“Intra and Intergenerational Transfers in the Public Health System in Chile”

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Goals of the presentation

- Explain how the structure of the health insurance system in Chile affects the NTA profiles of benefits (Inflows), payments (Outflows) and net balance (Net Transfers) in the public health insurance.

- Using NTA profiles by level of income, present an estimate of the intra and intergenerational transfers that occur in the public health insurance system.

- Using those NTA profiles and population projections, show a forecast of the aggregate Net Balance (Net Transfers) of the public health insurance, based on assumptions on the growth of per-capita benefits, contributions and taxes.

The Health Insurance System

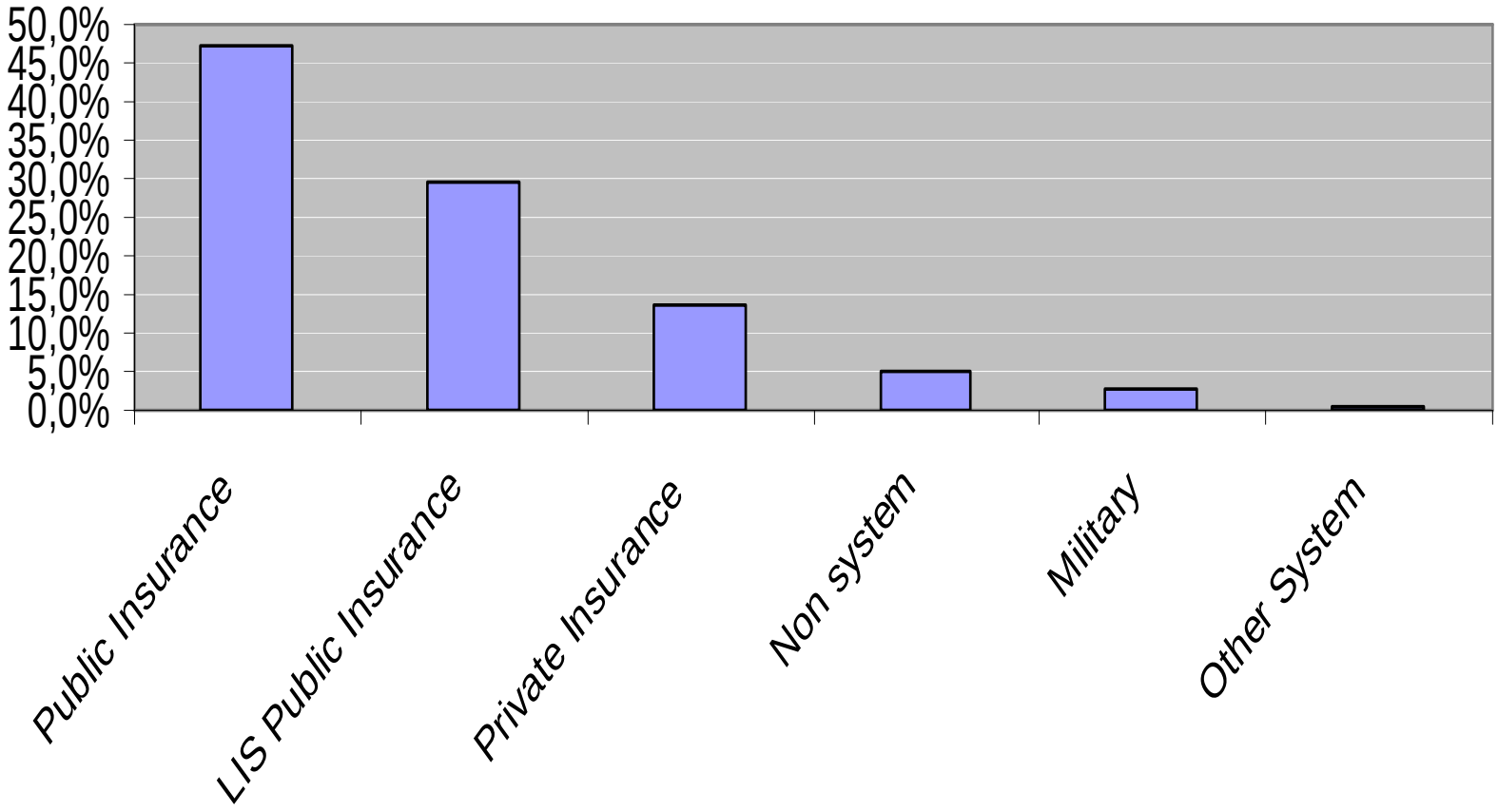
- In Chile, the health system is composed of two sub-systems: a publicly funded and managed one (FONASA), and another that is privately managed and operates with a free-market logic (ISAPRES), with some restrictions.

- Subscription is mandatory for formal workers and retirees, which must choose to contribute to either the public or the private systems.

- The mandatory contribution rate is 7% of the monthly salary or pension before taxes, except for low income workers, who are automatically covered by the health public insurance.

