

Trade Reforms and Economic Growth: The Chilean Experience

J. Rodrigo Fuentes
(Central Bank of Chile)

Seoul, August 2007

Outline

- The Chilean economy: policy and economic performance
- Conceptual framework to analyze the role of trade policy
- Trade policy and its role on the Chilean performance
 - Implications from cross country regressions
 - Productivity and economic policy
 - Free trade agreements: Static and dynamic effects
- What did we learn?

The Chilean Economy: Policy and Economic Performance

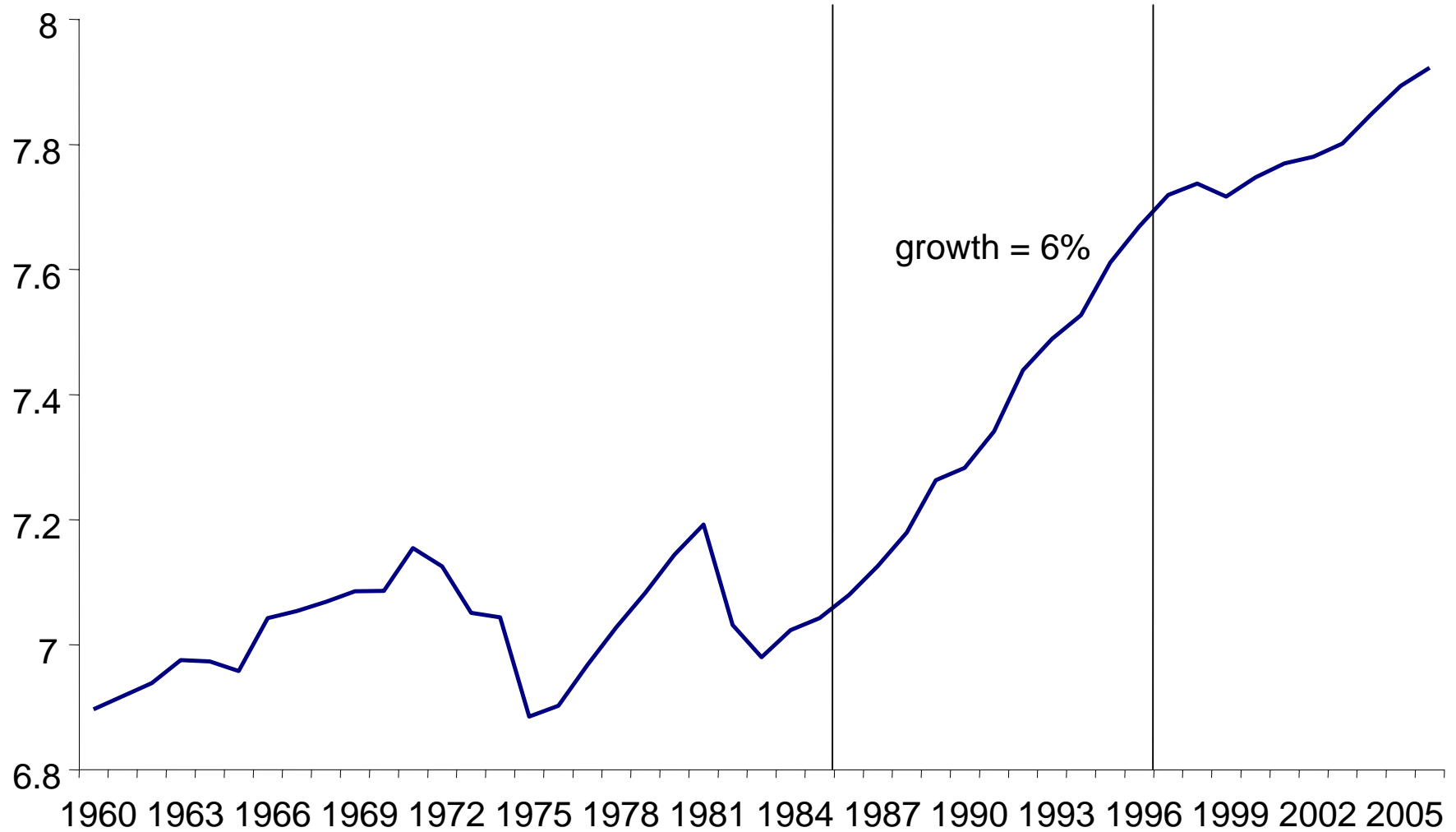
Comparative Economic Performance

Annual Growth Rate of Per Capita GDP (%)

