

# The time (in)consistency of pension reform

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# Introduction (I)

- Wave of pension reforms during the 1980s-1990s
  - Central and Eastern Europe
  - Latin America
- Typically, pension systems changed from a pay-as-you-go to a fully funded capitalization system
- Transition cost
  - Present value of pensions to be paid on the basis of previous promises made under the pay-as-you go system

# Introduction (II)

Transition cost is high

Country	Public Debt (1999/2000)	Transition Cost
Brazil	33	330
Slovenia	25	298
Macedonia	41	291
Poland	43	261
...	...	...
El Salvador	22	43
Peru	43	40
Korea	33	33
Morocco	79	32

Note: Public debt and transition cost (using a 4% discount factor) for 35 low and middle income countries as percentage of GDP. Source: *Holzman, Palacios, and Zviniene (2004)*.

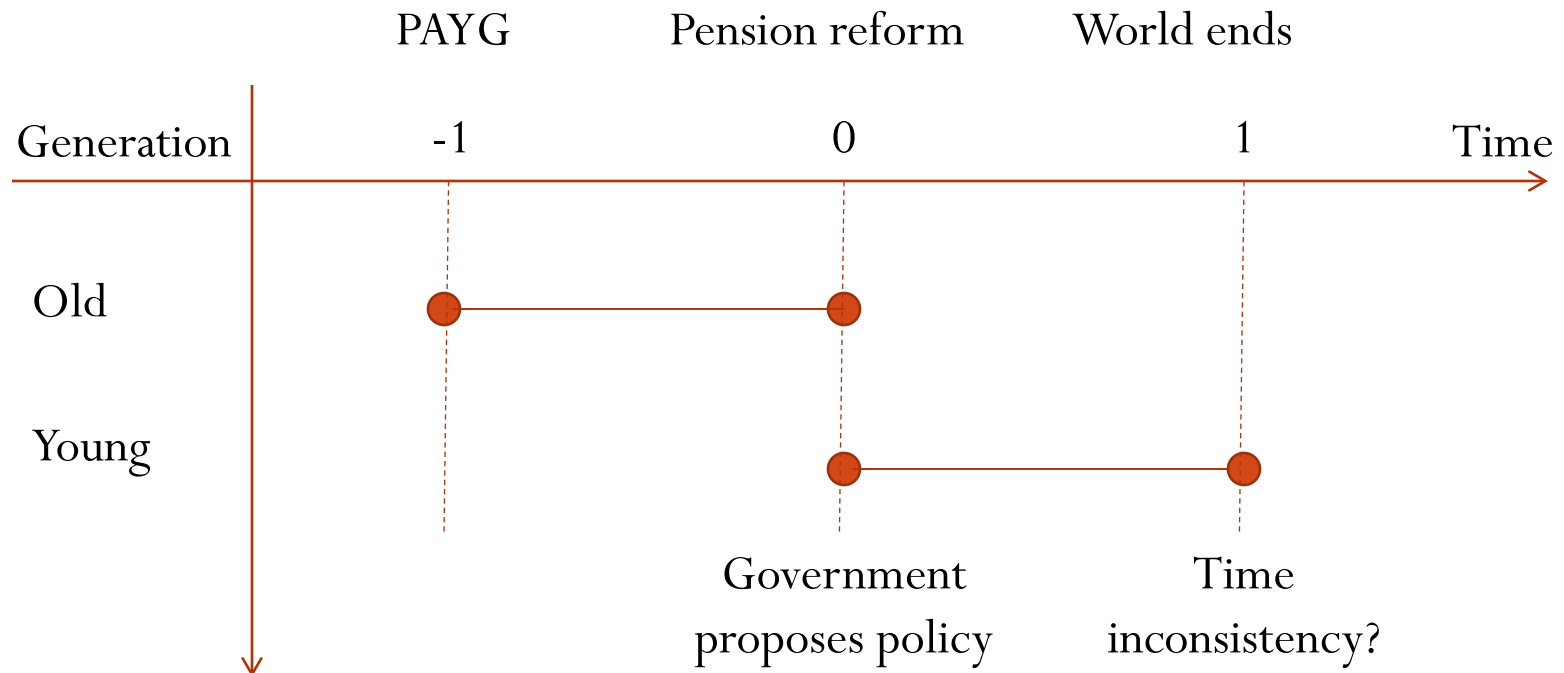
# Introduction (III)

- Key policy question: How to finance the transition?
  - Debt, taxes, combination of debt and taxes
  - Taxes induce a deadweight loss
- First approach: *benevolent* government with *commitment*
  - Benevolent: Government objective is to maximize utility of workers
  - Commitment: government proposes a policy plan and does not deviate from it in the future
- However, possible time inconsistency problem
  - Kydland and Prescott (1977), Calvo (1978)

# Introduction (IV)

- Government proposes a policy to finance transition cost. This involves issuing debt and a sequence of taxes for today and the future
- Tomorrow, benevolent government could have incentives to deviate from the proposed plan and confiscate (or tax) pension accounts
  - Lowering income taxes reduces deadweight loss
  - Confiscating pension accounts to repay debt is less distorting ex-post. E.g. previous actions, which might be affected by expectations of future confiscation, are fixed from today's point of view
- This talk: analyze the problem of time inconsistency in the context of pension reform

# A simple model (I)



- Government must honor PAYG promise  $g > 0$  made to old generation and must honor public debt
- Households only derive utility from consumption when old

# A simple model (II)

## Pension system

- Households mandated to save  $k$ . Money put into an individual account with a total return  $kR$  (e.g. as in Chile and Poland)

## Financing the transition cost $g$

- Set taxes  $\tau_t$  for  $t = 0, 1$ 
  - Deadweight loss  $z(\tau_t)$  (e.g. labor supply distortions, etc.)
- Issue public debt  $b$  (at interest rate  $R$ )
- At  $t = 1$  could confiscate pension accounts,  $\theta kR$ , where  $0 \leq \theta \leq 1$ 
  - Ex-ante cost ( $t = 0$ ):  $\phi\theta k$  (e.g. labor supply distortions, etc.)
  - Ex-post cost ( $t = 1$ ):  $\alpha\theta kR$ , where  $0 < \alpha \leq 1$  (e.g. legal fees, credibility issues, etc.)
  - (Similar to a EET pension system.)

