

*Conference on “Responding to globalization in the Americas: the Political Economy of Hemispheric Integration”*

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*Outline of the presentation by Carlos Magariños and Florencia Lopez Boo*

## **Successful Industrial Policies and Integration: Connections, tensions and interactions**

### 1. Our definition of successful Industrial Policies

The first problem we will address is how to define a successful Industrial Policy and we want to warn the audience from the beginning in the sense that we focus our presentation from a developmental perspective.

For us, in a globalize and modern economy **industrial policy consists of mobilizing information, knowledge, skills and technology to help raising productivity and achieve sustained long term growth rates with the ultimate aim of increasing living standards. That is the measure of its success.**

To make our proposed definition operational we need to depart from simple quantitative approaches related to the share of industry in GDP adding some qualitative elements such as industrialization intensity (in technology terms) and export quality.

We therefore developed the Competitive Industrial Performance (CIP) Index, which is made up of six variables:

- MVA per capita
- Manufactured Exports per capita
- Share of Industry in GDP
- Share of Manufactured in total exports
- Share of Medium and High Technology activities in MVA
- Share of Medium and High Technology in Manufactured Exports

Organized this way the index show us four different juxtapositions: production versus trade; level versus structure; industry versus other sectors and higher technology industry versus lower technology industry.

The index also points to five drivers that attempt to explain the performance of these variables: skills (tertiary and technical education); technological effort (investment in

R&D by local companies); inward FDI; technology licensing (payment of royalties, etc); modern infrastructure (ICT, etc)

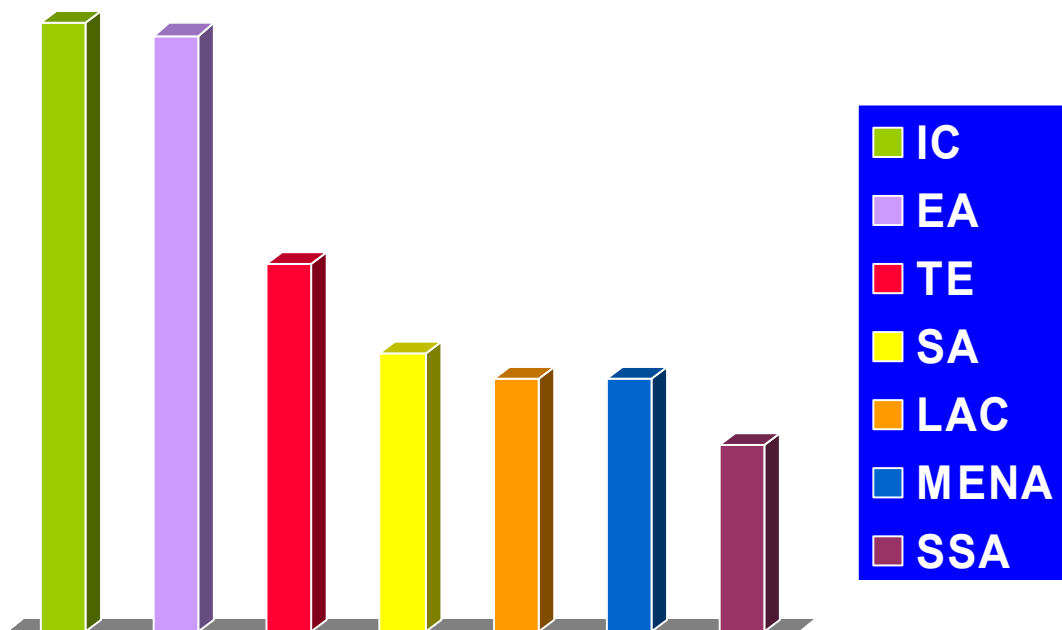
**We therefore propose that successful performance in the index reveals successful industrial policies**

A. Some examples of county performance in the CIP index

Among developing regions, East Asia is the best performer followed by the heterogeneous group of transition economies. Third comes the group of Latin American countries, and fourth MENA. Last place is for Africa.

Countries' performance in the index tends to be stable showing how difficult it is to modify the structural factors underlying competitiveness at any level of the ranking.

