

Shocks, Stabilization and Structural change: a Latin American perspective

Mario Cimoli

Division of Production, Productivity and Management (DDPE)
UN ECLAC



NACIONES UNIDAS

CEPAL

DIME Final Conference
6-8 April 2011

Shocks, macro policies and the long run

- The interaction between macro prices and short run shocks **x** structural change and long run growth requires to be explored more carefully, particularly in economies specialized in commodities and with a less diversified productive structure, whose performance is more vulnerable to shocks
- Latin America represents an interesting example of these interactions because industrial exports are highly sensitive to the real exchange rate

Why are these links so crucial?

Structure x short run:

- countries specialized in commodities suffer more intense and more frequent shocks
- macro policies in these economies have to respond to recurrent BOP and fiscal disequilibria, caused by cycles in commodity prices and financial liquidity in the international markets

Short run x structure:

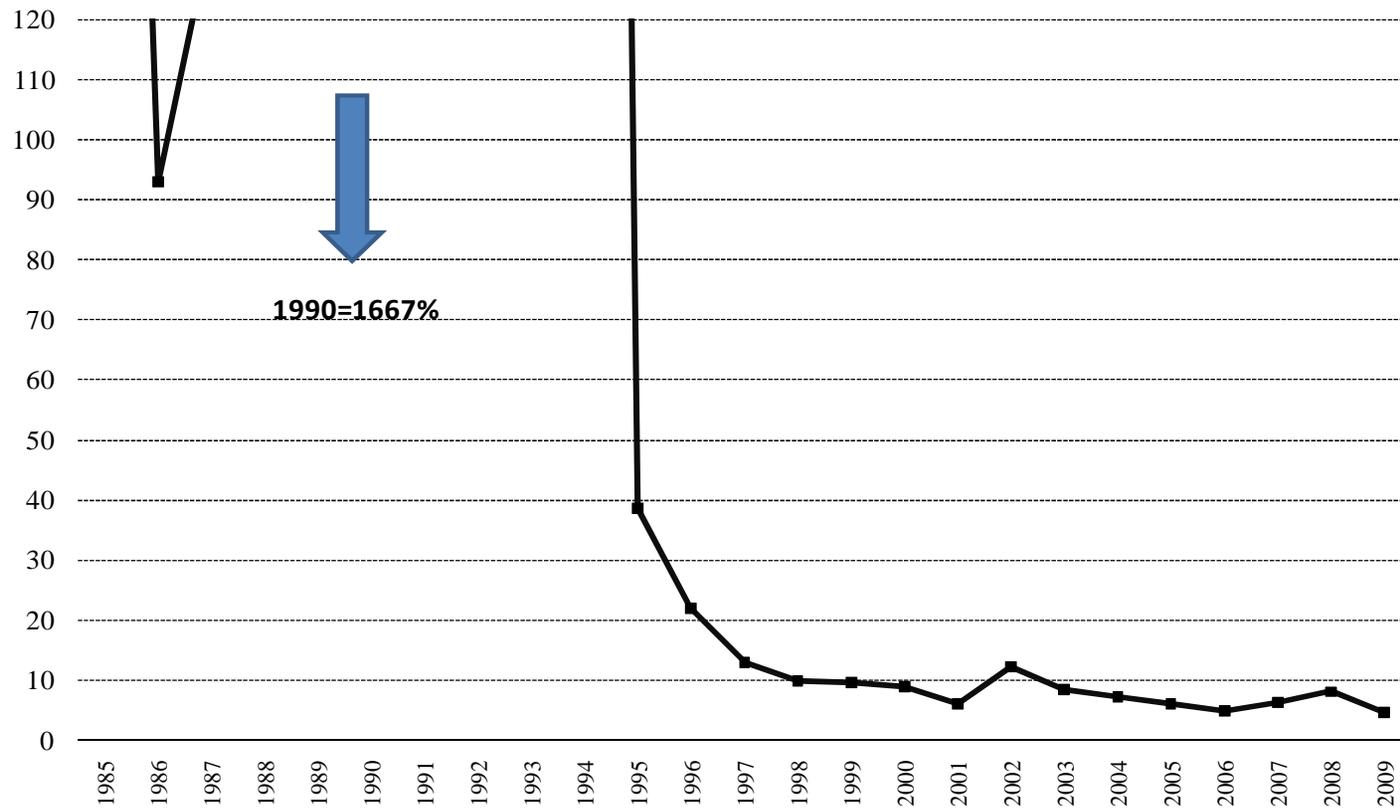
- in developing economies, a low RER implies that key industries (from a technological point of view) are unable to compete because the technology gap is high
- macro policies and price shocks have tended to depreciate the RER in several LA countries in recent years
- this in turn increased the share of sectors intensive in natural resources in the economic structure in several countries, while engineering industries declined

Point 1: The structure contributes to determine involuntary unemployment in equilibrium

