Social Security Wealth in Brazil *

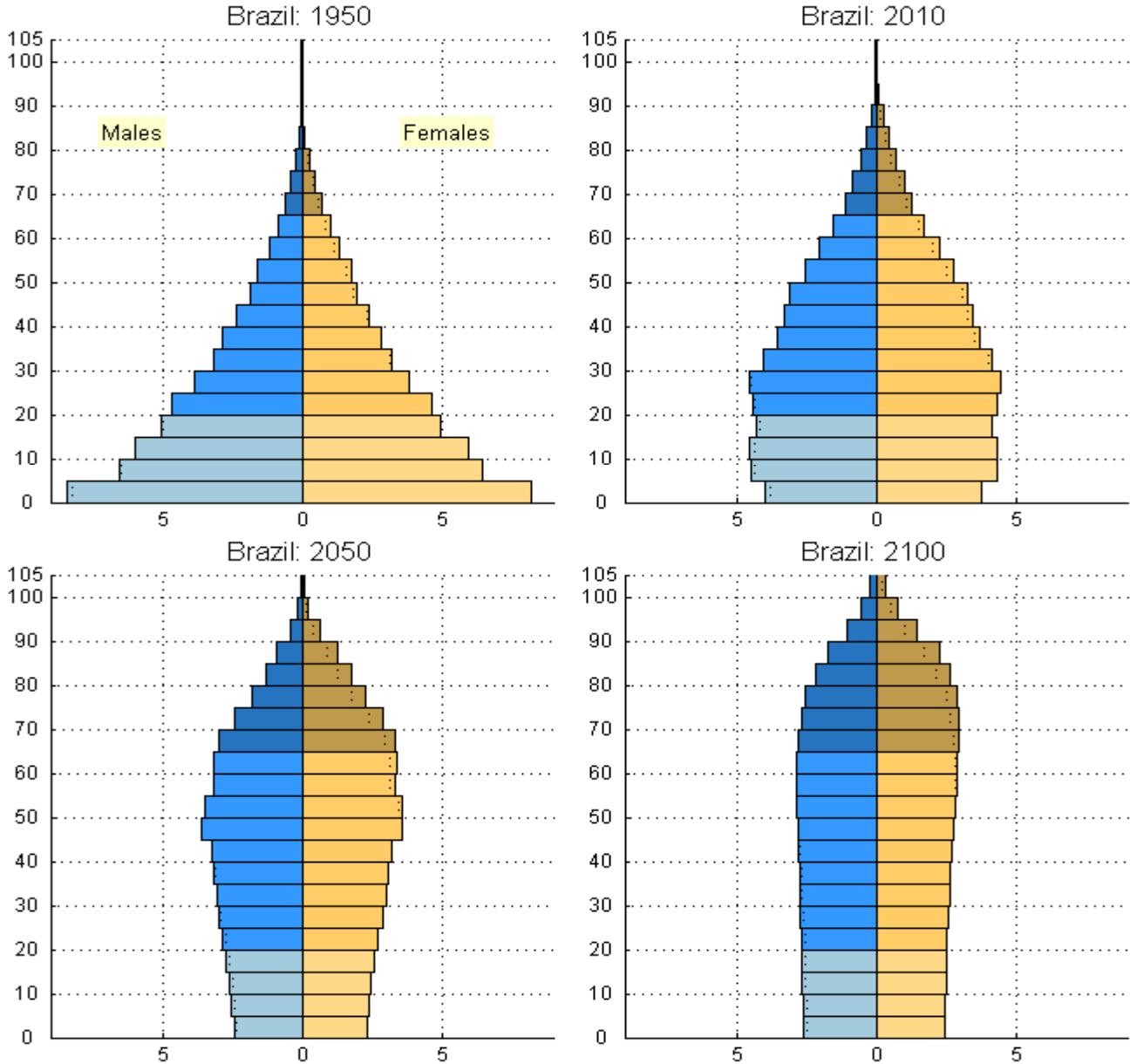Bernardo Lanza Queiroz

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*presentation based on Queiroz (2008)

Overview of presentation

- 1) Introduction
- 2) Population aging and public transfers in Brazil
- 3) Public pensions in Brazil
- 4) Data and methods
- 5) Results
- 6) Discussion