**Figure 1.1**



**Table 1.1 Ranking of core sample by the CIP Index, 1980, 1990 and 2000**

2000			1990			1980		
<i>Ran</i>			<i>Ra</i>					
<i>k</i>	<i>Economy</i>	<i>Score</i>	<i>nk</i>	<i>Economy</i>	<i>Score</i>	<i>Rank</i>	<i>Economy</i>	<i>Score</i>
1	Singapore	0.833	1	Singapore	0.772	1	Switzerland	0.758
2	Ireland	0.738	2	Switzerland	0.748	2	Singapore	0.683
3	Switzerland	0.717	3	Germany	0.683	3	Germany	0.658
4	Finland	0.648	4	Japan	0.661	4	Sweden	0.604
5	Sweden	0.633	5	Sweden	0.611	5	Japan	0.585
6	Japan	0.615	6	Belgium-Luxembourg	0.601	6	Belgium-Luxembourg	0.569
7	Germany	0.594	7	Finland	0.561	7	Netherlands	0.536
8	Belgium-Luxembourg	0.567	8	Austria	0.547	8	Finland	0.519
9	Taiwan, Prov. of China	0.549	9	Ireland	0.530	9	France	0.513
10	Korea, Rep. of	0.537	10	Netherlands	0.525	10	Italy	0.511
11	United States	0.517	11	Italy	0.522	11	Austria	0.497
12	Austria	0.512	12	France	0.509	12	United Kingdom	0.496
13	Netherlands	0.508	13	United Kingdom	0.505	13	United States	0.489
14	France	0.493	14	United States	0.504	14	Denmark	0.480
15	Malaysia	0.492	15	Taiwan, Prov. of China	0.497	15	Norway	0.455
16	Italy	0.488	16	Denmark	0.485	16	Hong Kong SAR	0.443
17	United Kingdom	0.481	17	Canada	0.455	17	Canada	0.440
18	Canada	0.472	18	Korea, Rep. Of	0.440	18	Taiwan, Prov. of China	0.428
19	Denmark	0.460	19	Spain	0.438	19	China	0.426
20	Hungary	0.459	20	Hong Kong SAR	0.431	20	Ireland	0.426
21	Israel	0.458	21	Israel	0.430	21	Israel	0.415
22	Spain	0.426	22	Norway	0.405	22	Spain	0.402
23	Thailand	0.386	23	Malaysia	0.368	23	Poland	0.362
24	China	0.379	24	Hungary	0.354	24	Korea, Rep. of	0.344
25	Philippines	0.377	25	Portugal	0.324	25	Brazil	0.310
26	Mexico	0.375	26	China	0.323	26	Portugal	0.309
27	Hong Kong SAR	0.343	27	Brazil	0.321	27	Turkey	0.306
28	Portugal	0.342	28	Poland	0.317	28	Australia	0.303
29	Poland	0.340	29	Mexico	0.297	29	New Zealand	0.302
30	Norway	0.333	30	New Zealand	0.286	30	Barbados	0.296
31	Brazil	0.324	31	Australia	0.285	31	Hungary	0.285
32	Costa Rica	0.318	32	Thailand	0.281	32	Mexico	0.282
33	Turkey	0.309	33	Iceland	0.276	33	Iceland	0.281
34	New Zealand	0.304	34	Argentina	0.272	34	Argentina	0.281
35	South Africa	0.299	35	Turkey	0.268	35	Greece	0.276
36	Australia	0.298	36	India	0.262	36	Zimbabwe	0.248
37	Argentina	0.294	37	Greece	0.262	37	South Africa	0.246
38	Indonesia	0.292	38	Jordan	0.253	38	Cyprus	0.245
39	Iceland	0.291	39	Barbados	0.251	39	India	0.243
						39	China	0.240

My country, Argentina was in the position 33 in 1980, 34 in 1990 and 37 in 2000. Japan was number 5, 4 and 6 respectively while India was number 38 in 1980, 36 in 1990 and 40 in 2000. Brazil for example, slightly deteriorated its position from the post number 24 in 1980 to the post number 31 in 2000.