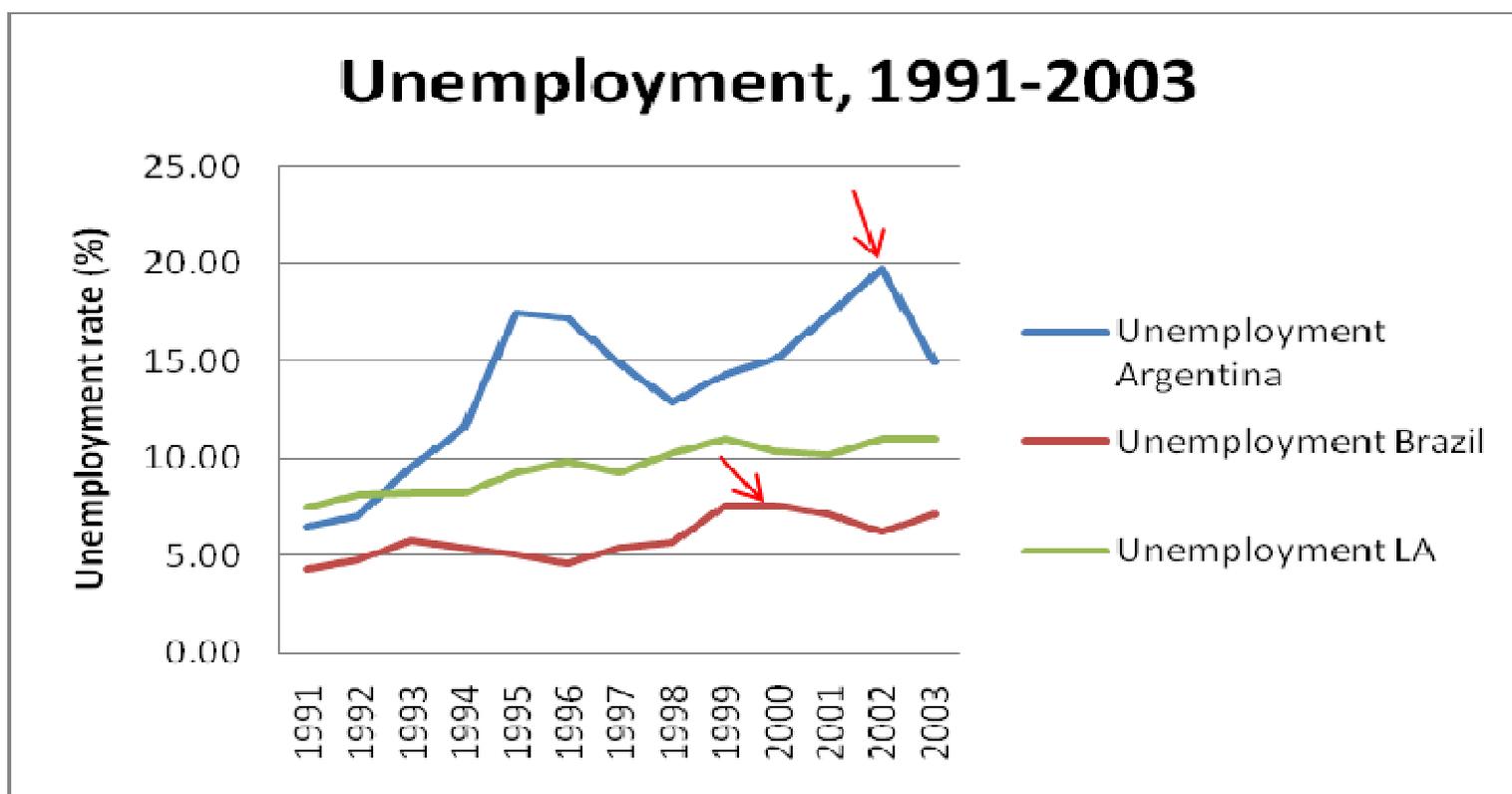
- A specialization concentrated in commodities reduces the ability to respond to the effects of an external shock
- The level of involuntary unemployment in equilibrium depends on the relative productivity of the economy
- If involuntary unemployment in equilibrium is high, price stabilization produces instability in the political arena and social unrest (recall that political structures are in some cases as fragile as the economic structures)

Latin America: the stabilization years

Latin America (19): Inflation rate reduction, 1988-2009 (yearly variation)



Adjustments costs: involuntary unemployment embedded in the productive structure

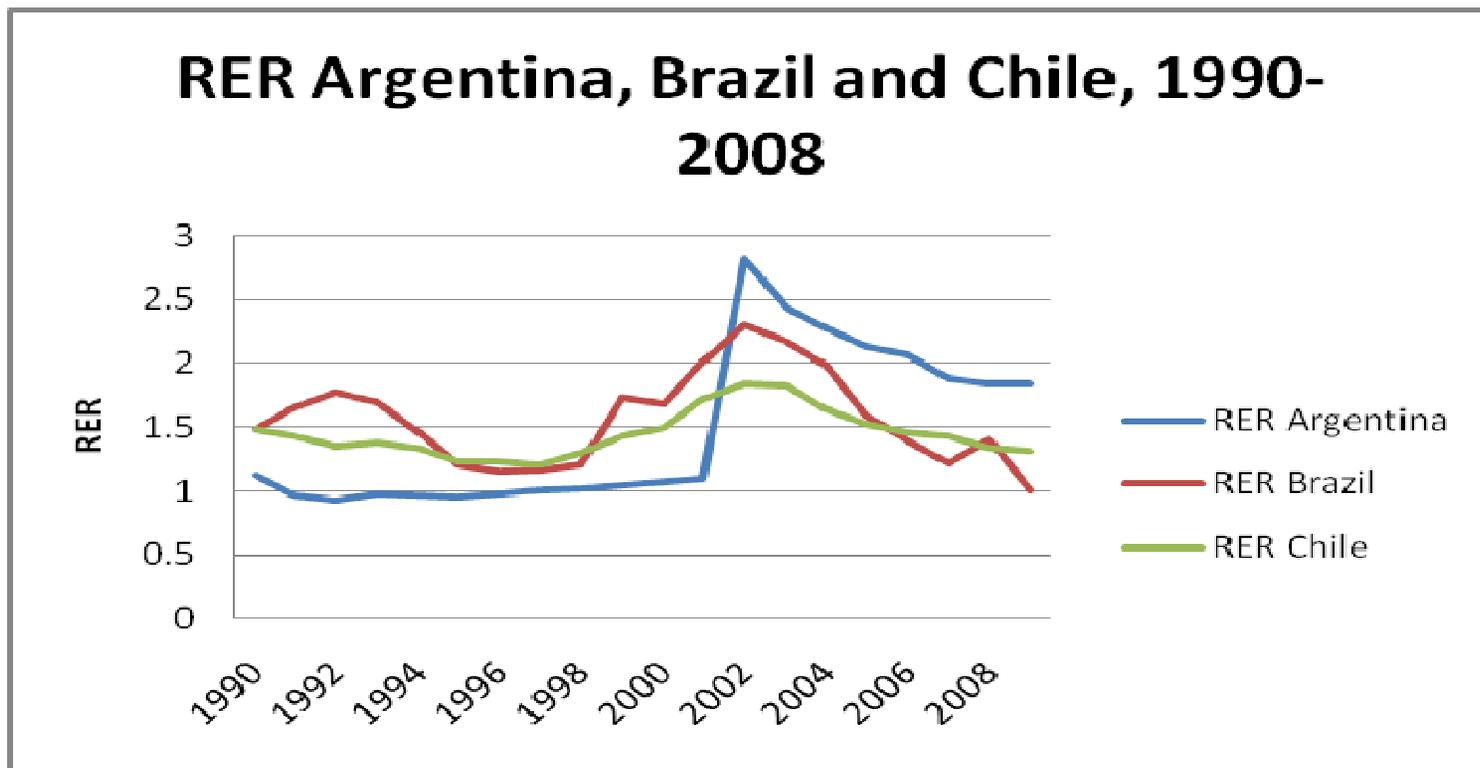


LA: Phases in the RER after 1990

- **1990s**: stabilization policies led to unsustainable overvaluation
- **1990-2002**: overvaluation led to external crisis and large devaluations
- **since 2005**: a positive external shock increased the demand and price of commodities (except during the great depression in 2008-9), lowering the RER