# Population Age Structure (UN, 2010)

Life expectancy at different ages, Brazil, 1950-2035

Age	1950	1990	2000	2010	2020	2035
Males						
55	18,21	22,4	23,4	24,3	25,3	26,7
60	15,1	18,7	19,6	20,4	21,3	22,6
65	12,17	15,2	15,9	16,7	17,4	18,5
Females						
55	18,98	23,6	24,5	25,4	26,2	27,5
60	15,72	19,8	20,5	21,3	22,1	23,2
65	12,66	16,1	16,8	17,4	18,1	19,1

Brazilian Public Pension System

- Workers in the private sector (55%) plus about 20% of informal sector;
- Contributory system:
  - Employer: 20%
  - Employee: 8, 9 and 11%
- Average pension benefit: R$ 800,00;
- Average labor income: R$ 1490,00;
- Public pension deficit:
  - About

Public Expenditures in Brazil, 1933 to 2001 (Araujo, Turra e Queiroz, 2010)
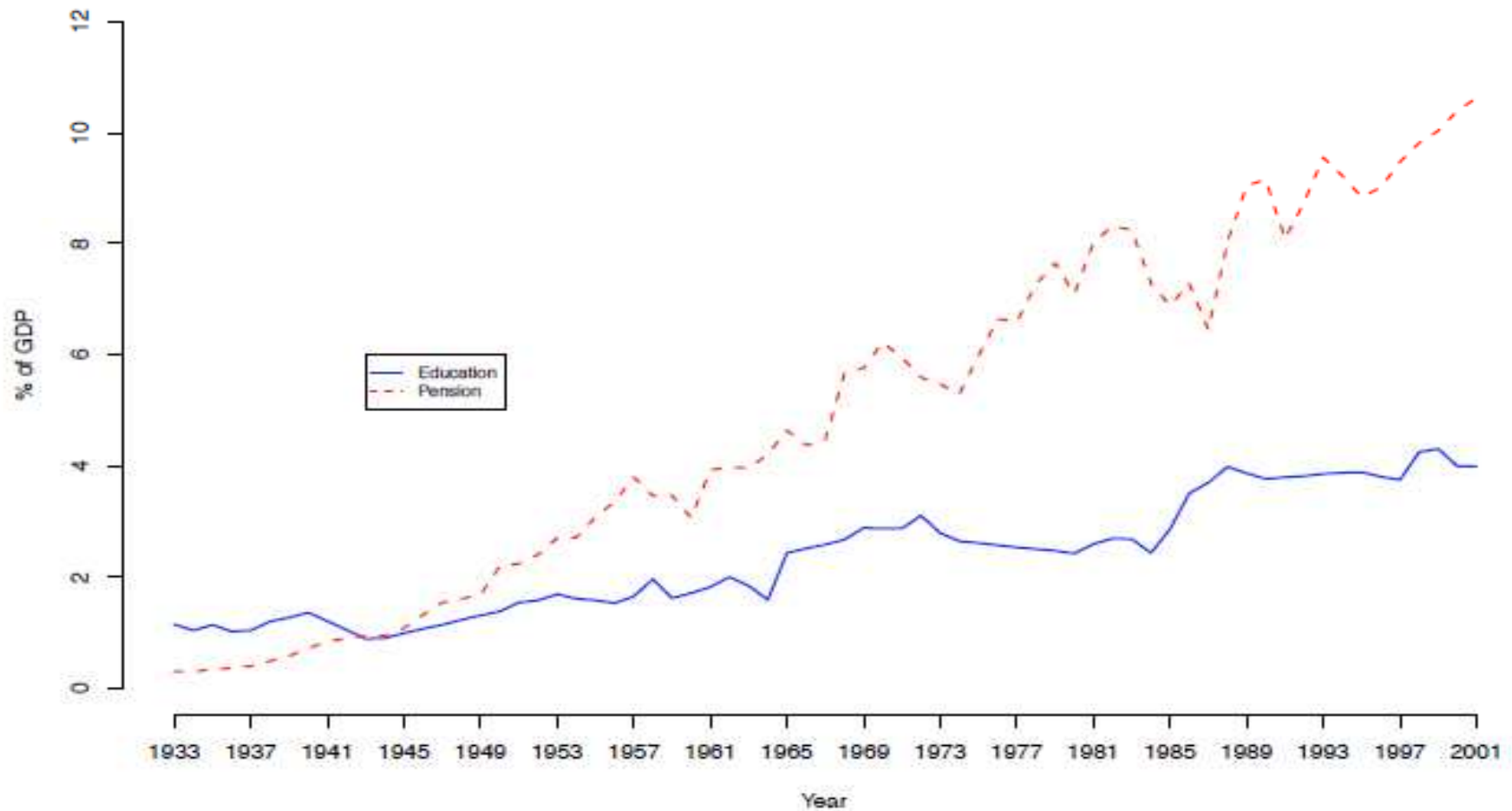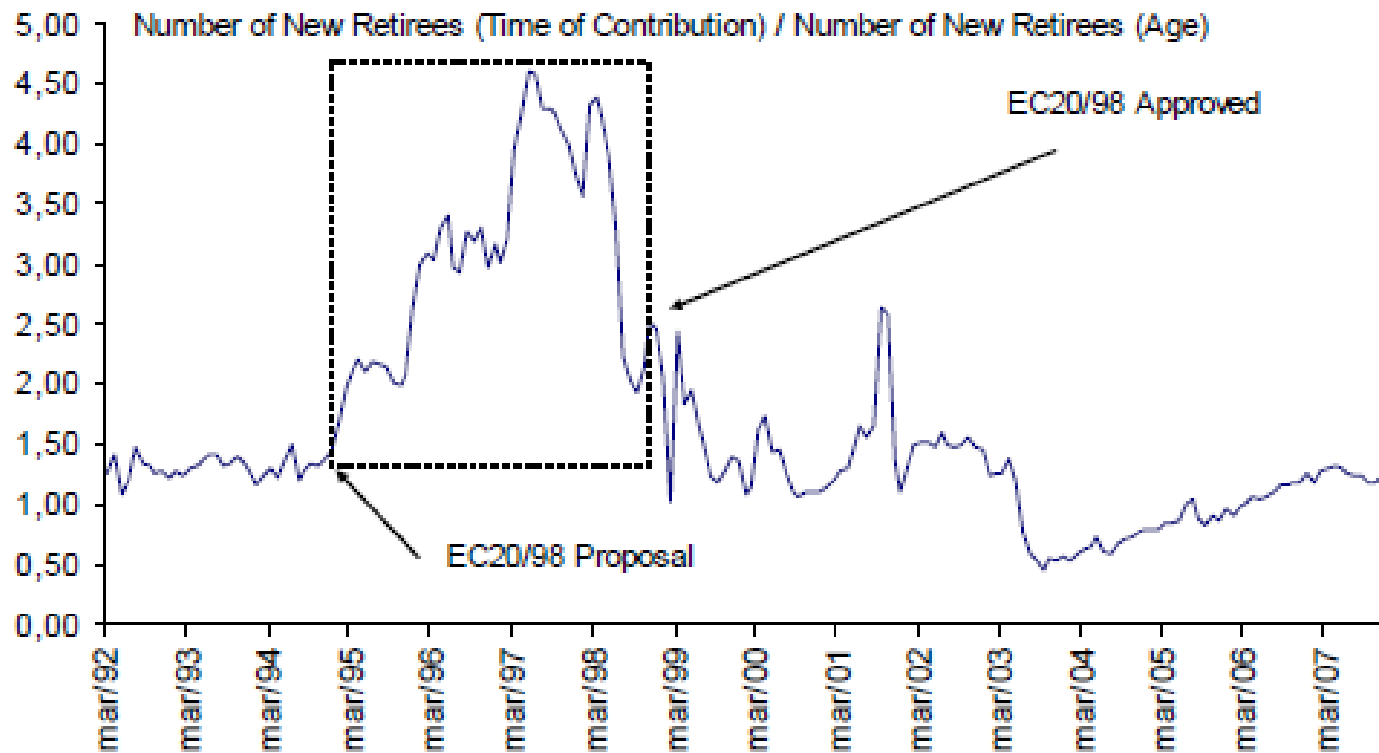
Poverty, inequality and the State
(Major public policies)

Selected Government Expenditures in 2006 (% of GDP)

