

Demographic changes and pension system reforms in Chile

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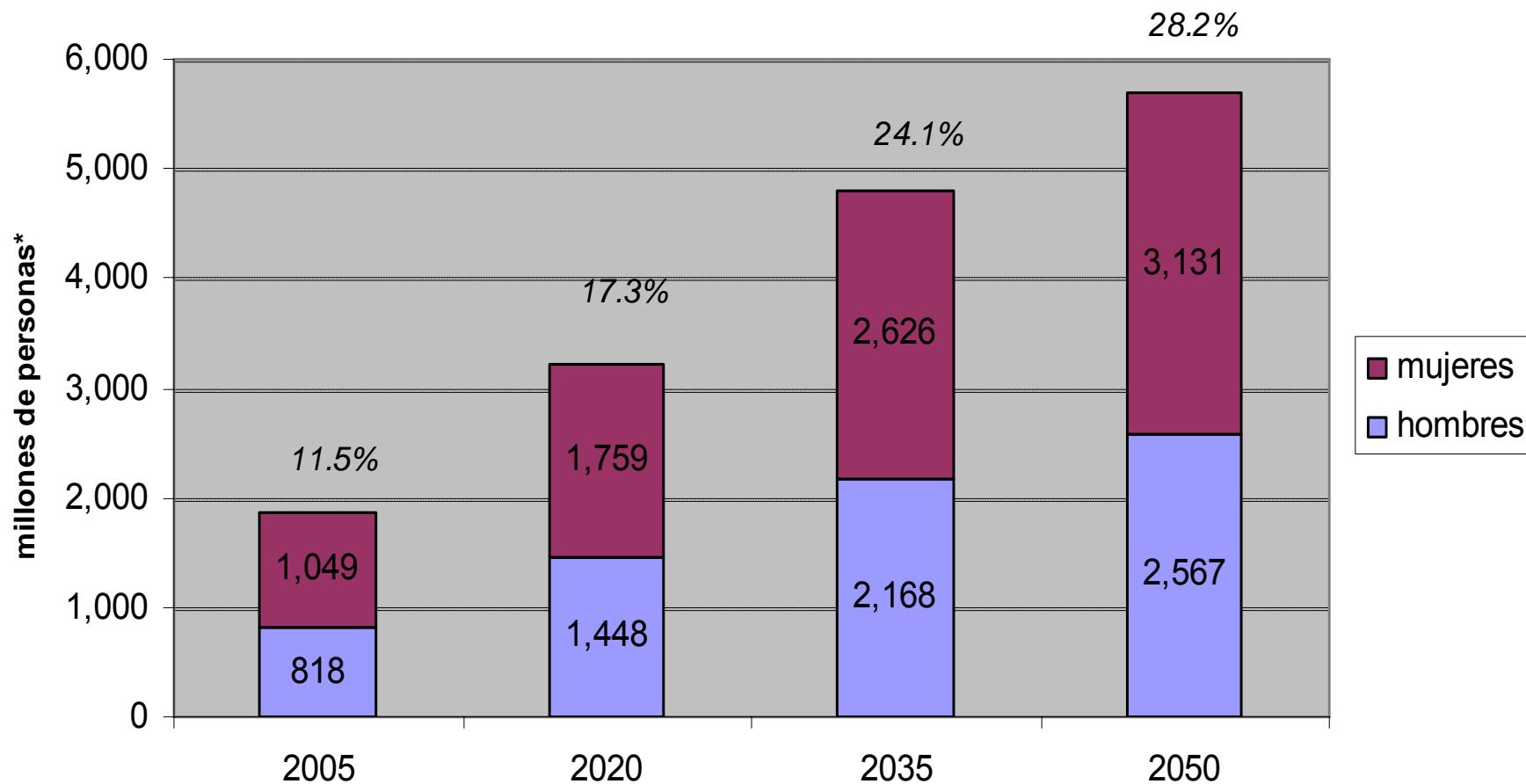
Three main parts:

1. Chilean demography and pension system in the Latin American context
2. Basic features of the system and some outstanding policy issues:
 - The transition (fiscal) cost
 - Effect on aggregate pension fund flows
 - Effect of age at retirement and sex-differentiated life tables
3. Important NTA issue: substitution of an upward transfer system for an asset reallocation

1. Chile in the Latin American context

- ▶ Relatively advanced in the demographic transition. Currently the proportion 60+ is 12%, TFR is 2.0 and $e(0)$ is 78 years (vis-à-vis 9%, 2.6 children and 72 years for LAC region)
- ▶ Relatively broad coverage of social security (though not converging toward universal coverage; see below)

Proyección del número de mujeres y hombres mayores de 60 años en Chile, 2005-2050*