	1961-1975	1976-1990	1991-2004	1961-2004
Chile	0.23	2.39	4.25	2.25
Latin America (19)	3.15	0.5	1.09	1.59
East Asia (9)	3.18	5.99	6.39	5.16
OECD (23)	3.36	2.35	1.78	2.51

Source: Chumacero and Fuentes (2006)

Chilean Per Capita GDP



Initial Conditions

- Thirty years ago, the Chilean economy was closed to international trade, suffered from widespread price controls, high degree of state intervention, and severe macroeconomic imbalances
 - Average import tariff of 105% (and great dispersion), multiple exchange rates and many other restrictions to international trade (e.g , quotas)
 - Price and interest rate controls
 - Fiscal deficit of about 30% of GDP
 - Annual inflation rate above 500%

Chile's Economic Reforms

- Chile's economic transformation was initiated in the seventies and has continued until today
- First generation of reforms included:
 - Trade reform: non-tariff barriers were lifted and unilaterally tariffs cut were performed to reach 10% flat in 1979
 - Fiscal adjustment: VAT was introduced in 1975 and the fiscal balance reached a surplus in 1976
 - State owned enterprises and banks were privatized or returned to previous owners

Chile's Economic Reforms

- And more:
 - Previously controlled prices and interest rates were liberalized
 - Capital account restrictions were partly removed while exchange rates were unified
 - Restrictions to banks and other intermediaries began to be lifted
 - Major change in 1981: the pension reform

Macroeconomic Crisis

- Sharp external shock + fixed exchange rate + moral hazard problems in the banking system → developed a deep crisis
- GDP dropped by 16% in two years: 1982-83
- Major changes in the financial system
- Import tariffs were increased up to 35% in 1985, however in 1986 went back to 15%
- In 1989 a successful transition to democracy was initiated, while maintaining and strengthening the market economy model

Reforms in the 1990s

- The reform process continued in the 1990s, extending to new areas:
 - Deepening the integration with the world economy through unilateral tariff reductions (1991 and 1998) and FTAs with important countries (since 1991)
 - Competition in telecommunications (multi-carrier system, 1994)
 - Private sector involvement in infrastructure: development through concessions (1991-92)

Conceptual Framework to
Analyze the Role of Trade Policy

Growth Models

- Neoclassical growth model predicts a level effect from trade liberalization and a higher growth rate in the transition
- Endogenous growth models predicts an increase in the long run growth rate
 - Convex model (Jones and Manuelli, 1991)
 - Input variety (Romer, 1991, 1994)
 - Technology transfers (Edwards, 1992; Grossman and Helpman, 1992)
 - Learning by doing (Young, 1992)