## A simple model (III)

- Government budget constraints

$$t = 0 : \quad \tau_0 + b = g$$

$$t = 1 : \quad \tau_1 + \theta kR = bR + \alpha\theta kR$$

- Household's budget constraints

$$t = 0 : \quad y_0 - \phi\theta k = \tau_0 + z(\tau_0) + k + b$$

$$t = 1 : \quad y_1 + bR + (1 - \theta)kR = c + \tau_1 + z(\tau_1)$$

- Young generation's equilibrium utility measured at  $t = 0$

$$U = \bar{y} - R \left( z(\tau_0) - \tau_0 \frac{\alpha + \phi}{1 - \alpha} \right) - \left( z(\tau_1) - \tau_1 \frac{\alpha + \phi}{1 - \alpha} \right)$$



# Optimal Policy with Commitment

Government's problem with commitment:

$$\min_{\tau_0, \tau_1} R \left( z(\tau_0) - \tau_0 \frac{\alpha + \phi}{1 - \alpha} \right) + \left( z(\tau_1) - \tau_1 \frac{\alpha + \phi}{1 - \alpha} \right)$$

subject to

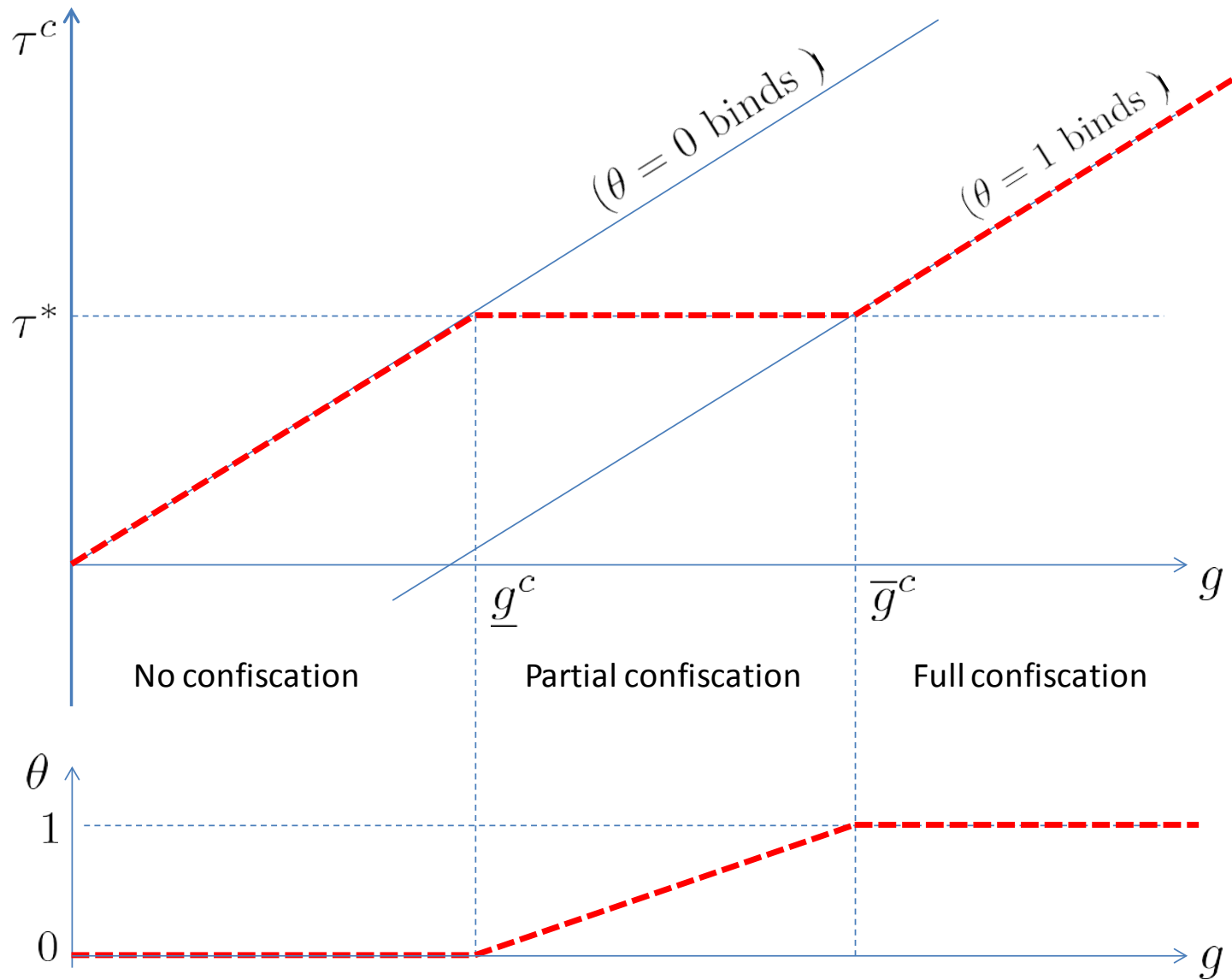
$$R(g - k(1 - \alpha)) \leq R\tau_0 + \tau_1 \leq Rg \quad (0 \leq \theta \leq 1)$$

