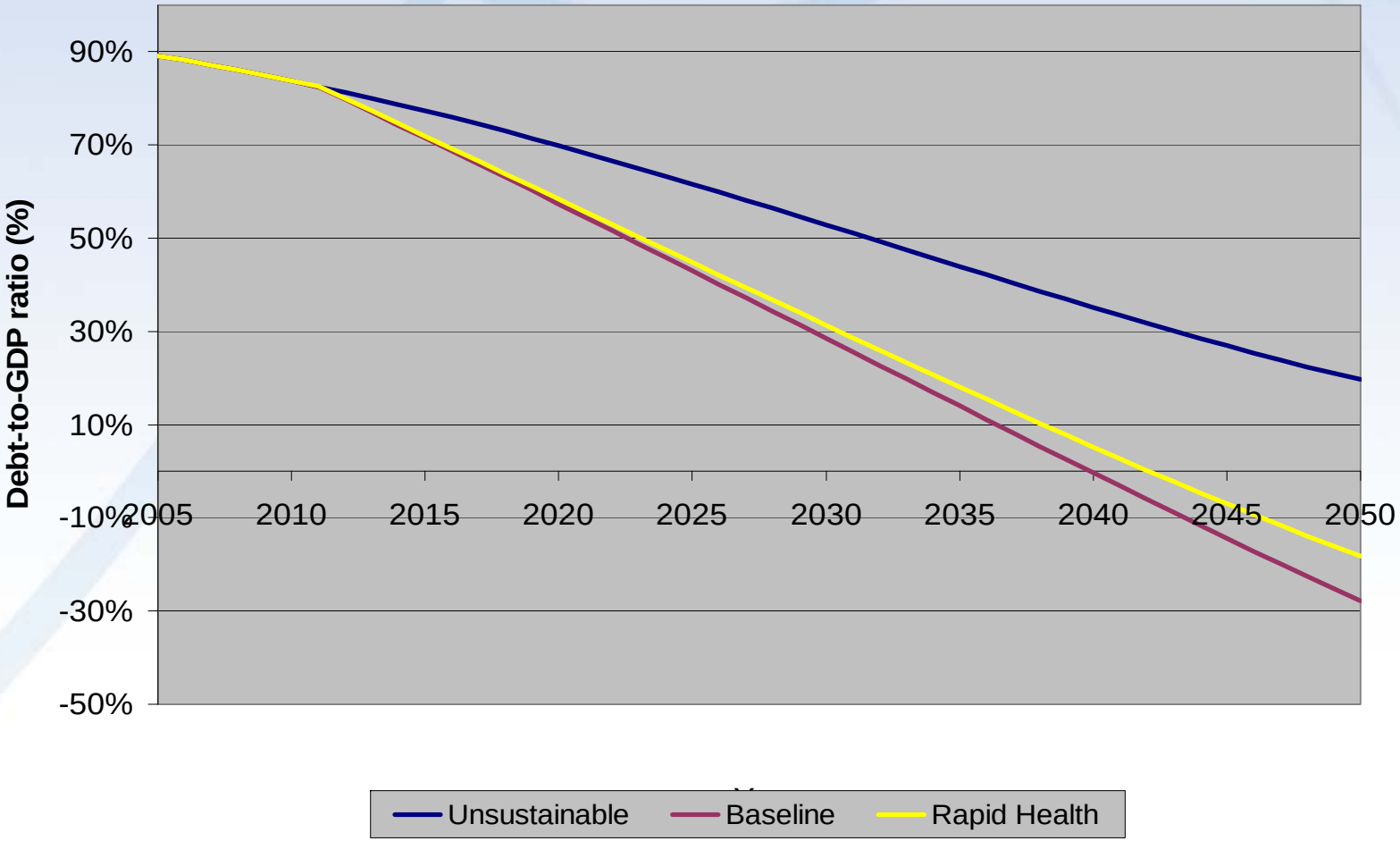


Figure 4: Budget composition in