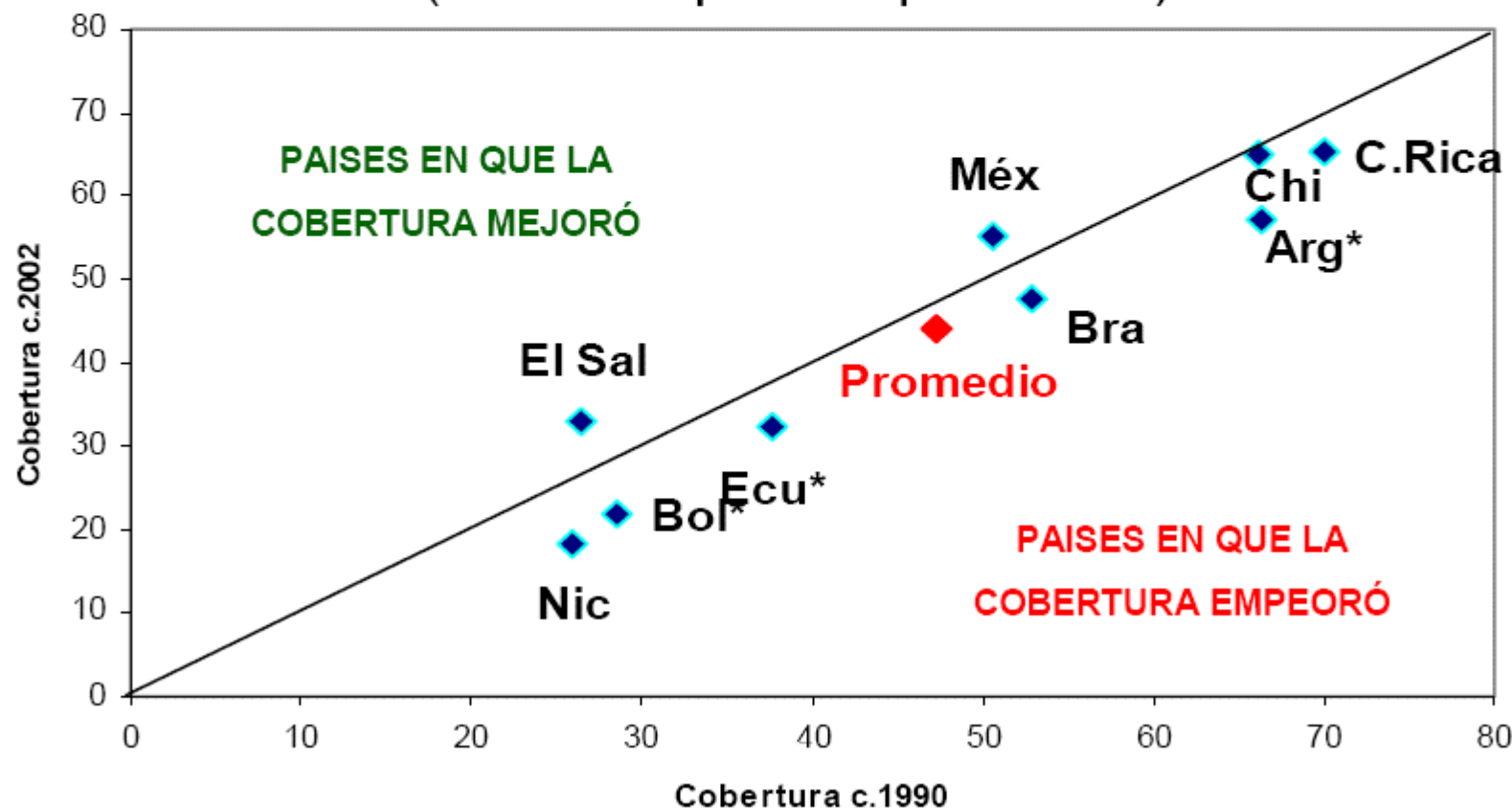
* los números sobre las barras corresponden al % que representa la población mayor de 60 años en el total.

1. Chile in the Latin American context

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A pesar de las reformas, la cobertura contributiva no aumentó desde 1990

AMÉRICA LATINA: COBERTURA EN 1990 Y 2002
(% de ocupados que cotiza)



Pension system reforms in Latin America (main types/models)

Substitutive: Chile (1981), Bolivia and Mexico (1997), El Salvador (1998), Dominican Republic (2003->), Nicaragua (2004)

Parallel: Peru (1993), Colombia (1994)

Mixed: Argentina (1994), Uruguay (1996), Costa Rica (2001), Ecuador (2004)