However for a group of high performing countries important shifts in the scale are observed. Malaysia was in the position number 40 in 1980, 23 in 1990 and 15 in 2000 while Thailand ranked 47, 32 and 23 respectively. Korea moves from position 23 in 1980 to 10 in 2000. In spite of its enormous population China managed to move from rank position 39 in 1980 to 24 in 2000. Hungary moved from rank 30 in 1980 to 24 in 1990 and 20 in 2000. Ireland's progress showed even more dramatically: it went from 19 in 1980 to 2 in 2000. Mexico, the best Latin American performer moved from rank 31 to the 26 between 1980 and 2000.

There is a **strong statistical correlation between the performance of the countries in the index and the growth rate they experienced during the same period** and, although productivity has not been included in the set of industry-specific indicators underlying the index for reasons of data availability, the **CIP index score is positively and systematically correlated with average labor productivity for the whole manufacturing sector across a relatively small set of developing countries**, for which such comparison could be made.

B. Refinement and improvement of the concepts embodied in the CIP index

A. To sort out the problem related to data availability regarding **productivity** in developing countries we attempted to build a comprehensive database on the subject. Mr. Anders Isaksson from UNIDO leads such efforts. He used several different **methods** to measure TFP growth including:

- **Growth Accounting** (Hicks and Harrod neutral),
- **Dynamic Growth Accounting** (which corrects for some endogeneity issues in the standard growth accounting approach),
- **Pooled regression analysis** (all countries together without controlling for country-specifics)
- **Panel regression** (using the fixed-effects estimator to control for the same country specific effects ignored in the Pooled version) [Pooled and Panel are done for subgroups of countries as well, e.g. based on geographic distribution]
- **Stochastic Frontier Analysis** (like Panel regression but here a production frontier is estimated; I use both random and fixed effects)
- **Data Envelopment Analysis** (DEA, used in UNIDO) and finally what we call
- **Long-Memory DEA** (the difference between DEA and LMDEA is that the latter does not allow the frontier to move inwards, which means that technology can only progress or have zero change but it cannot regress - it makes a lot of sense but it depends a little on the way one thinks of technology, in any case this is largely an overlooked issue).

For TFP level he use the method developed by Caves, Christensen and Diewert (1982) which is a method that delivers relative productivity levels; the main advantage of this method over simpler calculations is that it's base-country independent. This implies that whatever country you use as benchmark the TFP ranking will remain the same.

**Countries coverage:** it differs according to various ways of measuring labor input (L). Let me provide a rough guide. For instance, in the case of L=labor force it covers **112 countries**. The problem with the standard measure of L is that it does not **correct for unemployment** and thus it measures potential TFP rather than actual TFP. As we are interested in actual performance we have corrected L for unemployment. Since data for unemployment cover fewer than 112 countries, the number of countries drops to **55-60**. The best measure of L also **corrects for utilization rates**, which means number of hours worked as opposed to number of people working. If 1,000 people work half-time the correct measure would then actually be 500. Data on hours worked is sparse so that we are left with **30-40 countries** here.