Rate of Participation in Health Insurance System

Chile 2006

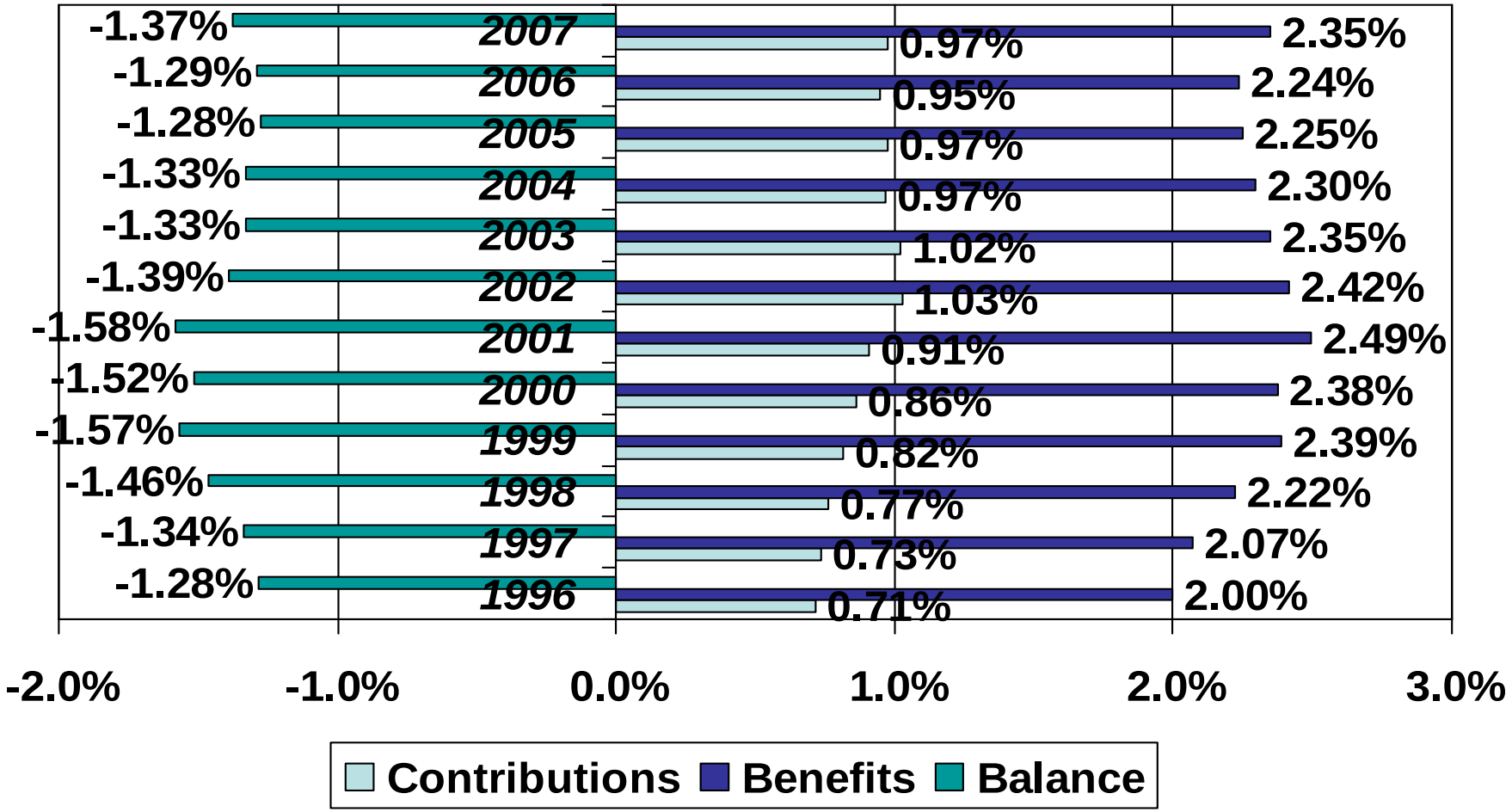


The Health Insurance System

- The public system (FONASA) offers a uniform benefit plan for all subscribers, regardless of their age, sex, and income level of the subscriber and their dependents

- In the private insurance scheme (ISAPRES), age, sex, and income determine the coverage of benefits that the 7% contribution can buy, i.e., insurance premiums vary by age, sex, income

Balance (Net Transfers) between payments (Outflows) and benefits (Inflows) in the public insurance, Chile 1996-2007 (% of GDP)



Balance between payments and benefits in the public health insurance

- The public health insurance has displayed a structural imbalance (deficit), that averaged 1.4% of GDP between 1996 and 2008.

- Why does the public health insurance generate a structural deficit?

Segmentation by observable risk and income level

- Under the current law, private insurers can (and do) charge differentiated premiums to subscribers of different “risk” of using health services, i.e., more to women than men, more to older than younger adults (under principle of “individual choice”)

- Private insurers therefore keep a pool of lower risk / high income subscribers, while the higher-risk / lower income segment is selected/shifted out to the public insurance, which spreads out the costs and benefits across the entire population of subscribers (under principle of “solidarity”)

Determinants of the observable risk of morbidity and of using medical services

- Sapelli and Vial (1998), using logistic regressions, report a higher probability of morbidity in the last 30 days for older individuals and for women; they did not observe a significant effect of the level of income

- A more recent study by Sapelli (2007) of the determinants of use of medical services (given that the person is ill), concluded that use of services increases with age, and that there is a significant relation with income level only in the fifth income quintile

Determinants of the observable risk of morbidity and use medical services

- Thus the distribution of affiliates by age and sex in each sub-system will be relevant for the aggregate cost and use of health services, but the distribution of income of subscribers does not appear to be as significant