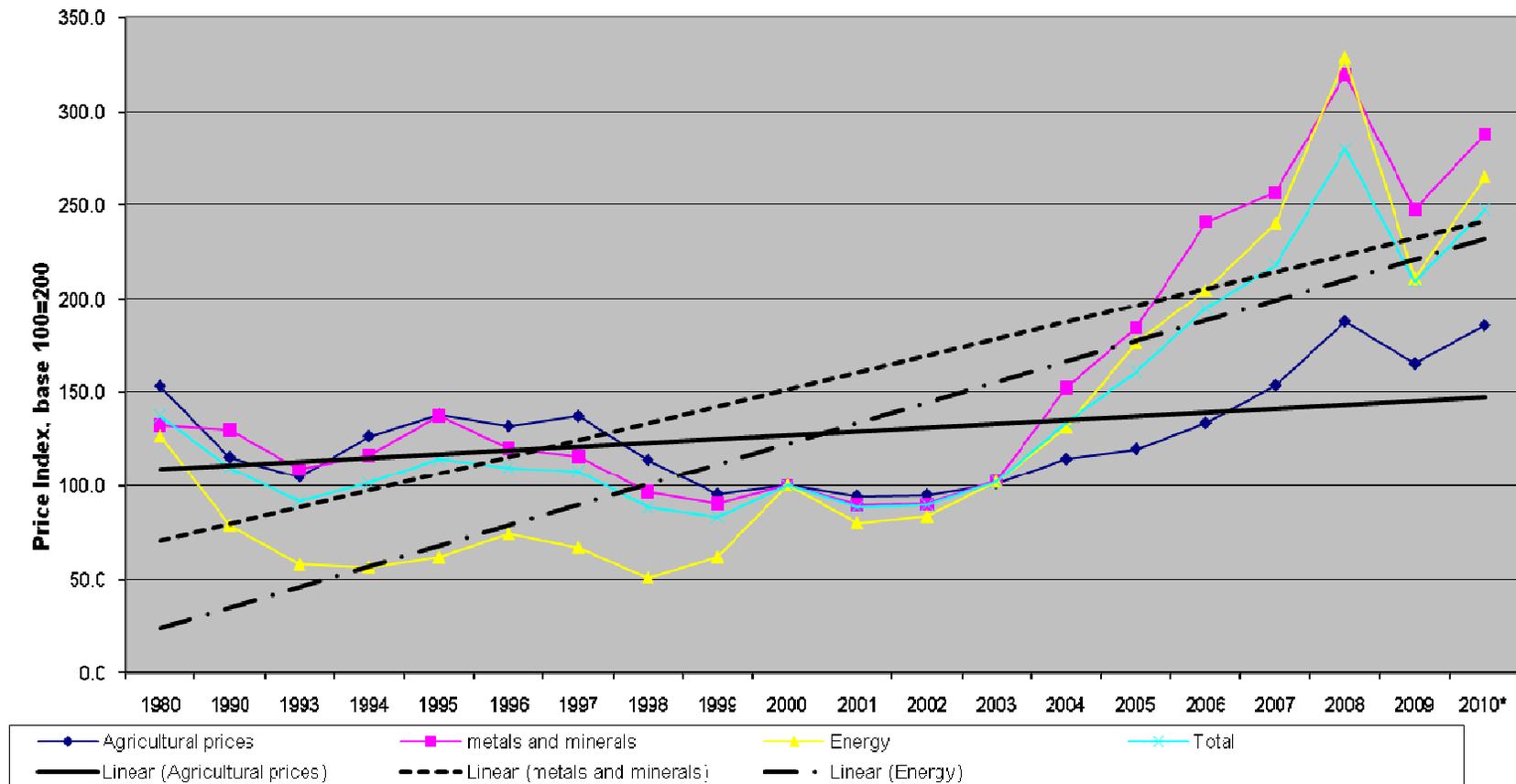
Note: a similar (yet much more acute) cycle was observed in the 1970s and 1980s