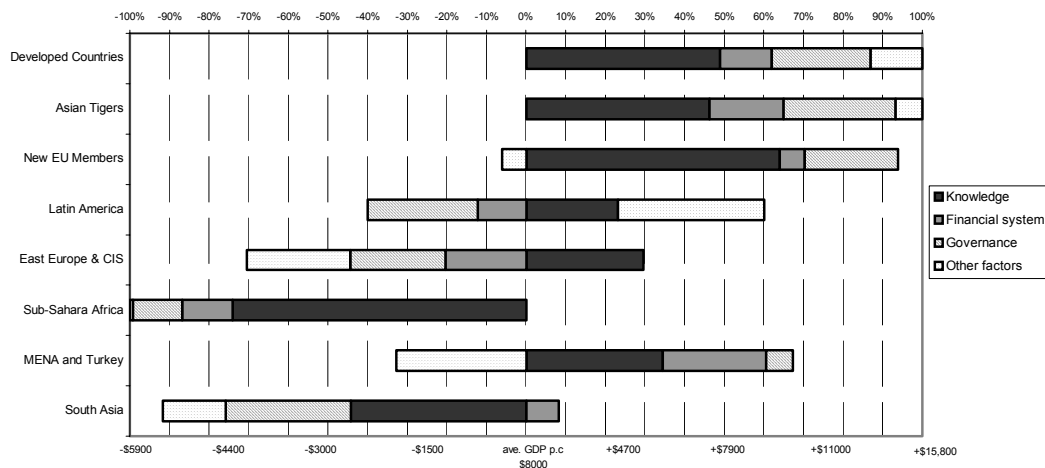
**Time period: 1960-2000.**

Other things worth mentioning: The database also contains TFP figures accounting for schooling and health as additional inputs. Soon Land (an important input in poor developing countries since they are mainly agro-based) will be added as well. It also allows for varying returns to scale, 4 different ways of computing capital input, different ways of turning raw labor into efficient labor, and much more. Last but not least, during this summer manufacturing TFP will be added.

B. We understand that countries need to build **social capabilities** to take advantage of the trade and financial flows and to incorporate the technology potentially embodied in them. That is the way countries improve their performance in the CIP index taken real advantage of the mobilization of skills, information and technology to increase growth and improve productivity.

We tried to measure the factor behind the capacity to build social capabilities in order to understand the elements of a successful and modern industrial policy. In the last UNIDO Industrial Development Report led by Francisco Sercovich, forthcoming member of Professor Richard Nelson's Catch-Up Project we analyze 135 countries and 29 explanatory variables over the relative short time frame 1992-2002 drawing on a background paper of Fagerberg and Srholec (2005)

Using factor analysis (designed to detect underlying structures in large amount of data) the report carries a revision of the 29 variables. When the analysis is completed five principal factors are found, that together explains 76.7% of the variance in income levels. The factors are knowledge (R&D innovation, scientific publications, ICT infrastructure, ISO certifications and education); inward openness (Correlation between imports and FDI); financial system (market capitalization, country risk and access to credit);



**Figure 1.2**

governance and political system (human rights, functioning of the legal system, protection of property rights, political rights, political constraints, extent of corruption)

These factors contribute to explain each region's level of development, relative to the world average. As expected, the stock of knowledge seems to be a major source of difference in income levels across regions in 2002. For example, the level of knowledge stock in developed countries accounts for about half of the total difference between their GDP per capita and the overall sample average (in u\$s approx. 7900). In other regions like Latin America, Eastern Europe and the Commonwealth of Independent States, deficits in complementary assets (financial system, governance) hinder their capacity to take advantage from their relative good stock of knowledge.

### Summarizing

Most of the elements of traditional industrial policy (including many of the policies applied in successful catch-up experiences of Asia) are now banned by the current multilateral trade agreements administered by the WTO. Therefore, from traditional quantitative definitions of industrial policy and related instruments, we move towards what we consider a much more modern approach based on quality elements, much more suitable for a globalized and modern international economy where innovation, knowledge, and technical change drive economic growth along with investments. We broaden the scope of industrial policy to incorporate elements of technology and innovation policies aimed at increasing productivity.

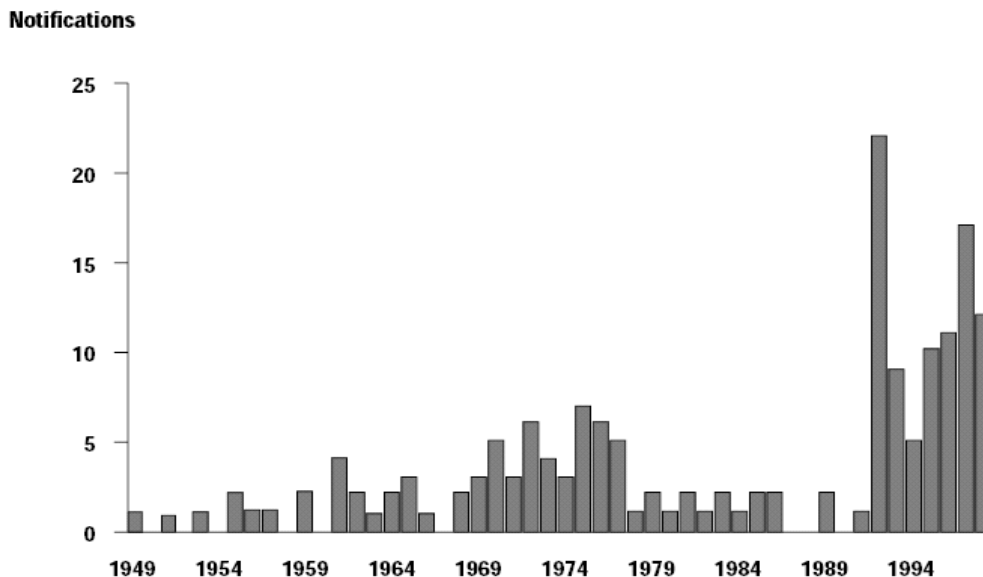
## 2. Integration and Regional Agreements