Determinants of the selection between insurance system

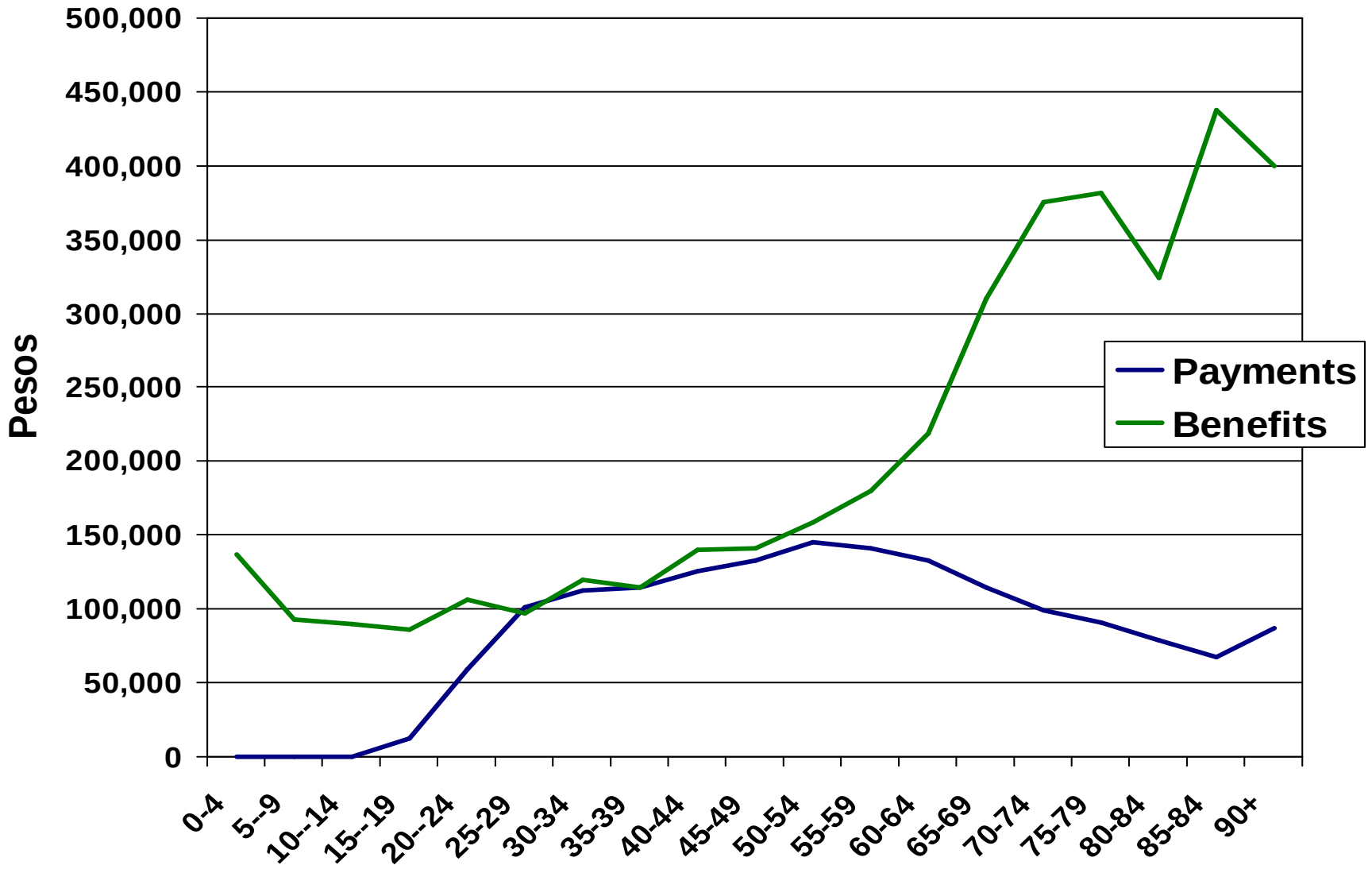
- Torche and Sapelli (1997) show that age is a significant explanatory variable, that positively affects the probability of affiliation to the public health insurance

- That study also showed that income level is very relevant for the choice of affiliation between the two insurance systems. The higher the income, the lower the probabilty of being affiliated to the public health insurance

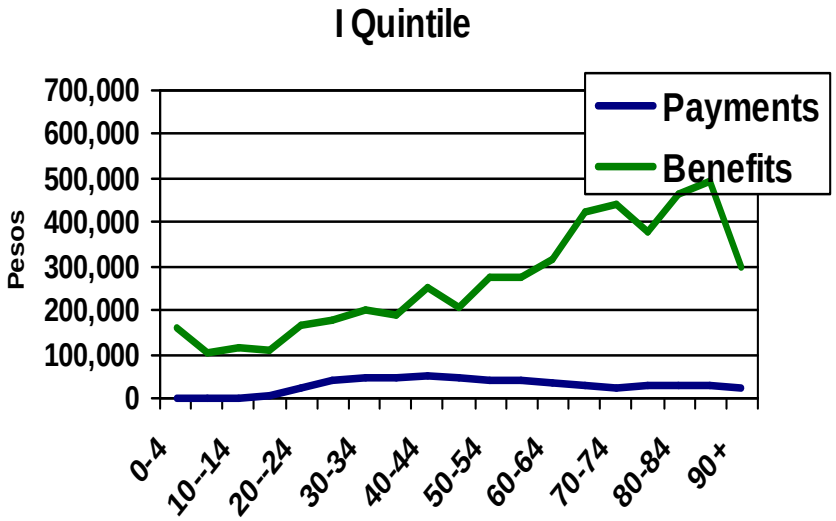
Distribution of health insurance affiliates, by sub-system, age and income level in Chile, 2007 (CEPAL, 2010)