RER: Argentina, Brazil and Chile, two phases of overvaluation



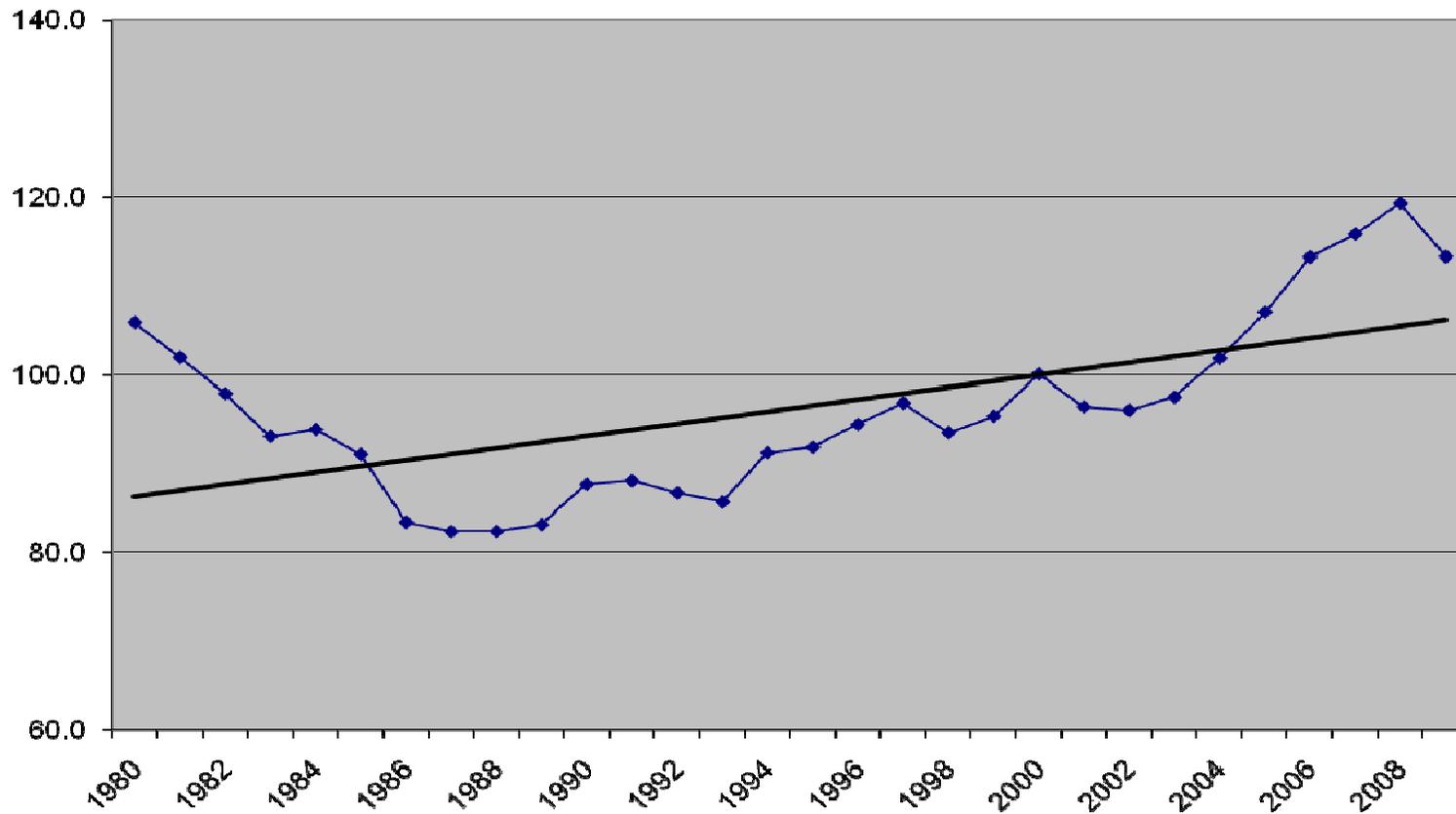
Commodity Prices since 1980: Main Trends

Price Index Commodities in Latin America, base 100=2000



A positive shock in the terms of trade from 2004

Terms of trade Latin America, base 100=2000



Source: Statistical Annuary of LAC, ECLAC (2010).

RER and industrial dynamics

A fall in the RER:

- triggers defensive policies
- implies a higher use of imported inputs
- leads to a less dense productive matrix
- induces a jump in productivity (once and for all), but with severe losses in employment

Inversely, with a high RER:

- effective demand, GDP, productivity and employment tend to move in the same direction (but the intensity of the learning process depends on the technological policy)

How industry reacted to overvaluation in Latin America

Argentina and Brazil:

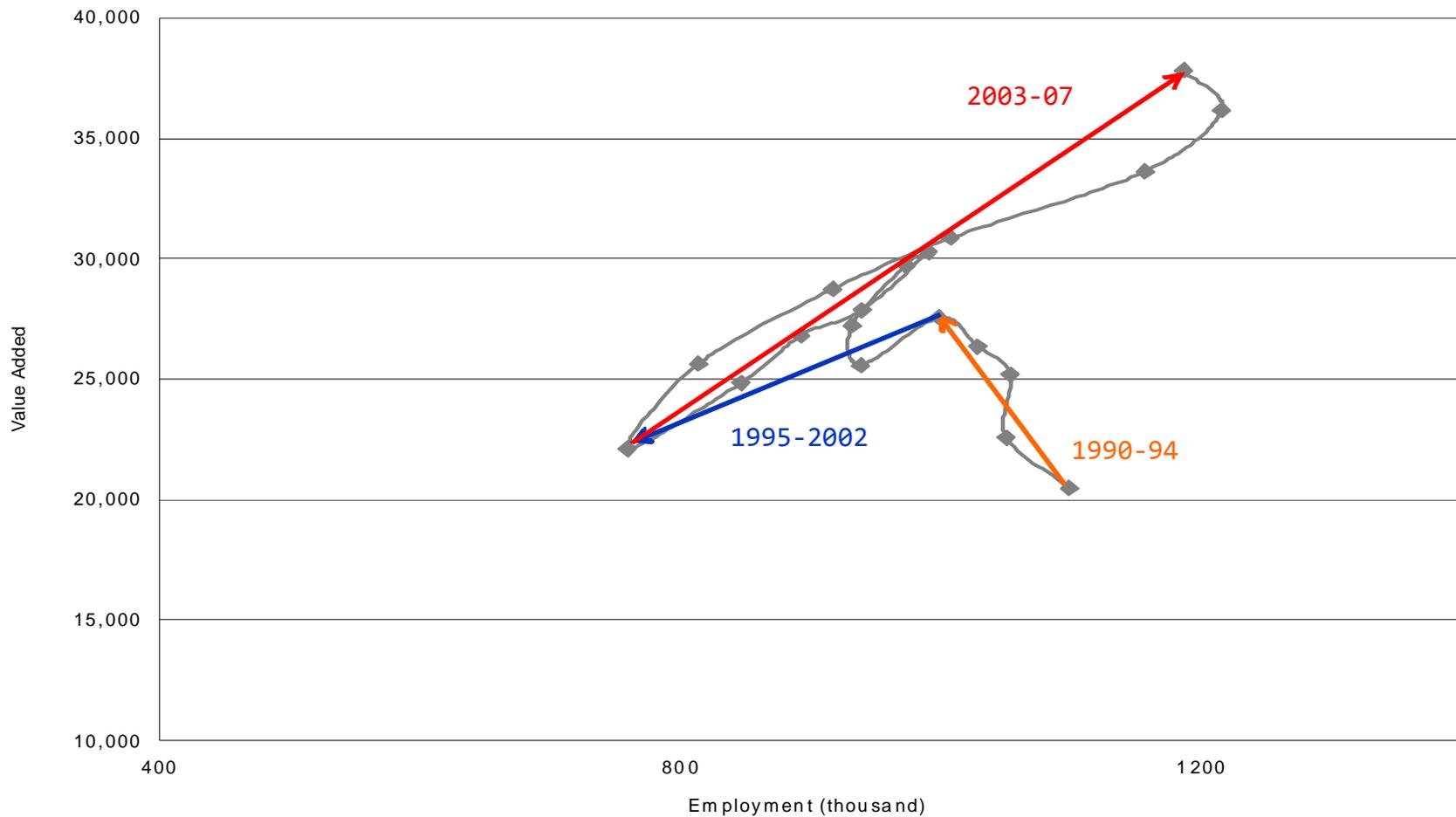
- productivity growth with losses of industrial jobs in the 1990s
- productivity and employment increased together from the early 2000s until 2007