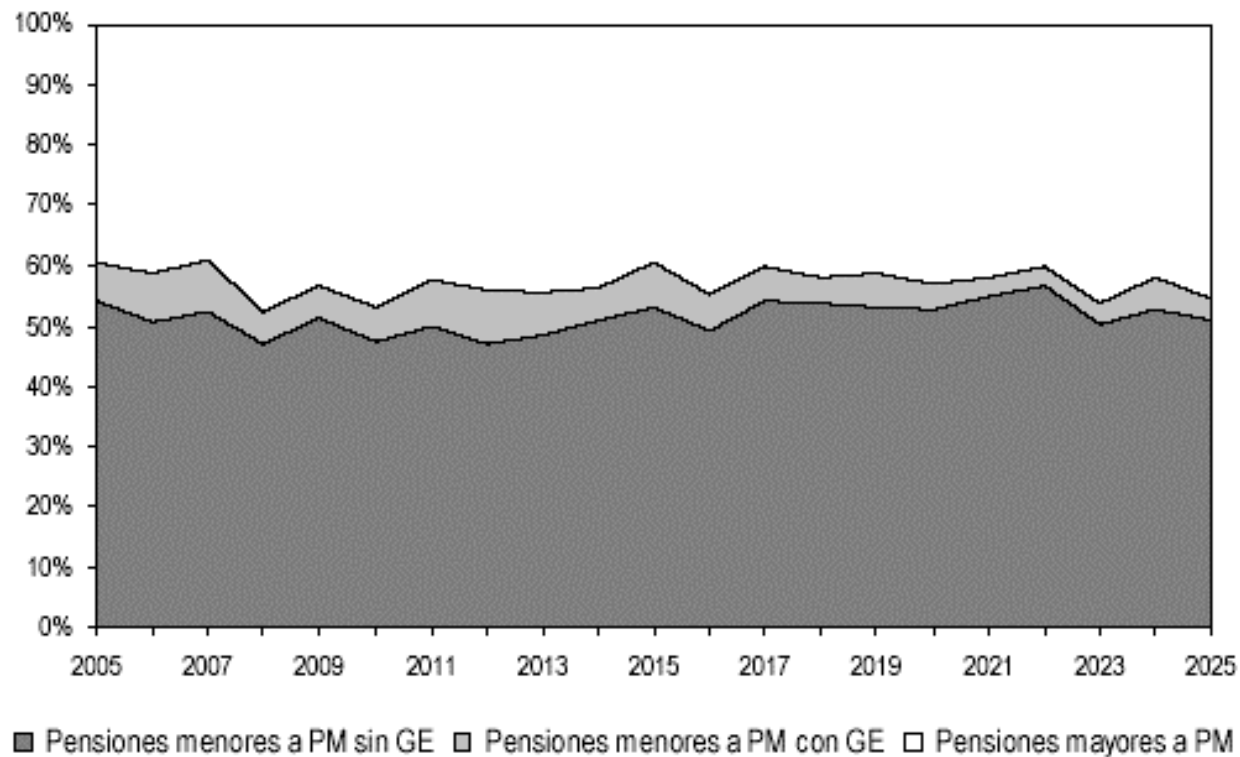
Parametric: Brasil, others

2. Basic features of the Chilean pension system

- ▶ Old (PAYGO) contributory system until 1980 was benefit-defined with a minimum State-guaranteed level, & social assistance pensions for the very poor.
- ▶ In 1981, individual accounts were established under new privately managed fully funded system
- ▶ Main transition period is between 1981 and 2030
- ▶ There have been successive changes, but a more substantial reform movement is taking place under the new government of President Michelle Bachelet

