

**Background paper prepared for the**  
*World Development Report 2005: A Better Investment Climate for Everyone*

**INDUSTRIAL POLICY IN EAST ASIA:  
IN SEARCH FOR LESSONS**

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**Abstract**

One of the most debated questions in the development literature is the role of government intervention in East Asia. This paper summarizes the debate on East Asian industrial policy. Due to the wealth of literature on this topic, this paper does not attempt to exhaustively evaluate every intervention, but to describe the main lines of discussion and their evolution. The goal is to make sense of what is relevant to the challenges currently faced by developing countries.

The views expressed are those of the author and do not necessarily reflect official views of the World Bank

## 1. Introduction

One of the most debated questions in the development literature is the role of government intervention in East Asia. Between 1950 and 1995 eight East Asian economies<sup>1</sup> achieved extraordinary rates of growth. Income per capita increased more than tenfold in Japan and the “Four Tigers” during that period, and more than doubled in Malaysia, Indonesia and Thailand in the two decades after 1973 (see tables 1 and 2). In addition, growth was relatively equally distributed, bringing reductions in absolute poverty and improvements in living conditions. Despite economic stagnation in Japan during the 90s and the 1997 East Asia crisis, the region continues to be the best example of sustained growth and poverty reduction since the WWII. The economic take-off in China over the last two decades has added to the regional success. It is therefore natural that many people asked whether there was something special about the East Asian growth, and scholars and governments turned to East Asia for lessons useful to other countries. However, more scrutiny has led to controversy. Something remarkable about the East Asian growth is that scholars of different disciplines and opinions have found justification for their theories in it.<sup>2</sup>

**Table 1: Real GDP per capita in 1950, 1973 and 1996**  
(Constant prices based on PPP exchange rates – 1990 international dollars)

	1950		1973		1996
Singapore	2038	Japan	11017	Hong Kong SAR	21201
Hong Kong	1962	Hong Kong SAR	6768	Singapore	20983
Japan	1873	Singapore	5412	Japan	19582
Malaysia	1696	Taiwan, China	3669	Taiwan, China	14222
Philippines	1293	Malaysia	3167	Korea	12874
Taiwan, China	922	Korea	2840	Malaysia	7764
Korea	876	Philippines	1956	Thailand	6112
Indonesia	874	Thailand	1750	China	4551
Thailand	848	Indonesia	1538	Indonesia	3464
China	614	China	1186	Philippines	2369
United States	9573	United States	16607	United States	23719

Source: Crafts (1998).

**Table 2: GDP per capita in East Asian countries 1965-95**

	<i>GDP per capita growth</i> (% annual average) (PPP adjusted)		<i>GDP per capita relative</i> to the US (PPP adjusted)	
	1965-95		1965	1995
Four Tigers	6.6		17.3	72.2
Hong Kong	5.6		30.1	98.4
Korea	7.2		9.0	48.8
Singapore	7.2		15.9	85.2
Taiwan, China	6.2		14.2	56.2
Asean-4	3.9		10.0	21.2
Indonesia	4.7		5.2	13.1
Malaysia	4.8		14.3	36.8
Thailand	4.8		9.7	25.6
Philippines	1.2		10.7	9.4

Source: Wong and Ng (2001)

There is consensus on one point: governments intervened extensively in most East Asian economies, with the exception of Hong Kong. However, there has been a heated debate about the contribution of industrial policy to growth in East Asia and the desirability of following similar policies in other countries. The debate begins with the precise notion of industrial policy. Advocates and critics of industrial policies often have different views on what policies fall under the concept of industrial policy; whether industrial policies are all those that promote industry in one way or another, or just those that skew the allocation of resources toward some preferred sectors. They also disagree about the long-term effects of government-led industrialization. In the cases where governments promoted particular sectors, there is an animated debate about the effect of these policies on economic growth, productivity, and the acquisition of technology.

Some attribute the success of East Asia to not excessive or less distortionary interventionism—at least relatively to other countries. Supporters of this view emphasize the role of market forces, especially the discipline imposed by international markets, as governments forced firms to export and become internationally competitive. Others argue that East Asia grew fast due to the role of interventionist, “developmental” states, that guided the process of industrialization.<sup>3</sup> According to this view, growth of this scale would never have happened leaving market forces alone.