Chile:

- employment and productivity moved together in 1990-1995
- in opposite directions between 1996-2000
- in the same direction in the 2000s

Value added and employment in the industry: Argentina, 1990-2007

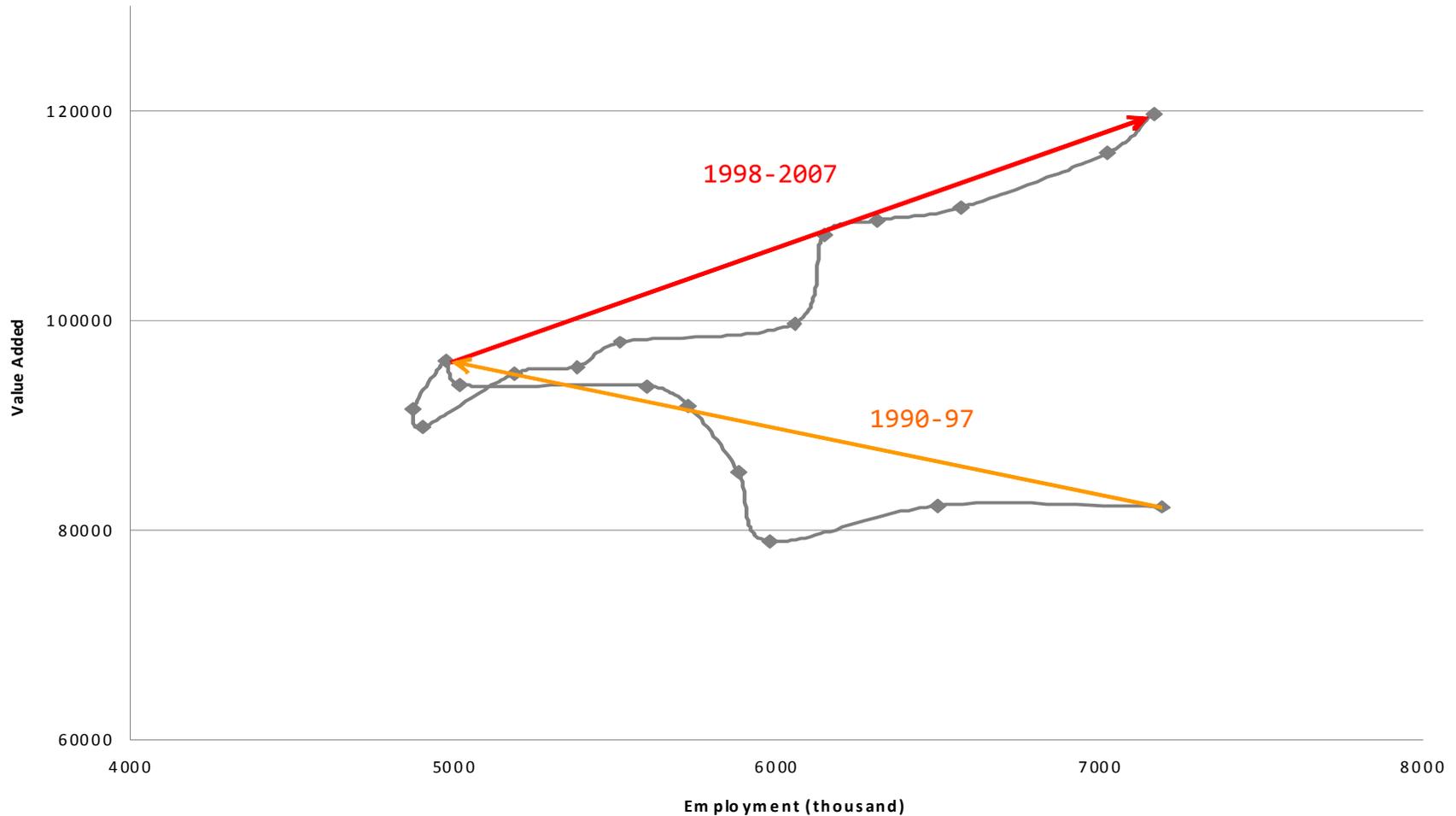
Argentina: The Dynamics of Productivity and Effective Demand



Source: PADI (DDPE).