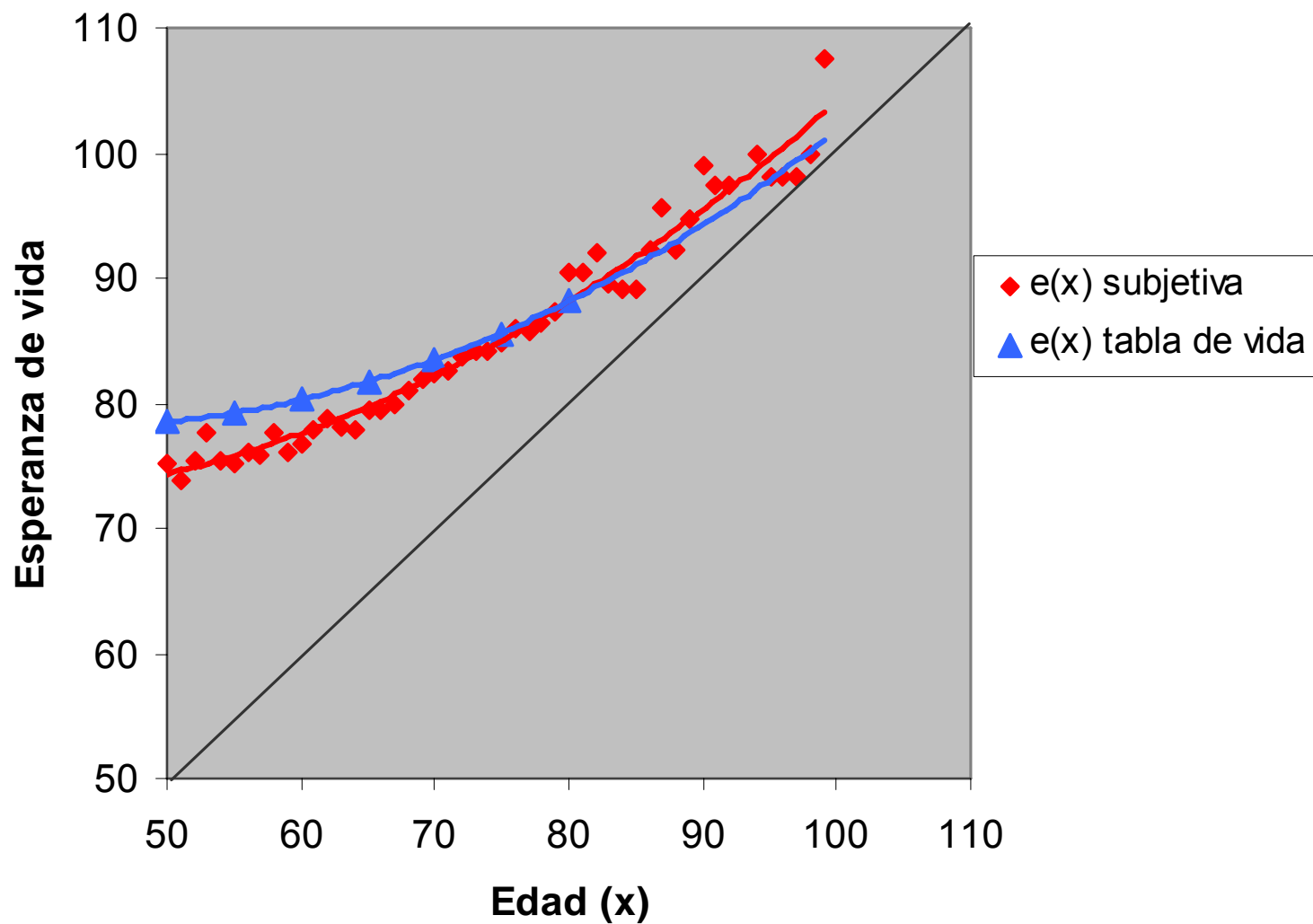
Contributory coverage is low and will not improve much over the coming decades

Figura 10: Pensionados según año de pensión – Escenario Base
(Rentabilidad 5 % y crecimiento de salarios 0 % real)