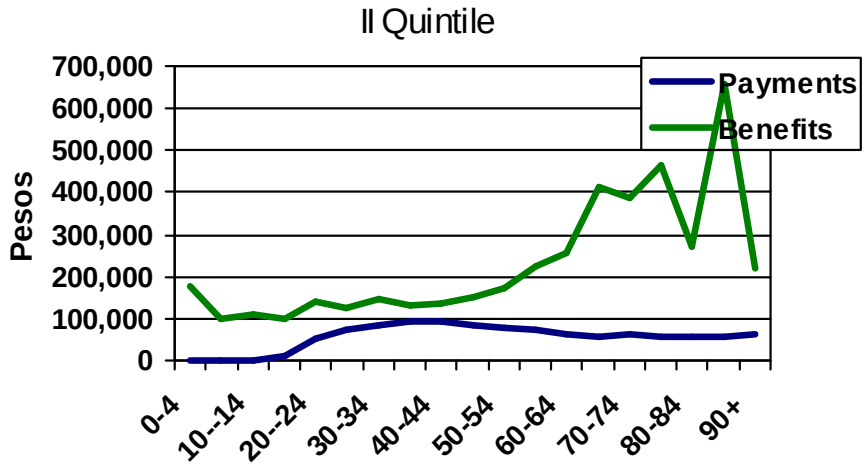
	I Quintile		*II Quintile*		*III Quintile*		*IV Quintile*		*V Quintile*	
	PUBLIC	PRIVATE	PUBLIC	PRIVATE	PUBLIC	PRIVATE	PUBLIC	PRIVATE	PUBLIC	PRIVATE
0-20	**92.20**	**1.60**	**85.80**	**6.60**	**73.50**	**15.20**	**53.80**	**32.00**	**26.20**	**61.10**
21-50	**89.00**	**1.70**	**82.60**	**6.20**	**72.50**	**12.90**	**55.30**	**26.80**	**31.10**	**52.10**
51-64	**91.60**	**1.10**	**90.70**	**2.30**	**82.40**	**6.50**	**70.60**	**14.10**	**44.5 >**	**40.60**
65 +	**93.20**	**0.80**	**93.70**	**1.00**	**90.20**	**1.70**	**82.20**	**5.60**	**58.7 >**	**22.00**

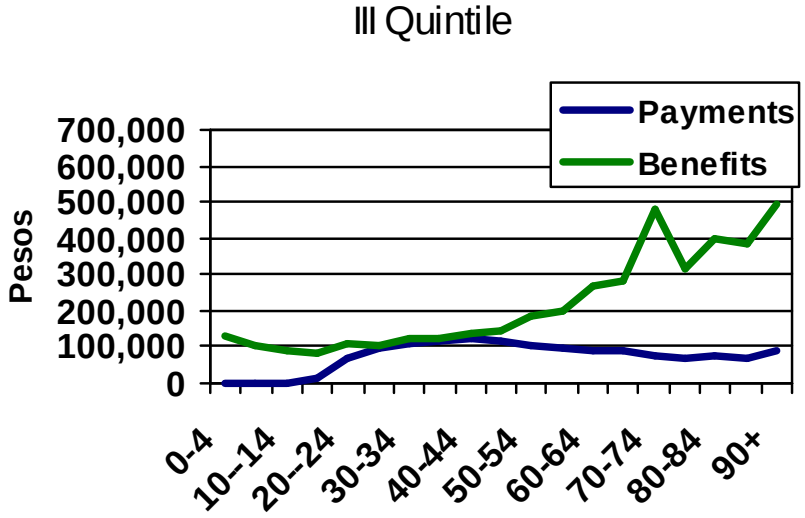
Per-capita health payments and benefits by age, using NTA methodology, Chile 2007

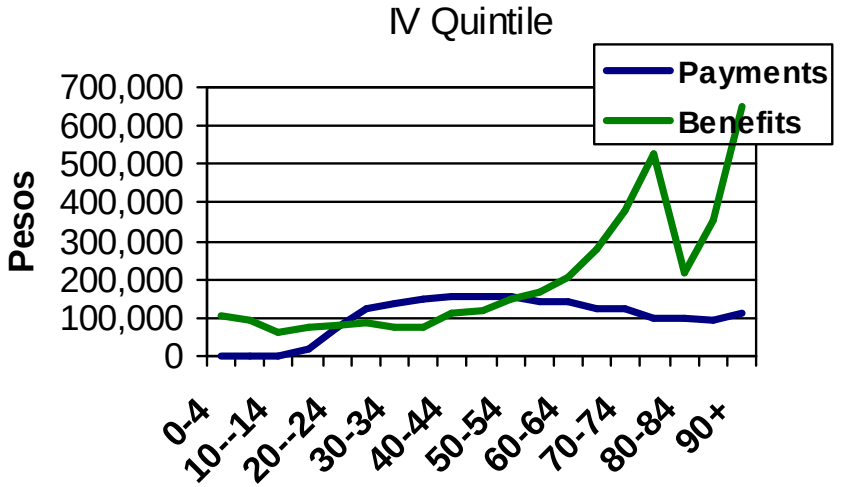


Per-capita payments and benefits for health by age, using NTA methodology, Chile 2007