**Solution implies perfect tax smoothing**

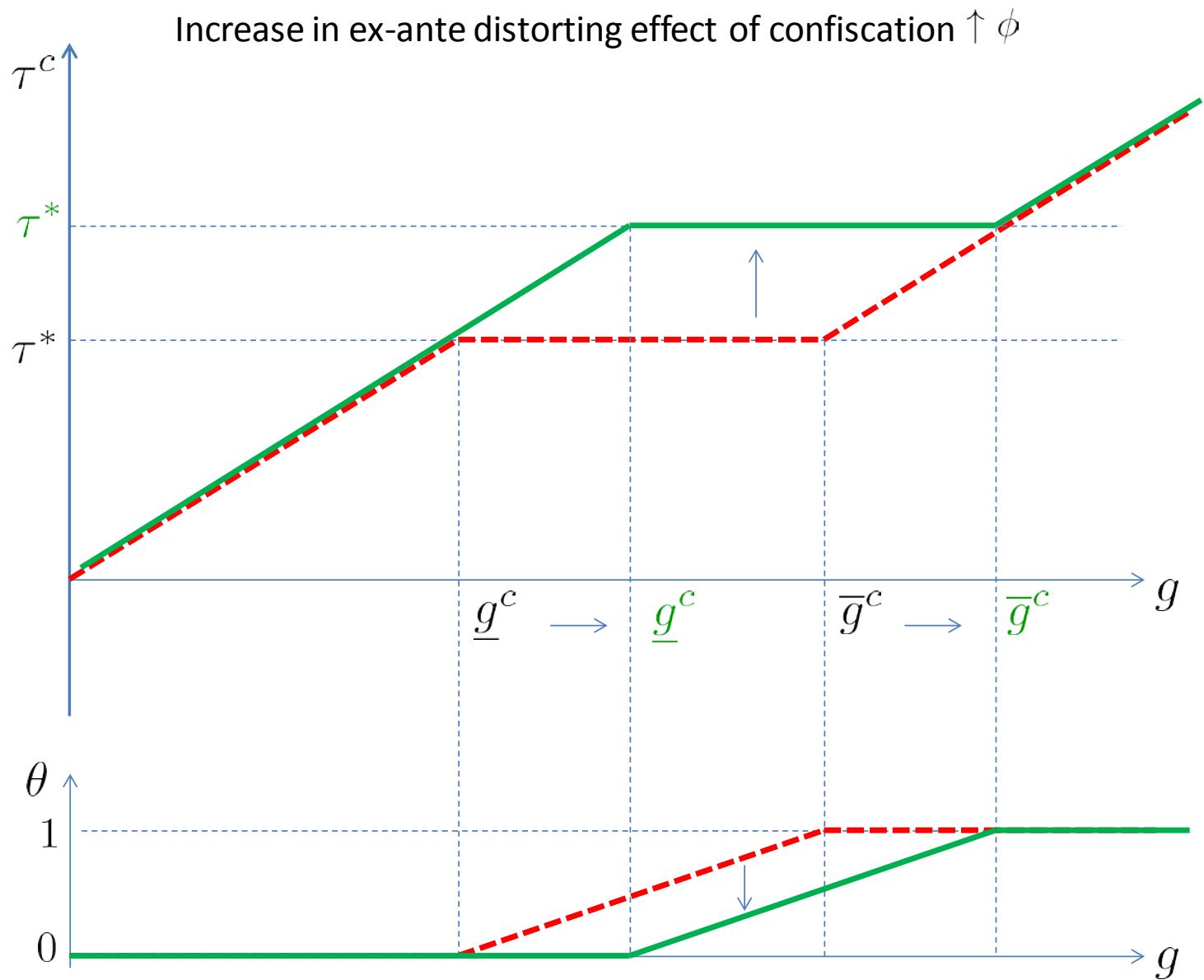
$$\tau_0 = \tau_1 = \tau^c$$

$$b^c = g - \tau^c$$

# Optimal Policy as a function of transition cost (I)



# Optimal Policy as a function of transition cost (II)



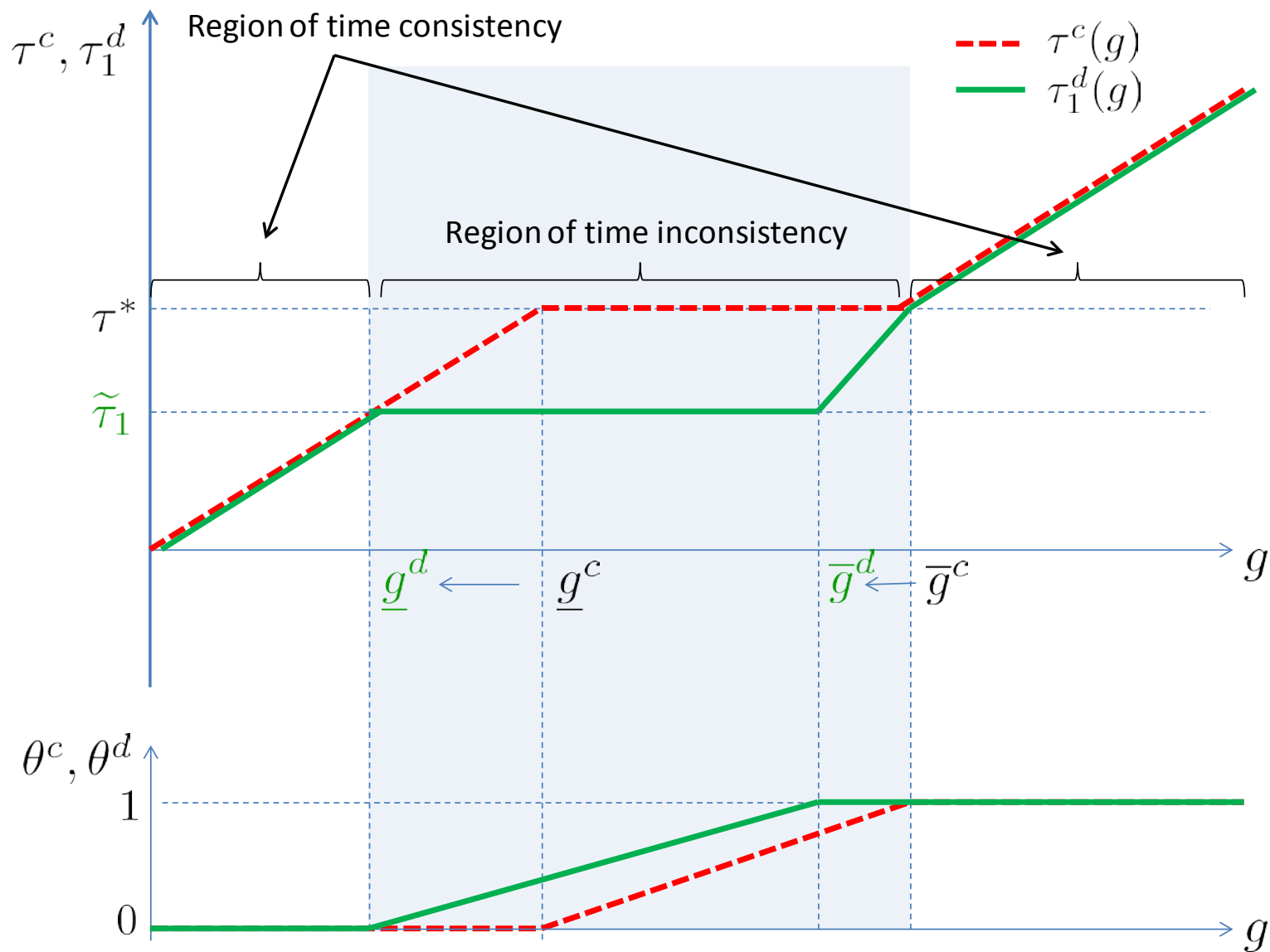
# Time Inconsistency of Optimal Policy (I)

- At  $t = 1$ , a new government arrives and reconsiders optimal policy taking as given what happened at  $t = 0$
- Government and household's budget constraints at  $t = 1$  imply

$$U^d = \tilde{y} - \left( z(\tau_1^d) - \tau_1^d \frac{\alpha}{1-\alpha} \right)$$

- Constraint is  $R(g - k(1 - \alpha)) \leq \tau_1^d + R\tau^c \leq Rg$
- Importantly, ex-ante cost parameter  $\phi$  disappears

# Time Inconsistency of Optimal Policy (II)



# Time Inconsistency of Optimal Policy (III)

## Summary

- If transition cost is low or high, optimal policy is time consistent
  - Low transition cost: perfect tax smoothing and no confiscation
  - High transition cost: perfect tax smoothing and full confiscation
- For moderate values of transition cost, optimal policy is time inconsistent
  - A benevolent government will reconsider its policy in the second period, setting lower taxes and a higher confiscation rate
  - Government starts confiscating at lower values of transition cost  $g$
  - **But this is not optimal from the ex-ante point of view!**

# Time Consistent Policy

What can be done if optimal policy is time inconsistent?