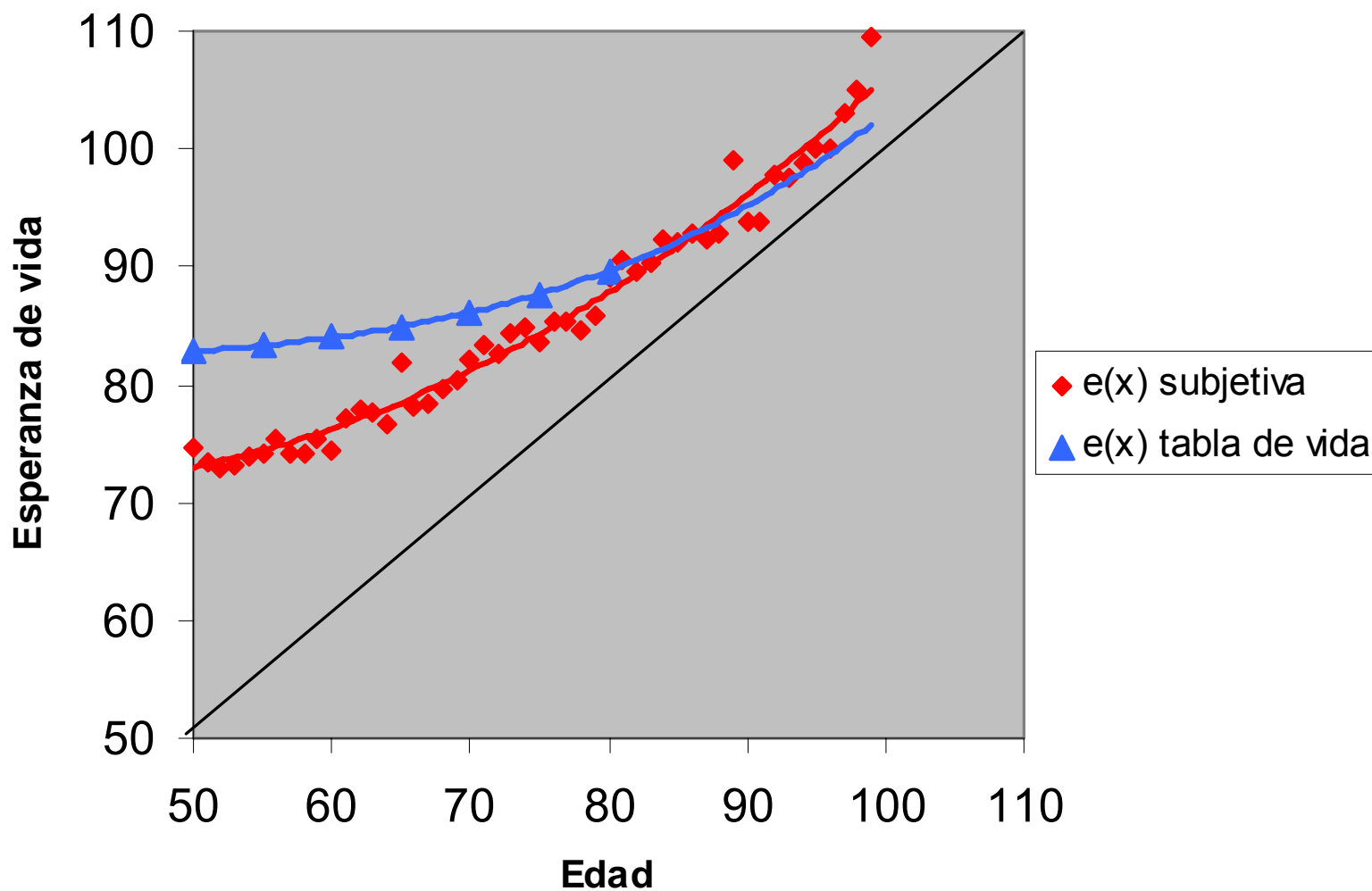


Source : Berstein, Larraín and Pino (2005)

Chile: Expectativa de vida de los hombres a la edad x , $e(x)$ (Tabla 2000-2005)



Chile: expectativa de vida de las mujeres a la edad x , $e(x)$ (Tabla 2000-2005)



Some outstanding policy issues

- a) Payment of implicit debt made explicit by reform (the fiscal transition cost)
- b) Effect on accumulation and drawing of pension funds: slow growth until 2030, then net reductions in following decades
- c) Effects related to age at retirement and use of sex-differentiated life tables

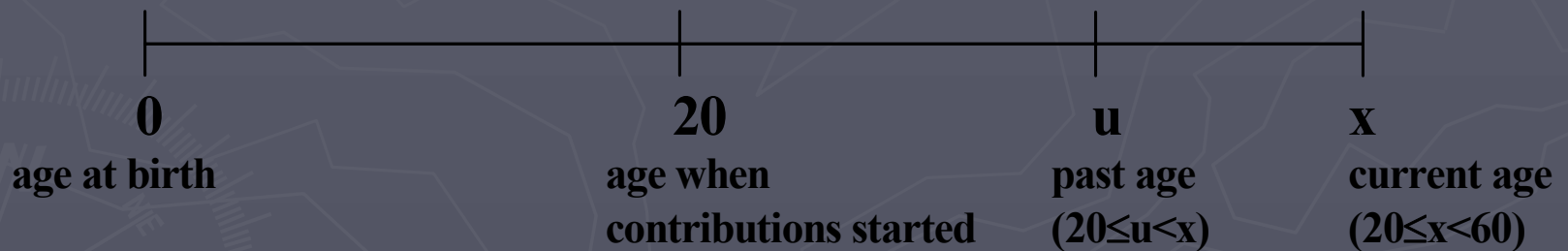
The transition cost: a projection model (Bravo & Uthoff, 2001)

$$D = Da + Dr$$

- ▶ ***Da***: Debt with economically active at time t (i.e., Present value of contributions of those active at the time of the substitution reform)
- ▶ ***Dr***: Debt with those retired at time t (i.e., Present value of continued payment of pensions of those retired at the time of the substitution reform)

Da: Debt with economically active at time t

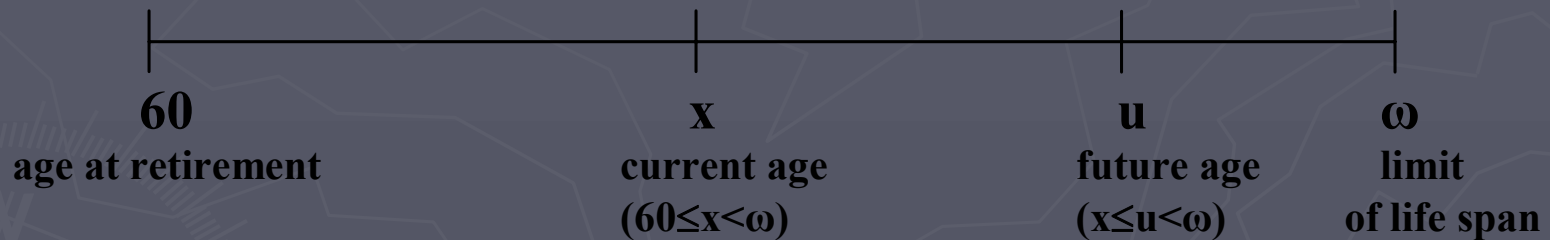
Age line for the contributions of those aged x at time t :