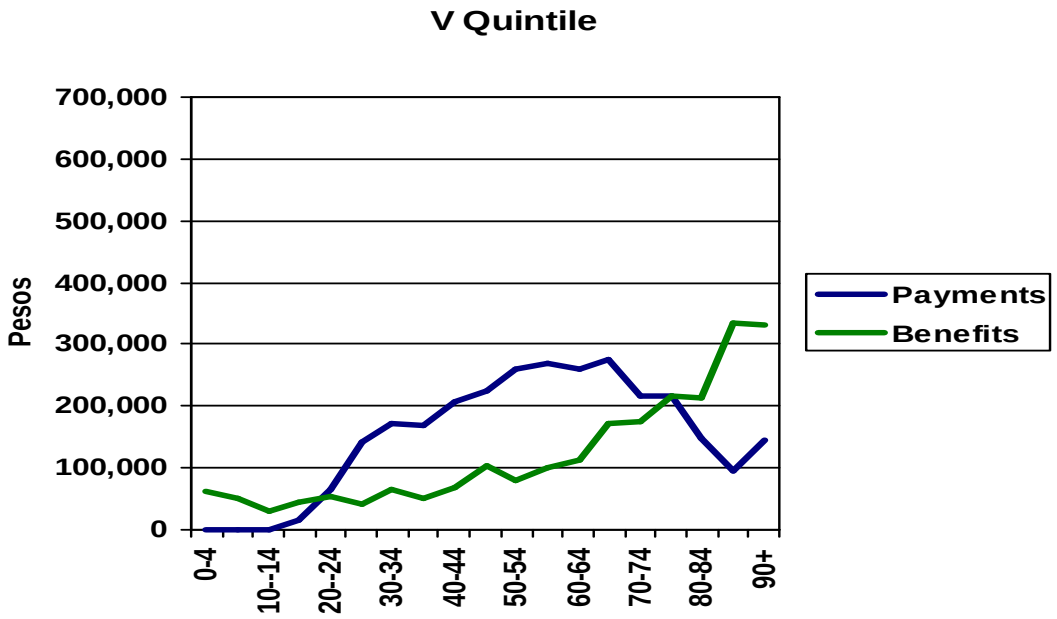








Per-capita health payments and benefits by age, using NTA methodology, Chile 2007



Per-capita health payments and benefits by age, using NTA methodology, Chile 2007

some conclusions:

- Benefits (Inflows) in the public health insurance have a strong age pattern in all income groups
- There are no sharp differences in the level of benefits (Inflows) by age among income groups
- Payments (Outflows) also show a strong age pattern in every income group
- There are important differences between income groups in the level of payments (Outflows) by age

Per-capita health payments and benefits by age, using NTA methodology, Chile 2007

more conclusions:

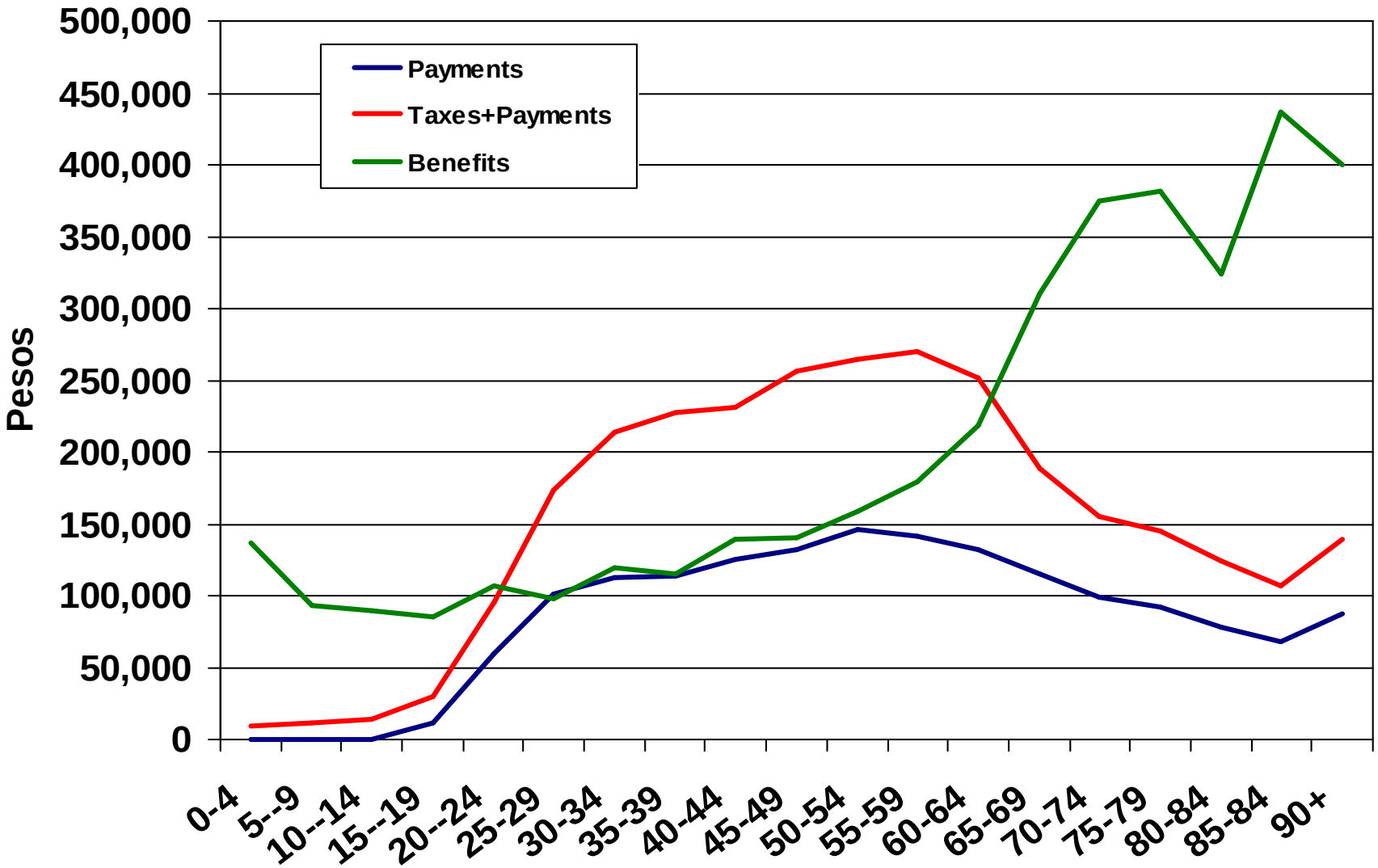
- The age and income pattern of benefits (Inflows) creates an Intra and Intergenerational tranfer within the public health insurance
- Transfers flow mainly from high-income affiliates to the elderly and low income affiliates
- However, these transfers are not sufficient to cover the deficit. To bridge the gap, the government must turn to general taxes