### A. The trends and the reasons behind

We also focus this section from a developmental perspective. Although integration agreements are not necessarily sold as a developmental opportunity, the promises usually embodied in its presentation implies an improvement in the wellbeing of the societies involved.

The trend towards regional integration is not new, the novelty lies in the speed at which these agreements are being negotiated and drafted.

**Figure 2.1**



Source: WTO data.

In the region the old wave is represented by agreements like ALADI, ALALC, Andean Community, Central American and Caribbean Common Market and the new one, started around the 1990s by MERCOSUR, NAFTA, CAFTA, FTAA Group of 3 or the South American Union. Midway between the two you have schemes like the CBI based in a regional adaptation of the General System of Preferences (GSP)

The new wave of RIA tends to be more outward oriented than its predecessors, crafted during the import-substitution period. Interesting feature to mentioned is that 2/3 of the agreements notified to the WTO since 1990 involved the EU.

There are many reasons for this renew wave of regional agreements ranking from security (Mercosur, EU) to bargaining power (the case of the EU versus US) or the intention to lock-in reforms (NAFTA-México) Probably the latter is the least necessary due to the existence of the WTO which lead us to think that is being used as an alternative way to lock-in reform in the absence of progress of multilateral trade negotiations.

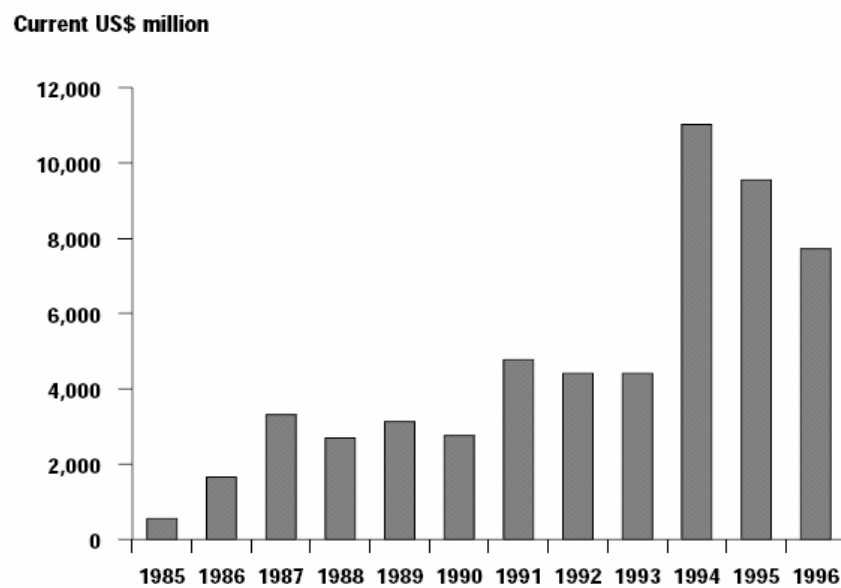
In any case Integration is Political and therefore politics are what determines the depth of integration. That is way we dare to say that a focus in development could be given to this processes.

## B. Effects of RIA's

The Regional Integration Agreements influence the economy of the member countries through two basic effects on a) increased competition and scale of production and b) trade flows and location of the productive activities

The first one includes the way the competition forces will shape domestic production (production mix and typical plant size); market segmentation (derived from incomplete integration due regulatory framework – automobiles -) and FDI.