**Front loading taxes is welfare improving if government does not have commitment**

$$\tau_0 > \tau_1$$

$$b < b^c$$

- Front loading taxes reduces the benefits from confiscation by reducing the amount of debt issued to finance the transition

# Conclusions

- Argue that the optimal policy to finance the transition from pay-as-you-go to fully funded pension system can be time inconsistent
- Optimal policy is time consistent if transition costs are low or high
- At intermediate values, the government would like to break its previous promises, reduce taxes, and confiscate pension accounts
- Implications for actual pension reform:
  - Problems of time inconsistency are presumably more severe in developing countries
  - Solving the time inconsistency problem requires front loading taxes and issuing less debt to finance the transition



Thank you!



# Is the financing of the transitional deficit relevant?

*The case of recent changes in the Polish pension system*

**Paweł Gołębiowski,**

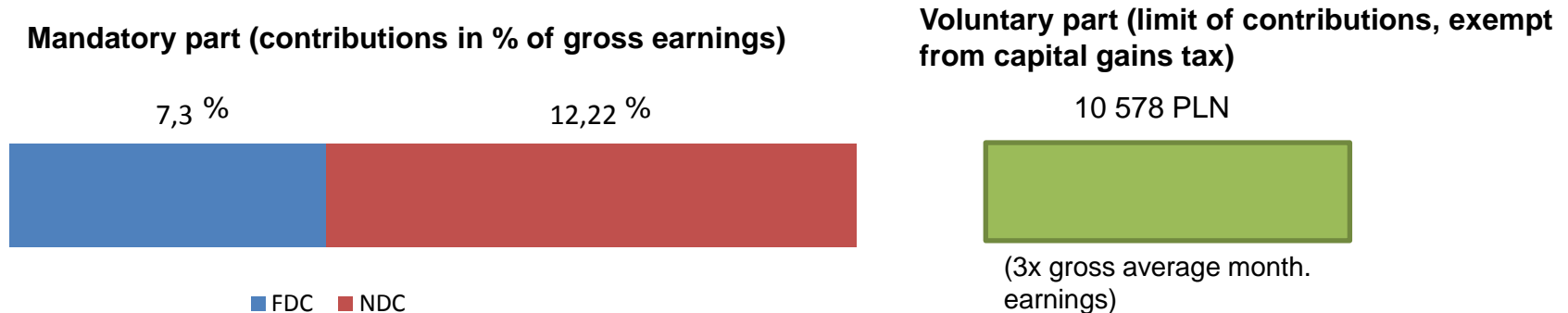
Department for Strategic Analysis

The Chancellery of the Prime Minister of Poland

9th January 2012, Washington D.C.

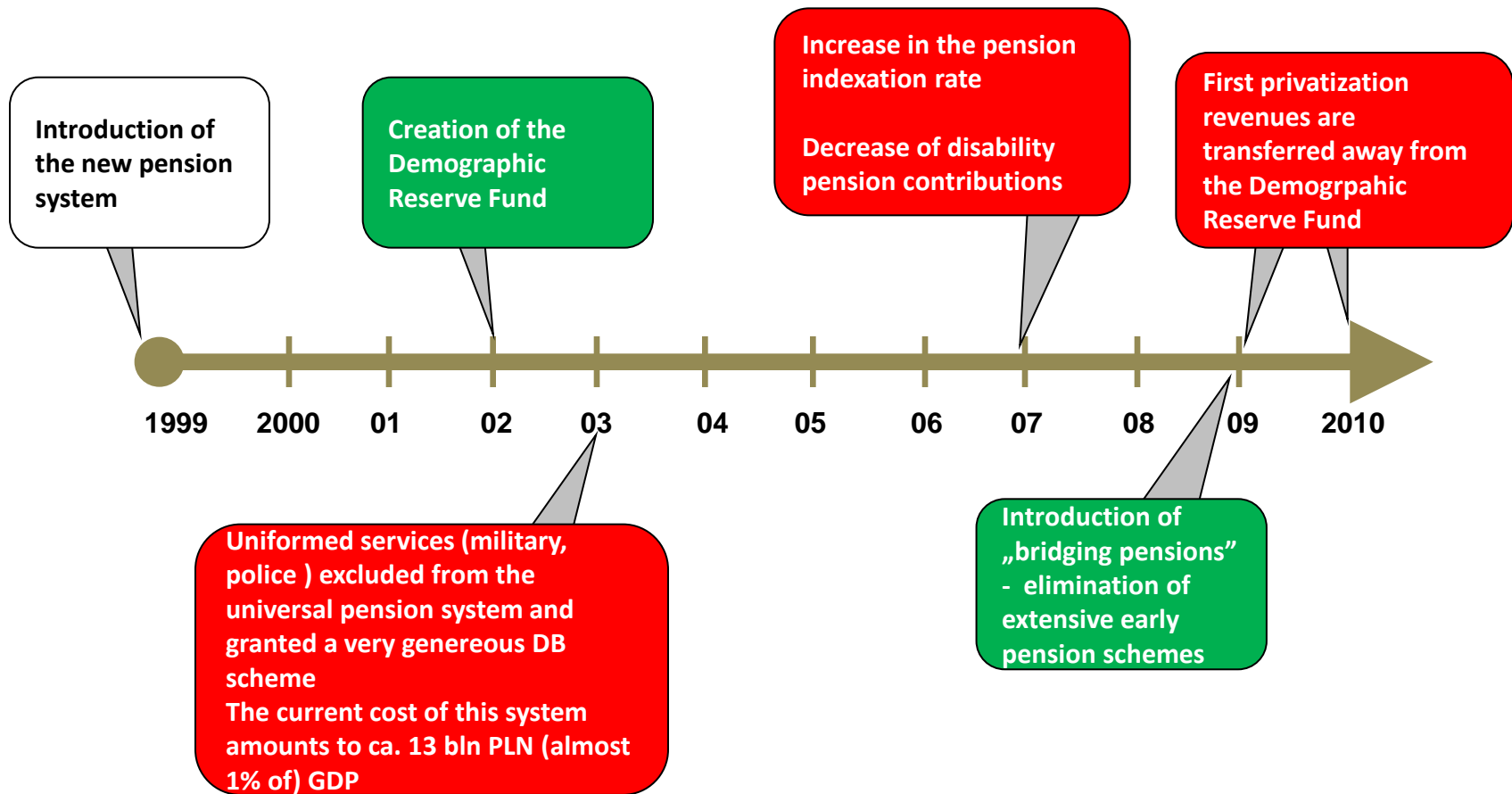
# Defined contribution system in Poland

- Poland introduced a defined contribution system in 1999
  - to tackle the growing fiscal pressure from the relatively generous pension system;
  - to make it automatically responsive to underlying demographic change (ageing population).
- Three parts of the DC system were introduced:

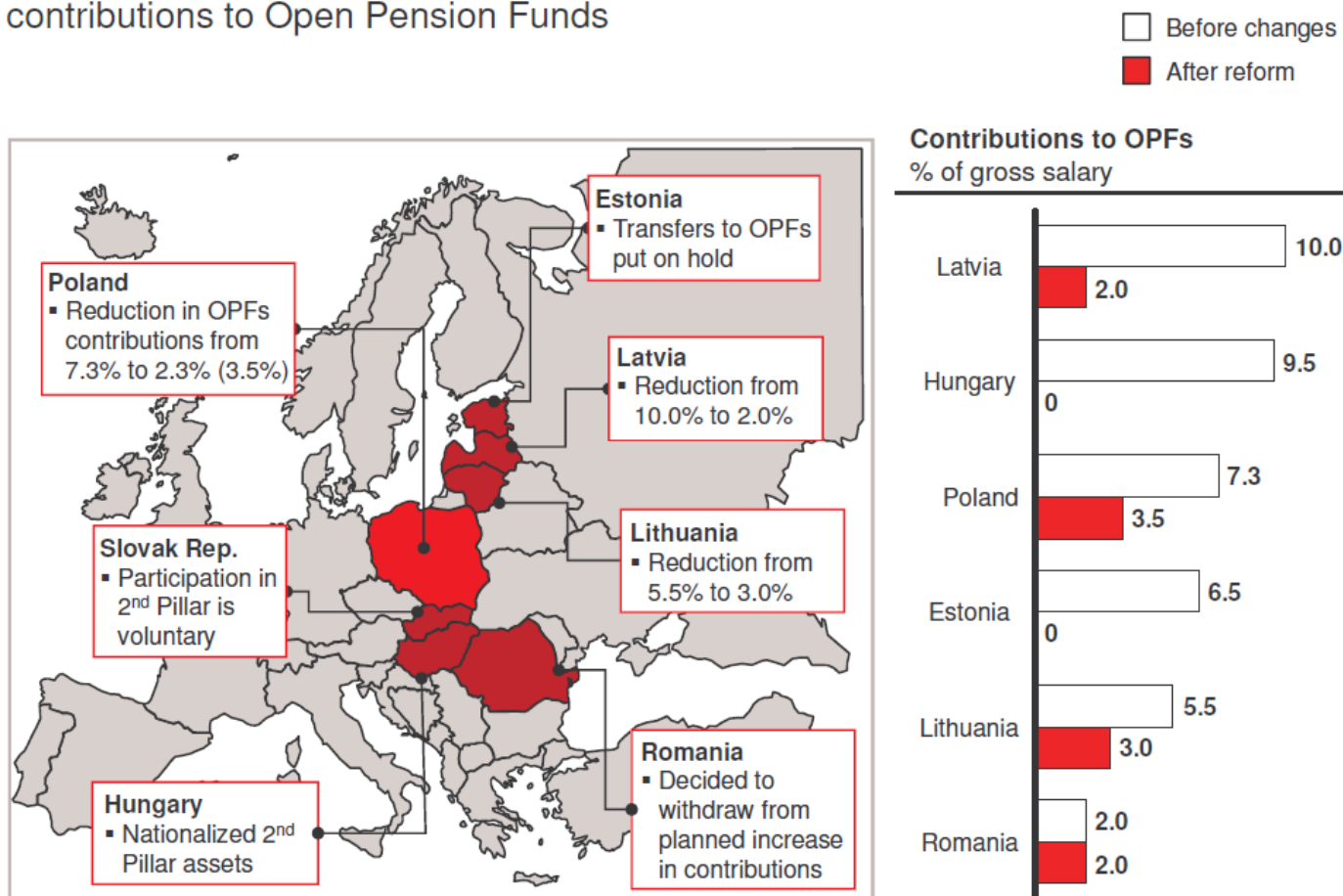


- Transitional financing gap assumed to last relatively short and expected to be financed by privatisation revenues before system comes into balance in „foreseeable” future.

# Over-optimistic assumptions, delayed reforms



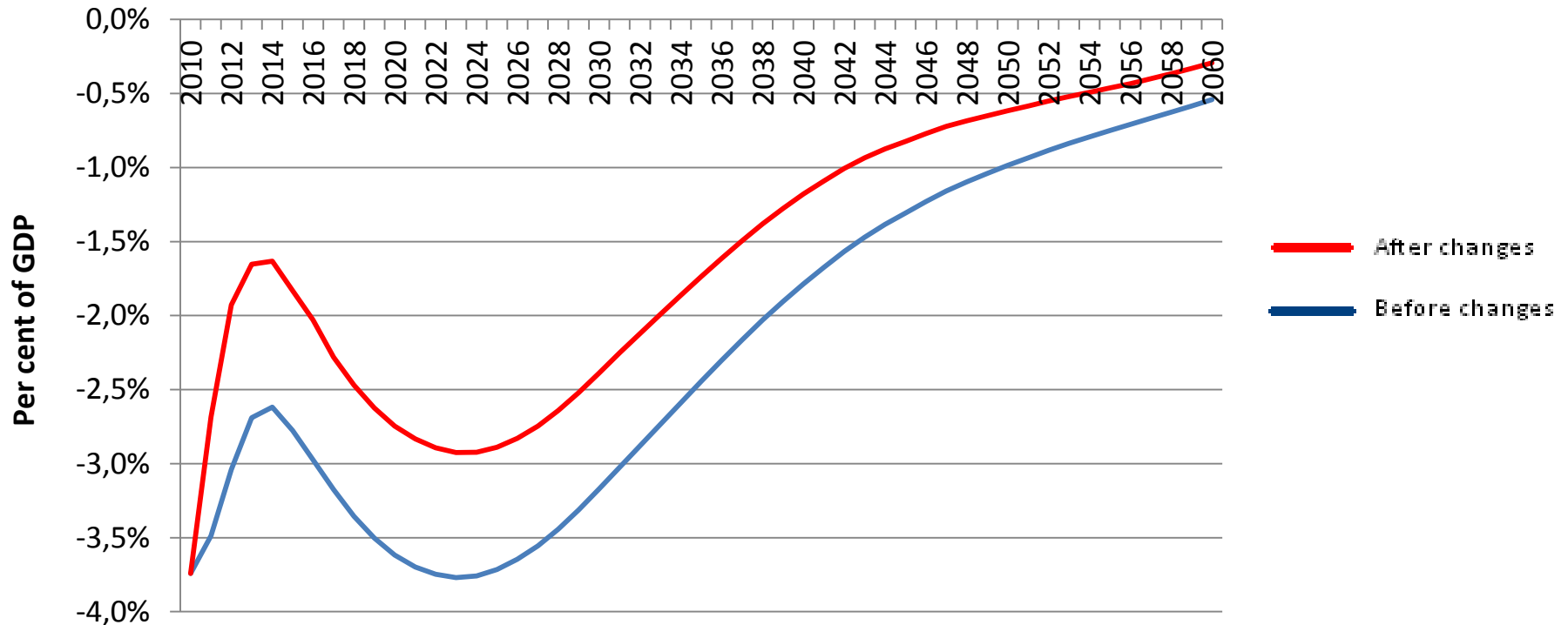
## Recent pension reforms in Eastern Europe resulted in reduction of contributions to Open Pension Funds