Bridging the finance gap: Taxes by age and income

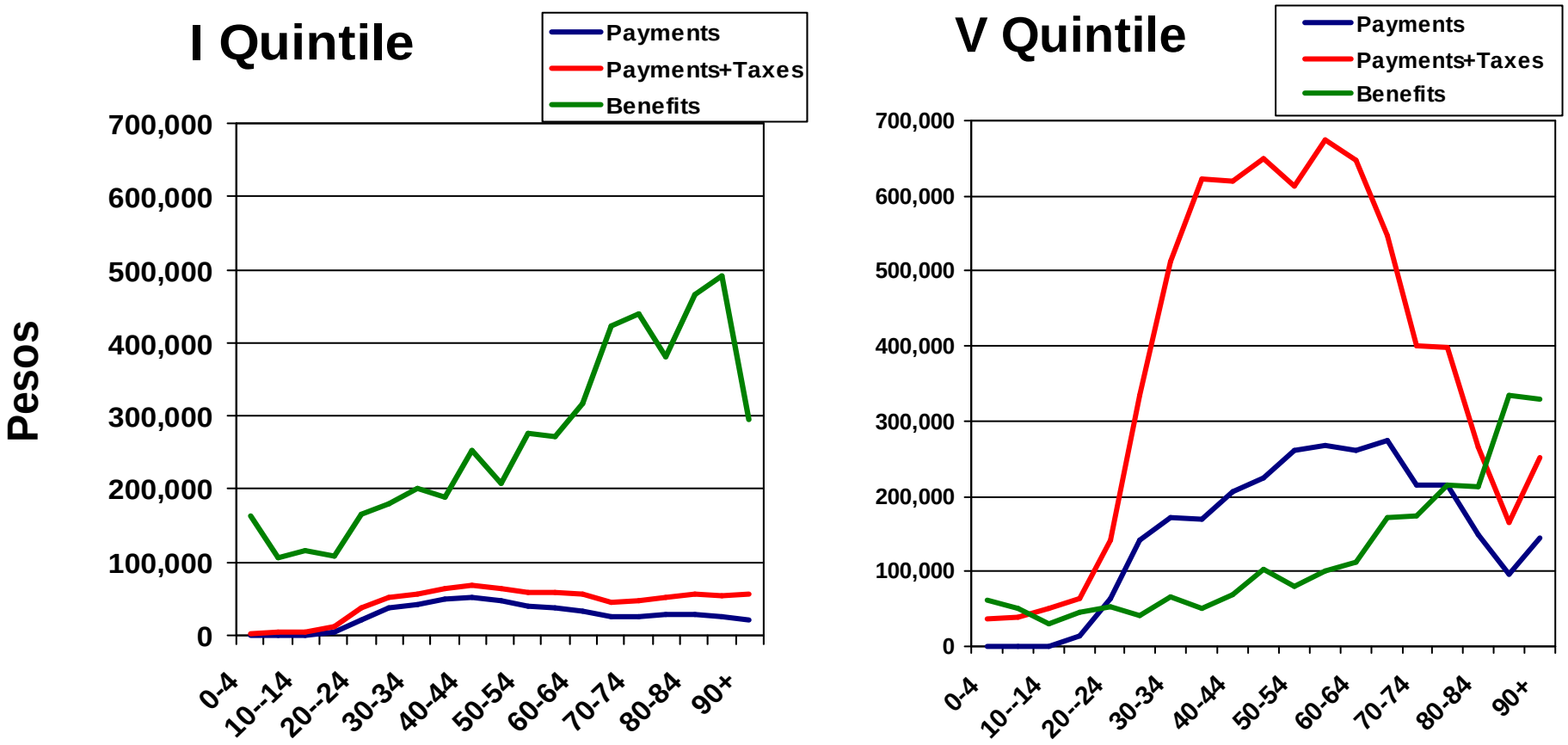
- In Chile, a large share of tax revenues comes from value-added and income taxes, levied on mainly working-age adults

- The per-capita VAT incidence follows closely the age profile of private consumption (not necessarily that of income), while income taxes are clearly progressive

Per-capita payments, taxes and benefits by age (based on NTA estimates), Chile 2007



Per-capita payments, taxes and benefits by age, I and V quintiles, Chile 2007



Intra and intergenerational transfers in the public health system, Chile 2007

	Outflows	Inflows	Net Transfers.	Outflows'.	Total Net Transfers
	Payments	*Benefits*	*Deficit*	*General Taxes*	*Agg Net Transfers=0*
Income Groups					
I	-22,378	194,718	**172,339**	**-12,182**	**160,157**
II	-47,341	162,960	**115,619**	**-15,678**	**99,941**
III	-68,853	153,999	**85,145**	**-21,570**	**63,575**
IV	-95,746	126,045	**30,298**	**-34,991**	**-4,692**
V	-147,716	76,823	**-70,893**	**-248,265**	**-319,157**
Age Groups					
0-19	-3,490	99,075	**95,585**	**-13,838**	**81,748**
20-49	-106,183	119,531	**13,347**	**-90,069**	**-76,721**
50-69	-136,108	204,477	**68,369**	**-113,239**	**-44,870**
70-89	-89,977	339,396	**249,419**	**-51,758**	**197,661**
90+	-87,041	399,491	**312,450**	**-51,825**	**260,625**