Trade Strategies

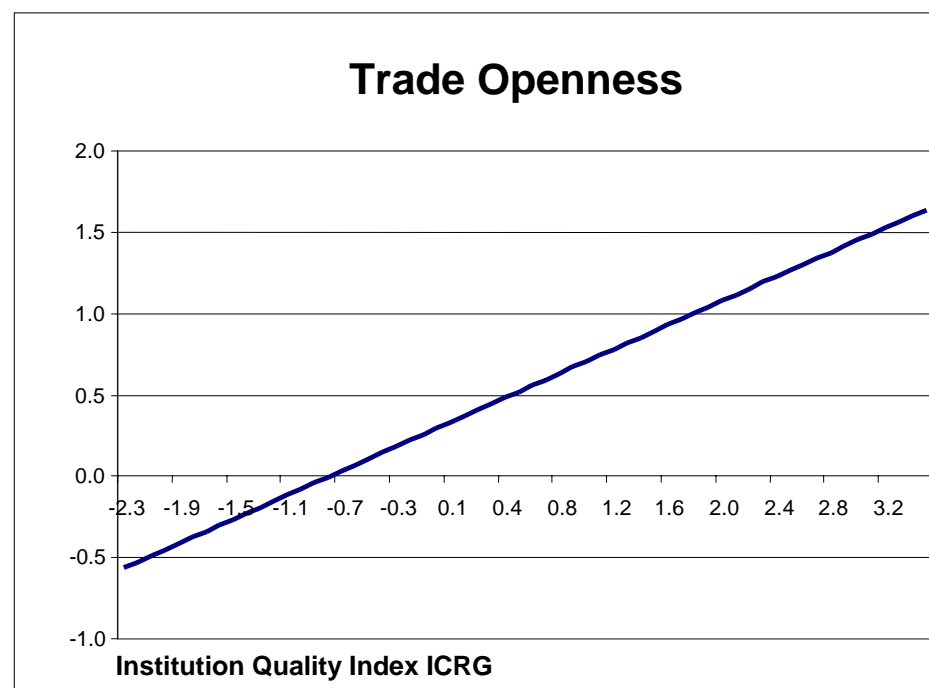
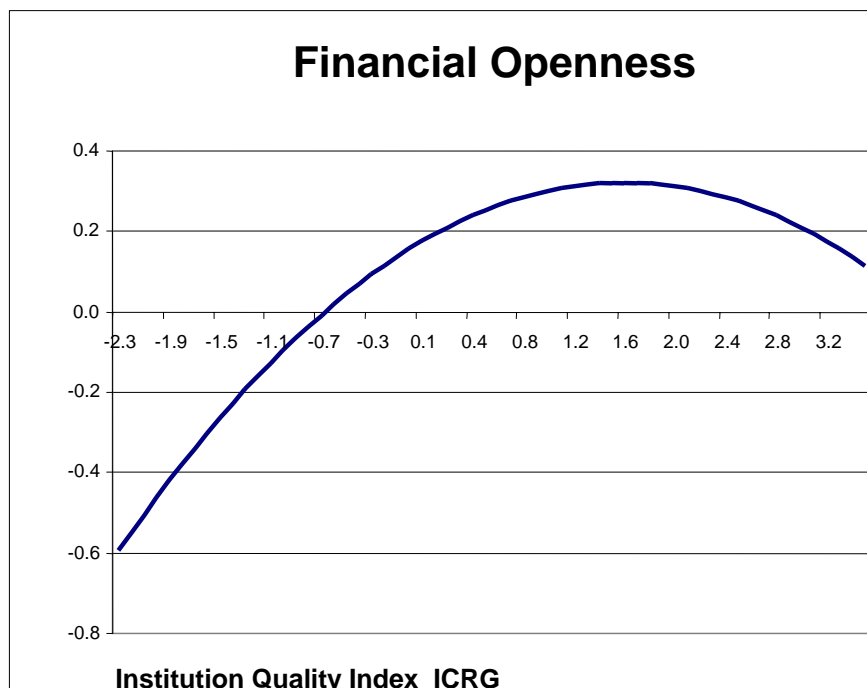
- Unilateral reform
 - Fast track
 - Increases efficiency (technology absorption, less expensive capital goods, etc.)
 - Reduces rent seeking activities
- Bilateral or multilateral reform
 - Slow track due to negotiation
 - Trade creation and trade diversion
 - Open new export markets

Trade policy and its Role on the Chilean Performance

Policy Complementarities

- Many studies have shown that policy complementarities are key factor to explain why some reformer countries do better than others
- Therefore the emphasis when reforming a sector has to be to place a combination of reforms that enforce each other (Loayza and Gallego, 2002)
 - Macroeconomic stability and microeconomic reforms
 - Financial sector interact with real sector
 - Quality of institutions and trade reforms

Growth Effects as Function of Level of Institutional Quality



Source: Calderón and Fuentes (2006)

Explaining Growth:

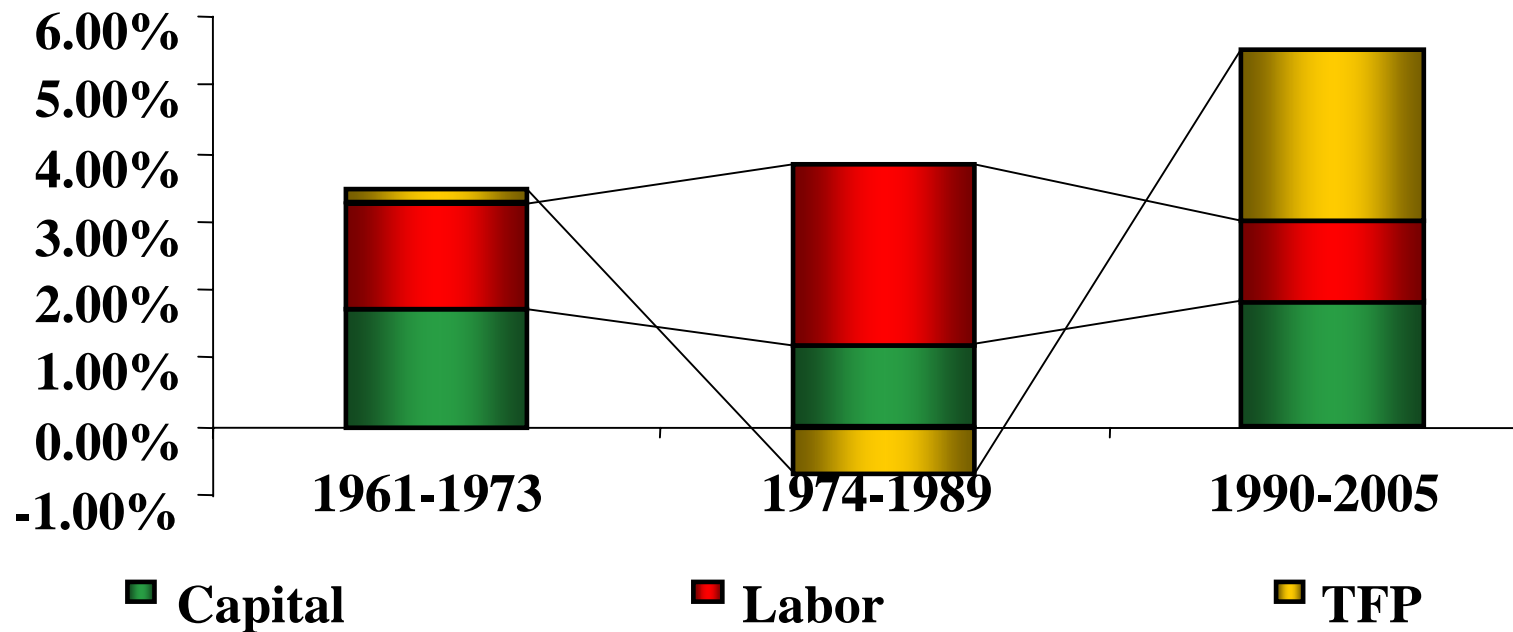
1996-2000 respect to 1981-1985

Variable	Chile	Latin America	East Asia	Industrial Countries	All Countries
<u>Economic Growth</u>					
- Actual change	3.57	2.94	-0.21	1.37	1.73
- Projected change	3.45	2.30	1.90	1.08	1.78
<u>Transitional Convergence</u>					
- Initial GDP per capita	-0.05	0.00	-0.05	-0.02	-0.01
<u>Structural Policies</u>					
	1.75	1.00	0.97	0.47	0.93
- Human Capital	0.43	0.37	0.43	0.39	0.53
- Financial Depth	0.03	0.02	0.06	0.03	0.02
- Institutions	0.46	0.24	0.16	0.01	0.12
- Government Consumption	0.83	0.37	0.33	0.05	0.27
<u>Stabilization Policies</u>					
	0.68	0.46	0.00	-0.36	0.22
- Inflation Rate	0.29	0.47	0.03	0.16	0.22
- RER Overvaluation	0.39	-0.01	-0.03	-0.52	-0.01
<u>Openness</u>					
	1.01	0.80	1.01	1.03	0.64
- Trade Openness	0.65	0.60	0.72	0.59	0.41
- Financial Openness	0.36	0.21	0.29	0.44	0.23
<u>External Conditions</u>					
	0.05	0.03	-0.03	-0.04	0.00
- Terms of Trade Shocks	0.10	0.08	0.02	0.01	0.05
- Period Shifts	-0.05	-0.05	-0.05	-0.05	-0.05