$x-u$ is the difference in age of this cohort at the two given points in their life cycle

Dr : Debt with those retired at time t

Age line for pension receipt of those aged x at time t :



$u - x$ is the difference in age that this cohort will have (with respect to its present age) when it turns u years old

Component elements of the debt

PV of Contributions made by each worker aged x at time t during past times u :

$$C(x, u) = c(x, u) w(x, u)$$

$$C(x, u) = c w(x, t) \exp(-\sigma(x-u))$$

PV of Pensions to be received by each current retiree at future times u :

$$P(x, u) = r(x, u) w(x, u) l(x, u)$$

$$P(x, u) = r w(x, t) \exp(\sigma(u-x)) E(x, t)$$

Total pension (transitional) debt

$$D = Da + Dr$$

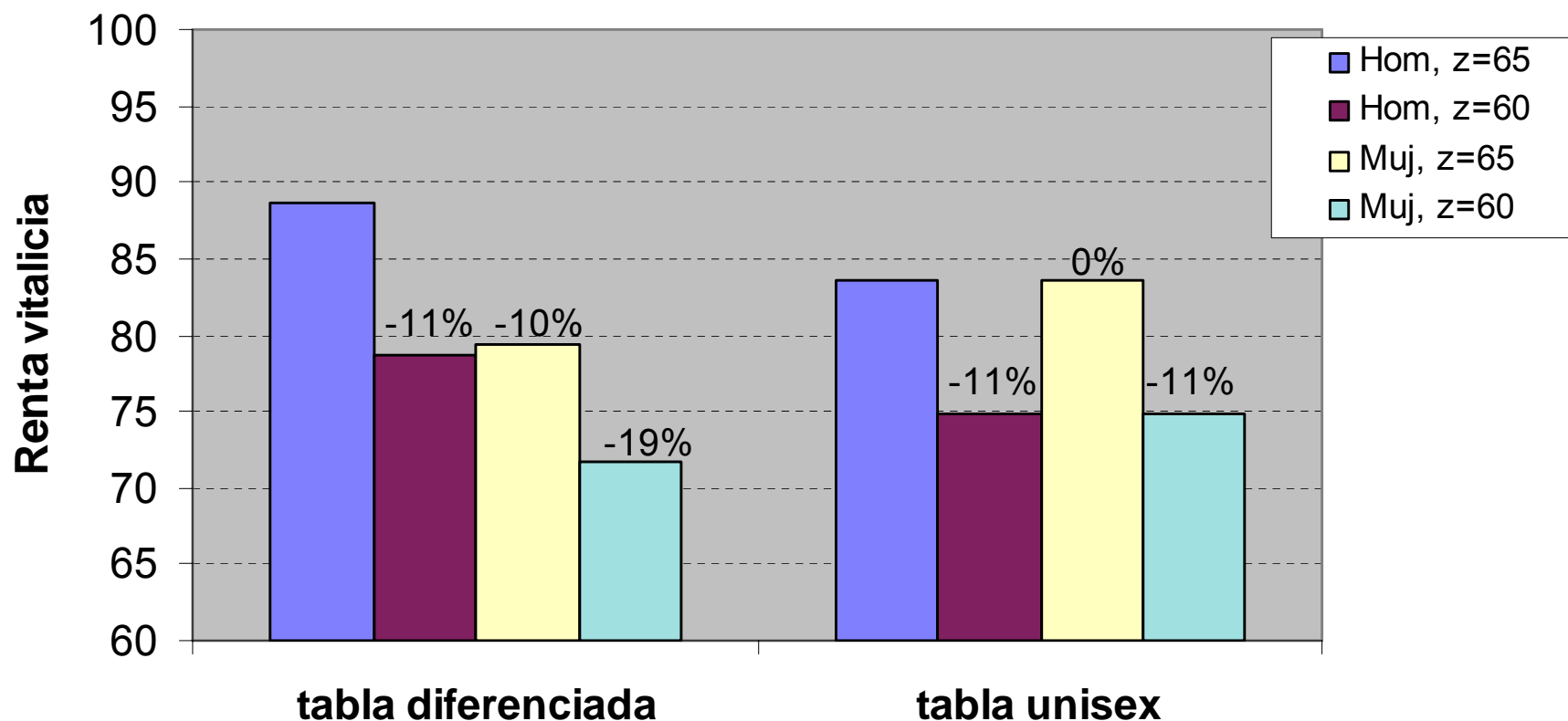
$$D = \phi_t (c A_{a,t} + rd_t A_{r,t})$$

