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**Macro and micro lessons from the Latin American  
natural resource-based growth process.**

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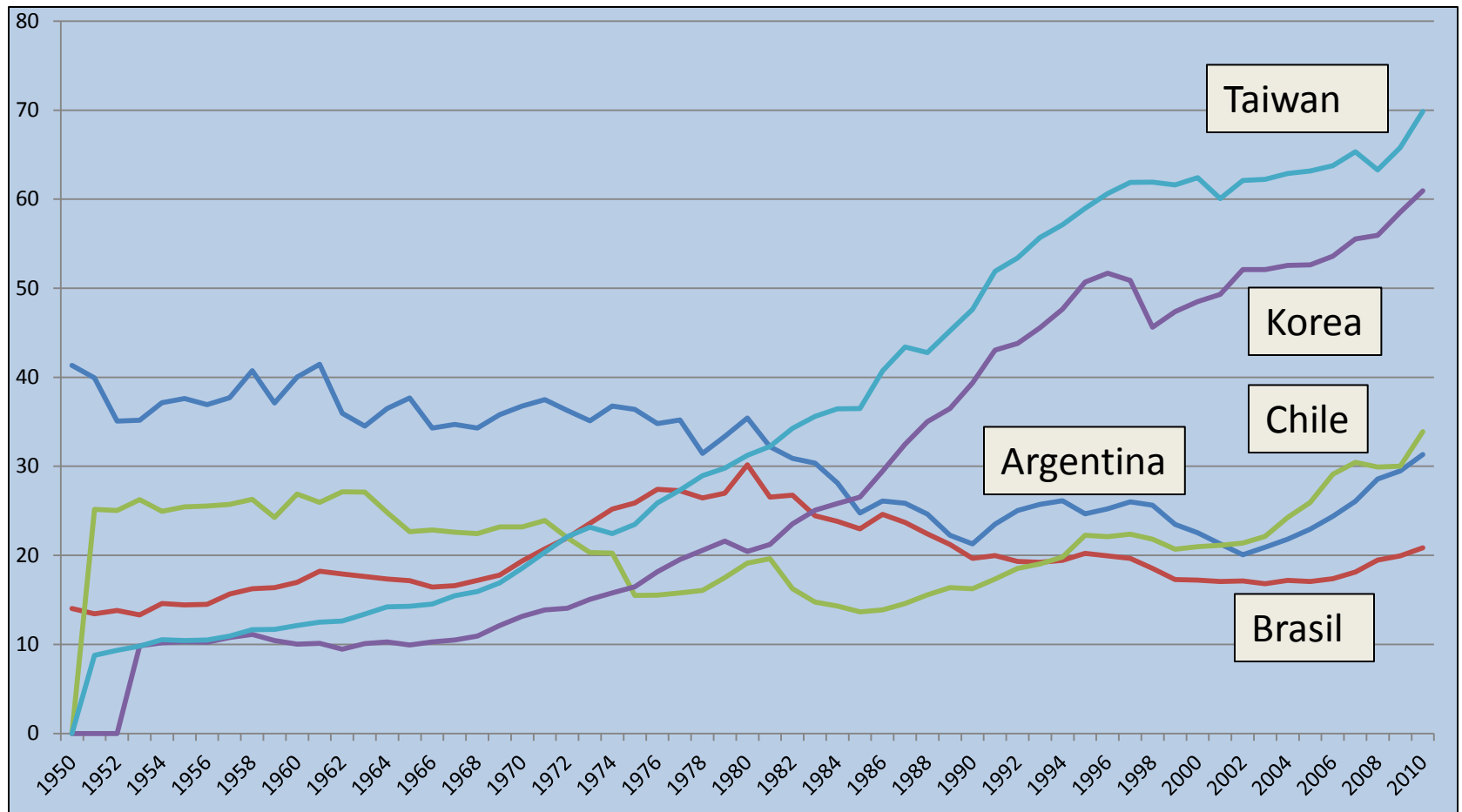
## Topics to be examined

- 1. 'Stylized facts' .
- 2. Aggregate convergence has not taken place, independently of the macroeconomic policy regime countries have adopted. We have developed into  $1/3$  -  $2/3$  societies.
- 3. Convergence is taking place, however, in natural resource based activities, but associated to episodes of Dutch Disease, and of Tragedy of the Commons.
- 4. Four major current sources of concern: I. How to deal with the Chinese threat . II. Volatility of the world economy. III. The global fiscal balance of the economy and the need for public goods. IV Environmental sustainability and social inclusiveness.

## 'Stylized facts' describing the Latin American scenario

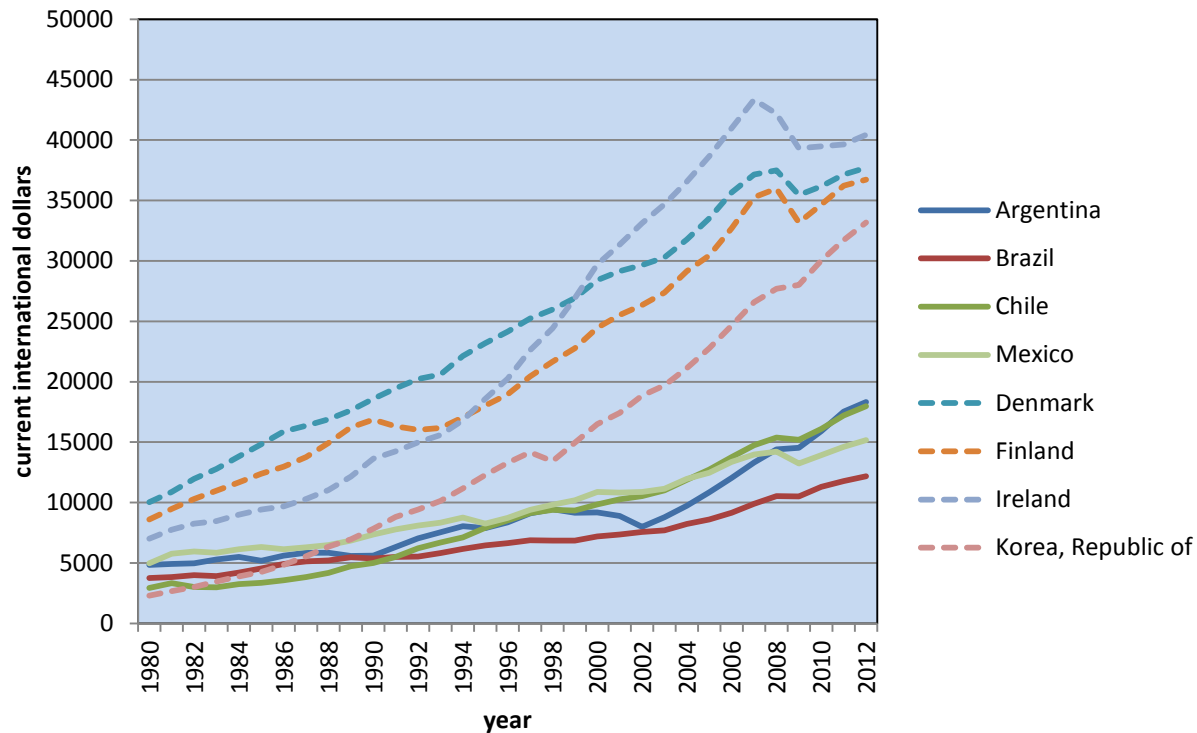
- 1. Per capita GDP has not 'converged' to OCDE levels. (12 and 35 thousand U\$S) Convergence is taking place in natural resource based industries due to the 'China effect' and the new GM technological paradigm.
- 2. Much higher structural heterogeneity prevails. The ratio of GDP per capita between upper to lower quintile is 20-25 times in LA as against 6-8 times in OECD. The upper 30% lives better than the average European
- 3. The rate of capital formation has fallen vis a vis the 1970's.
- 4. Macroeconomic volatility is higher than in the 1970's.
- 5. The economy has restructured into natural resource based sectors & services. Manufacturing is no longer the locus of modernity
- 6. Terms of trade have improved due to the 'China effect', but low and medium tech local industries can not compete with Chinese products.
- 7. Imports of K goods have increased but domestic R&D efforts have not.
- 8. The new growth regime involves the expansion of the natural resource exploitation frontier but with frail institutions for environmental protection and for social inclusion.

# GDP Per Capita Relative to the United States (PPP at current prices)



Source: Penn Tables. A.Heston et.al. Univ. of Penn.