Not all East Asian economies followed the same path, and this diversity in part justifies the divergent explanations. Governments intensively promoted specific sectors in Japan and Korea, and in Taiwan, China. Singapore focused on attracting foreign direct investment (FDI), directing investments to preferred sectors. Southeast Asian countries have relied more on attracting FDI in manufacturing for export since the 1980s, after experimenting with import substitution. There have been some efforts to promote specific sectors, such as heavy industries in Malaysia during the 80s and semiconductors more recently. Other examples are autoparts in Thailand, and aircraft and transport in Indonesia.

Many governments in developing countries have attempted to direct the industrialization process, but their economic performance in the long run has been less successful than that of Japan, Korea and Taiwan, China, and other East Asian economies. Examples of such policies are the import-substitution policies in Latin America, or Sub-Saharan Africa, or the state-led industrialization in the soviet bloc countries.

This paper summarizes the debate on East Asian industrial policy and its relevance to developing countries. Due to the wealth of literature on this topic, this paper does not attempt to exhaustively evaluate every intervention, but to describe the main lines of discussion and their evolution. The goal is to make sense of what is relevant to the current challenges faced by developing countries. The first section looks at the debate about the concept of industrial policy. The second examines the evolution of the debate in East Asia. Four subsections cover specific areas of the debate: “picking winners,” growth accounting and technological upgrade, trade and foreign investment, and institutions and history. The third section summarizes the interventions followed in the different countries. Finally, the last section examines the desirability of replicating similar policies today.

With a few exceptions, there is no clear evidence that selective promotion of specific sectors was the main driver for growth in East Asia. It is not the purpose of this paper to explain the factors behind rapid and equitable growth in East Asia. Several have been proposed in the literature: sound macroeconomic policies, investing in human capital, export orientation, and the quality of institutions. Indeed, government intervention played an important role in mobilizing savings, promoting exports or creating a skilled workforce. The political context made it possible for governments to play such an extensive role, while keeping pressure on them to focus on development, and thus build legitimacy. It is hard to find conclusive evidence that the promotion of specific sectors contributed to growth. Where selective policies worked, governments attached discipline to the incentives in order to monitor performance and retired support to firms that did not meet the goals. Discipline was also achieved by encouraging firms to become internationally competitive. Also, East Asian governments showed a more pragmatic behavior, and modified policies, compared to other countries where the direct public support to firms has been more persistent and difficult to dismantle.

Even in these cases, governments incurred in high costs to pursue industrial policies, more so, as the policies inevitably created constituencies that slowed the efforts to phase-out ineffective strategies. Countries wishing to follow similar policies should be aware of the costs associated with distortions created by selective policies, especially those associated with restricting competition. In the current context, with growing global production networks and commercial links between countries, governments may find it even more difficult to push specific sectors. Without macroeconomic stability, credible policies, and relatively reliable infrastructure in place, such efforts are likely to result highly ineffective. Moreover, the policies followed in East Asian countries cannot be separated from their economic and political context and may not be suited to the local institutional settings in other countries.

## **2. The notion of industrial policy**

The debate about industrial policy in East Asia needs to be set in the framework of the broader debate about the role of government policy in promoting economic activity. While most economists consider that market forces are more efficient allocating resources, markets are susceptible to failure and governments may intervene to fix them. However, economists disagree about the extent and consequences of market failures, and about the need and ability of governments to intervene to fix them. Government failures are also pervasive, and can be even more costly than market failures. Unsurprisingly, advocates of industrial policy emphasize the pervasiveness of market failures –learning externalities, coordination failures and economies of scale–, while its critics focus on the problems associated with governments attempts to fix them – rent seeking and corruption, market distortions and inefficiencies, and resistance to change –.<sup>4</sup>