For **Chile**, $D = 120\%$ of GDP (**Brasil** 202%, **Costa Rica** 94%, **Mexico** 37%, **Uruguay** 289%). Mean annual cost in Chile aprox. 4% of GDP over the transition period

c) Age at retirement and sex-differentiated life tables

- ▶ Currently, age at retirement for men is 65, for women it is 60
- ▶ This means that life expectancy at (standard) retirement age is about 17 for men and 24.5 for women

Simulación de renta vitalicia según sexo, sobre la base de las tablas de vida de Chile, 2005-2010

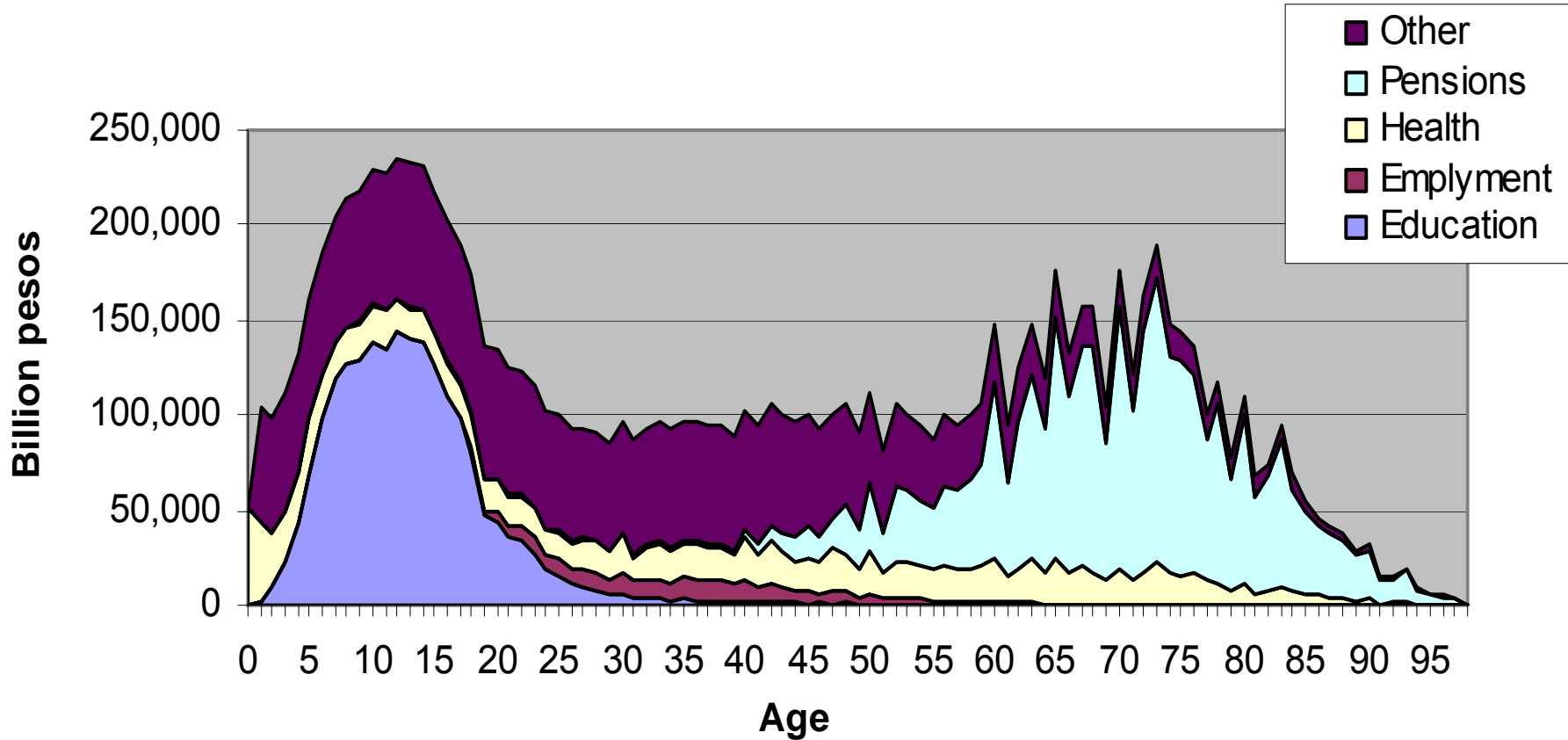


Nota: z es la edad de jubilación usada en los cálculos. La esperanza de vida a la edad z tiene como fuente CELADE (2004). En todos los casos, se supone un capital acumulado de 1000 unidades monetarias y una tasa de interés anual de 5%.