# Income per capita 'lags behind' OECD countries

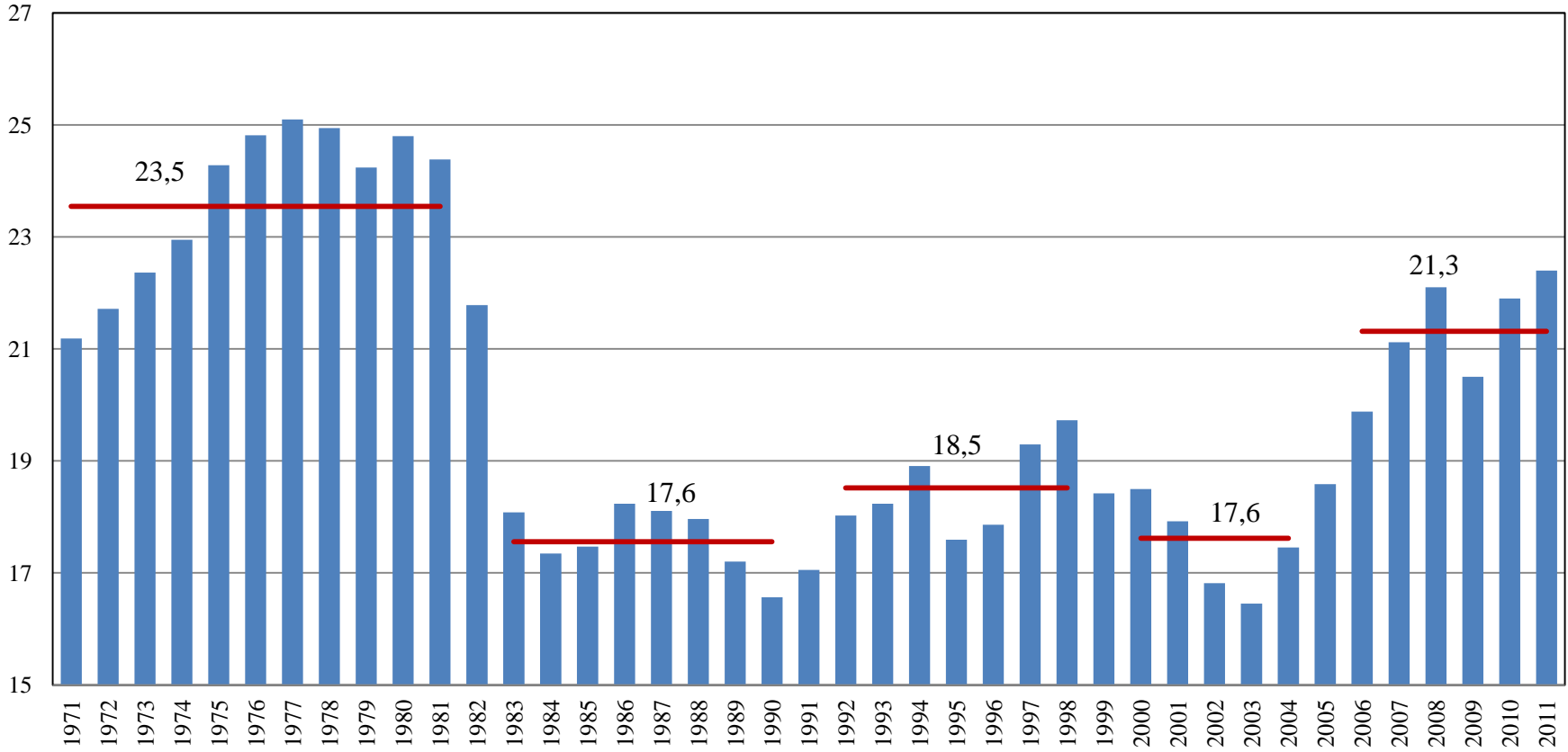


Source: Astorga & Katz, in Dutrenit and Sutz.

Average income per capita top quintile  
and lower quintile (Heymann,Ramos)

	Pib/habit.	Top quintile	Low quint.
Argentina	11.775	45.749	1.832
Brasil	7.679	35.981	920
Chile	10.631	49.915	1.769
Mexico	9.046	39.021	1.383
Paises G7	29.015	71.051	11.354
Anglosaj.	30.473	82.880	9.321
EU-Japon	28.285	65.434	12.277

# Gross capital formation in LA 1970-2011

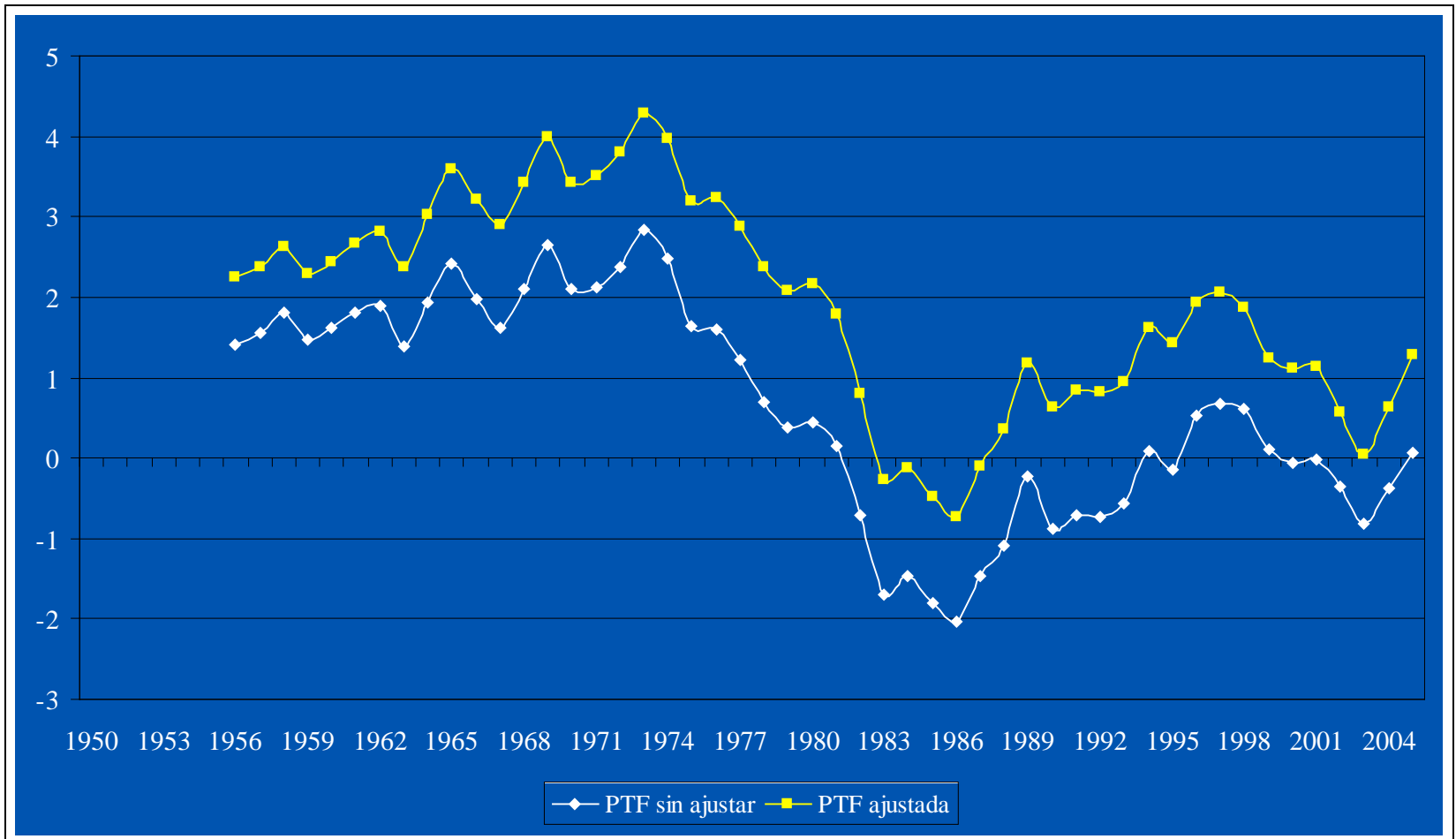


Fuente: Basado en datos de CEPAL.