- The crisis exposed the structural funding gap in reformed systems in the region, prompting reassessment of their functioning.
- Poland did not abandon funded pension regimes, oriented at the capital markets, but an adjustment in the size of the funded part has been made to allow for long term viability. Also, tax incentives for the „third pillar” were extended.

# The DC regime does limit pension spending, but the pension system remains unbalanced

Prognosed balance of the Polish pension system (%GDP)



- Public pension expenditure in the universal system in Poland is currently relatively high (above OECD average) but it is falling very significantly in the long term.
- In the short to medium term, the expenditure is growing, due to demographic factors. In the long run, the DC pension regime limits the spending.

# Sustaining growth – crucial to good long-term financial standing and pension outlook

Poland is determined to carry out necessary supply-side reforms, as one-off measures aimed at public finance reform are not sufficient.

The reelected Polish government aims to concentrate on the following issues in the area of pensions (as announced in Prime Minister's expose):

- increase of the minimum retirement age to 67 for men and women (from current 65 for men and 60 for women);
- reform of the pension system of the uniformed services (introduction of a minimum retirement age and increasing minimal tenure);
- reform of the farmers' pension system.

The other area of focus is concerned with improving business environment:

- digital agenda;
- cutting red tape;
- speeding up court proceedings and efficient bankruptcy regime.

# Conclusions

- Long term fiscal viability of a DC pension system is not primarily dependent on whether the system is fully funded or notional.
- Without adequate fiscal space or dedicated sources of funding, the transition to a fully funded regime exerts significant pressure on public finance.
- Debt-financed transition to a fully funded pension system can create a sharp rise in borrowing costs – which again contributes to mounting debt and increased costs of debt servicing.



Thank you for your attention!

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# Is the financing of the transitional deficit relevant?

## On time (in)consistency of pension reform and its political economy

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WB Contractual Savings Conference  
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## Rationale for structural pension reform: fiscal sustainability

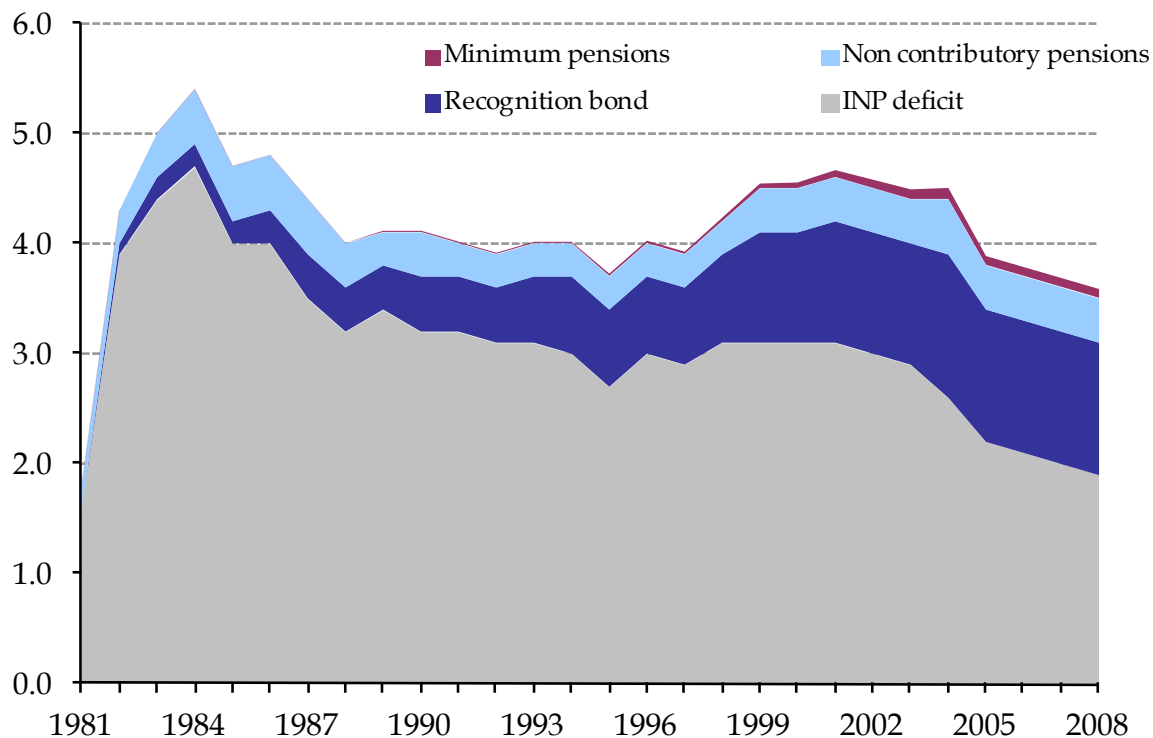
- The **main** rationale behind structural pension reform in Latin America was its long-term fiscal benefits (lower implicit debt), plus some related macroeconomic benefits: formal employment, capital and financial deepening (Corbo and Schmidt-Hebbel, 2003)
- Good results, especially in fiscal sustainability, real returns (multi-funds) and capital markets development (Zviniene and Packard, 2004; Gill et al., 2005)
  - Over-optimistic assumptions (World Bank, 1994) and **long-lasting transitions** (deficit, rules)
- Challenges remain:
  - Coverage and replacement rates (ECLAC, 2006; OECD, 2010b; Pages, 2010; Ribe et al., 2010): **low on average and unequal**
  - **Political economy**, especially of public vs. private schemes