Sources: Calderon and Fuentes, 2006

Sources of Growth

Growth	GDP	Capital	Labor	TFP
1960–73	3.12%	1.56%	1.38%	0.18%
1974–89	2.88%	0.93%	2.91%	-0.97%
1990–2005	5.30%	1.82%	0.42%	3.06%



Source: Fuentes, Larraín, and Schmidt-Hebbel (2006)

Overall Marginal Effect of Macro Stability and Micro Reforms

Effect of structural reforms	
Macroeconomic instability	TFP
Average 1960–74 = 0.34	0.90 (0.5)
Average 1975–89 = 0.28	0.54 (0.4)
Average 1990–2005 = 0.08	1.05 (0.4)**

Effect of macroeconomic instability	
Structural reforms measures	TFP
Average 1960–74 = 0.08	0.02 (0.1)
Average 1975–89 = 0.48	-1.00 (0.4)***
Average 1990–2005 = 0.64	-1.36 (0.5)***

Note: Standard deviations are reported in parenthesis.
*, **, *** statistically significant at 10%, 5% and 1%.

Industrial Effects of Trade Liberalization

- 1967 – 1979: Productivity did not change. Tybout, De Melo and Corbo (1992)
- 1974 – 1979: Productivity increases very rapidly in sectors related to comparative advantages. Marshall (1992), Fuentes (1995)
- 1979 – 1986: Productivity increases in competing import sectors compared to non-tradable, and the evidence is non conclusive for exportable sectors. Pavcnik (2000)
- 1979 – 1994: Alvarez and Fuentes (2002) found that average efficiency increased and the variance decreased

Efficiency Estimation at Industry Level

Differences in Mean: 1994 - 1979

Results of the test	Increase in Efficiency		Decrease in Efficiency	
	Industri es	%	Industr ies	%
Statistically significant *	7	33.3	0	0,0
Non statistically significant *	9	42.9	5	23.8
Total	16	76.2	5	23.8

* 5% level

Sources: Alvarez and Fuentes, 2002

Efficiency Estimation at Industry Level

Differences in Variance: 1994 - 1979

Results of the test	Decrease in Variance		Increase in Variance	
	Industries	%	Industries	%
Statistically significant*	8	38,1	0	0,0
Non statistically significant *	11	52.4	2	9.5
Total	19	90.5	2	9.5

* 5% level

Sources: Alvarez and Fuentes, 2002

Chile's FTA with US and EU

- Chile's active policy of negotiating PTAs
- European Union
 - Trade agreement
 - Economic cooperation
- United States
 - More comprehensive tariff reductions
 - Protection of intellectual property rights
 - Other features