One of the most accepted rationales for intervention in economic theory is the “infant industry” argument. Developed by Alexander Hamilton, although usually attributed to Friedrich List, it argues that protection from competition is justified during the first stages of development of a new industry, until sufficient scale and technological development have been achieved. However, economists differ about how much protection and when to phase it out.<sup>5</sup> Frustrated experiences with governments “picking winners” –i.e. choosing industries to nurture– illustrate the complexities of a broad interpretation of the infant industry argument. The literature thus

distinguishes between selective interventions from other interventions that seek to remedy market failures without favoring specific sectors, the so-called “functional” or “horizontal” interventions.<sup>6</sup> Yet, sometimes it is difficult to draw a line between the two.<sup>7</sup> This tension is reflected in the different definitions of industrial policy. Some authors identify it with the promotion of specific sectors, others include interventions that promote specific activities such as R&D or foreign investment, and others have even broader interpretations (see box). In this paper, industrial policy is used in a generic sense that includes selective interventions that favor specific industrial sectors, but also those interventions that favor specific activities, such as exports, foreign investment and R&D. Adopting a broad definition is justified by the wide range of interventions followed in different countries, and the paper’s goal to study the debates about these interventions.

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### **Definitions of industrial policy**

*There is no consensus on what exactly constitutes industrial policy. Some definitions focus on selective interventions that change the productive structure favoring particular industries:*

“Effort by a government to alter the sectoral structure of production toward sectors it believes offer greater prospects for accelerated growth than would be generated by a typical process of industrial evolution according to comparative advantage.” Noland and Pack (2003).

“Comprise a variety of actions designed to target specific sectors to increase their productivity and their relative importance within the manufacturing sector.” Pack (2000).

“A policy aimed at particular industries (and firms as their components) to achieve the outcomes that are perceived by the state to be efficient for the economy as a whole.” Chang (1994).

“Industrial policies, as distinct to trade policies, as government efforts to alter industrial structure to promote productivity-based growth.” World Bank (1993).

*Others, emphasize that deviation that these policies represent from free market forces.*

“Interventions to skew market’s outcomes in a nation’s favor.” World Economic Forum (2002).

“Industrial policy essentially comprises all actions taken to promote industrial development beyond that permitted by free market forces.” Lall (1996).

*Some authors provide a catalogue of interventions that fall under the scope of industrial policy.*

“...a summary term for the activities of governments that are intended to develop or retrench various industries in a national economy in order to maintain global competitiveness.” He also includes “micro” policy or “industrial targeting,” and “government incentives for private saving, investment, research and development, cost-cutting, quality control, maintenance of competition, and improvements in labor-management relations.” Johnson (1984), cited by Chang (1994).

“...favoring promising industries; creating skilled workforces; developing infrastructure; regional policy.” Reich (1982), cited by Chang (1994)

“...general industrial support policies such as manpower policy; fiscal and financial incentives for investment; public investment programmes; public procurement policies; fiscal incentives for R&D; firm-level policies such as specific R&D support; antitrust policy; merger policies to create ‘national champions’; support for small firms; regional policies such as the development of physical and social infrastructure and the establishment of industrial complexes; generalised trade protection; sectoral policies such as the organization of recession cartels in depressed industries; product upgrading in labour-intensive industries.” Pinder (1982), cited by Chang (1994).

*Finally, the broadest definitions consider industrial policy any measure that affects industry.*

“industrial policy embraces all government actions which affect industry.” Donges (1980), cited by Chang (1994).

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### 3. The debate in East Asia

Neoclassical explanations of rapid growth in East Asia emphasized the reliance on getting the fundamentals right and outward-orientation with few price distortions.<sup>8</sup> In the 1980s, several scholars, often grouped under the term revisionists, argued that the governments in Japan, Korea, and Taiwan, China, had provided incentives to individual sectors, restricted trade and inward FDI and tightly controlled the financial sector to increase savings and guide investment.<sup>9</sup>

The World Bank's *East Asian Miracle* report in 1993 tried to find common ground, and acknowledged the important role played by governments in Japan, Korea, Taiwan, China and other Asian economies – by getting the fundamentals right, but also by active interventions to promote exports and encourage savings and investment. Governments intervened extensively, but in a “market friendly” way, avoiding major distortions. The report found that these interventions had been successful under very particular conditions, but these were so demanding that countries wishing to emulate these policies would almost certainly fail. The report justified some selective interventions on theoretical grounds, arguing that East Asian governments had created mechanisms to coordinate investment, overcome information failures and achieve economies of scale and learning spillovers. However, the report did not find a direct link between selective promotion of individual sectors and productivity-based growth.<sup>10</sup> The East Asian Miracle recommended the path followed by Thailand, Malaysia and Indonesia, who relied more on FDI and less on directed credit, as a more suitable model for developing countries than that of Japan, Korea and Taiwan, China.