Expenditures	Share of GDP (%)
Public education	3.8
Social security and pensions	11.1
Private sector	*6.8*
Civil servants	*4.3*
Social assistance	0.8
Benefício de Prestação Continuada (BPC)	*0.4*
Programa Bolsa Família (PBF)	*0.4*
Total	**15.7**
Total tax revenue	**34.1**

Source: Mostafa, J; Souza, PHGF; Vaz, FM. Efeitos econômicos do gasto social. In: Castro, JA; Ferreira, H; Campos, AG; Ribeiro, JAC (Org). Perspectivas da Política Social no Brasil. Brasília: Ipea, 2010. Total tax revenue from Ribeiro, MB. Uma análise da carga tributária bruta e das transferências de assistência e previdência no Brasil no período 1995-2009: evolução, composição e suas relações com a regressividade e a distribuição de renda. In: Castro, JA; Santos, CHM; Ribeiro, JAC. Tributação e eqüidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009.Brasília: Ipea, 2010.
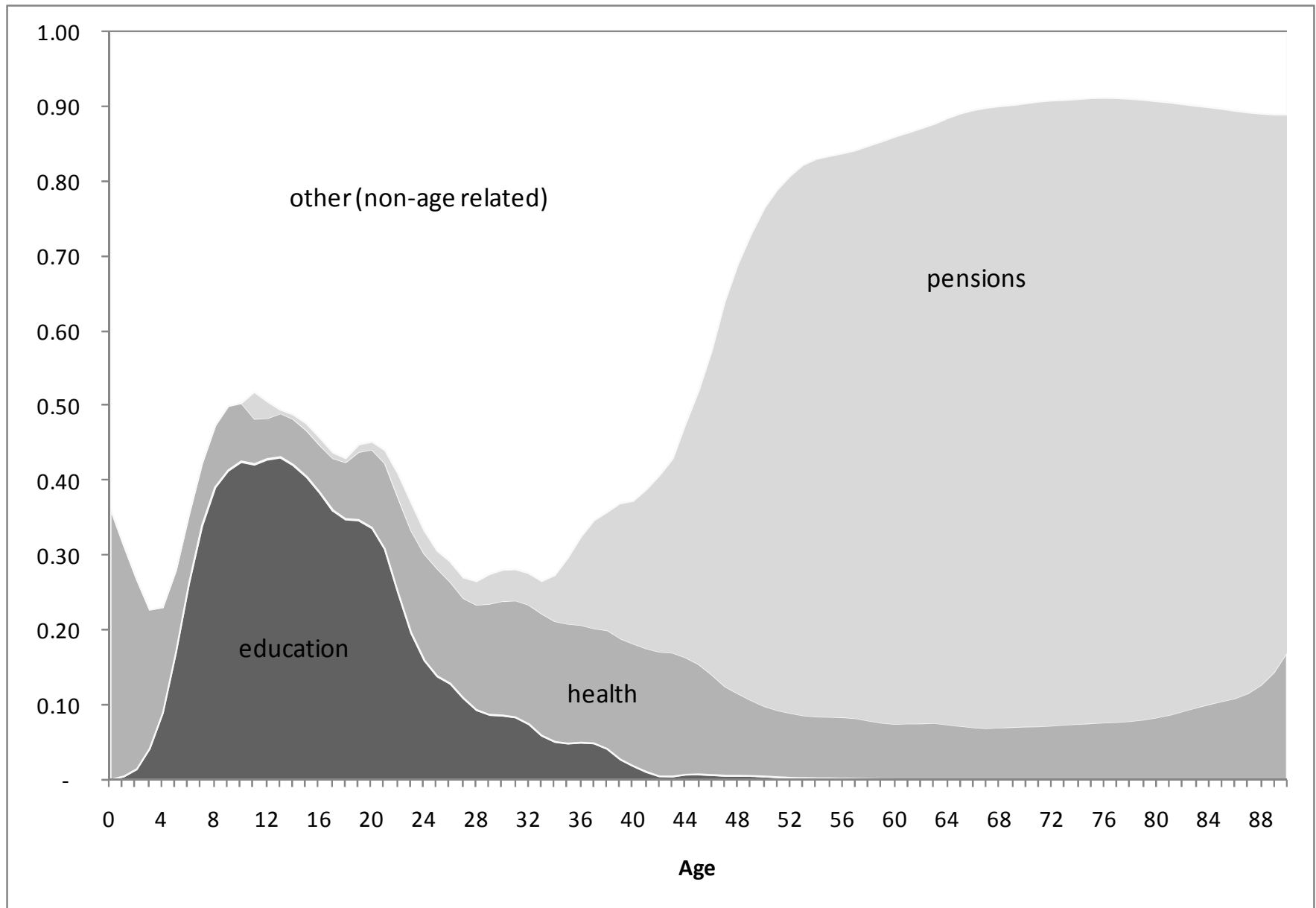
Figure 16 – Trends in Benefit Requests: Pre and Post Reform Discontinuities