*Chilean pesos 2006

Intra and intergenerational transfers in the public health system, Chile 2007

- High income and working-age taxpayers transfer resources to low income, young and old people affiliated to the public health insurance in Chile

The health deficit (net aggregate transfers) in the long run

Two phenomena could influence the size of the deficit in the long run:

1. Demographic Transition

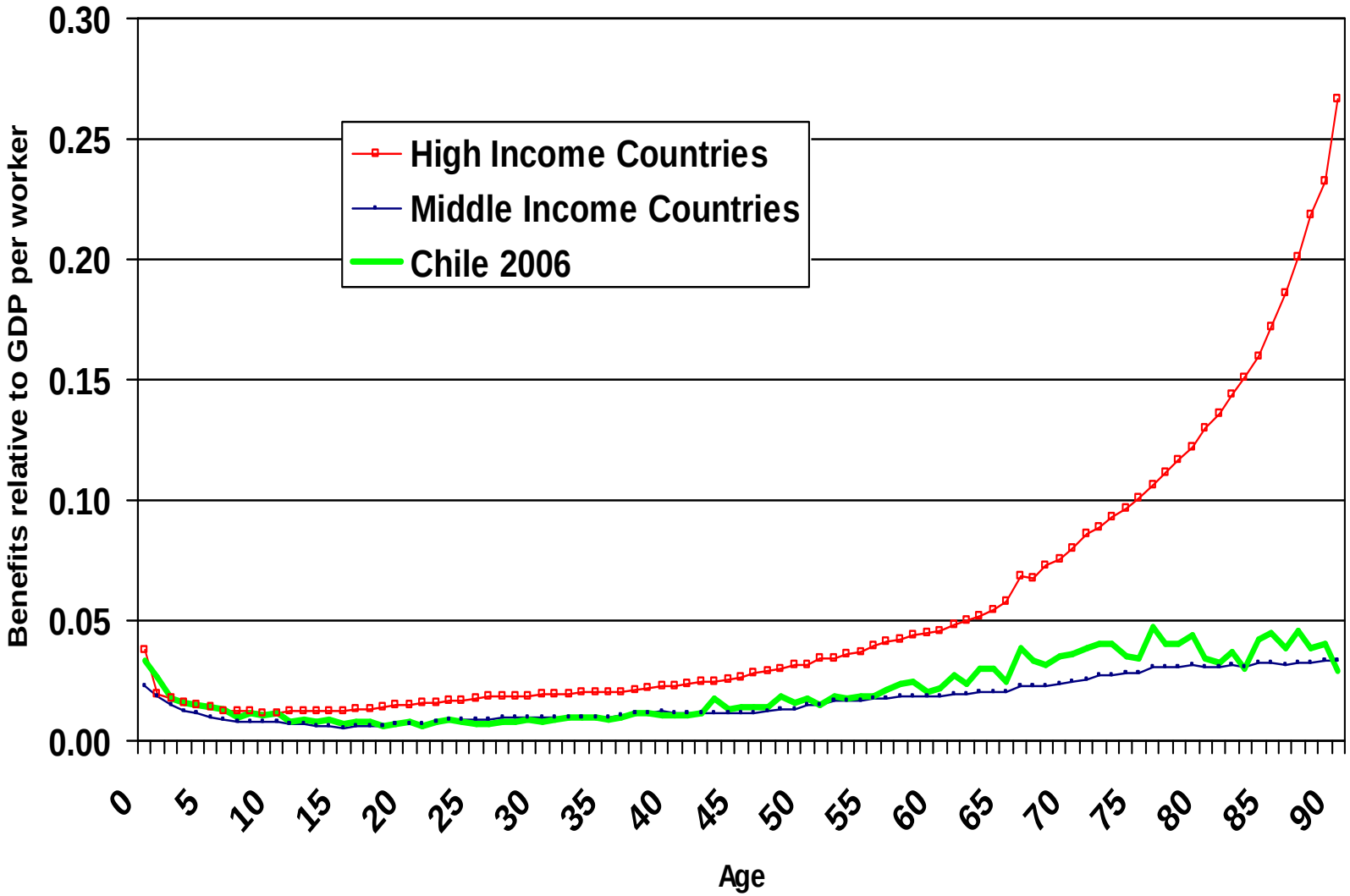
Changes in the age distribution of the population creates an increase in the ratio of older to working-age adults (Saad, 2006)

2. Transition towards health expenditure patterns of high-income countries

Increase in per-capita health spending of middle income countries towards the levels that we are seeing today in high income countries

Public health benefits in Chile compared to high and middle-income countries

(from Miller, Mason and Holz, 2009)



Projection of the Deficit

$$\frac{D_t}{GDP_t} = \sum_{x=0}^{90+} \left(b_{x,t} \cdot \frac{P_{x,t}}{P_{20,64,t}} \right) - \sum_{x=0}^{90+} \left(c_{x,t} \cdot \frac{P_{x,t}}{P_{20,64,t}} \right)$$

Where the deficit (as % of GDP) is equivalent to the difference between the sum of benefits across ages (Inflows), and the sum of payments across ages (Outflows), with population aged *x* in year *t* is relative to working age population, aged 20 to 64

$$\frac{P_{x,t}}{P_{20-64,t}}$$

Projection of the deficit

$$b_{x,t} = \frac{E_{x,t}}{P_{x,t}} \Big/ \frac{GDP_t}{P_{20-64,t}}$$

$$c_{x,t} = \frac{C_{x,t}}{P_{x,t}} \Big/ \frac{GDP_t}{P_{20-64,t}}$$

- Where $b_{x,t}$ is per-capita benefits by age (Inflows) relative to GDP, per working age population
- and $c_{x,t}$ is the per-capita payment by age relative to GDP, per working age population.