The report generated another wave of research not free from controversies, including on the making of the report itself.<sup>11</sup> Some questioned the report's conclusion that growth in East Asia was driven by a more efficient use of resources and argued that accumulation of physical and human capital accounted for almost all growth.<sup>12</sup> Others criticized the report's skeptical stance on industrial policy, arguing that the World Bank had arbitrarily separated industrial policy from the broader development strategy of East Asian governments.<sup>13</sup> Researchers more sympathetic to the report expanded the analysis on “market friendly” interventionism.<sup>14</sup> The economic slowdown in Japan during the 90s and the advent of the East Asian crisis in 1997 introduced new dimensions in the debate. In particular, new emphasis was given to the role of institutions.<sup>15</sup> The idea of “market friendly” interventionism became under scrutiny, as critics of industrial policies found vindication for their theories about the negative consequences of interfering with markets in the economic decline. The literature highlighted the weaknesses introduced in the financial systems of Japan and Korea by decades of selective intervention, and the problems to adapt the systems of business-government relations to the era of globalization. On the other hand, advocates of industrial policies argued that the crisis was caused by the exposure of East Asian economies to speculative capital movements resulting from liberalization. They warned against more liberalization and the dismantling of the developmental state in the wake of the crisis.<sup>16</sup>

In the recovery that followed the crisis, more analysis has followed, and the differences on the role of industrial policy persist.<sup>17</sup>

Several related elements have shaped but not ended the debate on industrial policy during the 90s: the emphasis on “competitiveness,” the importance of knowledge in new growth theories, and the wave of liberalization and the expansion of trade and investment treaties. While the importance of maintaining macroeconomic stability and some degree of competition is not questioned, advocates of selective interventions argue that some may be necessary to help firms become internationally competitive—for example in the case of smaller firms—and catch up with rich countries. This includes the promotion of sectors with advanced technologies. A large literature has emerged that emphasizes technological upgrading and learning and focuses on the East Asian experience.<sup>18</sup> In particular, this literature focuses on Southeast Asian countries that lack the indigenous technical capabilities available in Korea or Taiwan, China, and face competition from China in attracting export-oriented FDI. The expansion of international rules that curb distortions in trade and investment is sometimes perceived not as an opportunity, but as a restriction for other countries to pursue strategies of export promotion similar to those followed by Japan, Korea or Taiwan, China. This question is further discussed in the last section.

The following paragraphs look in more depth at four specific areas of the debate about industrial policy in East Asia: picking winners, productivity and technology, trade and FDI, and institutions and history.

### **3.1 The debate about “picking winners”**

Most of the debate about industrial policy in East Asia centered on the ability of governments to identify strategic industries—those with high export potential or high learning externalities—and allocate scarce resources to them. Efforts to measure the effectiveness of such policies have focused on the degree to which they contributed to increase the share of the targeted sectors in manufacturing and the effects on sectoral and inter-industry productivity growth. The empirical evidence of success is mixed at best.<sup>19</sup> Yet, advocates of these policies claimed that weaknesses in analysis techniques limit the measurement of all the externalities associated with industrial promotion.<sup>20</sup> Indeed, assessing the impact of industrial policies is a daunting task, due to the difficulty to isolate the impact of the policy from other factors. Various attempts to create counterfactuals, and evaluate how the situation would have been without sectoral promotion, conclude that it was not effective. Yet, the results are also controversial.<sup>21</sup>