Number of New Retirees (Time of Contribution) / Number of New Retirees (Age)

EC20/98 Approved

EC20/98 Proposal

Source: MPS/Dataprev

Distribution of the public transfers in Brazil
(as % of total consumption) – Turra, 2009

other (non-age related)

pensions

education

health

Methods

$$SSW_S(R) = \sum_{t=R}^{\infty} Y\,PEN_t(R).\alpha(s)_t.\sigma^{t-S} - \sum_{t=S}^{R-1} c_t.Y\,LAB_t.\alpha(s)_t.\sigma^{t-S}$$

Social security wealth (SSW): is the present discounted value of the future benefits a person is entitled to receive upon retirement at a particular age

S = planning age, R = retirement age, Y LABt = labor income at age t, *Y PENt(R) = pension income at age t for retirement at age R, ct = contribution rate* to pension at *age t, a(s)t = probability of survival at least until age t given survival until age S, and* σ = discount factor (1/(1+r)).

Methods

- Estimate SSW for SES groups and following old and new social security legislation:

  - New: best 80% wages and takes into account life expectancy at retirement age;

  - Old: benefit is based on the past 36 month of contribution.

- For simplicity, assumed that individual entered the labor force at age 20 and can retire by length of contribution (35 years).

Data

- Perfect world, one would have access to earning history, contribution history of a number of workers over time. Too bad….

- Use Pnad/IBGE to construct earnings history by socioeconomic group (educational level);

- from earnings history, use rules and regulations to estimate possible flow of public pension benefits;

Figure 2
Age-Earnings Profile, Male Workers, Brazil, 2002
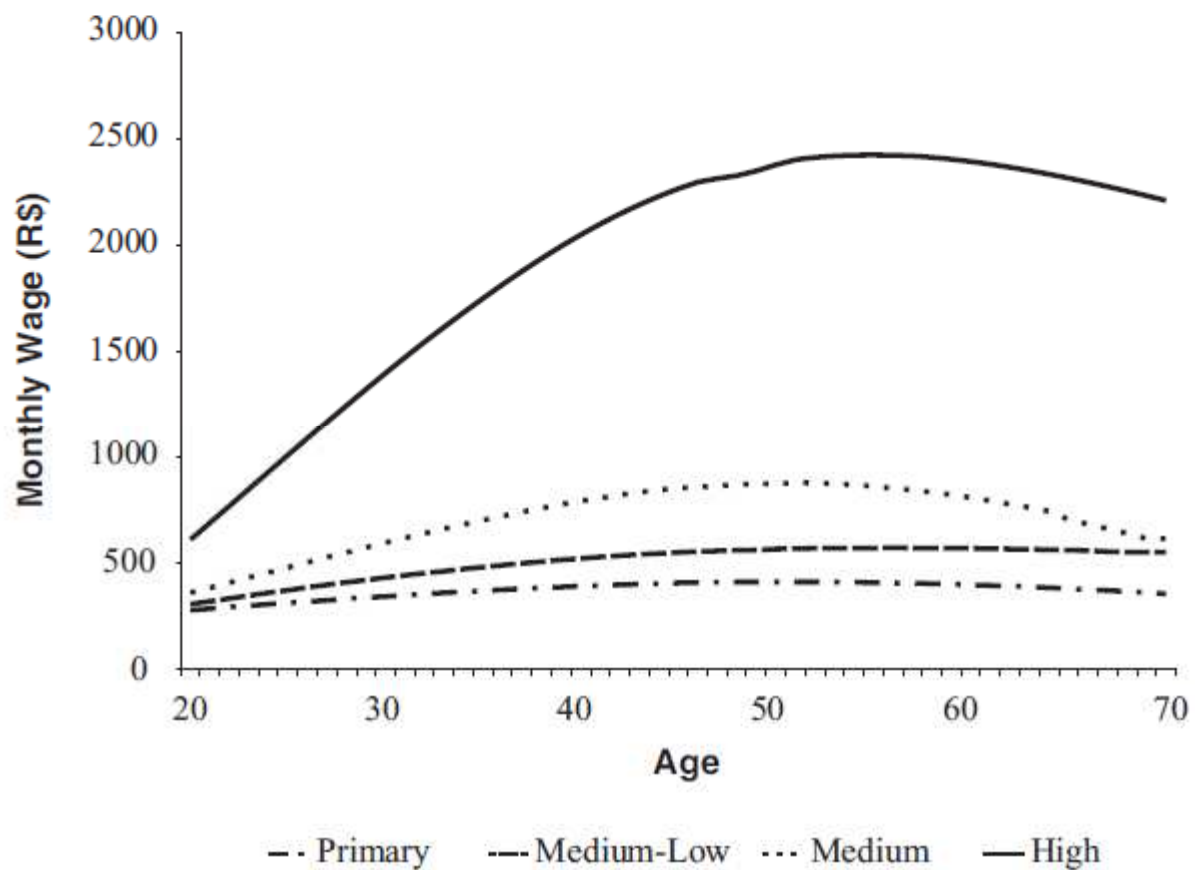
Source: Pesquisa Nacional por Amostra Domiciliar (PNAD), 2002.