Value added and employment in the industry: Brazil, 1990-2007

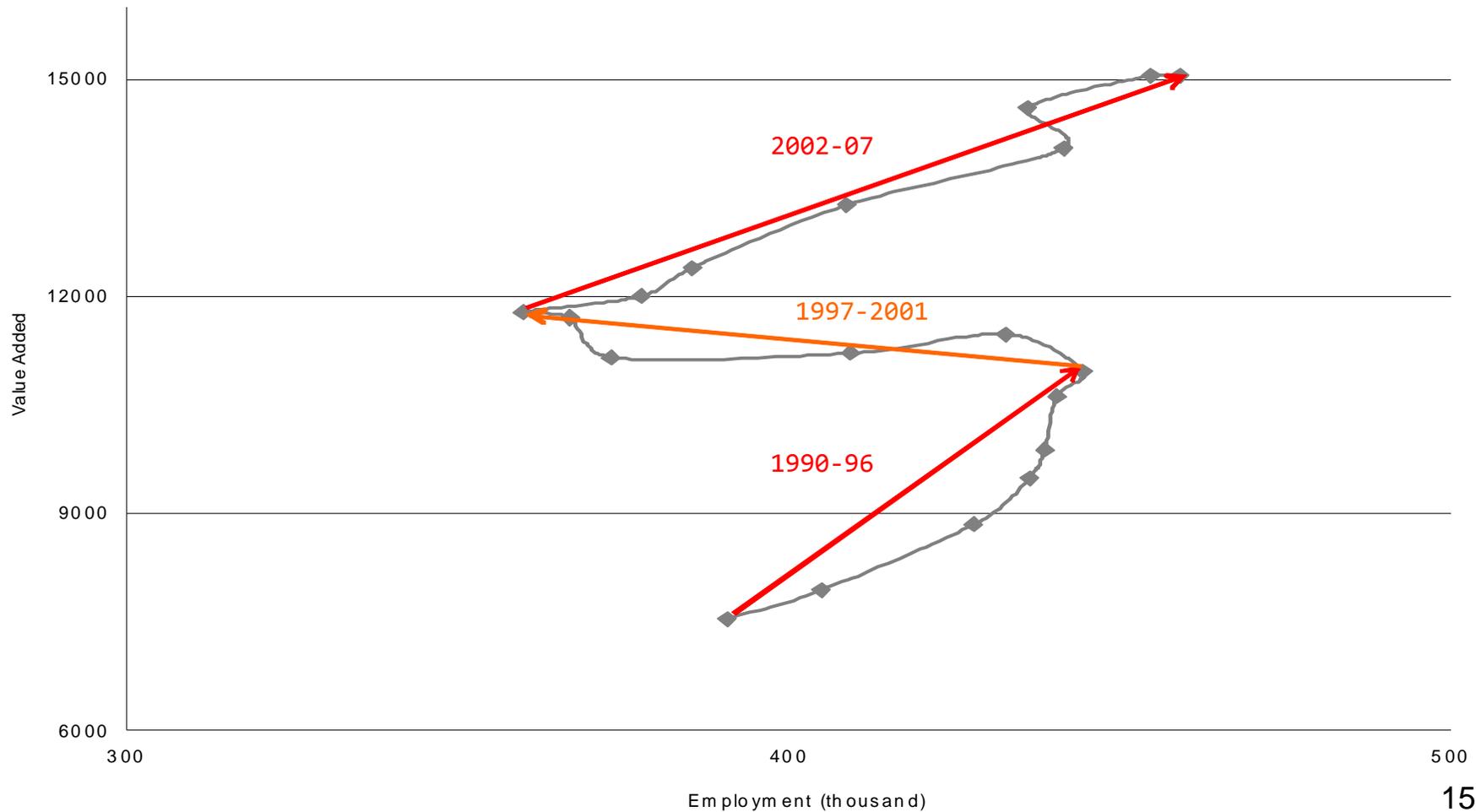
Brazil: The Dynamisc of Productivity and Effective Demand



Source: PADI (DDPE).

Value added and employment in the industry: Chile, 1990-2007

Chile: The Dynamics of Productivity and Effective Demand



Source: PADI (DDPE)

(Real) Costs of adjustment

- The slope of the curves pointing to the left is an indicator of the intensity of the loss of jobs in the laggard economy
- But this move also implies a **loss of capabilities** that will affect industrial growth in the long run

Stabilization, productivity and employment

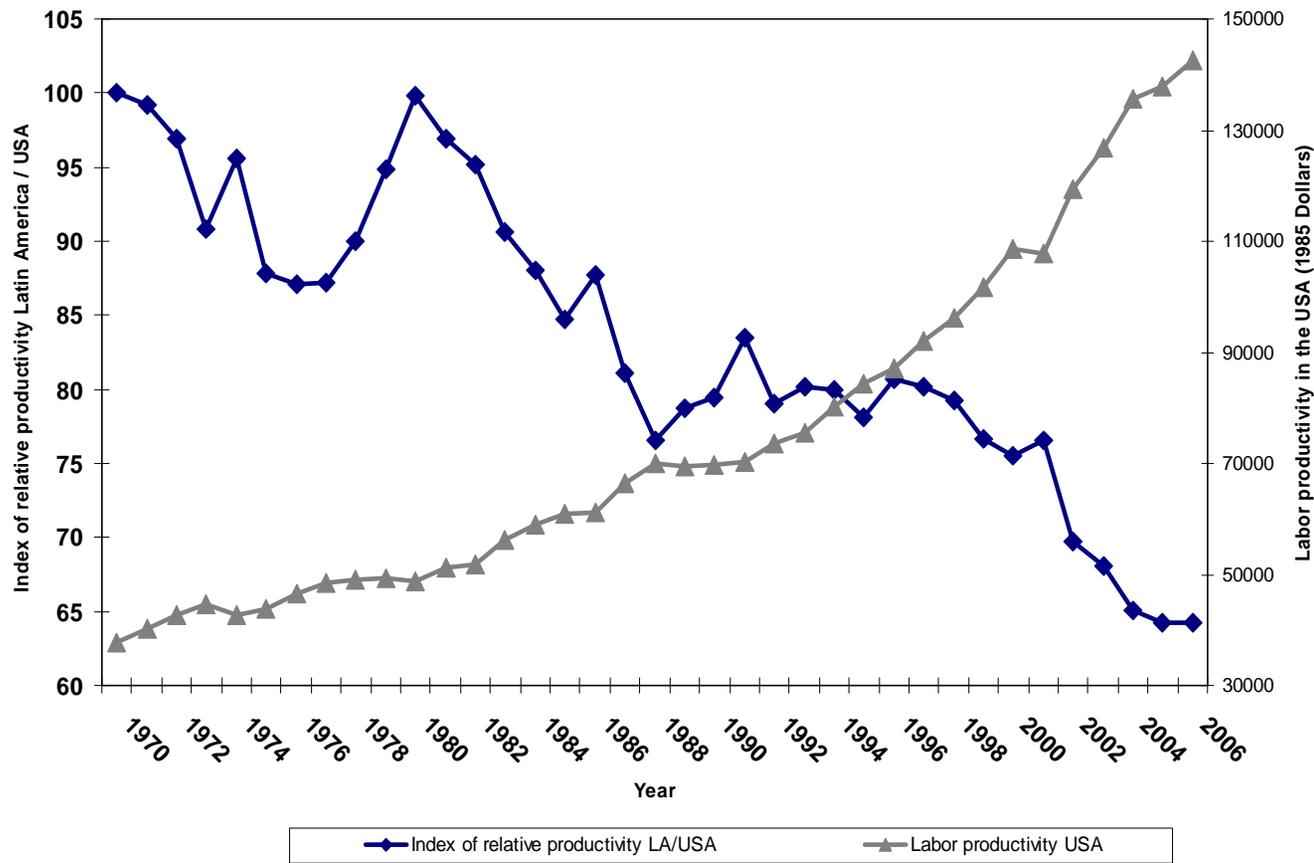
- Losses in industrial employment contribute to raise involuntary unemployment (or at the very least low-quality employment) in the short run – which means higher structural heterogeneity
- The intensity of industrial adjustment is higher the higher is the technology gap
- The surviving sectors are sectors whose competitiveness do not depend on technology but on **natural resources**

Long run trend and the commodity boom

- The general trend in the LA manufacturing relative productivity (with respect to the USA) has been negative and this trend worsened after 2005

The productivity Gap in the LA Manufacturing Sector

Latin America relative productivity index and USA productivity, 1970-2008



Source: PADI, DDPE (ECLAC)

Point 2: the RER as a link between the short run and long run (through structural change)

RER and economic growth: there is substantial evidence that the RER affects **long run growth** (= countries with higher RER grows faster)

Why does the RER matter for **long run growth**?