Source: R. French Davis

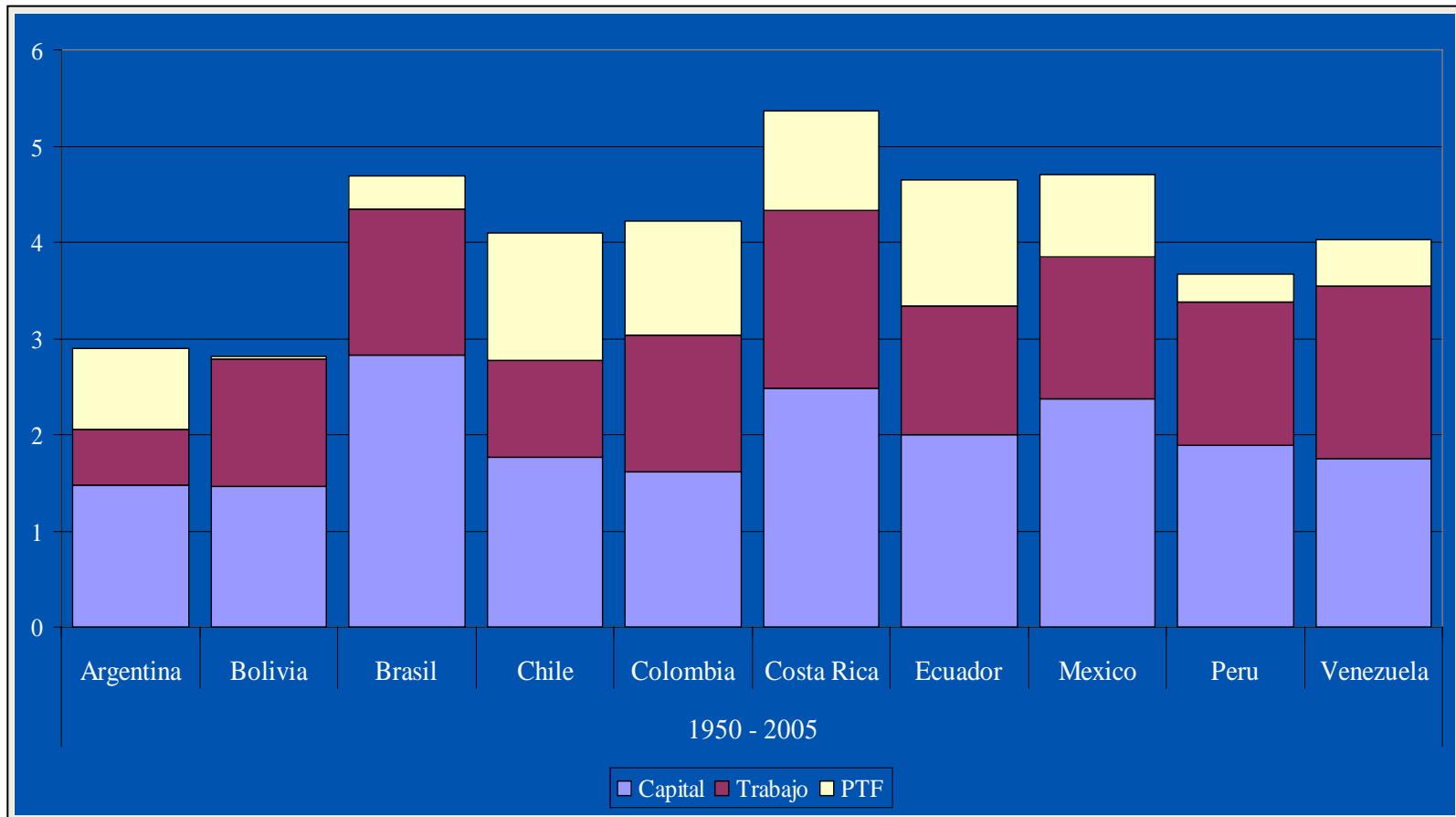
# TPF in Latin American .

(Aravena et.al. Cepal, 2006)