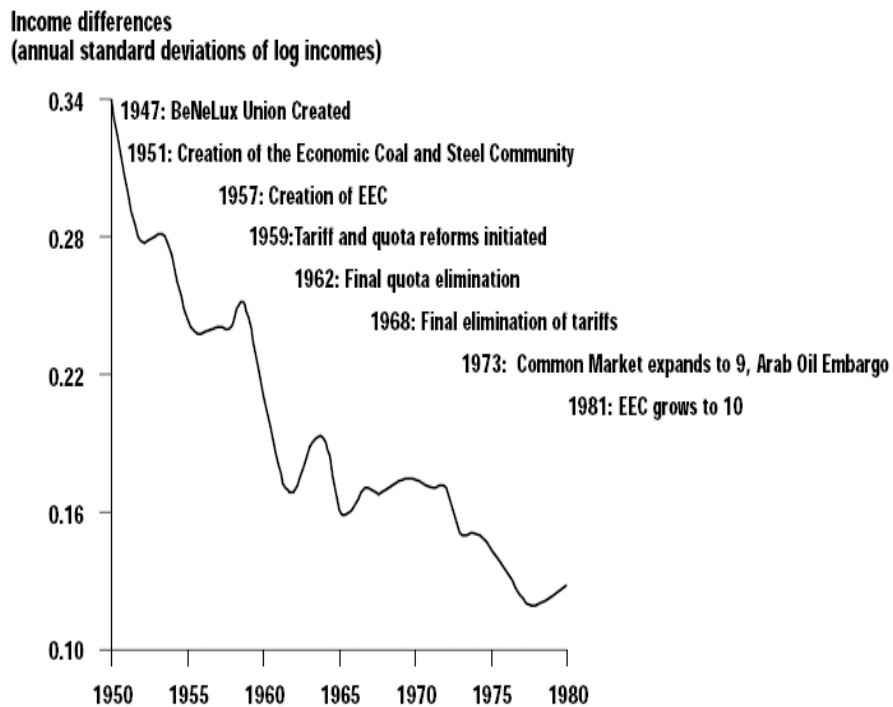
**Figure 2.2**



*Source: World Development Indicators (various issues); Feenstra and Hansen (1997).*

The second one accounts for the creation or diversion of trade (whose evidence is difficult to gather) and the effect of the location of productive activities regarding the prospects for economic growth and related convergence or divergence of per capita income within RIA's.

**Figure 2.3**



*Source: Ben-David (1993).*

### 3. Connections and tensions between Regional Integration and Successful Industrial Policies

The latter is precisely the area of connection between RIA and the sort of industrial policy we defined in the first section, mostly translated by the effects in the current account.

These connections are shaped by tensions generated on the trade off between market access and policymaking freedom. As mentioned before, probably one of the main reasons for this new wave of Regional Integration is based on the need to lock-in certain policy reforms or promote certain economic policies offering the carrot of access to large markets.

We suggest turning this connections and tensions into meaningful interactions.

#### 4. Interactions

To be able to do so we think we have to take a close look on the productivity effects of the RIA and how its incentive could be reinforce (or disincentives offset) in its interface with a modern industrial policy like the one we describe in the first section.

The literature acknowledged the process of agglomeration as the way generally followed by the processes of industrial development. History shows how industrial development could be map as proceeding in sorts of waves. Japan 20<sup>th</sup> century re-development, followed by the first group of Asian tigers, the second wave of Asian tigers and he coastal area of China could be given as modern examples of the agglomeration process.

Such processes are usually govern by a combination of centripetal forces like knowledge spillovers, labor contract pooling and linkages between buyers and sellers that cluster economic activity in certain regions until the costs of congestion, pollution and others of the sort starts to pull some economic activities away from the location generating a centrifugal effect.

In RIA the reduction of trade barriers and the harmonization of related regulation could tip the economic forces in favor of those locations that enjoy a head start. However agglomeration forces will interact with the set of comparative advantages of each country and it may well reinforce each other. If its so, then divergence in income per capita will follow. To make matters worse the process might be accelerated by the propensity of FDI to concentrate in relative few locations.

In other context agglomeration forces and comparative advantage could pull against each other, for example when factor price difference create an incentive to dislocate production from the cluster to a new city or place. Factor prices are just one example and are usually a good place to start fighting agglomeration although the usually represents a poor long-term strategy. A closer look at the sources of productivity gains as well as the building of social capabilities seems to outpace factor price strategies in the long term, as suggested by the recollection made by the last UNIDO IDR of the empirical, historical and policy dimensions of the successful catch-up processes of the last half a century.