Table 2
Retirement Incentive Measures, Brazil, Base-Case Scenario, Brazil, 2002

Age	Replacement Rate %	SSW R$ (2002)	Accrual R$ (2002)	Accrual Rate %	Implicit Tax %
55	0.32	34589.45			
56	0.33	34466.86	-122.60	-0.004	0.031
57	0.34	34279.62	-187.24	-0.005	0.044
58	0.36	34031.60	.248.02	-0.007	0.053
59	0.36	33714.41	-317.19	-0.009	0.062
60	0.37	33332.92	-381.50	-0.011	0.067
61	0.41	32885.35	-447.56	-0.013	0.076
62	0.45	32369.59	-515.76	-0.016	0.085
63	0.49	31661.10	-708.49	-0.022	0.113
64	0.54	30763.10	-898.00	-0.028	0.139
65	0.59	29654.70	-1108.40	-0.036	0.167

Source: PNAD 2002, MPAS 2002.

Table 4
Retirement Incentive Measures, Brazil, High Education Worker, 2002

| Age	Replacement Rate %	SSW R$ (2002)	Accrual R$ (2002)	Accrual Rate %	Implicit Tax %
55	0.24	97126.90			
56	0.25	97593.42	466.52	0.005	-0.042
57	0.25	97992.22	398.81	0.004	-0.031
58	0.25	98261.38	269.16	0.003	-0.019
59	0.26	95521.31	259.93	0.003	-0.016
60	0.26	98703.74	182.59	0.002	-0.009
61	0.3	98798.64	94.74	0.001	-0.005
62	0.34	98791.84	-6.78	0.000	0.000
63	0.39	98009.39	-782.45	-0.008	0.037
64	0.44	96446.81	-1562.58	-0.016	0.072
65	0.49	94028.42	-2418.40	-0.025	0.108

Source: PNAD 2002, MPAS 2002.

Table 5
Retirement Incentive Measures under system old rules, Brazil, Highly Educated Worker, 2002

Age	Replacement Rate %	SSW R$ (2002)	Accrual R$ (2002)	Accrual Rate %	Implicit Tax %
55	0.81	225205.33			
56	0.82	218832.58	-6372.76	-0.028	0.578
57	0.78	212047.99	-6784.58	-0.031	0.533
58	0.77	204793.87	-7254.12	-0.034	0.500
59	0.76	197060.84	-7733.03	-0.038	0.463
60	0.76	188682.27	-8378.56	-0.043	0.433
61	0.85	179476.41	-9205.87	-0.049	0.462
62	0.91	169383.37	-10093.04	-0.056	0.491
63	0.94	158294.75	-11088.62	-0.065	0.524
64	0.94	146783.95	-11510.80	-0.073	0.528
65	0.94	135483.85	-11300.11	-0.077	0.503

Source: PNAD 2002, MPAS 2002.