Assumptions of the projection model

$\frac{P_{x,t}}{P_{20-64,t}}$

- Changes due to demographic transition

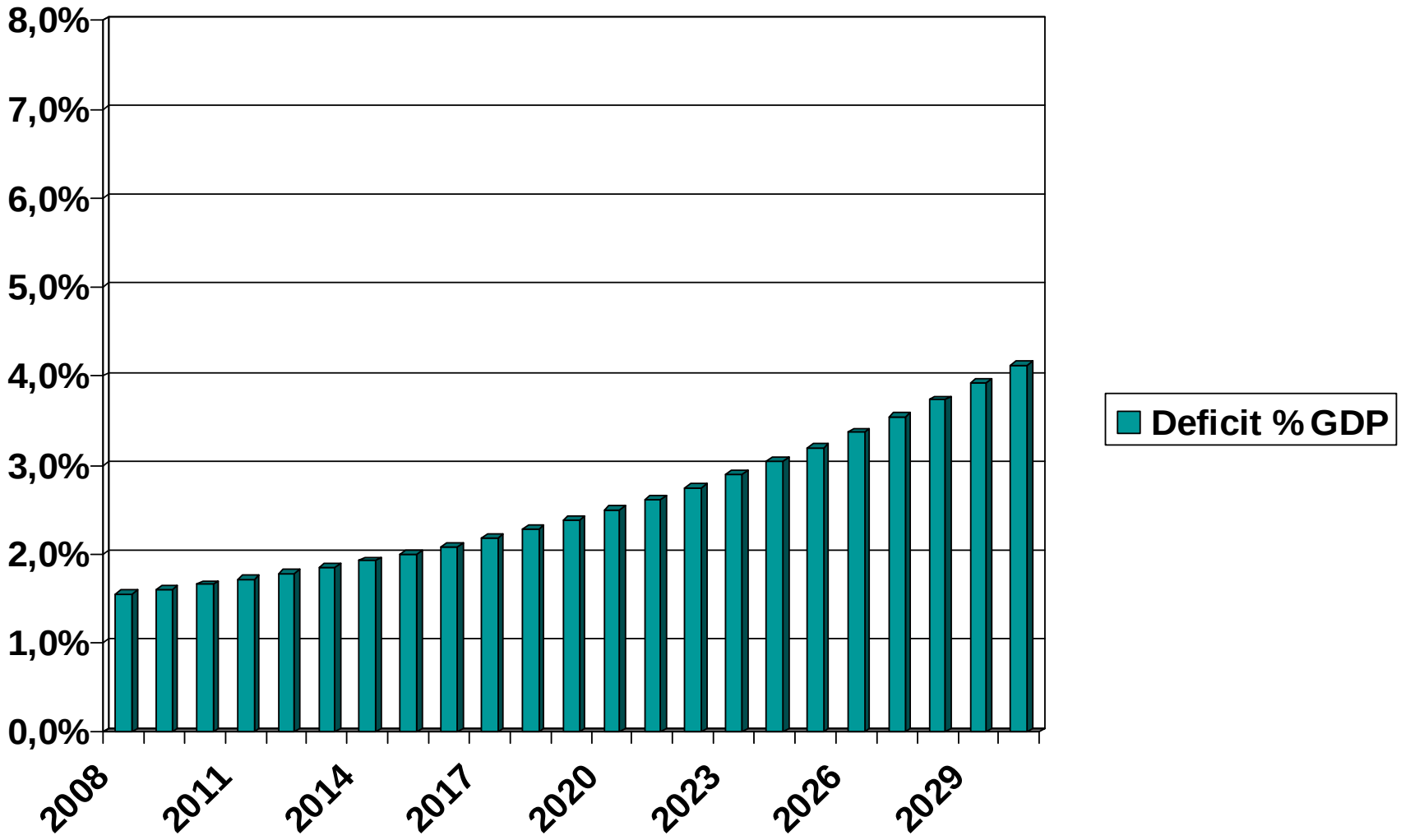
$b_{x,t}$

- Change in relation to increase in GDP of the country, at a rate which is estimated from cross-sectional data from all NTA countries. GDP grows at 2,5% per year

$c_{x,t}$

- Remains constant under the assumption that the coverage by age remains constant and the contribution per affiliate grows at the same rate that GDP per working age population

Projection of the aggregate public health deficit, Chile 2008-2050 (of GDP)



Projection of the aggregate deficit (% of GDP)

- The deficit of the public health insurance would grow from 1.5% to 4.1% of GDP in 2050 (based on demographic projections of CELADE, assuming that increases of benefits per-capita relative to GDP per working age population depend on economic growth, that the coverage by age remains constant, and that the payment per affiliate grows at the same rate as GDP per working age person)
- This projection must be seen as an illustrative example of a plausible scenario

Conclusions

- The dual structure of the health insurance system in Chile generates a segmentation with a high participation of old age people and low income workers in the public health insurance.

- As a result, a structural deficit must be financed by general taxes, which generates intra and intergenerational transfers

- These transfers flow mainly form high income working ages taxpayers to young and old adults from all income groups and low income persons form all ages

Conclusions

- An illustartive projection shows a significant increase in the deficit which might increase also the intra and intergenerational transfers from taxpayers to affiliates in the public health insurance
- We need to generate more longitudinal data to better understand and forecast the deficit and the implied transfers