Unsustainable Scenario, India, 2005-2050

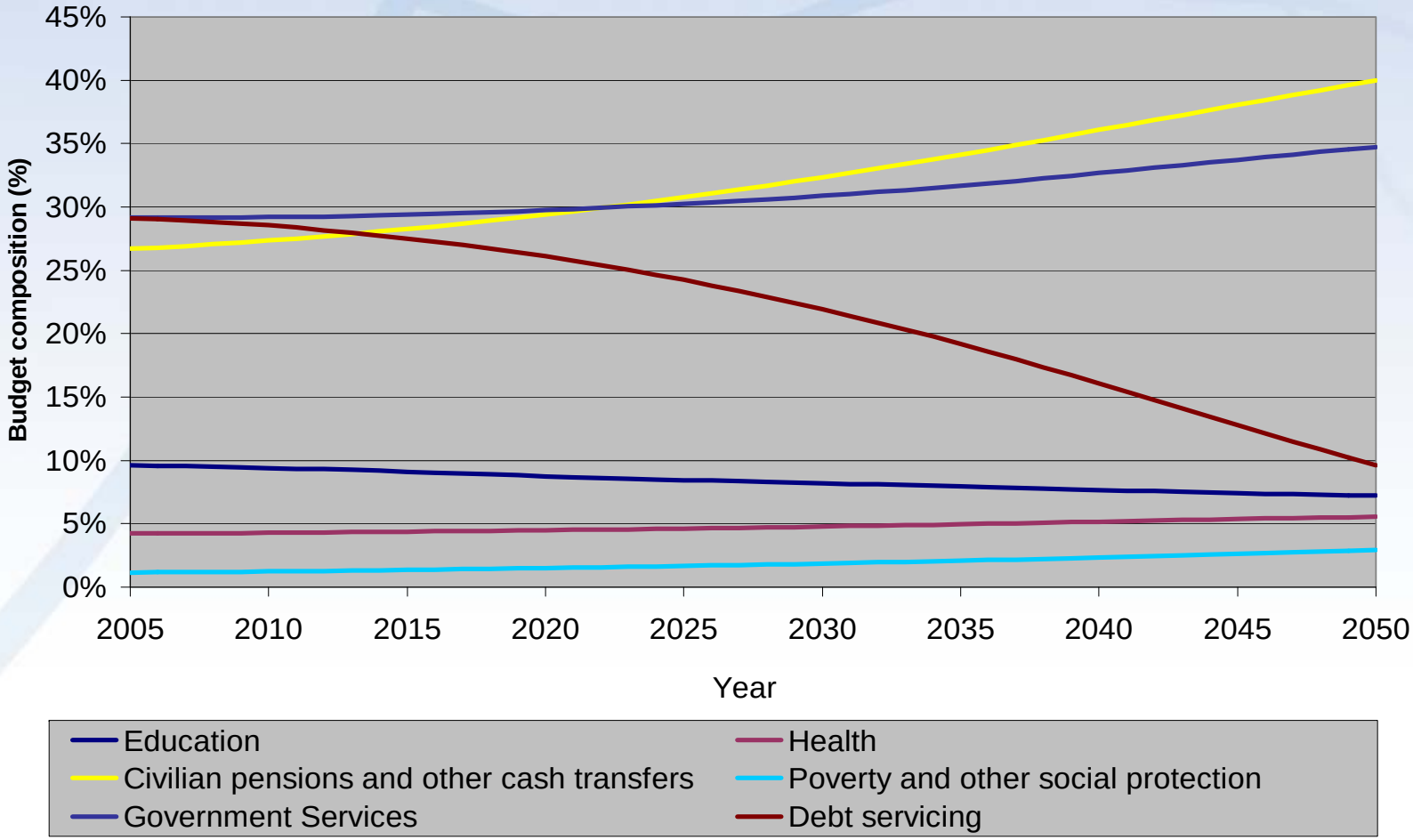