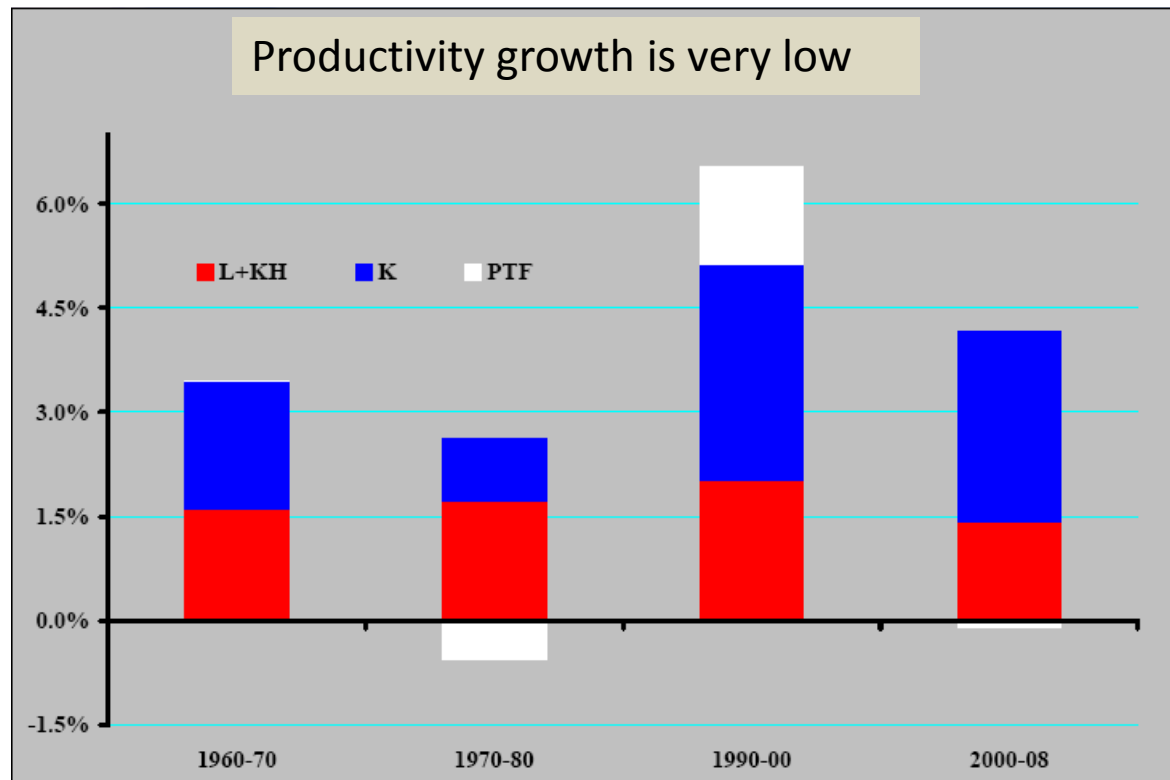




# Differences in TPF across LA countries. (Aravena et.al. ECLAC, 2006)

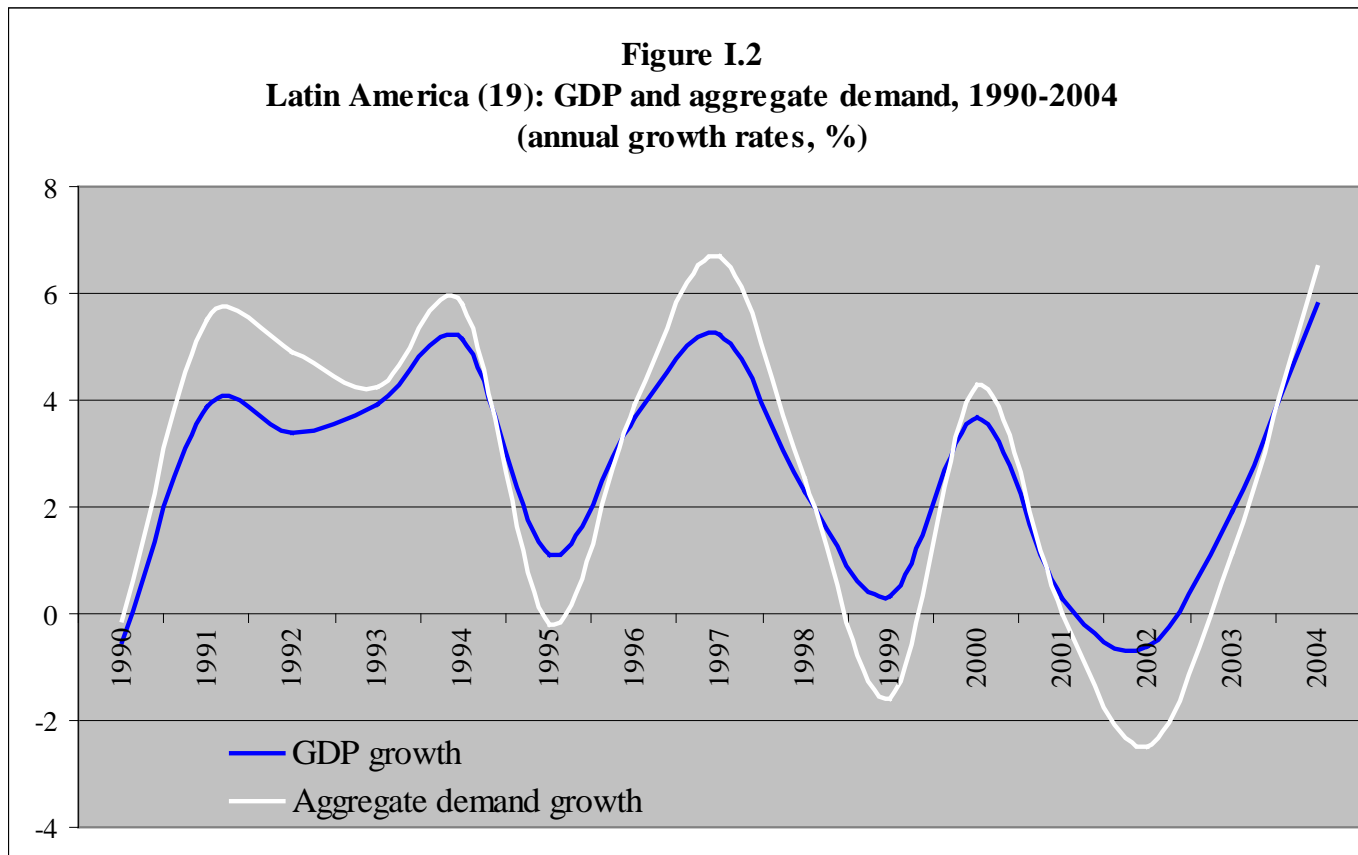


## The average regional scenario as illustrated by the case of Chile



# Latin American macro volatility.

(Macro volatility induces a 'defensive' micro of low I and R&D expenditure)



Source: R.Ffrench Davis

## CHANGES IN INDUSTRIAL STRUCTURE RESULTING FROM TRADE LIBERALIZATION AND MARKET DE-REGULATION POLICIES.

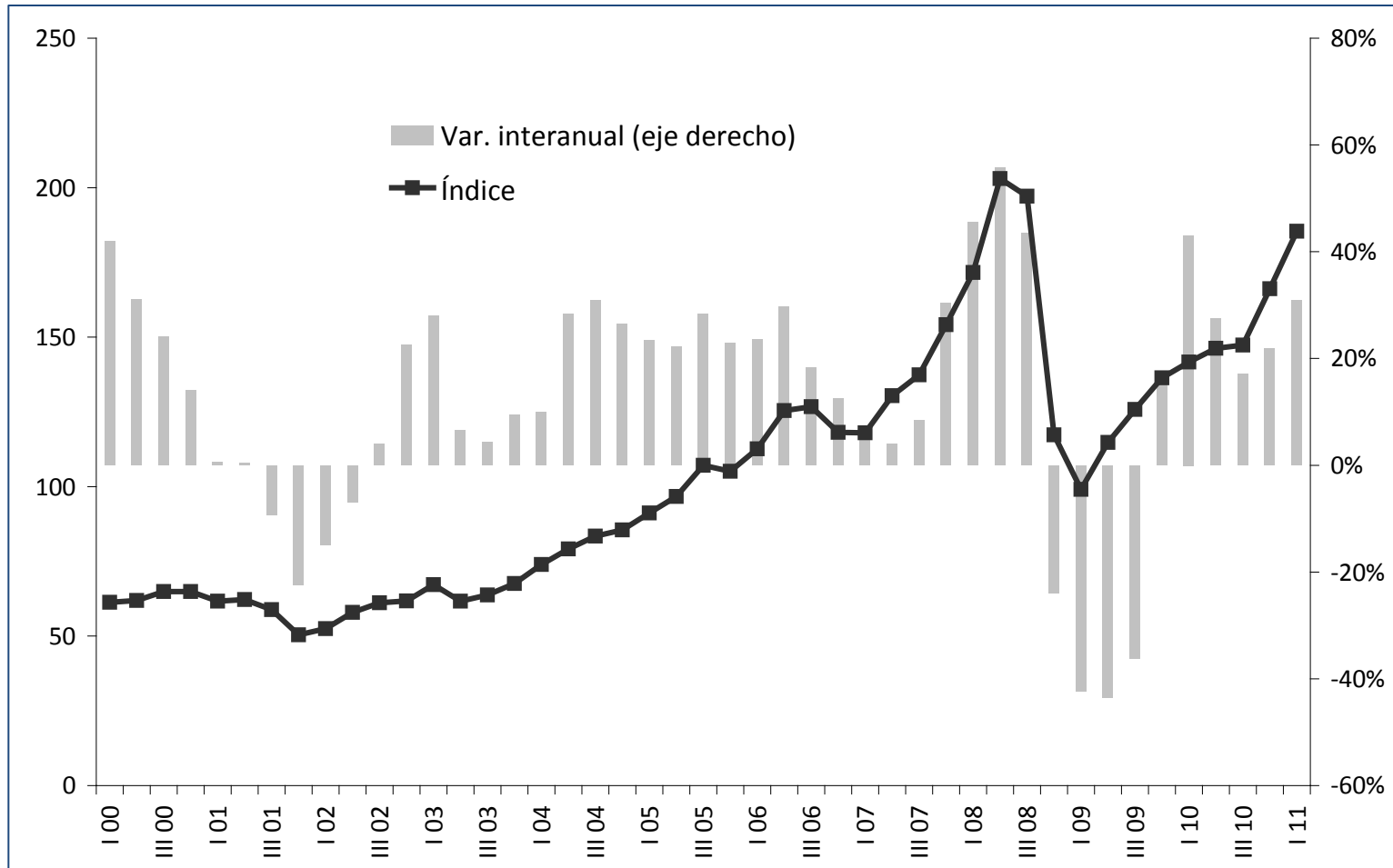
	Argentina		Brasil		Chile		Colombia		México	
	1970	1996	1970	1996	1970	1996	1970	1996	1970	1996
<b>I</b>	15.6	13.1	18.8	22.8	14.9	10.2	10.7	10.5	13.3	13.9
<b>II</b>	9.9	12.1	9.9	8.7	7.7	2.0	2.9	6.5	5.5	10.8
<b>III+IV</b>	36.2	45.7	35.8	42.4	43.2	56.2	45.7	51.2	46.8	46.5
<b>V</b>	38.2	29.0	35.5	26.1	34.2	31.6	40.7	31.8	34.4	28.8

- I** Metalworking activities. (Machinery and equipment)
- II** Vehicles
- III+IV** Natural resource processing industries  
Foodstuffs, forestry, mining, acuaculture, horti and fruticulture, gas and oil, etc.
- V** Low skilled labour intensive industries. (Shoes, clothing, etc.)

