

The Cardoso-Lula Paradigm for Growth and Energy Security:

Partial Privatization and Flexible Regulation

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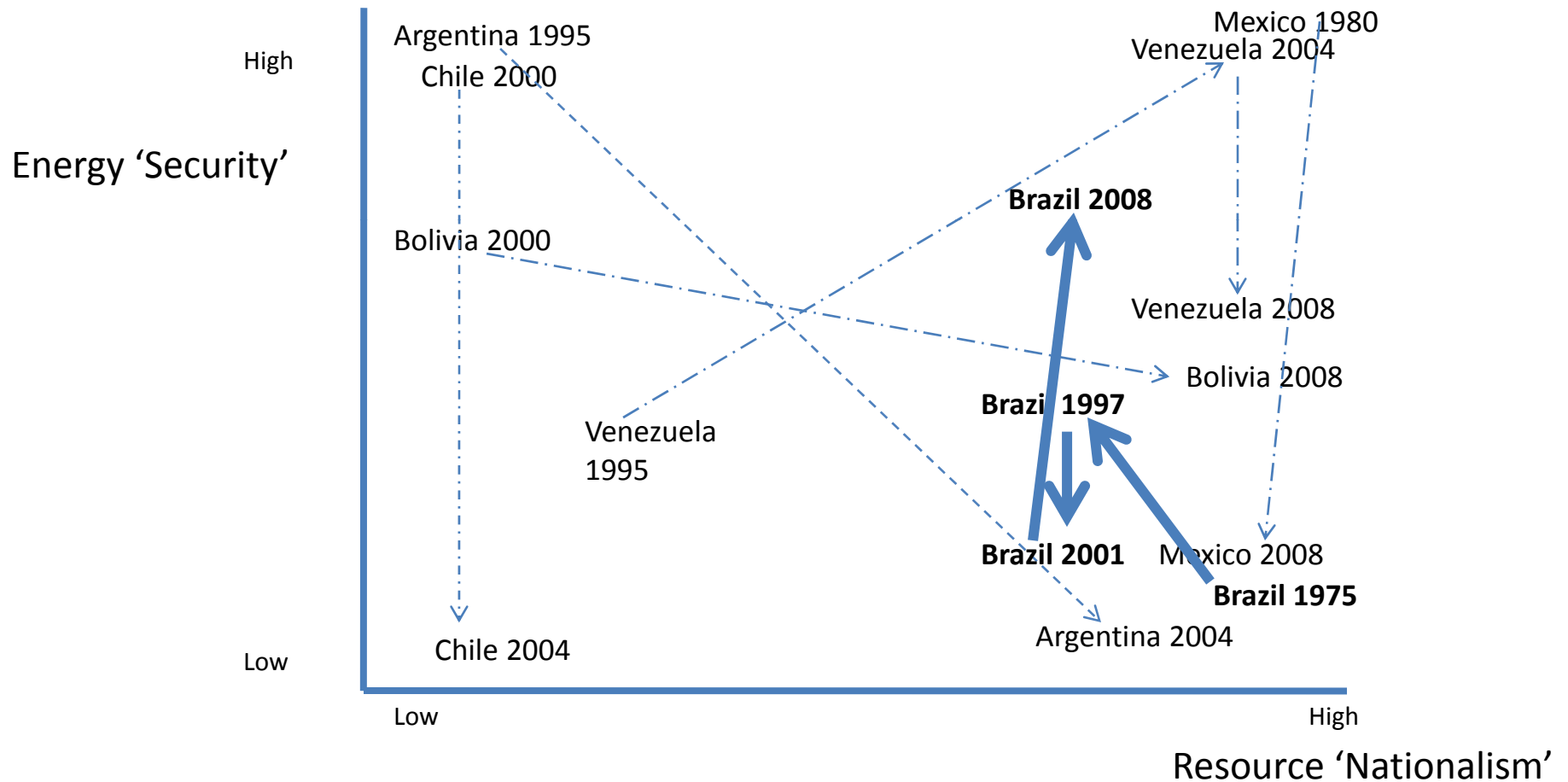
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Key Concepts