An initial indicator of effective sectoral promotion would be the alteration of the industrial structure and the composition of output beyond that predicted by comparative advantage.<sup>22</sup> Initial growth in manufacturing output in Korea and Taiwan, China, took place in textiles and other labor-intensive production. Undoubtedly, government policies played a role to initiate this phase of export-led growth. However, it is unclear that sectoral promotion contributed more than the elimination of the anti-export bias of previous policies or sound macroeconomic management.<sup>23</sup> Promotion of specific sectors altered the industrial structure in Japan and Korea, where heavy industry increased its share in manufacturing during the HCI drive. Korea and Taiwan, China moved from labor-intensive to capital-intensive industries, to electronics and then high-tech industries, following Japan’s example, a pattern popularized by the “flying geese” hypothesis.<sup>24</sup>

However, support was also offered to declining sectors, suggesting policies not necessarily driven by productivity growth. In Japan, the majority of subsidies went to fisheries, forestry and agriculture, and coal mining. The amount of incentives in the manufacturing sector was relatively small, with the exception of shipbuilding. Similarly, a recent study found that the incentive structure in Taiwan in the late 80s was biased towards declining sectors such as textiles, and those with a large state presence, mainly the chemical industry.<sup>25</sup> In contrast, another study argues that support for declining sectors in Korea actually helped to ease resistance against the promotion of more technology-intensive sectors.<sup>26</sup>

Assuming that the goal of sectoral promotion is to accelerate productivity-based growth, then the favored sectors should show higher rates of total factor productivity (TFP) growth.<sup>27</sup> A recent study offered an overview of attempts to measure the effects of different policies on sectoral growth, capital accumulation and TFP in Japan and Korea.<sup>28</sup> In general, they find no clear evidence that subsidies, tax incentives or trade protection had a positive effect on sectoral TFP growth.<sup>29</sup> Another study found similar results for Taiwan.<sup>30</sup>

One of the justifications of sectoral promotion is based on the need for coordination to capture interindustry externalities. A study using 1985 input-output tables of Korea found that interaction was high between the favored sectors and small between them and the rest. Therefore, the possibility of externalities by making special inputs available to the neglected sectors is quite reduced, as is the possibility of transmitting knowledge by moving labor force between sectors.<sup>31</sup>

While it is difficult to determine the extent of market imperfections, and estimate all the potential costs and benefits of industrial policies, it is possible to measure the economic costs of certain policies. The costs of subsidies and fiscal incentives, including forgone revenue, of industrial policies have been significant. One example would be the high levels of subsidies during the HCI period in Korea (see next section). Severe adjustments have been required to reverse some of the most ambitious sectoral promotion policies in East Asia, such as the “rationalization” process after the HCI drive in Korea and the extensive privatization program in Malaysia.

Finally, the literature provides numerous examples of success and failure stories of individual projects. Advocates of industrial policies emphasized the successful promotion of steel, shipbuilding, automobiles and electronics in Korea, to illustrate the fact that government can “pick winners,” although there are also disappointing cases such as Malaysia’s national car, or Japan efforts in biotechnology. In many instances, market incentives rather than government support was the key element in successful sectors, as happened in Japan’s automobile, game software, office equipment, and robotics sectors.<sup>32</sup> It is equally possible to find anecdotes of projects that failed to win government endorsement and turned out profitable, as happened when Honda and Mitsubishi entered the automobile sector despite the government’s discouragement.

### **3.2 Growth accounting and technological upgrade**

The quality of growth in East Asia is relevant to the debate about industrial policy. Growth accounting exercises have provided divergent views on the contribution of inputs (human and physical capital) and TFP (see table 3).<sup>33</sup> To the extent that growth in East Asia can

be explained by high rates of investment in improving skill levels, machinery, and urban migration, rather than by TFP growth, the experience loses part of its “miraculous” character.<sup>34</sup> Moreover, low levels of TFP growth can suggest that interventionist policies were not conducive to a more efficient allocation of resources, but on the contrary created large inefficiencies and lowered returns on investment.