Probably the future of the relationship between Integration and Industrial Policy will have to evolve around this issue: how to get them work in harmony to balance the forces at play and get a truly developmental opportunity from regional integration.

For that purpose Institutional aspects must be given a higher rank of importance, in particular, with regard to its contribution to the development of social capabilities.

The case of Latin America show how important is to make progress with regard to governance and the political systems as well as improving the functioning of the financial markets. (see Figure 1.2)

A closer look at the productivity performance of Mexico in NAFTA provides an additional issue to be considered.

The database on productivity I referred to before has been developed in the context of a project on “Productivity in Developing Countries: Trends and Policies” that included research on productivity performance in an initial sample of 17 developing countries, Mexico, Brazil, Argentina and Chile among them.

In the report on Mexico, Enrique Hernández Laos, studied productivity performance between 1960 and the year 2002. For the analysis he divided the period in three sub-periods: 1961-81 dominated by an import substitution approach; 1982-87 where macroeconomic instability predominated and 1988-02 dominated by the openness of the economy and, from 1994, by the Integration in NAFTA. Hernández Laos used several estimates of productivity trends for labor productivity and Total Factor Productivity.

Overall labor productivity measures show relatively similar long run trends along the three sub-periods under consideration. (1960-81; 1982-87; 1988-02) These ranged from a sustained increase of 3.2 percent per year between 1961-1981 to a contraction between – 0,2 and –4 percent during the crisis period. Finally, there was a slow recovery of between 0,3 and 1,1, percent annually, on average, over the last fifteen years.

In terms of TFP performance and despite differences in both methods applied and the statistical sources, the estimates yield very disappointing results. Even during the rapid economic growth of the ISI period, TFP grew either relatively slowly at a rate of 1,1 percent per year or even at a negative rate of –0,4 and –0,7 percent. Throughout the crisis period, all estimates show a systematic collapse of TFP standards, followed by a negative TFP growth between 1998 and 2002. The estimates of TFP growth, broken down according to pure technical change and efficiency performance (Malmquist method) indicate a disappointing trend in the latter, despite favorable results in terms of technical change during the past decade. Sectoral disaggregating of productivity indexes tends to back up these trends, revealing that the opening of the economy favored the expansion of TFP on traded sectors, mainly in manufacturing. Advances in pure technical change were parallel by sizeable reductions in efficiency in the Mexican manufacturing sector

Would it be this part of the explanation of the spatial agglomeration of investments and economic activities in the northern part of the country with few linkages, if any, with the rest of Mexico?

By using a recursive regression technique, Hernández Laos found that Mexican labor productivity levels followed a dual path vis-a-vis those of the US: convergent from 1960 to 1981 and divergent from 1982 to 2002.

Although lacking similar depth of analysis in terms of productivity trends we think it could be useful to compare the Integration of Mexico in NAFTA and its effects with some visible features of the enlargement process of the European Union where integration evolves from trade to institutions making explicit the objective of

convergence in per capita income levels. Furthermore, although this could be regarded as a focus in equity rather than efficiency, special funding is made available (e.g. cohesion funds) to support domestic efforts of Candidate Countries or new Member States to build social capabilities and increase productivity. In the mid 1980s Ireland Spain and Portugal had 61, 49 and 27 percent respectively of the average per capita income of the EU and by the late 1990s this share had increased up to 91,67 and 38 respectively through their accession to the EU.

Let me finalize by saying that there is obvious difference of design between the American and the European model but divergence of per capita income could not be blame on that. There are no real impediments for a country to develop domestic efforts to assemble an industrial policy like the one describe here. Neither imposed by the multilateral trade system nor by regional integration agreements. Nothing would replace the sovereign national decision to go that way.

What we try to say here is that in the future it would be desirable that regional integration schemes includes elements that rewards domestic efforts at social capabilities building in order to reinforce the efficiency component of productivity growth, creating or strengthening comparative advantage to help balancing the effect of agglomeration forces

### **Conclusions**

- Integration and Industrial policies could live together if they are design to do so
- Furthermore it would be desirable that they are design to support and reinforce each other
- For that purpose a closer look on social capabilities building elements and the ensuing productivity effects would be needed