Social Security Wealth Soares (2010)
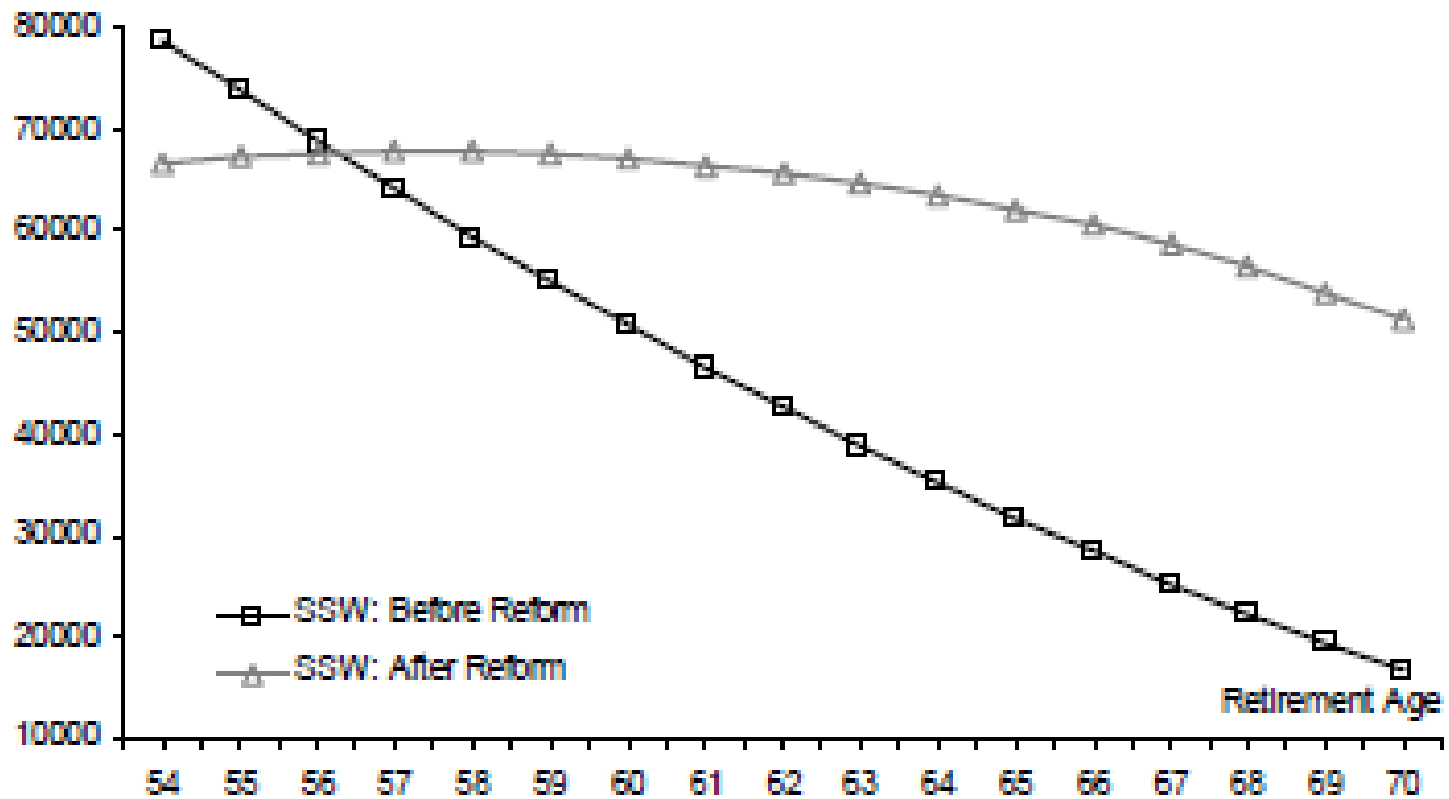
Discussion

- Previous analysis using NTA data showed that public transfers (pensions) finance most of the elderly consumption in Brazil, for all socioeconomic groups;

- As population ages, individuals live longer and public pension system faces problems, it is important to estimate pre-retirement wealth;

- This paper gives some idea of the differencials for 2 groups, more work is necessary;

Discussion

- Need to include: financial wealth, housing, private pension;
- But, results presented here shed some light on the shape of labor force participation and life-cycle deficit;
- System seems to create incentives for workers to start receiving benefits early
  - Lower LFPR
  - Very short period of economic surplus.