3. Pensions within the ensemble of inter-age reallocations

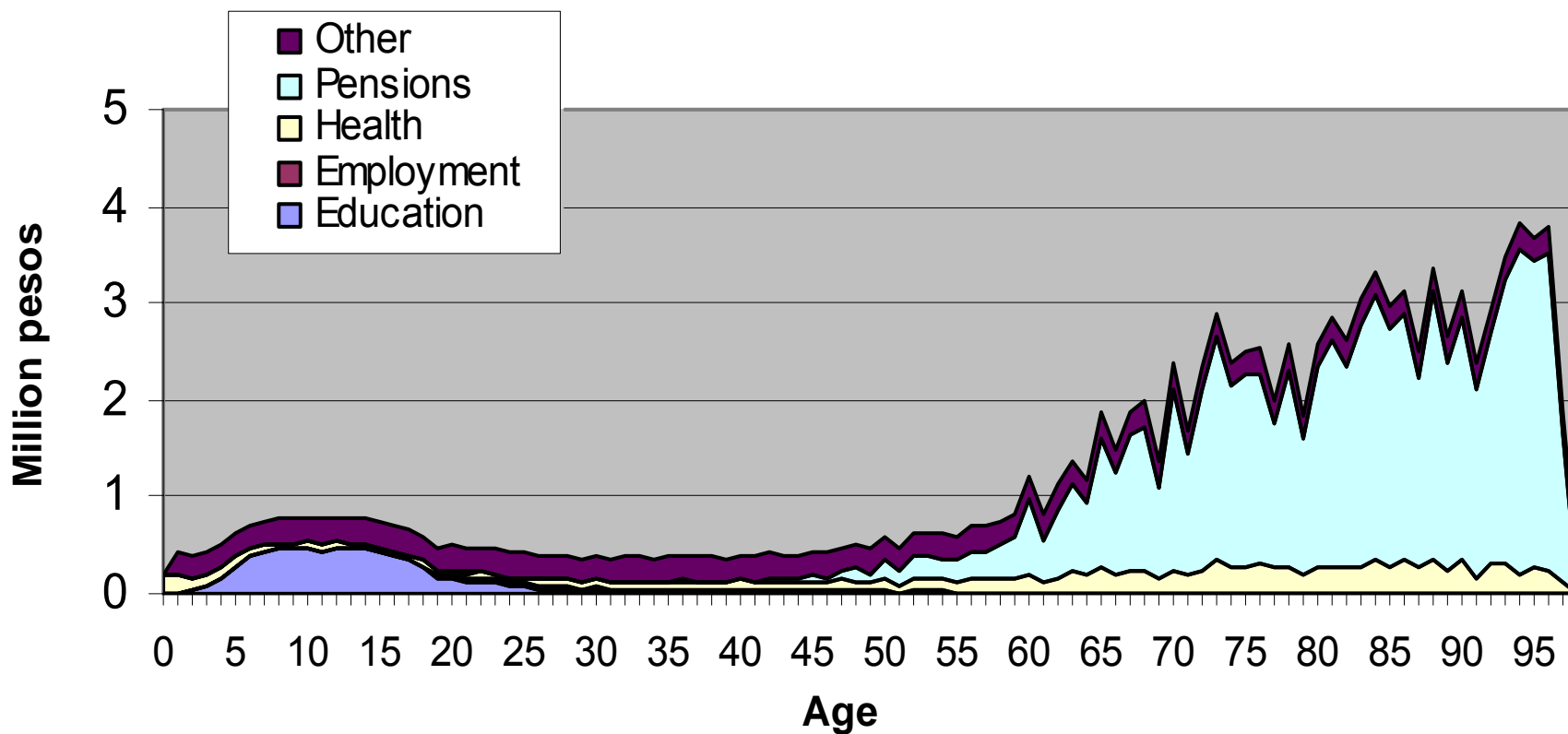
- ▶ Pensions are the main source of income for the majority of the elderly in Chile
- ▶ Preliminary NTA estimates suggest that pensions constitute by far the largest per capita benefit of public spending

Chile: Aggregate Public Transfers, 2004



Source: Bravo and Holz (2005), based on data from the Public Budget Office, 2004, and CASEN, 2000

Chile: Per-capita Public Transfers, 2004



Source: Bravo and Holz (2005), based on data from the Public Budget Office, 2004, and CASEN, 2000

Final remarks

- ▶ As the funded system matures (and using NTA terminology), there will be a substitution of an intergenerational transfer for an intertemporal asset reallocation
- ▶ The NTA time series will allow to more precisely assess the generational equity and the effects of public policies on future transfers, investment, macro growth and well-being