Figure 5: Budget composition in the Baseline Scenario, India, 2005-2050

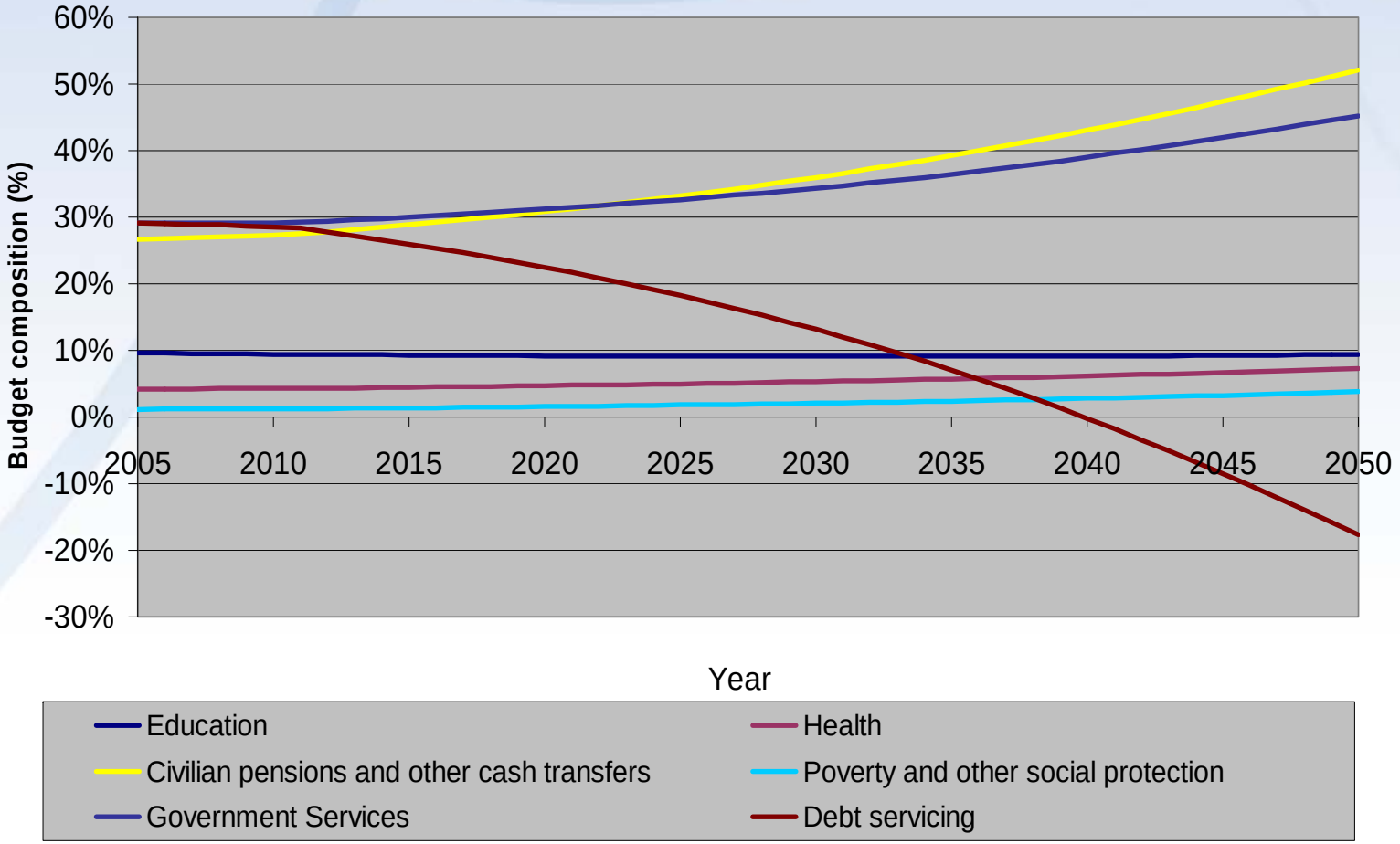
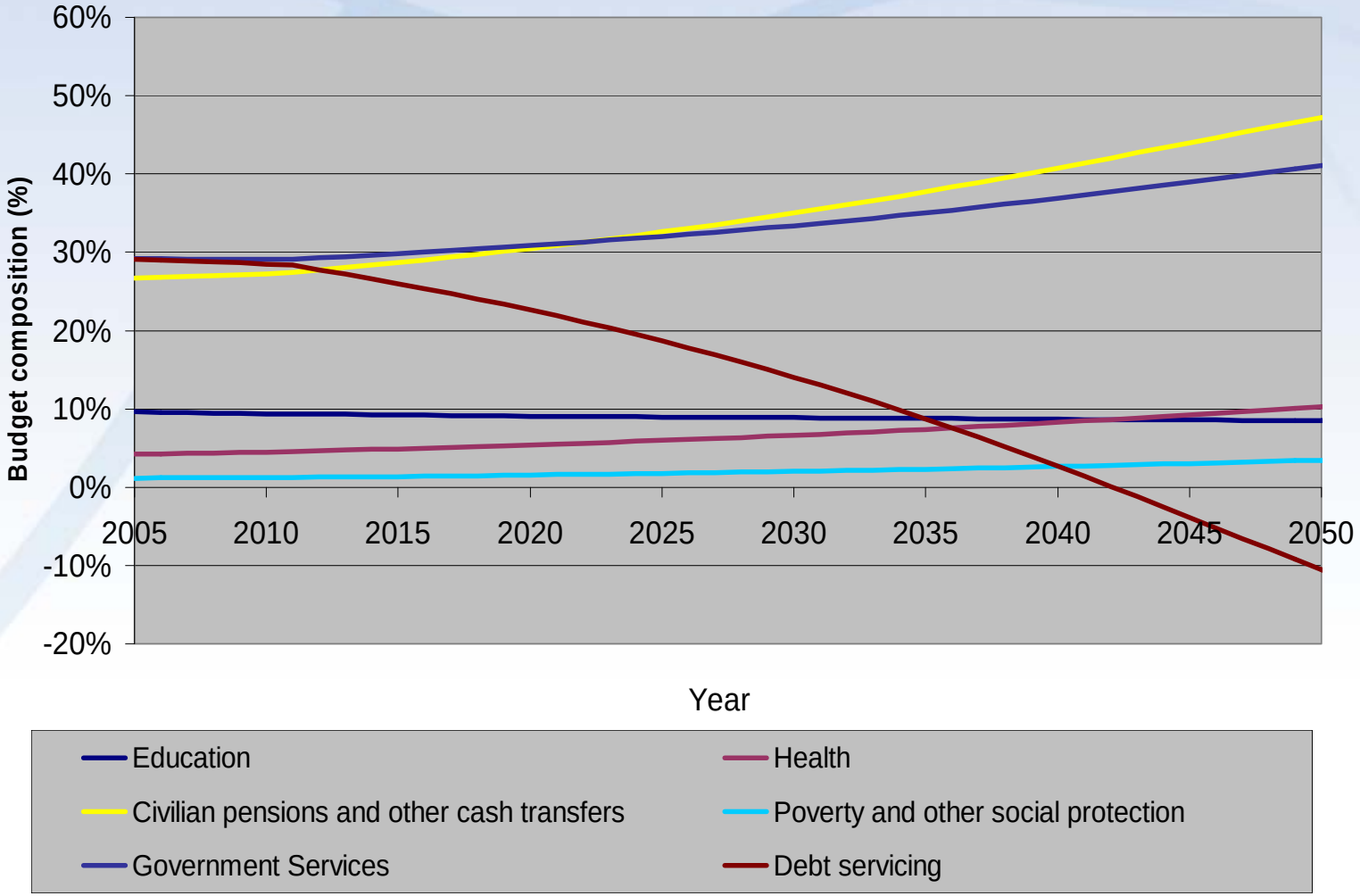