**Table 3: Estimations of Total Factor Productivity Growth in East Asian countries**

	<i>Korea</i>	<i>Taiwan</i>	<i>Hong Kong</i>	<i>Singapore</i>	<i>Malaysia</i>	<i>Indonesia</i>	<i>Thailand</i>
Kim & Lau (1966-90)	1.2	1.2	2.4	1.9	-	-	-
Young (1966-90)	1.7	2.6	2.3*	0.2	-	-	-
Lindaur & Roemer (1965-90)	4.9	4.9	3.6**	3.6	1.1	2.7	3.3
World Bank, East Asian Miracle (1980-89)	3.1	3.8	3.6	1.2	1.1	1.2	2.5
Thomas & Wong (1960-90)	2.1	3.6	4.0	2.8	2.2	-	-
-Hsieh (1966-90)	1.7	3.8	2.8	2.2	-	-	-
Manti (1970-90)	1.4	2.1	2.4	1.4	0.4	-0.5	1.6
Collins & Bosworth: (1960-84)	1.5	2.0	-	1.5	0.9	0.8	1.8
(1984-94)	2.1	3.8	-	3.1	1.4	0.9	3.3

Notes: \* from 1966-91, \*\* from 1970-89

Source: Wong and Ng (2001) Table 1.4

Several studies found that the contribution of TFP growth to output growth in East Asia was negligible.<sup>35</sup> A 1994 article disseminated these results and stirred heated reactions with his suggestion that the East Asian miracle had been achieved by ‘perspiration’ rather than ‘inspiration.’ The article was pessimistic about the future of growth in the region. Other studies, such as the World Bank’s East Asian Miracle found somewhat higher contributions of TFP growth, although the bulk of output growth derived from physical and human capital accumulation. Yet, the report concluded that East Asia was doing overall better than Latin America and Africa in keeping up with technological change at the frontier.

Recent studies seem to confirm that despite relatively small increases in TFP growth compared with developed countries, East Asia has fared better than other regions in catching up with productive efficiency over time. Methodological issues with growth accounting techniques prevent definitive conclusions about the factors behind low levels of TFP in East Asia, including the possibility of labor-sparing technical change.<sup>36</sup> In contrast, the high and sustained rates of investment in East Asia have no parallel among developing countries, with the contribution of physical capital per worker between 1960-2000 being over twice the global average.<sup>37</sup>

With the resurgence of productivity in the growth literature in recent years,<sup>38</sup> the process of learning and innovation in East Asia has received a lot of attention. Investments in skills and infrastructure explain a great deal of how Japan, Korea, Taiwan, China and Singapore moved up the technology ladder. The governments of these economies also pursued policies to promote the development of high-tech sectors such as electronics and semiconductors. They used different strategies to gain access to foreign technologies.<sup>39</sup> Japan and Korea relied more on licensing and reverse engineering, to access and adapt foreign technology. They promoted large industrial conglomerates with subsidized credit, protection from imports, and fiscal incentives. Yet,

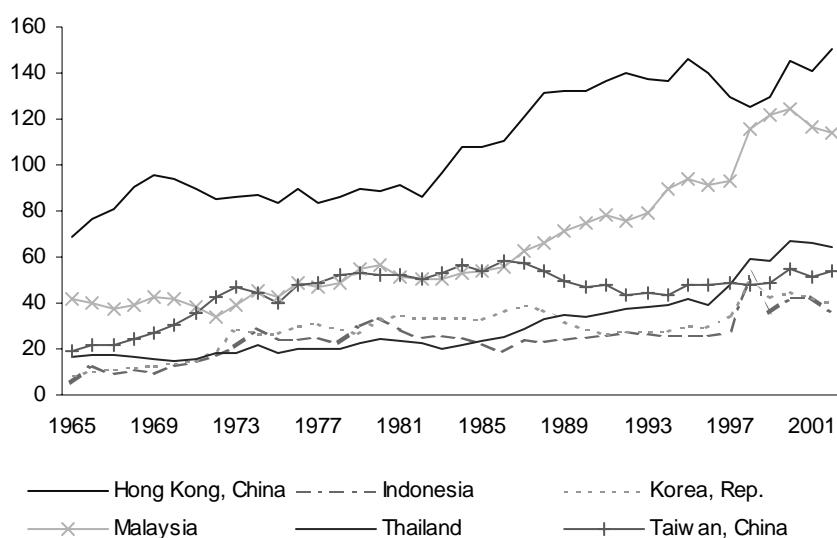
discipline attached to the support maintained incentives to innovate. In Taiwan, China, public research institutions played a greater role in promoting the diffusion of new technologies and coordinating industry-specific R&D. This model was more suitable to the industry structure, with a large number of small and medium firms. The most famous of these institutions was the Industrial Technology Research Institute (ITRI) that helped spin-off a successful semiconductor sector. Singapore relied heavily on FDI to attract foreign technology and invested heavily in increasing the ability of local firms to absorb foreign technology, through linkage and training programs. The agency in charge of attracting foreign investment shifted the focus of its incentives over time, moving towards more sophisticated technologies. Hong Kong followed a laissez policy with no government interventions to promote high-tech sectors.<sup>40</sup>