- Energy 'Security' (ES)
 - Sufficient energy resources (S or \$ generated from energy exports) to support the government's development project
- Resource 'Nationalism' (RN)
 - Government sets the terms for exploration, production, transportation and distribution of energy
- ES & RN can be actively pursued by importers and exporters of energy

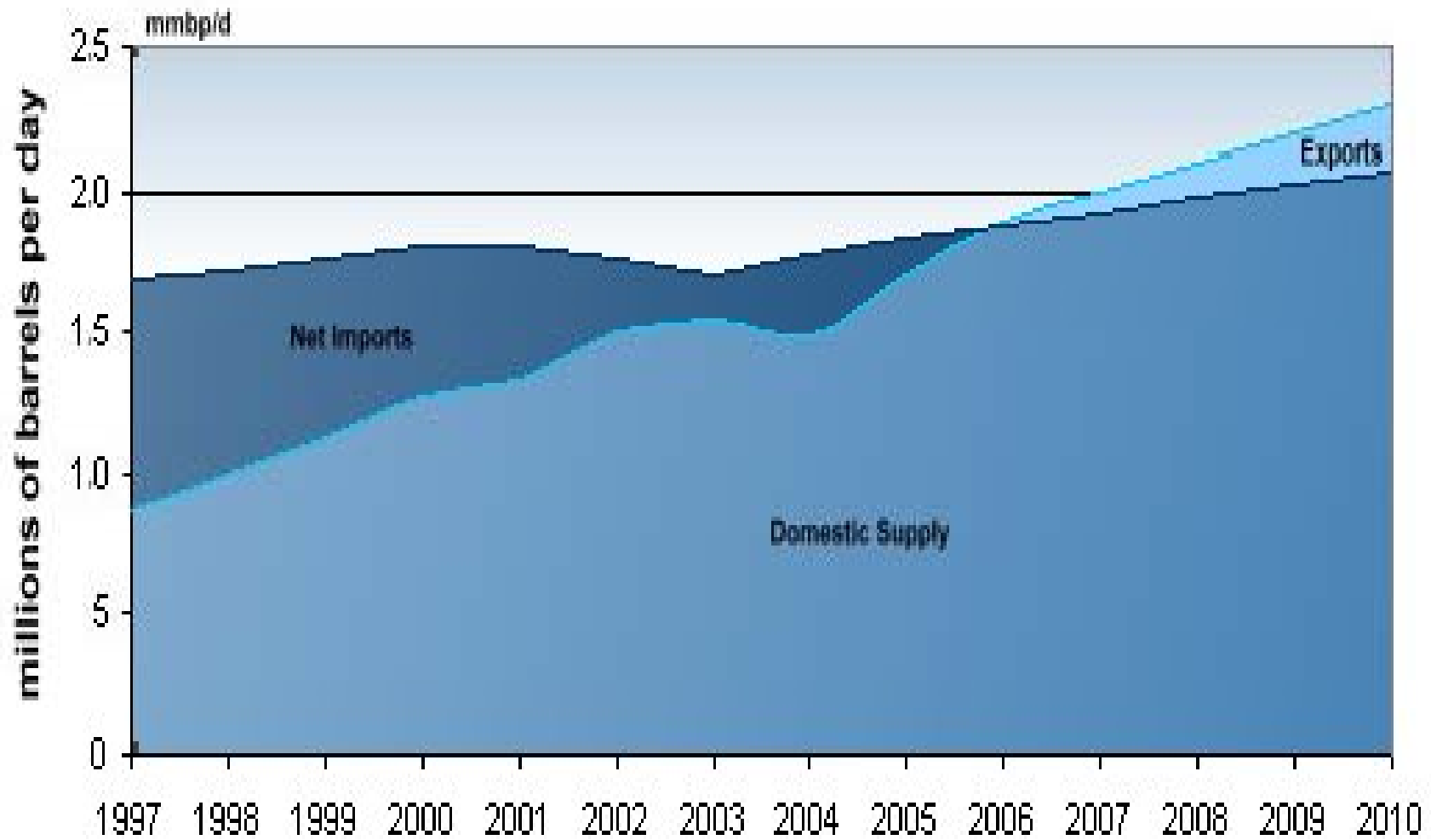
Energy “Security” & Resource “Nationalism”