Figure 6: Budget composition in the Rapid Growth in Health Spending Scenario, India, 2005-2050



Share of budget compositions

Year	Percent of expenditure on elderly to total expenditure on all ages				
	Health	Civilian pensions and other cash transfers	Poverty and other social protection	Government services	All expenditure
2005	8.27	14.01	53.42	6.88	9.48
2010	8.66	14.58	53.20	7.31	10.00
2015	9.65	15.91	54.92	8.25	11.16
2020	10.80	17.55	57.08	9.37	12.57
2025	12.04	19.37	59.13	10.58	14.13
2030	13.35	21.29	60.92	11.88	15.79
2035	14.80	23.35	62.63	13.34	17.61
2040	16.46	25.59	64.50	14.97	19.64
2045	18.30	28.06	66.52	16.75	21.85
2050	20.33	30.78	68.64	18.71	24.26

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Growth rate of budget compositions

Year	Health		Civilian pension and other cash transfers		Poverty and other social protection		Government services		All public expenditure	
	All ages	Elderly	All ages	Elderly	All ages	Elderly	All ages	Elderly	All ages	Elderly
2005-2010	11.42	12.45	11.65	12.54	12.53	12.43	11.11	12.45	11.29	12.50
2010-2015	11.25	13.68	11.54	13.51	12.83	13.55	10.95	13.68	11.12	13.57
2015-2020	11.06	13.60	11.36	13.56	12.75	13.63	10.77	13.61	10.91	13.58
2020-2025	10.87	13.29	11.21	13.43	12.59	13.39	10.57	13.29	10.76	13.38
2025-2030	10.66	12.98	11.02	13.14	12.33	13.01	10.37	12.97	10.58	13.07
2030-2035	10.47	12.77	10.82	12.88	12.14	12.76	10.20	12.77	10.40	12.83
2035-2040	10.30	12.66	10.64	12.69	11.97	12.64	10.10	12.67	10.25	12.68
2040-2045	10.11	12.47	10.45	12.50	11.78	12.46	9.97	12.47	10.11	12.49
2045-2050	9.95	12.29	10.29	12.35	11.60	12.30	9.84	12.29	10.00	12.33

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Budget surplus/deficit

Year	Unsustainable scenario		Baseline scenario		Rapid Health Growth scenario	
	Primary surplus/ deficit as percent of GDP	Total surplus/ deficit as percent of GDP	Primary surplus/ deficit as percent of GDP	Total surplus/ deficit as percent of GDP	Primary surplus/ deficit as percent of GDP	Total surplus/ deficit as percent of GDP
2005	-1.64	-9.66	-1.64	-9.66	-1.64	-9.66
2010	-1.00	-8.54	-1.00	-8.54	-1.06	-8.61
2015	-0.46	-7.42	1.17	-5.26	1.05	-5.42
2020	0.08	-6.21	1.71	-3.45	1.54	-3.72
2025	0.54	-5.00	2.17	-1.70	1.94	-2.10
2030	0.92	-3.83	2.55	-0.01	2.26	-0.56
2035	1.22	-2.73	2.85	1.59	2.49	0.87
2040	1.37	-1.79	3.00	3.04	2.58	2.11
2045	1.38	-1.04	3.01	4.31	2.52	3.15
2050	1.23	-0.55	2.86	5.36	2.28	3.92