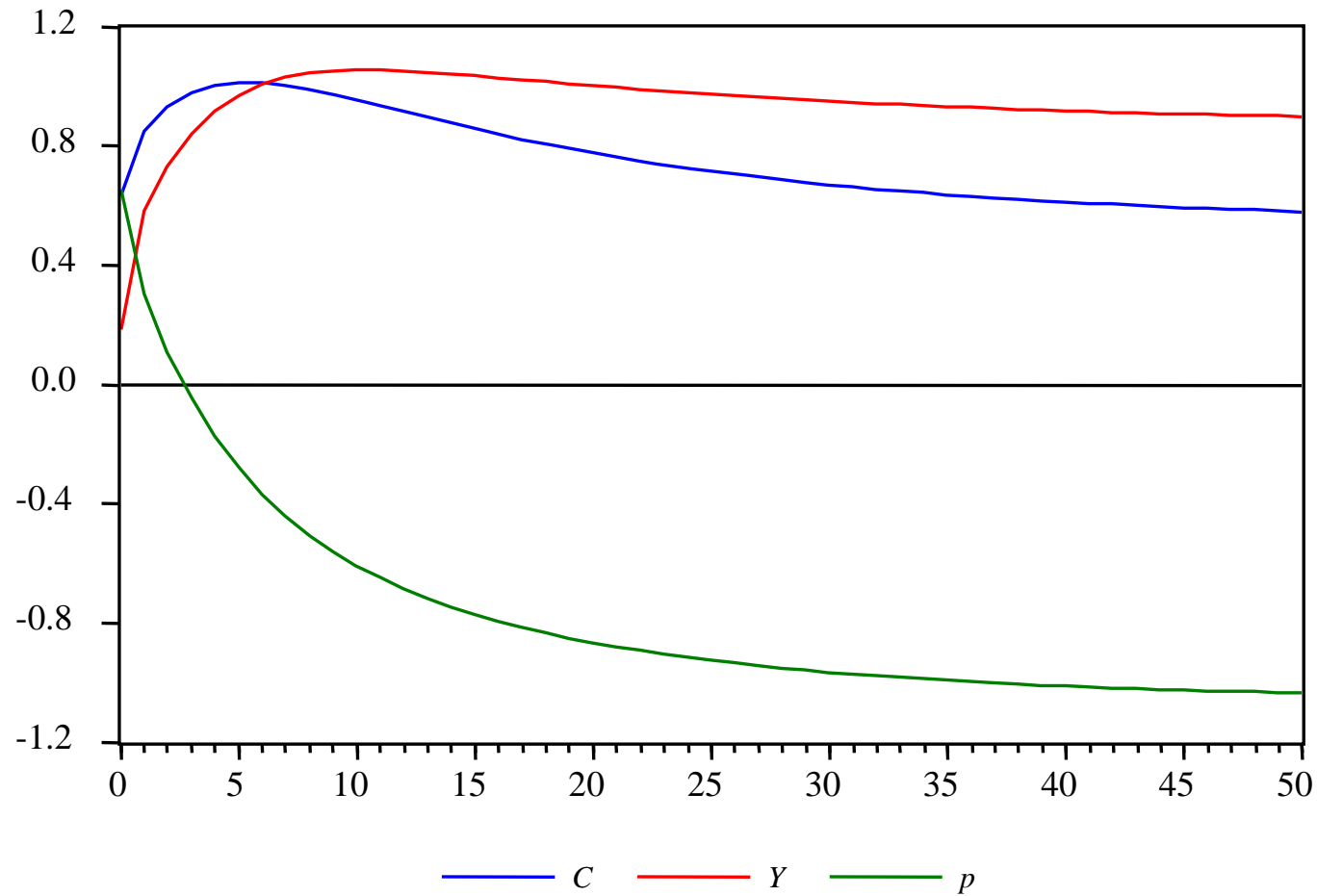
Steady-State Effects of FTAs with US and EU

Variables	τ_m	τ_x	VAT	τ_{cm}	g	TFP	Combined
Real Exchange Rate	-1.17	0.17	0.04	0.29	0.00	0.08	-0.59
Fiscal surplus/GDP	-4.29	0.70	3.09	1.49	-0.04	1.81	2.76
Private consumption	0.26	0.16	-0.20	-0.16	-0.01	0.95	1.00
GDP	0.53	0.16	-0.25	-0.26	0.00	0.81	1.00
Welfare	0.26	0.16	-0.20	-0.17	-0.01	0.95	1.01

Sources: Chumacero, Fuentes, and Schmidt-Hebbel, 2004

Steady-State Effects of FTAs with US and EU

A versus B



What did we learn?

Trade Liberalization

- Chile has followed different strategies to open the economy
 - Unilateralism
 - Bilateralism
- This strategy has boost total factor productivity:
 - Gain in efficiency
 - Technological progress
- Explain an important part of the growth process in the 80s and 90s

But...