Source: ECLAC, UN

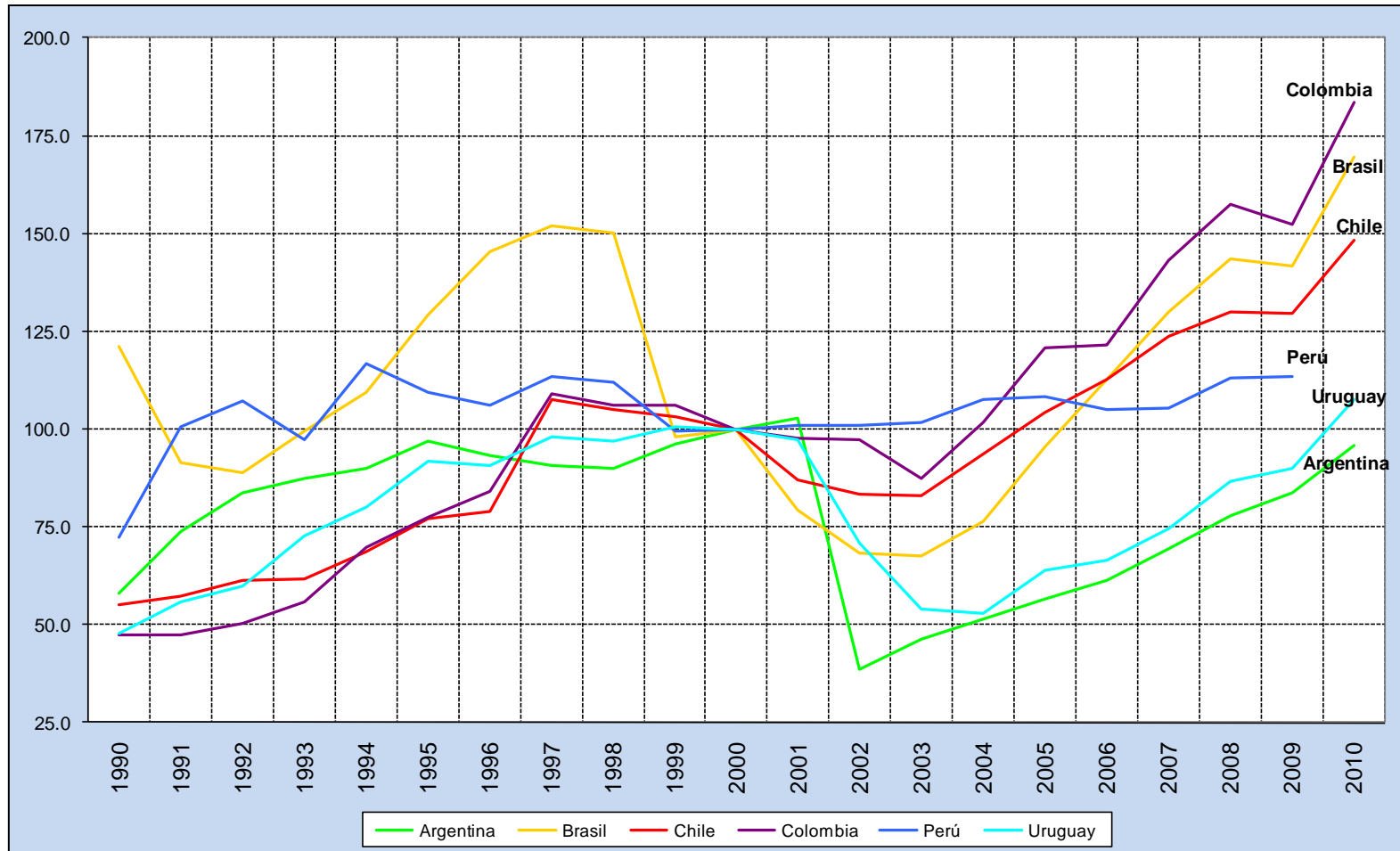
# Commodity prices 2000-2011

(Is China a 'bubble' or a new model of the world economy?)



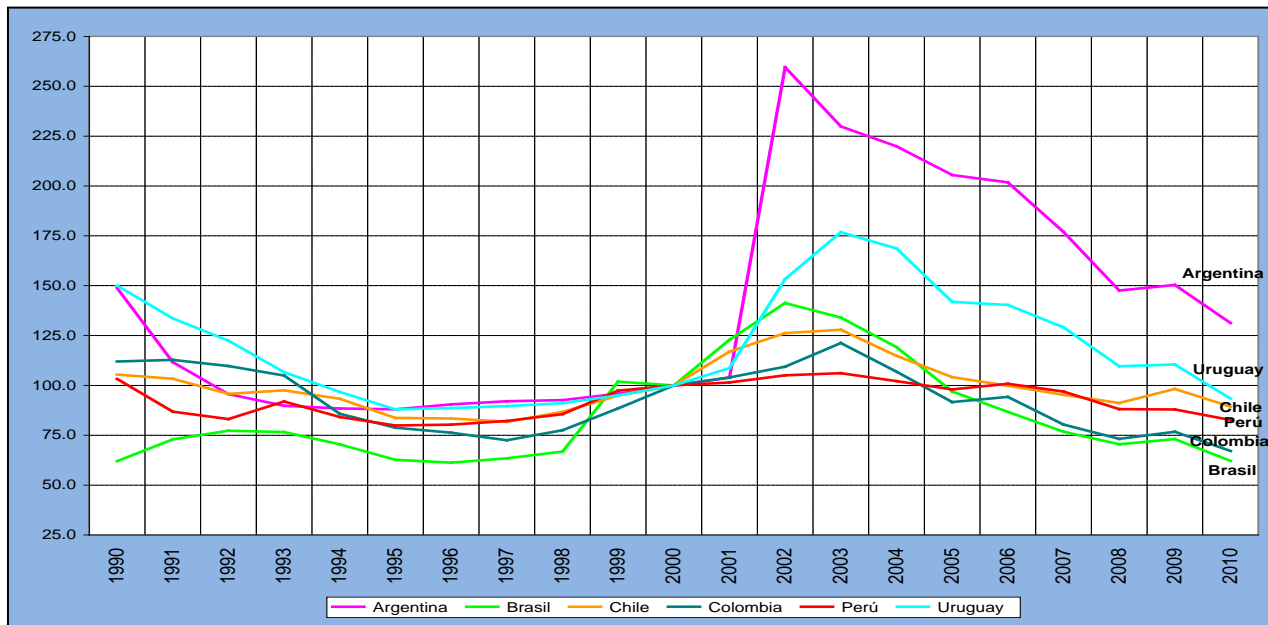
Source: R.Jenkins

# Unit labor costs 100=2000



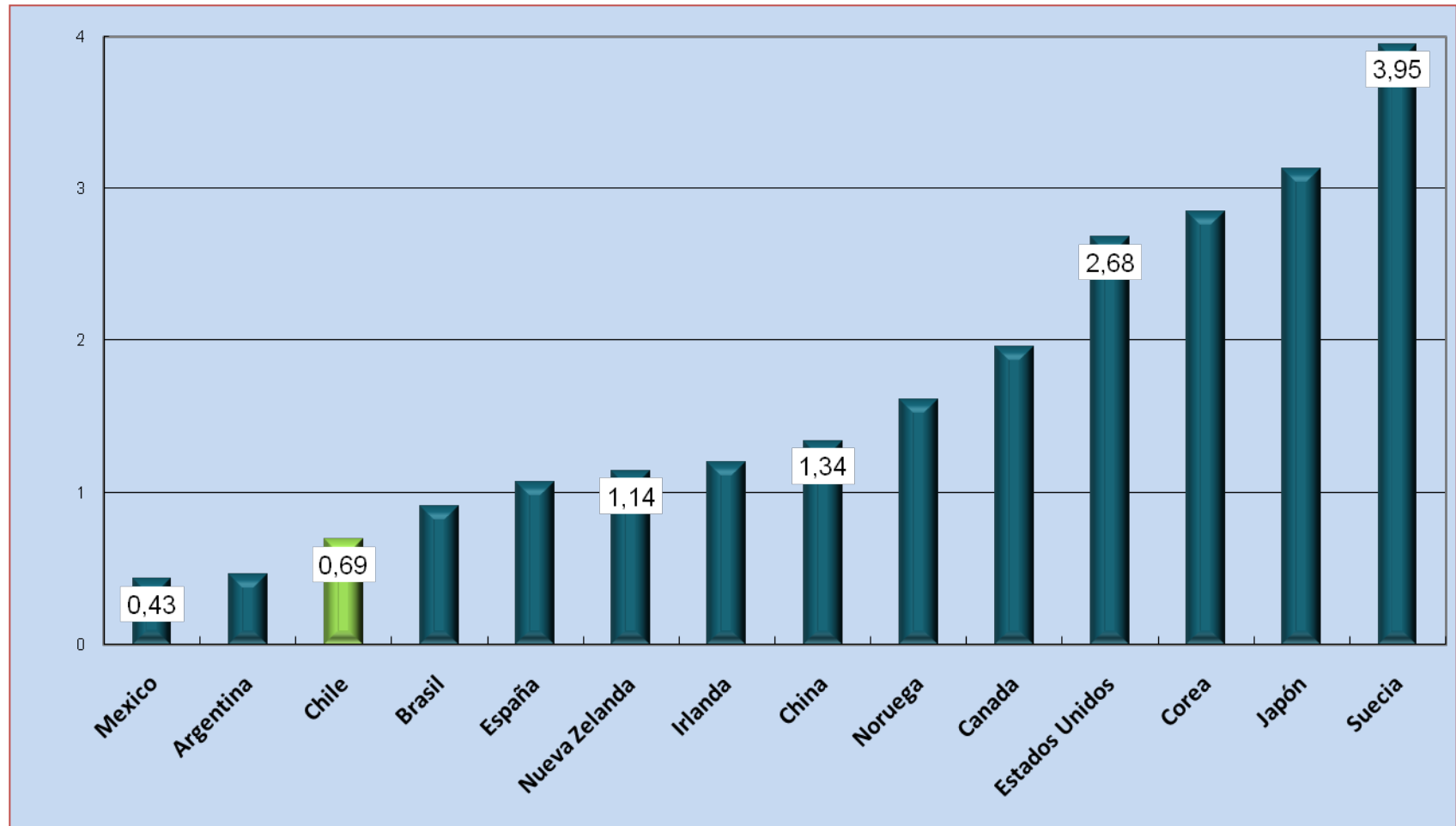
Source: R.Frenkel and M.Rapetti.