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Fiscal Support Ratios

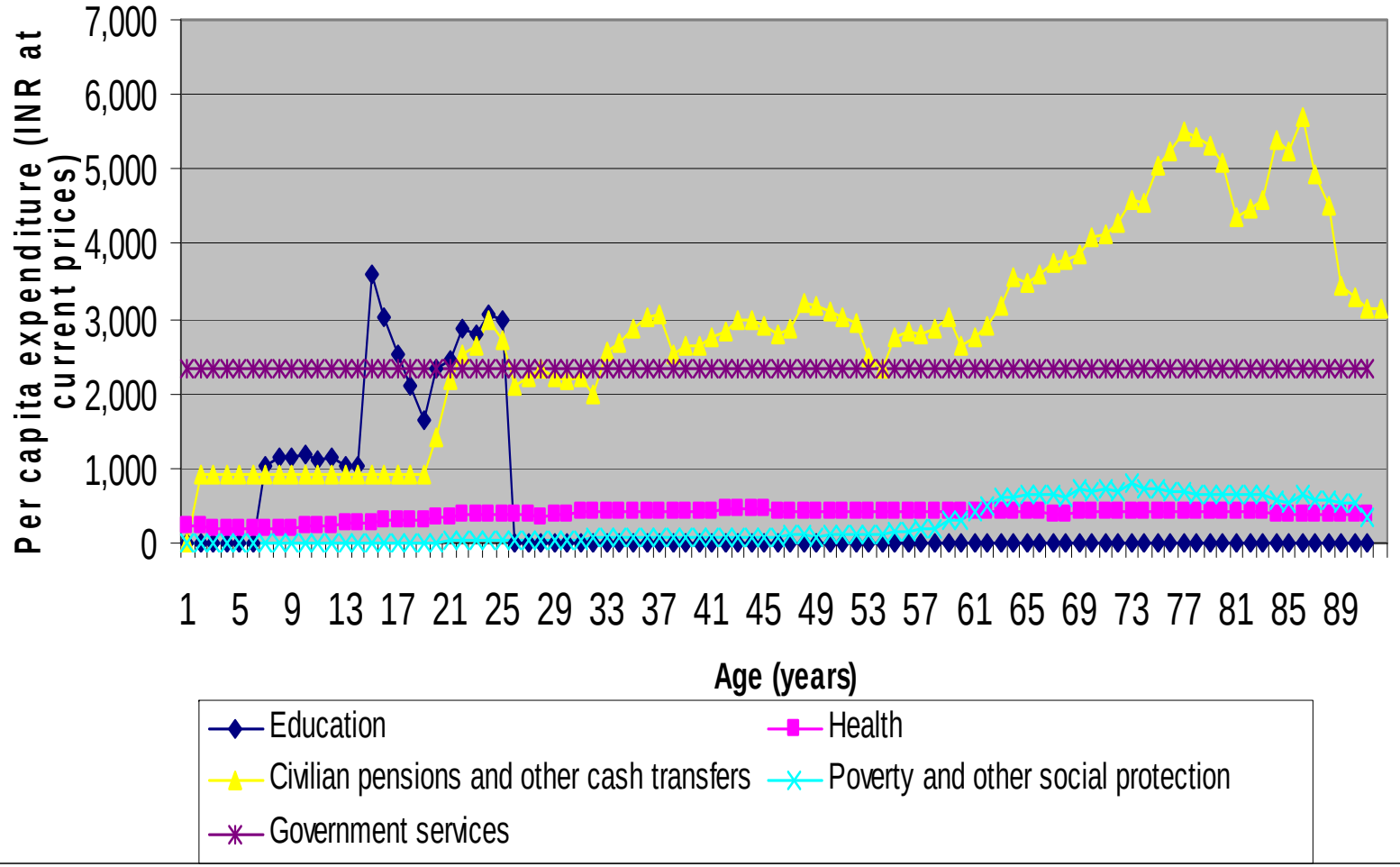
	Unsustainable scenario	Baseline scenario	Rapid Growth in Health scenario
2005	92	92	92
2010	95	95	94
2015	97	106	106
2020	100	110	109
2025	103	113	111
2030	105	115	113
2035	107	117	115
2040	108	118	115
2045	108	118	115
2050	107	117	113