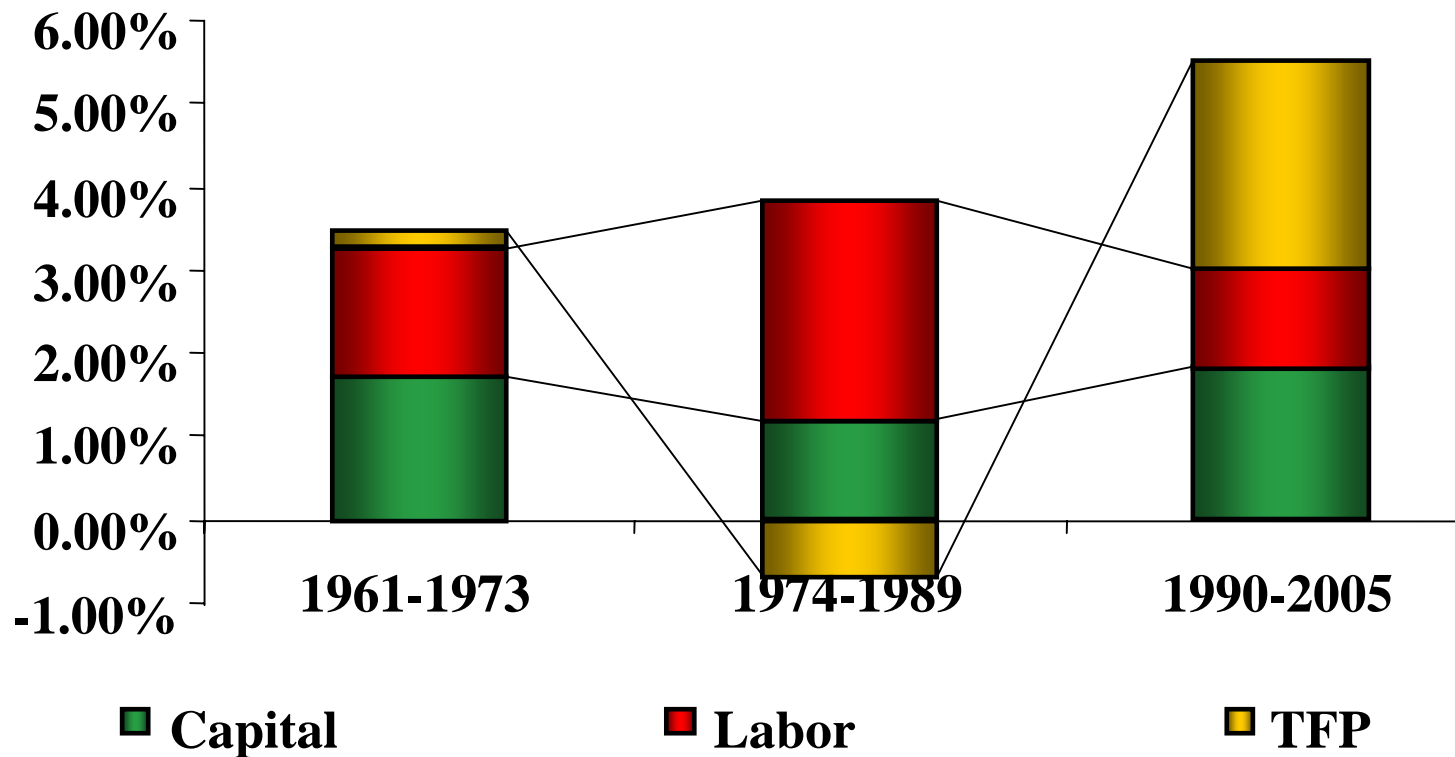
- Political aspects are important
- Trade openness has been developed under different political context
 - First under a military regime
 - Later under democratic governments
- We should not forget the importance of policy complementarities
- Openness to trade is important, but it may not be enough

Trade Reforms and Economic Growth: The Chilean Experience

J. Rodrigo Fuentes
(Central Bank of Chile)

Seoul, August 2007

Factors Explaining Growth



Source: Fuentes, Larraín, and Schmidt-Hebbel (2006)

Institutional Buildup

- In the process, Chile has carried out an important institutional buildup:
 - Respect for property rights
 - Independence of Central Bank
 - Pension system
 - Banking and bankruptcy legislation
 - Fiscal balance
 - Open economy