# Defining transition costs is not evident

- The **transition costs** include various items:
  - **deficit** of the old DB pay-as-you-go system (open or closed)
  - **accrued pension rights** of affiliates who switch from the old to the new pension system (if existing)
  - **contributory minimum pensions** (new scheme vs. old scheme)
  - **minimum non-contributory pensions** (new scheme vs. old scheme)
  - **others...**
- Structural pension reform has varied significantly and quantifying on a comparable basis these items is not straightforward (Mesa-Lago, 2004)

# Transition deficits are high, long-lasting and heterogeneous...

**Transition deficit of the Chilean civil pension system**  
(Percentage points of GDP)



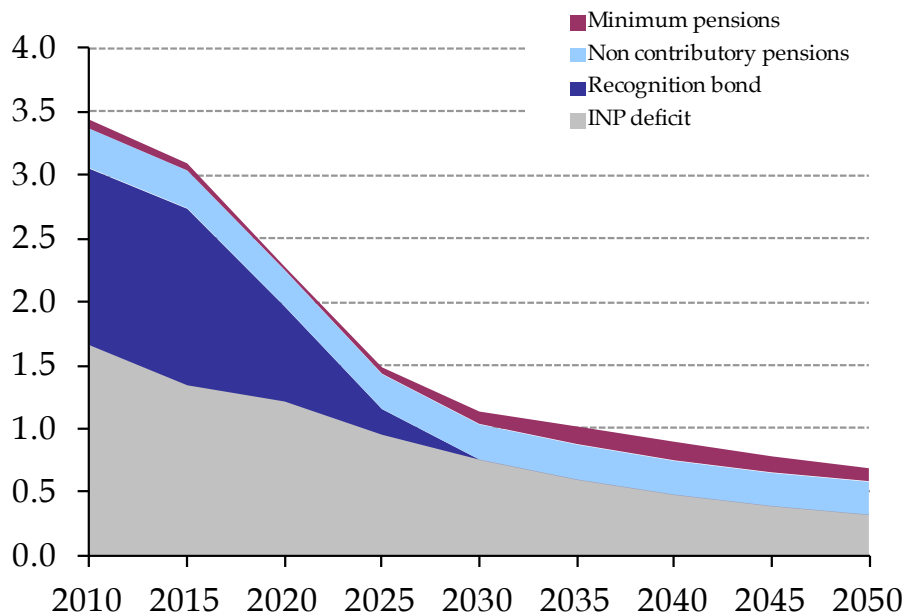
The Chilean pension reform shows that fiscal costs are:

- **high** (4 p.p. of trend GDP per year)
- **persistent** (since 1981)
- **heterogeneous** (nature and timing): INP, Recognition Bonds, minimum pensions

Source: Melguizo et al. (2009)

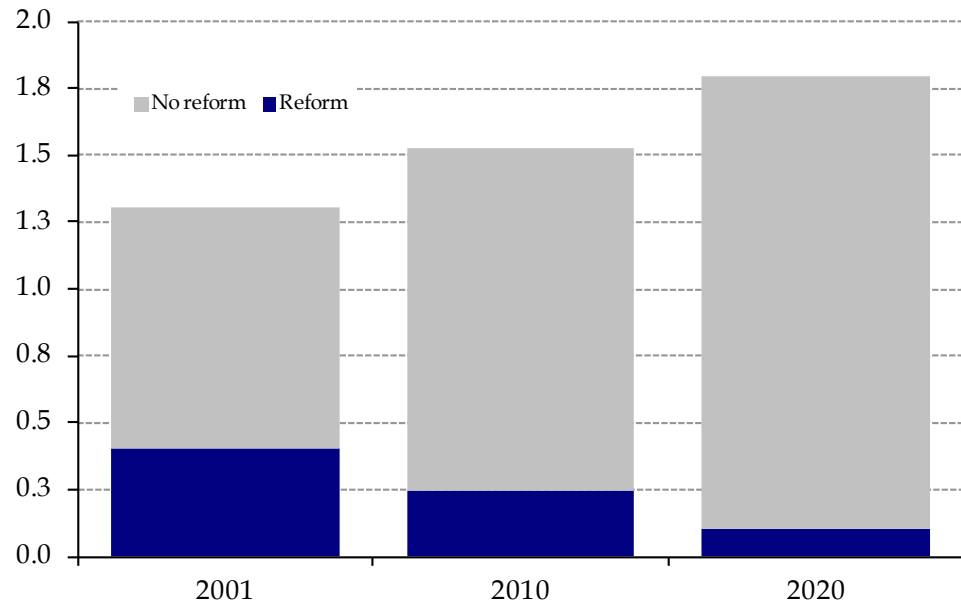
# ... but also decreasing (if well defined and implemented)

**Projection of fiscal expenditure in civil pensions in Chile**  
(Percentage points of GDP)



Source: Melguizo et al. (2009)

**Projection of implicit debt in Chile**  
(GDP share)

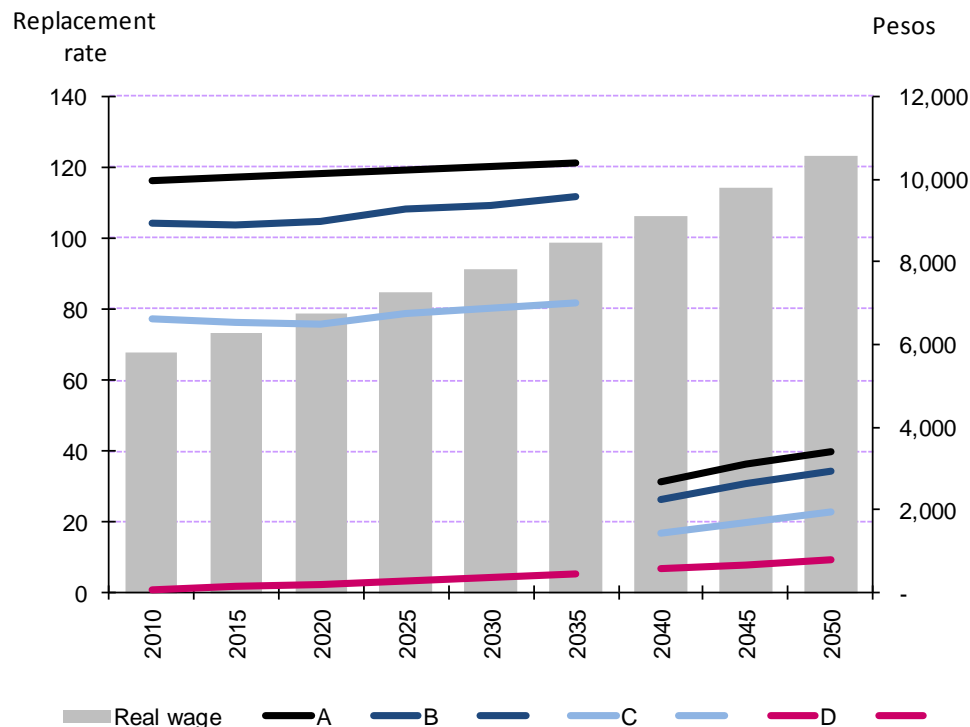


Source: Zviniene and Packard (2004)