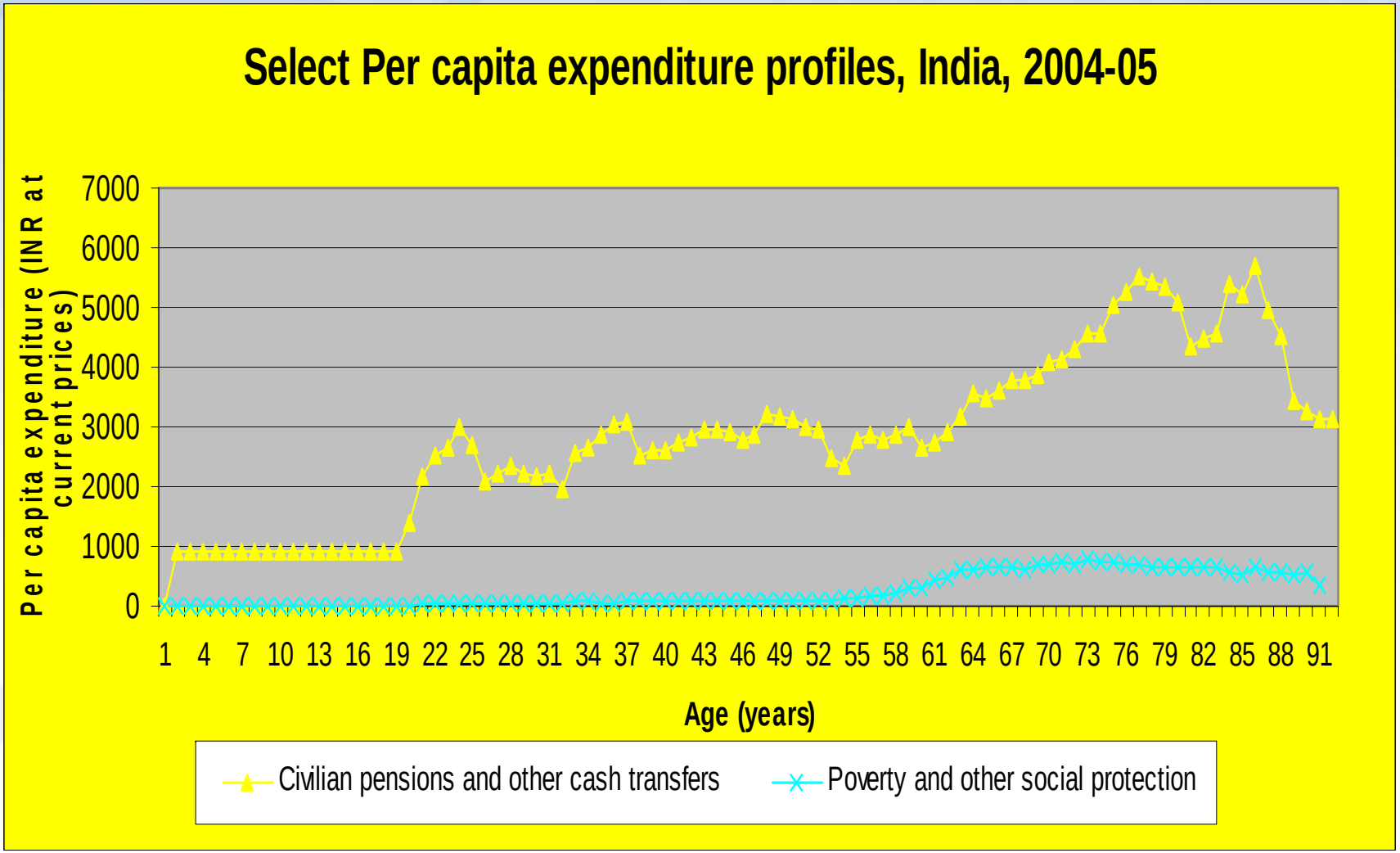
Major conclusions

- The forecasted share of total public expenditure on elderly individuals increases from 9 percent in 2005 to 24 percent in 2050, largely contributed by expenditure on (a) civilian pensions and other cash transfers, (b) government services and (c) poverty and other social protection.
- India's elderly individuals are found to be not very expensive in terms of public health expenditure.
- Tax revenues are shown to increase and result in a decline of debt-to-GDP ratio because population ageing does not lower tax buoyancy in the long run. The reduction in the debt-to-GDP ratio is an interesting manifestation of the demographic dividend in India because it is the surge in the workforce which is leading to the reduction in this ratio.
- Overall, the increasing total budget surplus and Fiscal Support Ratio implies that population aging may not have unsustainable and adverse impact on long run overall public finance in India.

THANK YOU ALL
&
Special thanks to Dr Tim Miller for constructive suggestions and comments throughout the preparation of this paper.

Figure 2: Per capita expenditure profiles, India, 2004-05




Select Per capita expenditure profiles, India, 2004-05
Per capita expenditure (INR at current prices)
7000
6000
5000
4000
3000
2000
1000
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88 91
Age (years)
Civilian pensions and other cash transfers
Poverty and other social protection