Select Latin American Countries & Dates



(f): resource endowments, policy characteristics, domestic market conditions, international market conditions

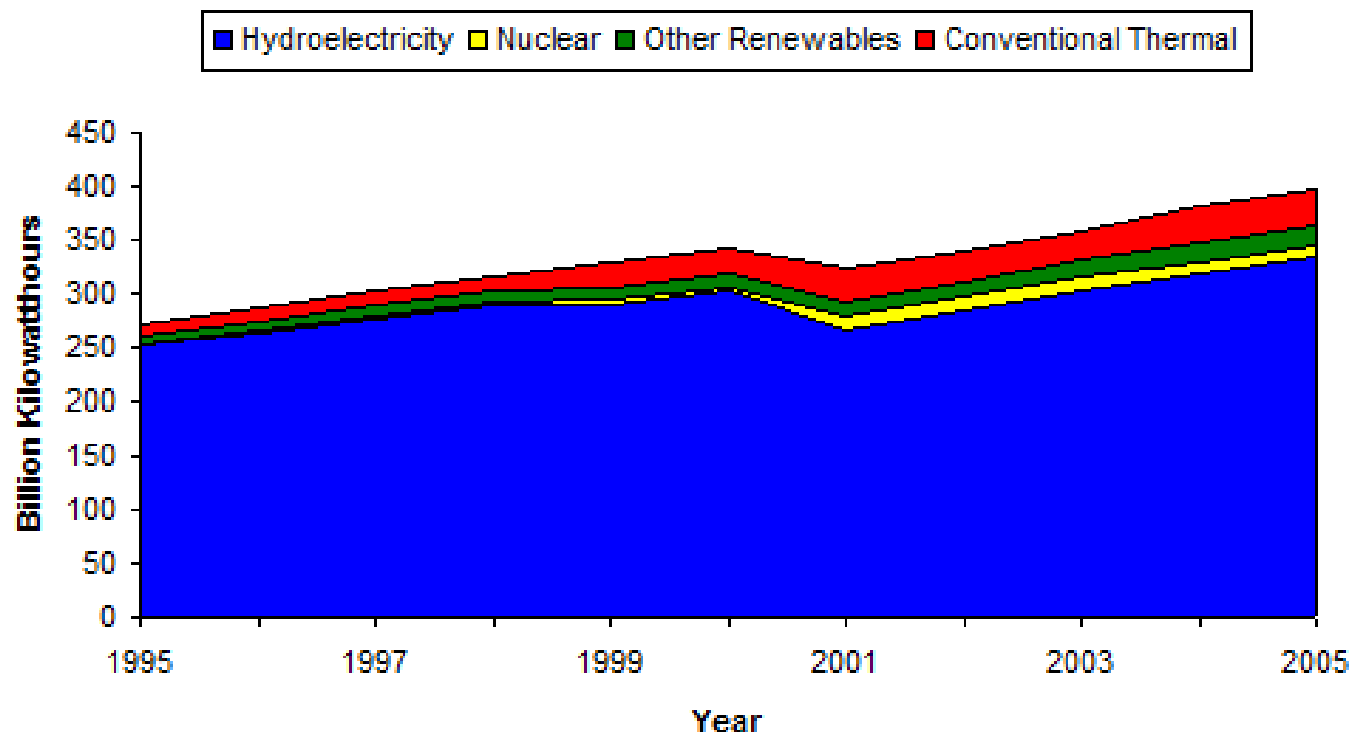
Brazilian Oil Production & Consumption 1997 - 2010