# The Real exchange rate vis a vis US. has worsened



Source: (R.Frenkel and M.Rapetti, 2011)

## Low R&D expenditure as a % of GDP, and scarce incidence upon domestic productivity growth.

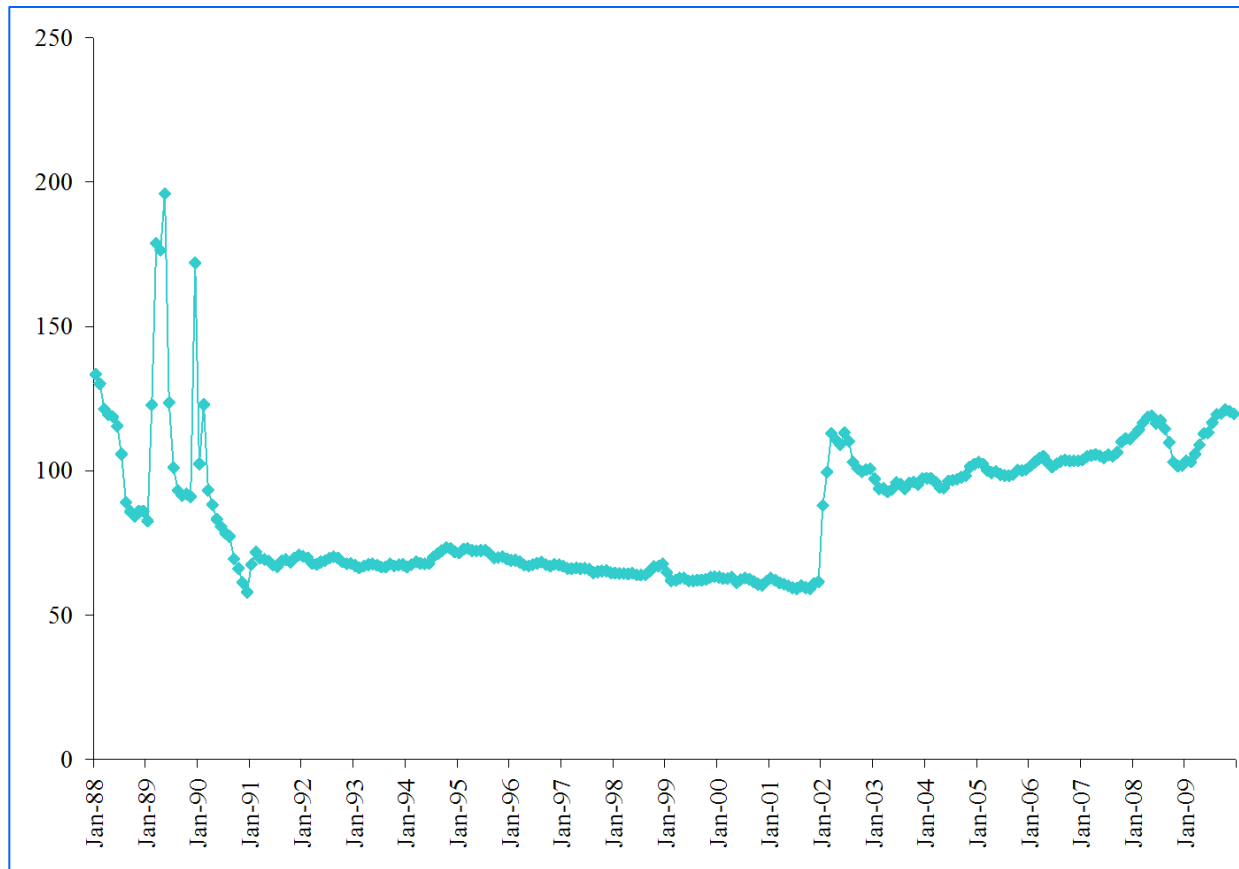




**Different macroeconomic policy regimes have failed to induce 'catching up'.**

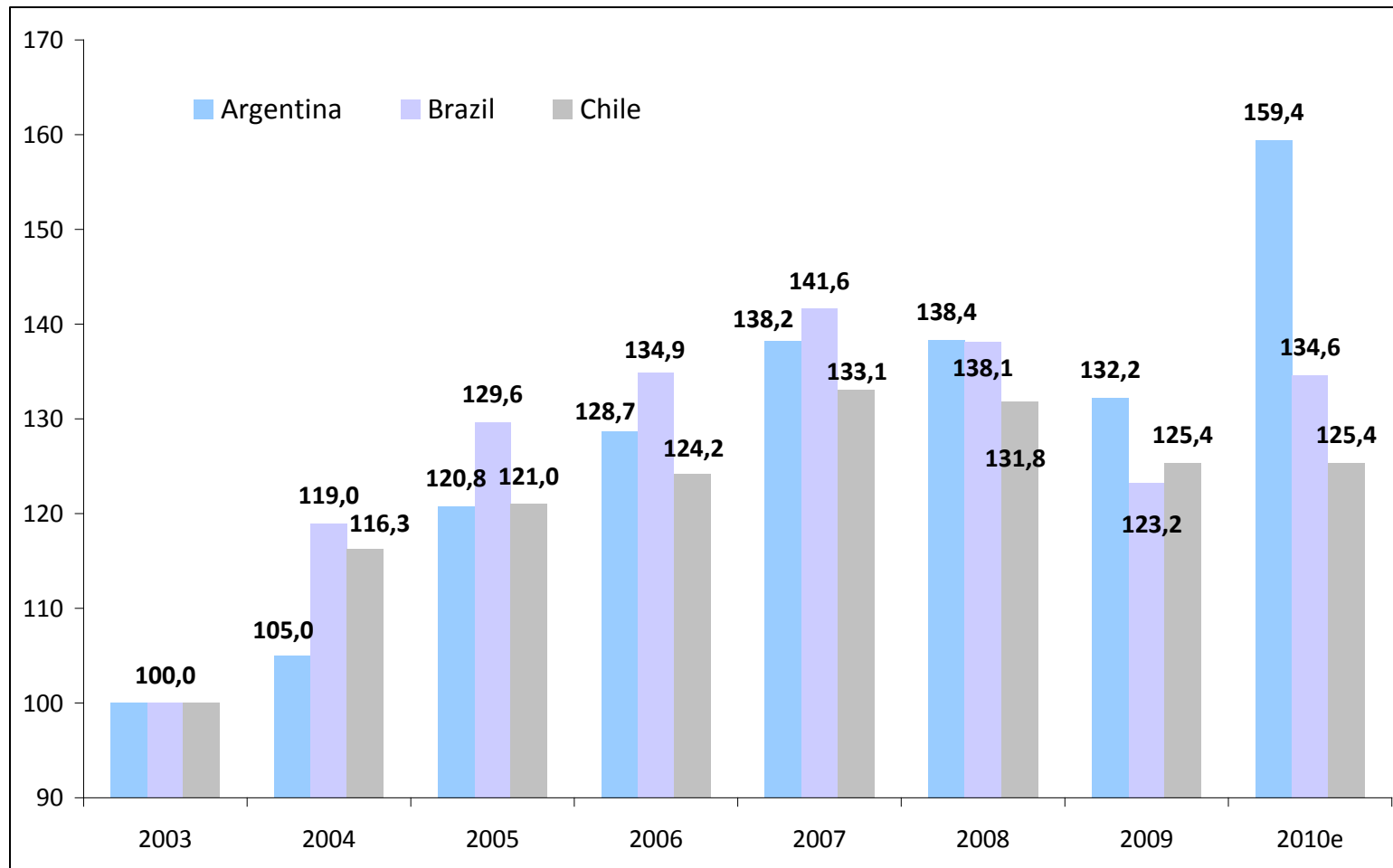
- Brazil and Chile opted for an 'inflation targeting' regime in the 2000's. Argentina instead opted for a high and competitive real exchange rate (RER) regime.
- Brazil y Chile suffered the appreciation of the exchange rate and increasing commoditization of industrial output and exports. Argentina expanded growth and employment across the board, but could not keep inflation at bay. X's came from 'old' plants, without much new investment.
- None of the three managed to close the relative productivity gap with the international frontier. Macro policies seem to be a necessary, but not a sufficient condition for that.