**Medium-term fiscal positions** (explicit and implicit debt) are, on a general basis, stronger

# The challenging political economy of pensions: transition rules

Projection of replacement rates in Mexico by densities of contributions  
(Over 10 years real wage, men)



Source: Albo et al. (2008)

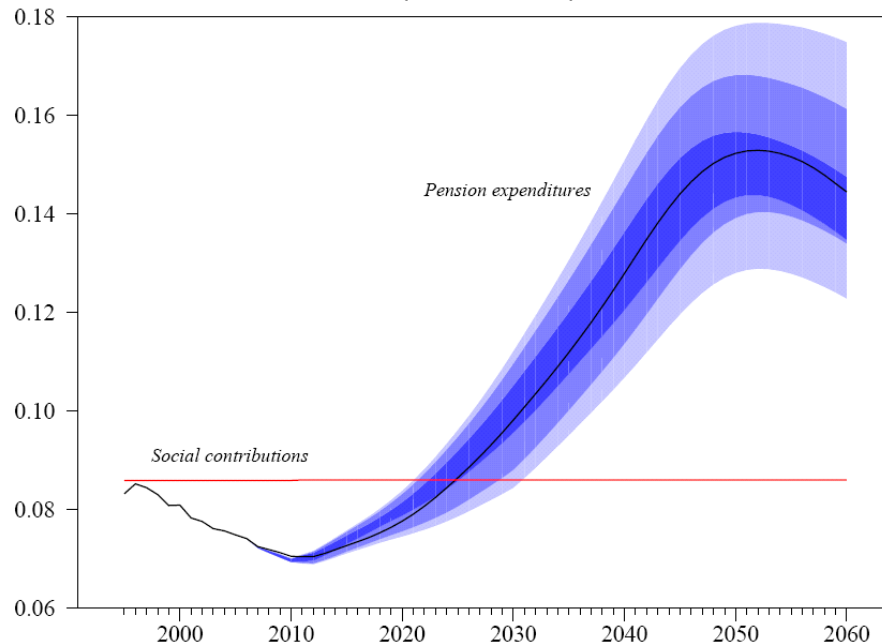
Challenging political economy, irrespectively of the design of the pension reform: parallel schemes, closed schemes, closed schemes with transition rules (Rofman et al., 2009; OECD, 2010a)

- Make explicit the **uncertainty** (demography, socio-economy and rules)
- Improve **communication** (periodical and non-technical diffusion of projections, social debate)

# Communication for funded (and unfunded) systems

**Simplicity, transparency, credibility, publicity and periodicity** (on fiscal policy, see e.g. Buiter, 2003), and accounting for **uncertainty**:

**Projection of public pensions expenditure in Spain**  
(GDP share)



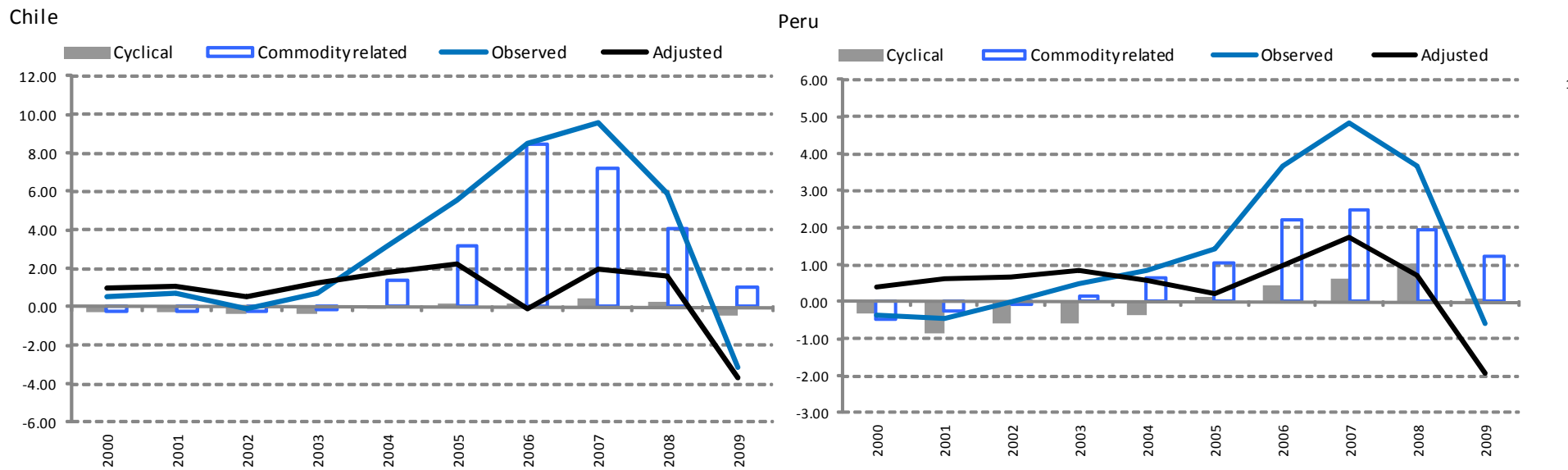
- **Rules:** pension level, coverage
- **Socio-economy:** participation and unemployment rate
- **Demography :** dependency ratio (fertility, immigration)

Source: Doménech and Melguizo (2008)



# Incorporating pensions within medium-term fiscal frameworks

**Adjusted primary budget balance**  
(Percentage points of GDP)



Source: Daude et al. (2011)

**Improved fiscal frameworks** in Latin America (data, medium-term budgeting, fiscal rules) have not yet explicitly addressed ageing

## Summing up

- Financing the **transitional deficit** is relevant, indeed  
Transition deficits are high, long lasting and heterogeneous
- Transition deficits play a key role in pension reform and re-reform:  
**Economic** argument (Hevia and Rudolph, 2012)  
**Political economy** argument (especially if associated to transition rules)
- Looking ahead:  
**Transparency**: accounting implicit and explicit debt, communicating uncertainty  
Institutions: strengthened **fiscal frameworks**

# Is the financing of the transitional deficit relevant?

On time (in)consistency of pension reform and its  
political economy factors

Gracias

[www.oecd.org/dev/](http://www.oecd.org/dev/)

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