SOURCE: Carlos H.L. Bruhn, Petrobras

Hydroelectric dominates power generation

Brazil's Electricity Generation, by Source

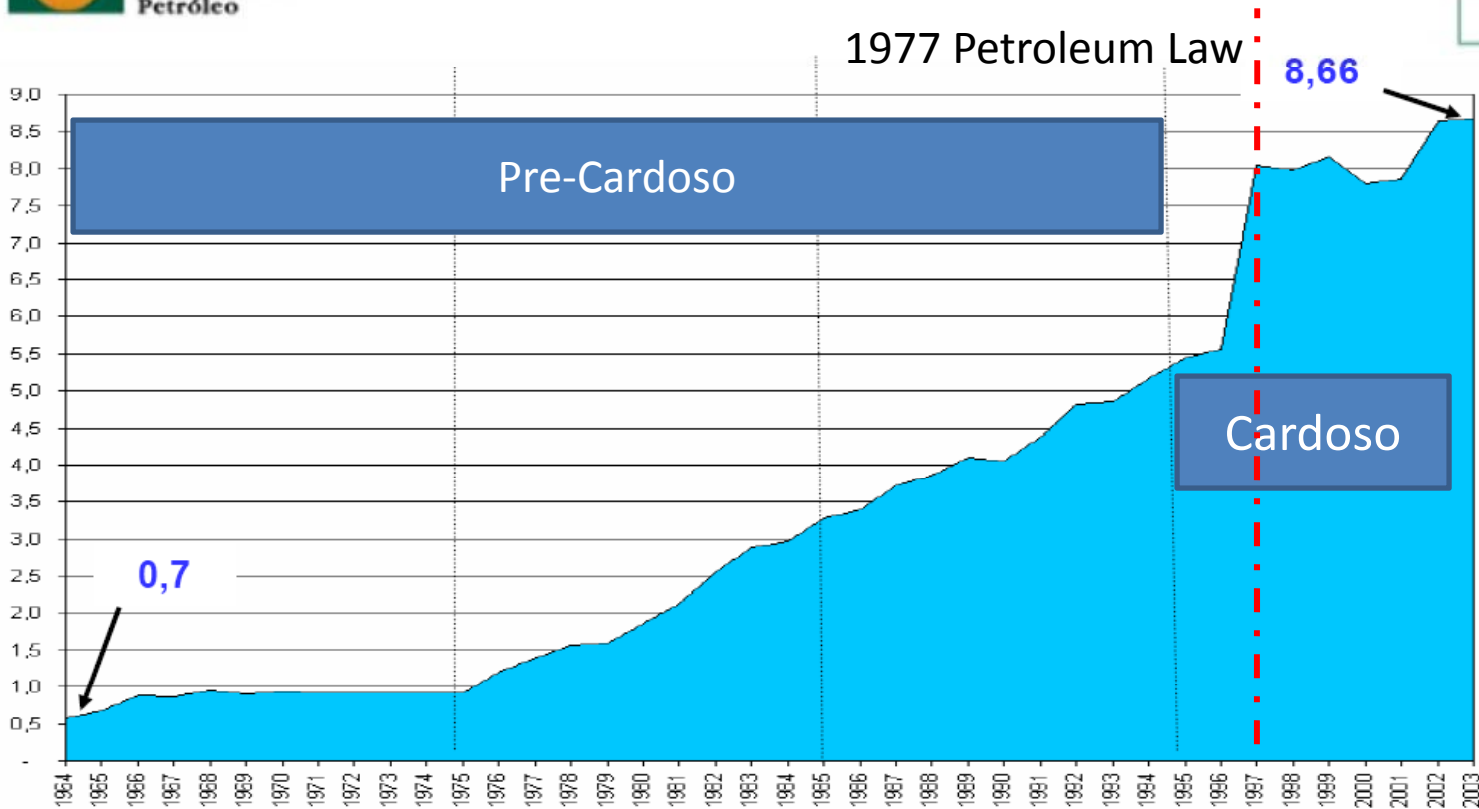


Source: EIA *International Energy Annual*

Brazil Gas before Cardoso



Natural Gas Proved Reserves (TCF)