## Argentina: exchange rate management after the 2002 devaluation.



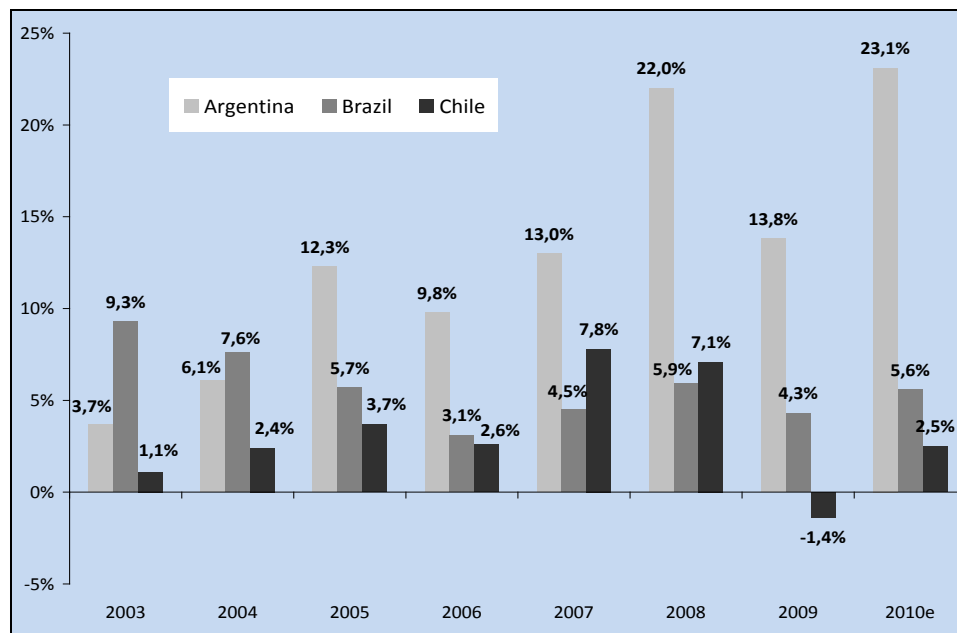
Source: Katz & Bernat, 2011

# The expansion of Exports. (Argentina, Brasil Chile)



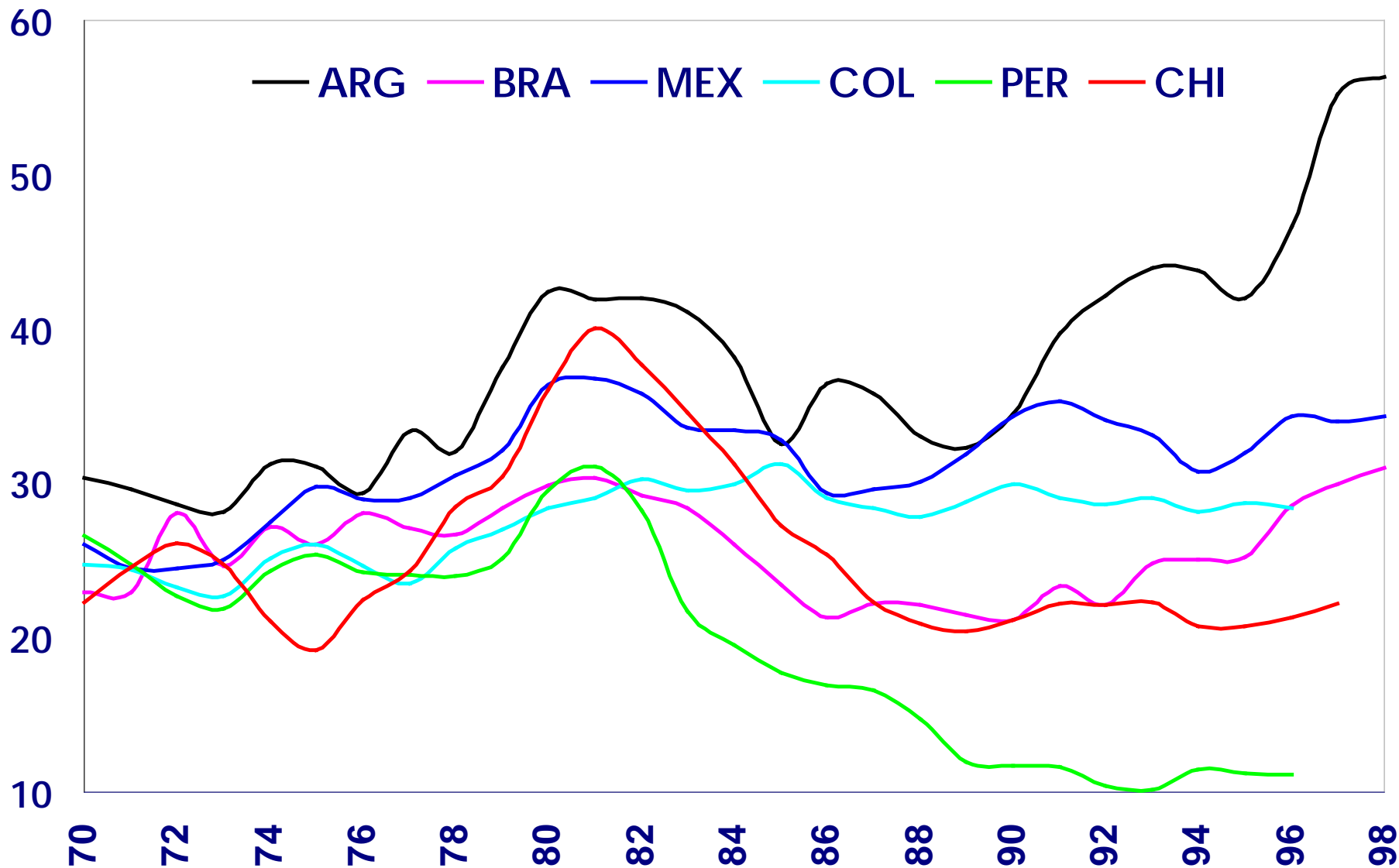
Source: Katz & Bernat, 2011

# Annual inflation rate, Argentina, Brazil and Chile.



After 2006 Argentina could not avoid moving into an inflationary regime and could not sustain its previous exchange rate policy

# Neither Argentina, nor Brazil or Chile, managed to close the relative productivity gap in manufacturing



## But convergence is taking place in natural resource based sectors

### 1. Agricultural products :

Soybean, wheat, maize.(Argentina, Brazil, Bolivia, Paraguay, Uruguay)

### 2. Mining activities. (Chile, Bolivia).

### 3. Oil and gas.(Ecuador, Colombia).

### 4. Aquaculture. (Chile)

### 5. Forestry products (Chile, Brazil, Uruguay).

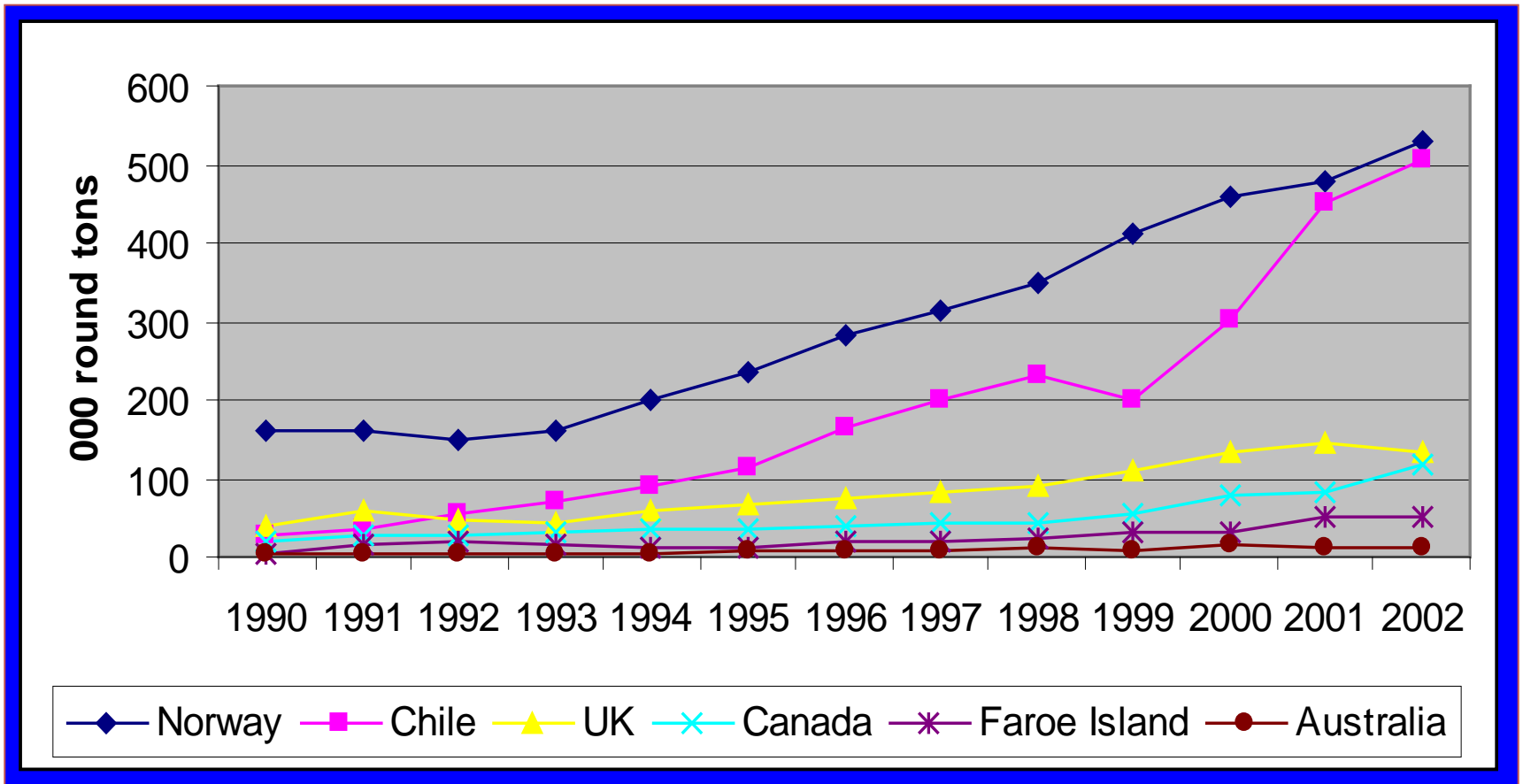
### 6. Horto, fruticulture & wine.(Argentina, Chile, Uruguay), show :

New 'state of the art' facilities have been erected featuring new process and production organization technologies. Subcontracting activities and KIBS have expanded and sophisticated natural resource based 'clusters' are rapidly growing.