- RER is a link between the short run and the long run through its effects on the productive structure
- RER volatility affects investment rates and learning rates

Pro-development policies usually keeps the RER competitive, as has been traditionally the case in SE Asia

The Exchange Rate Function (ERF)

- A firm will be competitive if the nominal exchange rate compensates differences in productivity and in nominal wages (unit costs South/ unit costs North), as follows:

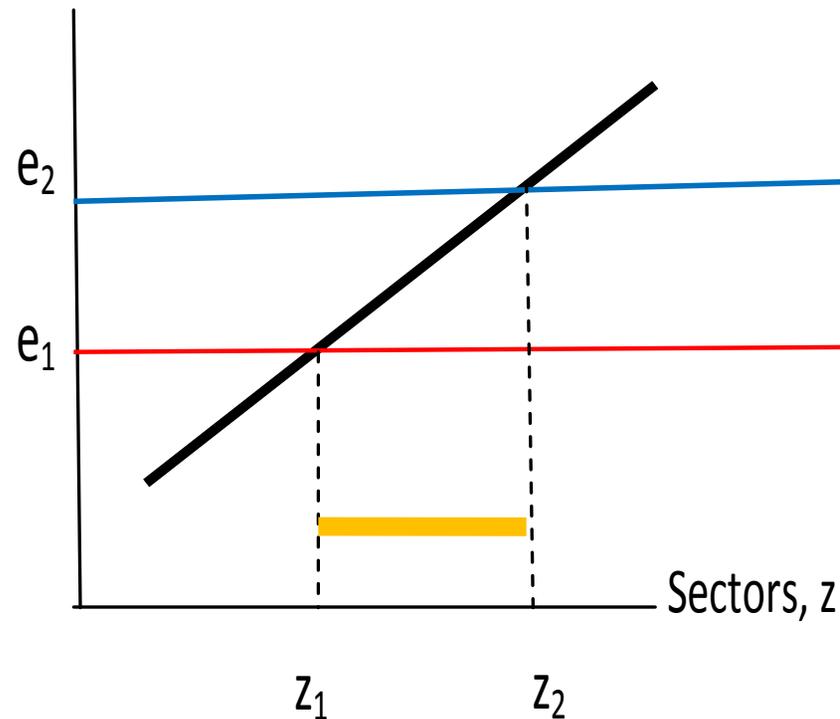
$$e > \frac{W \pi^*}{W^* \pi}$$

- The higher the technological gap, given the nominal wages, the higher the required level of the nominal exchange rate

Specialization and ERF

- If goods are indexed from high comparative advantage to low comparative advantage, the nominal exchange rate required for competitiveness increases with z

A graphic representation of the Dutch Disease



If the nominal exchange rate falls from e_1 to e_2 , there will be a loss of sectors from z_1 to z_2

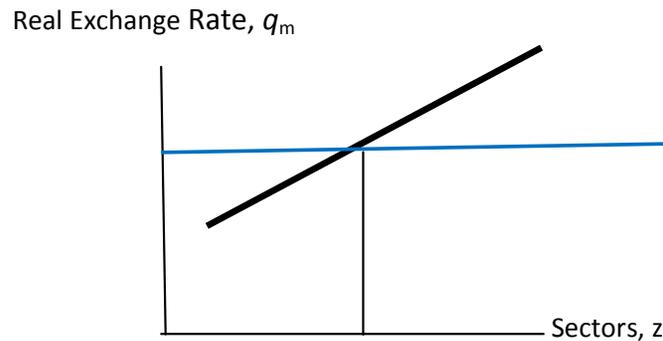
The modified real exchange rate function (RERF)

- If relative wages (W/W^*) move *pari passu* with relative prices, a modified RER can be written as:

$$q_m = \frac{W^* e}{W}$$

- The RERF equals the productivity gap

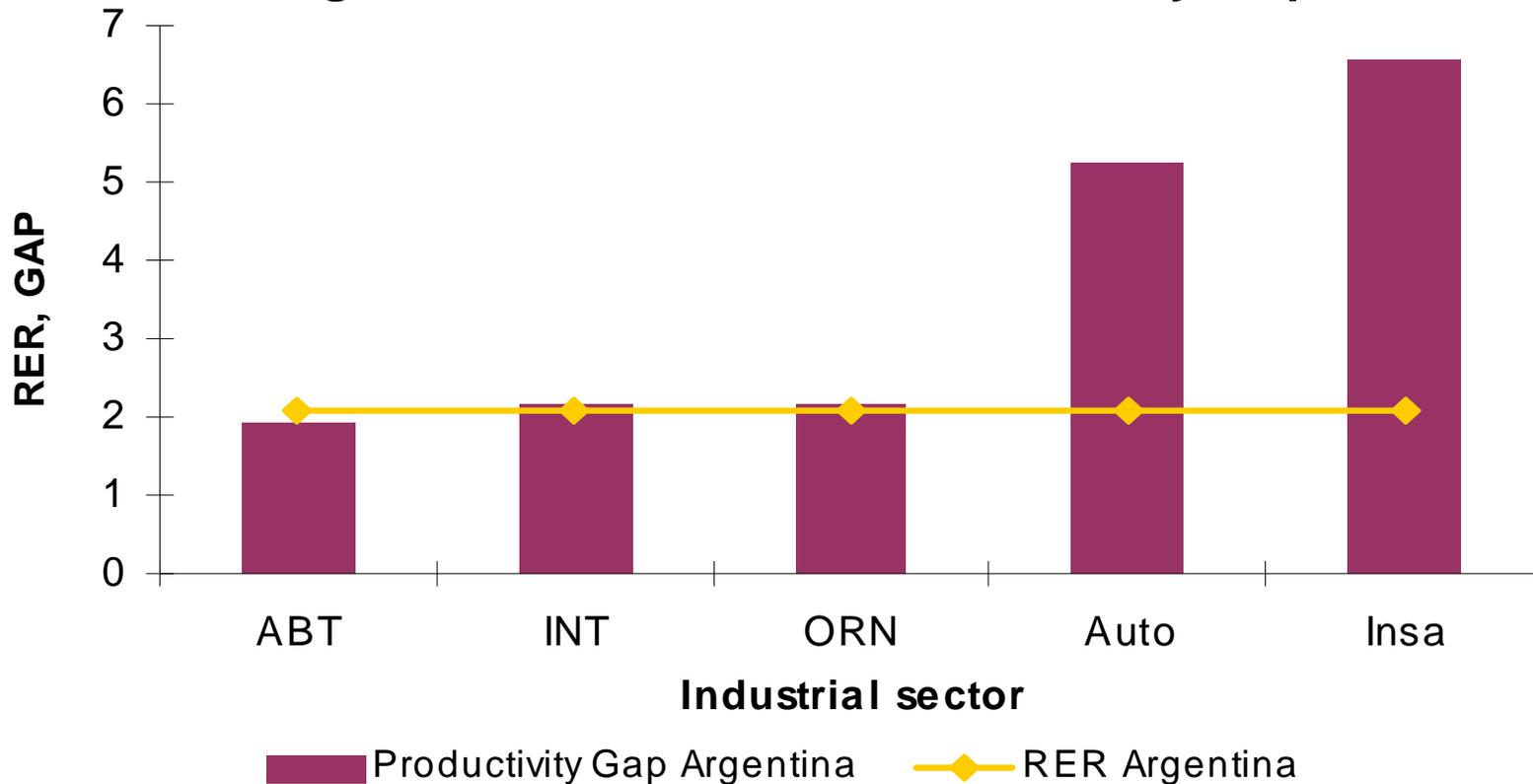
To remain competitive in a certain sector, q_m should be higher than the productivity gap



Relative North-South
productivity curve
(productivity gap)

Argentina, Productivity Gap and RER, 2004-2006

Argentina, RER and the Productivity Gap



ABT= Food, Beverages and Tobacco
INT= Engineering intensive
ORN= Others Natural Resources

Auto= Automotive
INSA= Engineering without automotive

Source: Authors' elaboration based on PADI (ECLAC) and Penn World Tables (2010).

Brazil, Productivity Gap and RER (Thanks God they have industrial policy)

Brazil, RER and the Productivity Gap



ABT= Food, Beverages and Tobacco Auto= Automotive
INT= Engineering intensive INSA= Engineering without automotive
ORN= Others Natural Resources

Source: Authors' elaboration based on PADI (ECLAC) and Penn World Tables (2010).

RER and productive patterns

- Every time macro policy-makers choose a level for the inflation target or adopt a restrictive monetary policy, they are implicitly defining a certain **degree of industrial diversification** for the economy
- A RER target is as well a diversification target

RER for inflation target, RER for external equilibrium, RER for industrial development

- There is a RER which is consistent with inflation target, which may not produce equilibrium in current account
- There is a RER that secures equilibrium in current account. But in countries where natural resources are abundant, this RER may not allow industry to survive
- There is a RER which allows certain industrial sectors (regarded as key produces of learning) to survive in the long run and which is compatible with a desired level of industrial diversification

Export structure and RERs

Export (shares)	Argentina		Brazil		Chile	
	% 2000-2002	%2007-2009	% 2000-2002	%2007-2009	% 2000-2002	%2007-2009
Primary Commodities	33.7	25.9	17.0	26.4	32.4	34.9
ISA	12.3	14.1	25.6	20.8	3.3	2.3
Autos	8.1	10.4	13.3	10.5	1.5	0.7
Engineering intensive	20.4	24.5	38.9	31.3	4.8	3.0
ABT	24.1	31.0	15.0	16.8	10.9	8.0
ORN	12.9	13.0	22.2	20.8	48.7	52.9
Natural Resources intensive	37.0	44.0	37.2	37.6	59.6	60.9
Labor intensive	8.9	5.7	6.9	4.8	3.2	1.2
Total	100.0	100.0	100.0	100.0	100	100

Different RERs, different stories

- Argentina adopted a higher RER and this had more favorable implications for the export structure, as compared to Brazil and Chile

Growth Rate of the GDP per capita in LA and the World Economy

Rates of Growth, GDP per capita, different periods									
		1971-80	1981-89	1990-97	1998-2003	2004-08	1998-2008	1990-2008	2009
Latin America (19)		3	-0.8	1.5	-0.1	4	1.8	1.7	-2.9
Asia (9)	XX		5.6	5.8	2.2	3.9	3	4.1	-2
United States	XX		2.4	1.6	2	1.4	1.8	1.7	-3.4
World	XX		1.6	0.6	2	3.3	2.6	2	-3.5

Policy implications 1: macro and industrial policies

- The close relationship that exists between ERU and structure requires bringing the industrial, trade and technological policies much more in tune with short run macro policies
- Ind & tech policies should offer compensatory measures to cushion the recessive impact of a lower RER
- Ind & tech policies as a mechanism of curbing distributive conflict over the RER

Policy implications 2: diversification as trade creation

- More trade can be obtained from a lower technology gap and more diversified economic structures that are inter-related through intra-industry trade, rather than from highly asymmetrical (in technology, human capital and GDP per capita), highly specialized structures connected through inter-industry trade and a slow-moving diffusion of technology.

Policy Implications 3

International Political Economy

- The North should encourage export diversification from the periphery because this will produce more stability and higher growth at a global level
- Why? Many developing economies are constrained by the BOP constraint and they will be able to grow at higher rates (and import from the North at higher rates as well) when they raise their own exports to the North (Prebisch's implicit reciprocity)

Conclusions 1

- Short run versus long run: we all know that the structure matters and that cumulativeness, increasing returns and hysteresis imply that the economic system has a long memory
- The RER is a key link between short run and long run because affects the pattern of production and specialization

Conclusions 2

- Involuntary unemployment is embedded in the productive structure
- Stabilization policies cannot ignore industrial and technological policies: the timing of the two policies is very different, but one should complement the other. The higher the technology gap, the higher the need of industrial and technological policies to reduce the fall in employment and competitiveness associated with stabilization and / or a lower RER