Natural Gas Proved Reserves (2003): 8,66 TCF

New Perspectives: 14,8 TCF (Santos Basin) - In Evaluation

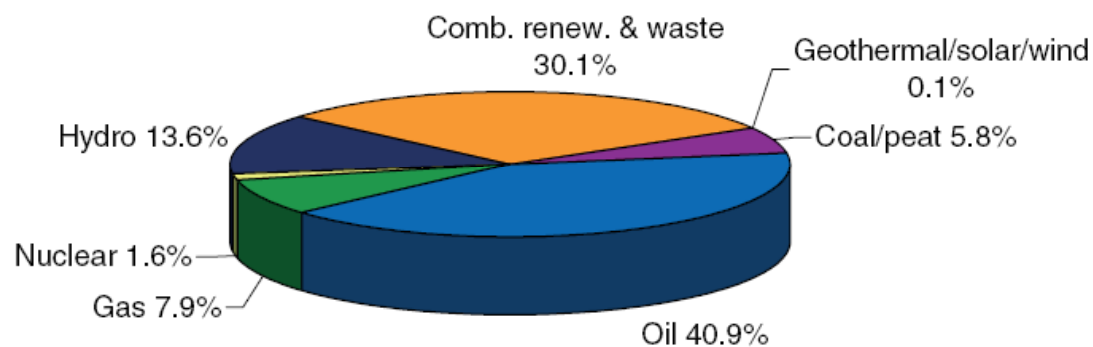
Source: ANP

Proved Reserves
2008 12.3 Tcf



Share of total primary energy supply* in 2006

Brazil



224,129 ktoe

* Share of TPES excludes electricity trade.

Note: For presentational purposes, shares of under 0.1% are not included and consequently the total may not add up to 100%.

Cardoso: Economic & Political Context

- Cardoso personal commitment to Growth with Distribution
 - Need market efficiencies
 - Develop Social Policy bring immediate benefits to bottom
- Failure of Heterodox policies 1980s/early 1990s
 - Public fear hyperinflation
- No Dominant Party
 - Makes coalition with Center & Right to make change
- Presidential Agenda Powers
 - What is considered and when it implemented
- Presidential Patronage Powers
 - Parties want to be in his coalition

Energy Reform Goals

- Supply energy at prices to make economy internationally competitive
- Requires investment at time when Brazilian Federal & State governments have limited access to capital
- Want to break monopolies
 - Eletrobras
 - Petrobras

Brazilian Petroleum Legislation 1995, 1997

- Limited Brazilian government holdings in Petrobras (partial privatization)
- Creation of the National Council for Energy Policy (CNPE) to set energy industry policy
- Creation of the Agencia Nacional do Petroleo (ANP) to oversee deregulation and restructuring
- Increased use of natural gas
- Increased competition in the energy industry
- Domestic and foreign investment in power generation

Electricity

- Privatization of non-integrated electricity distribution companies 1996-2000 & creation of energy regulator ANEEL
 - But blocked on generation and transmission
 - Regulators' independence not sufficiently credible to minimize regulatory risk for private investors (worse under Lula)

Lula: Economic & Political Context

- Lula personal commitment to Distribution with Growth
 - Social policy & poverty programs broadened & deepened
- Precarious situation of Brazilian economy
 - 2001 Drought/Energy Crisis & Argentine debt default
 - International financial markets need be reassured
- No dominant party
 - Makes coalition with Center & Right to make change
- Presidential Agenda Powers
- Presidential Patronage Powers

Energy Reform

- Pricing Policy – informal pressure keep lower prices on gasoline, cooking gas, diesel oil
- National Procurement promoted
- Halt privatization in Electricity

But also

- 2004 Regulatory changes in power sector encourage investment in generation & transmission
 - 2006: 66% distribution & 28% generation private
- 2006-08 gas pipeline reforms to stimulate competition for Petrobras

Challenges Facing the Energy Model

- New energy potential make RN more appealing?
- Have Hyperinflation concerns been replaced by fears of economic crisis?
 - Temptation to use RN to fund stimulus?
- Oil, gas and hydropower projects require massive investments
 - International sources problematic
 - IOC have, but Brazilian projects may not be most attractive
 - Petrobras' importance as source investment increases
- Power generation issues not solved though currently exporting to Uruguay/Argentina
 - Would privatization/deregulation undermine natural gas alternatives?

What Combination of Privatization and
Regulatory Reform will Provide Best
Answer?