# Soybean production (Tons) and productivity (Tons/acre).

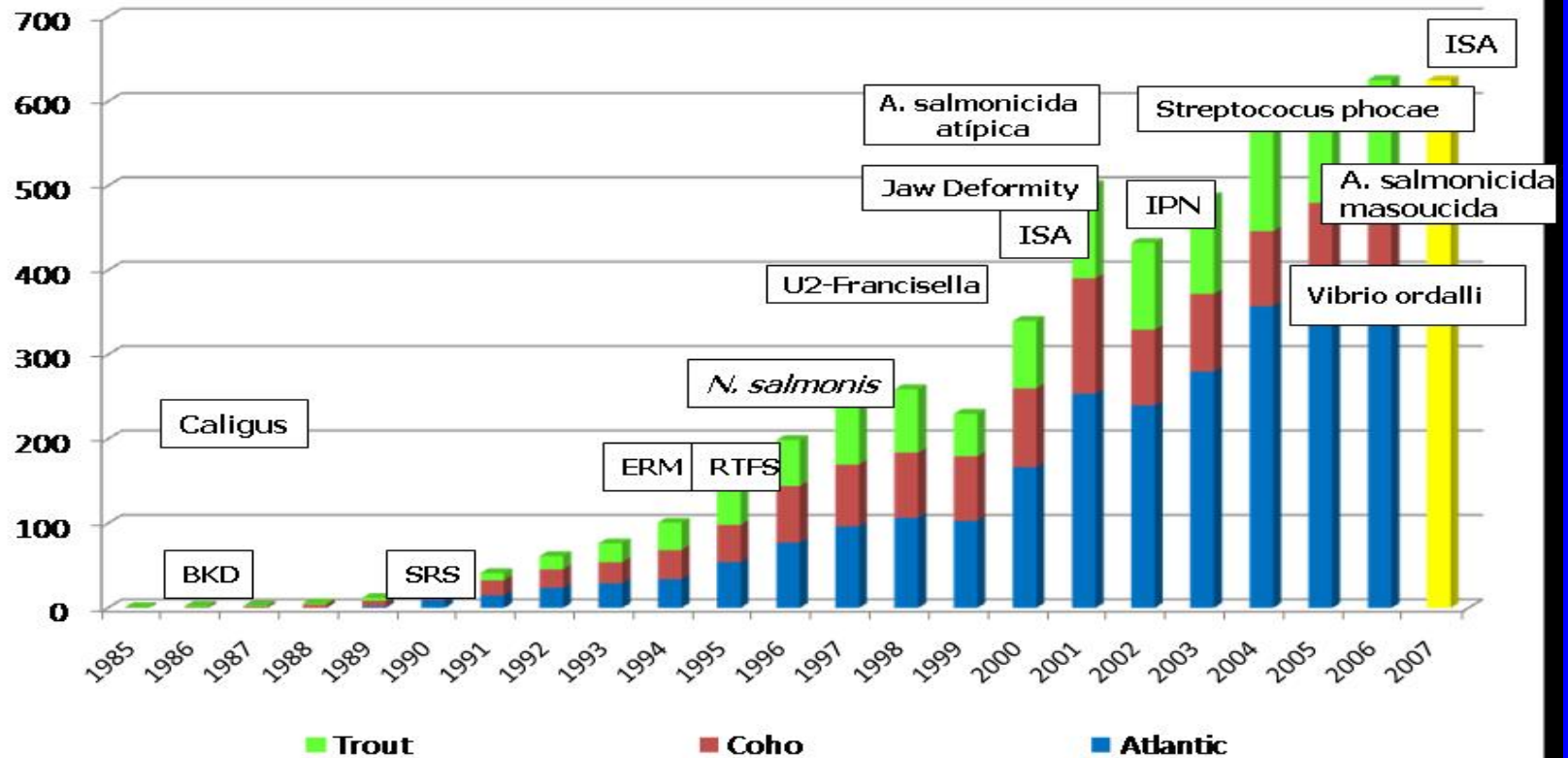
Comparative perspective		1995-1996	2006-2007
Production Tons	Argentina	12.480	46.500
	Brazil	24.150	59.000
	China	13.500	16.200
	India	4.476	7.690
	EEUU	59.174	86.770
Harvested Area . Acre	Argentina	5.980	15.900
	Brazil	10.950	20.700
	China	8.127	9.300
	India	4.817	8.100
	EEUU	24.900	30.190
Yield per acre.	Argentina	2.087	2.925
	Brazil	2.205	2.850
	China	1.661	1.742
	India	0.929	0.947
	EEUU	2.376	2.874
Source: USDA			

**Expanding the natural resource exploitation frontier  
has resulted in major environmental consequences**  
Salmon farming in Chile as an example.





## Negative environmental effects reflect a negative response from the ecology.



## **Main policy issues now facing Latin America.**

I will mention just four:

### **1. How to deal with the Chinese threat?.**

- . China is today the major source of demand for natural resource based industrial commodities. It affects world prices and terms of trade.
- . China is today a major source of supply of low and medium tech industrial goods. The trade balance has become strongly negative.
- . China is now aggressively entering energy, mining, agricultural and capital markets, taking agricultural land on lease, exploring gas and oil reserves, and offering financial help. How should the region deal with this?
- . How to negotiate with China in a 'beauty context' scenario?.
- . What impact should different countries expect from changes in the Chinese domestic policy scenarios.

**II. How to deal with a more volatile world environment. Trade and FDI.**

**III How to reconcile short term financial equilibrium and long term structural issues?**

**IV. How to deal with the problems of a natural resource based growth model**

1. Trade liberalization forced the return to natural comparative advantages leaving less space for macroeconomic policies aiming at 'catching up'.
2. The 'inflation targeting' regime –adopted out of 'fear of inflation' and to attract FDI – does not care for structural change and social inclusion.
3. The appreciation of the exchange rate has deteriorated the competitive position of emerging nations.
4. Capital goods imports have substituted for local machinery production and also for R&D efforts.
5. Environmental protection has deteriorated due to overexploitation of natural resources
6. Manufacturing activities have lost share in GDP and the expansion of the natural resource exploitation frontier with scarce provision of public goods is having negative consequences upon the environment and also upon social inclusiveness.

Monetary, fiscal and exchange rate policies are needed to sustain the RER, but financing is also required for 'industrial' and social policies.

- A competitive RER is needed for growth but it affects the rate of inflation.
- For such reason fiscal and monetary interventions are needed to keep inflation at bay.
- These interventions should aim at maintaining the global balance of the economy, but considering that resources are needed to build up of local technological capabilities and competitiveness, and also to improve social equity.
- This demands coordination between short and long term policies sustaining the global balance of the economy but financing the building up of domestic technical capabilities and improving social inclusion.

## Industrial and social policies are required to improve competitiveness and social inclusion.

- There is a widely accepted view that industrial and natural resource based growth are somewhat incompatible.
- However, natural resources demand 'location specific' specialized equipment and knowledge intensive services which can not be brought from abroad.
- Natural resources – soil, water, the bio-sphere - are in constant change and transformation in response to an increasing rate of exploitation. The dialogue between economics and the ecology demands collective understanding, regulation and public goods.
- The expansion in the rate of exploitation of natural resources with inadequate supply of public goods produces environmental degradation and welfare losses at the community level.

The current Chilean macro/micro policy package as an option to deal with the situation, but denigrated by the international press.

1. The current Chilean policy appears as a valuable attempt to bring together macro stability and social reforms : a tax reform collecting 3% of GDP to be used to improve Education.
2. The FT and The Economist have denigrated it by calling it 'the new mediocrity'. Is it right?
3. The question then emerges : How can economic growth, structural change and social inclusion be made compatible with macro stability in the present age of financial equilibrium policy thinking?