Thank you!

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Labor Force Participation Rates
Males, 49-79, 1960 and 2000

Legend: 1960 — 2000
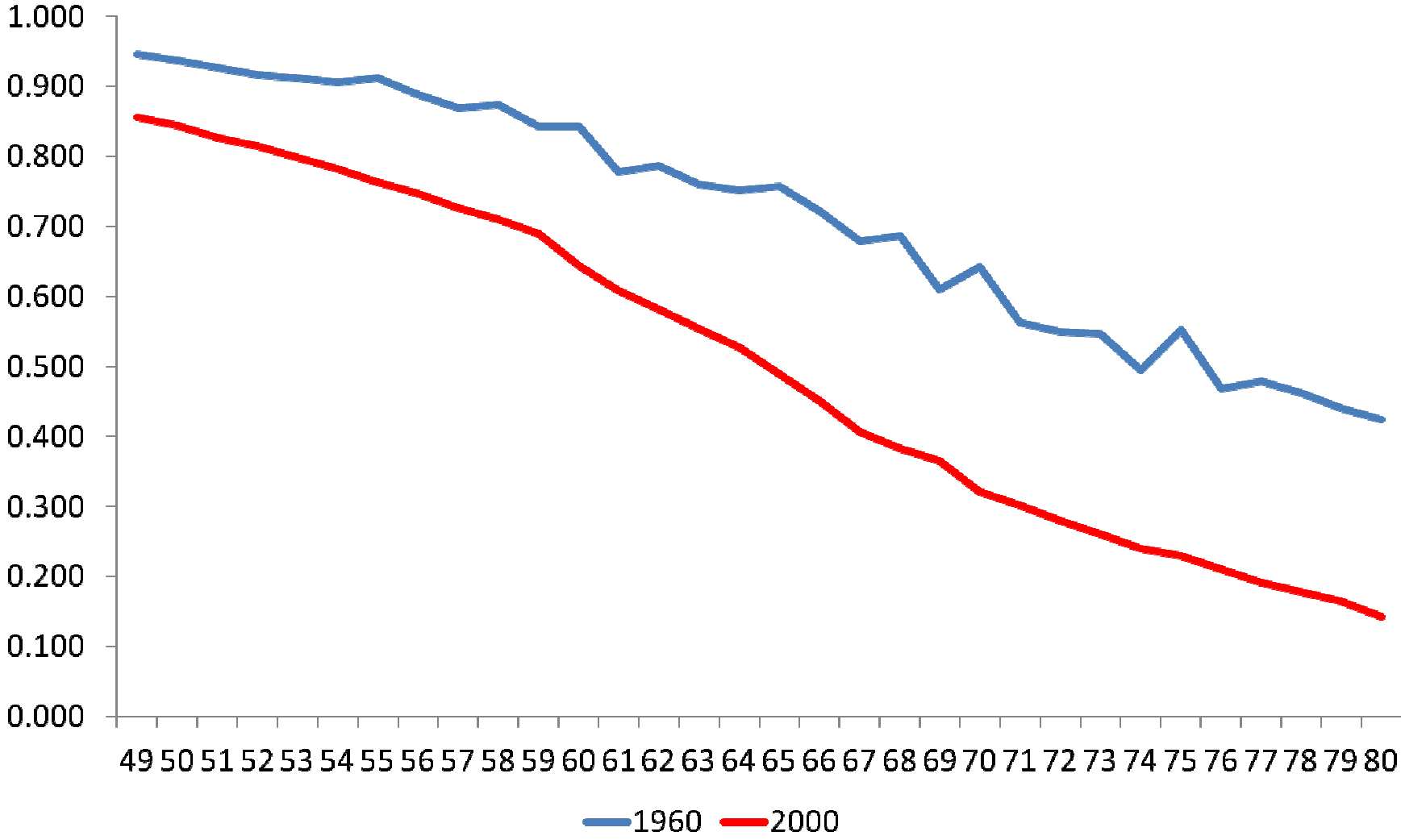
Life-cycle deficit (Brazil vs. other countries)