Thailand, Malaysia, and Indonesia have also relied on foreign investors to bring new technology to their countries, but in a less selective way than Singapore. The attempts to develop national technology intensive industries have been plagued with difficulties.

### 3.3 The debate about industrial policy, trade and foreign investment.

The role of trade policies in East Asia has also been the subject of deep controversies, which sometimes overlap with the debate on industrial policy. Some authors have emphasized the role of trade policies in East Asian growth. This is partly explained by the contrast between the growing export shares, especially in manufactured goods, as a percent of GDP in East Asia, and the dismal export performance in South Asia or Latin America (figure 1). Hence, the East Asian model of growth became popular for being “export oriented” in contrast with import-substitution strategies in other countries that were “inward looking” with high tariff and quantitative barriers to trade and barriers to foreign investment.

**Figure 1: Exports as a percent of GDP**

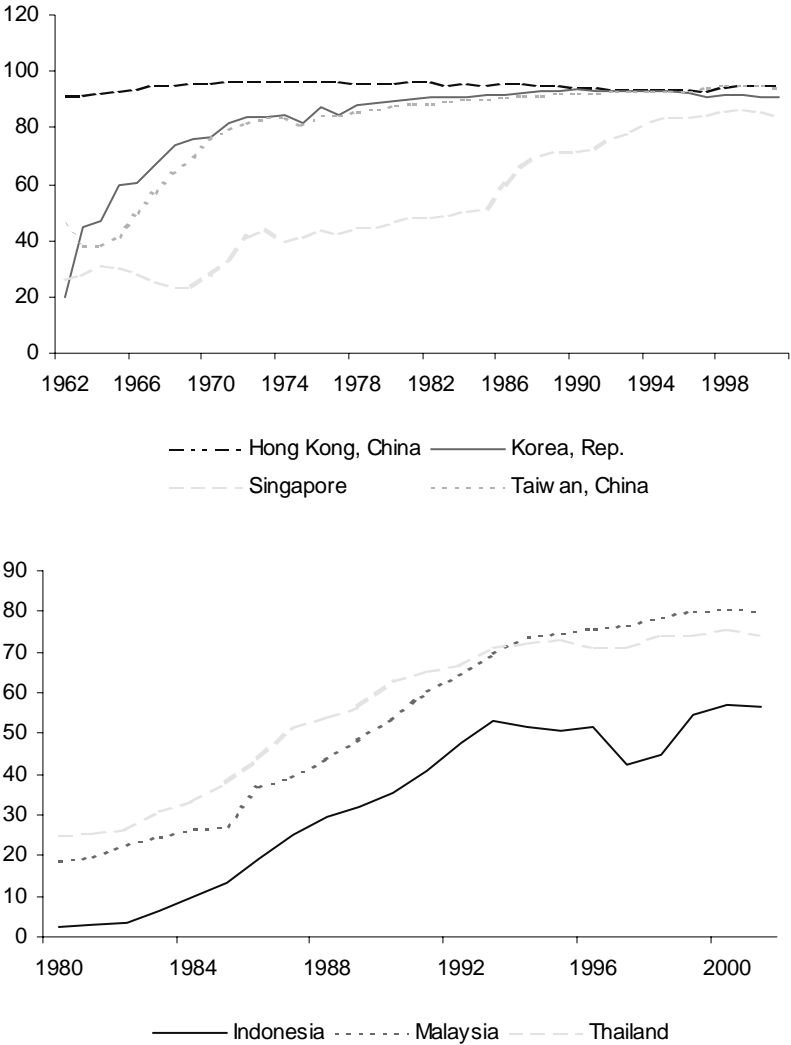


Source: World Development Indicators

East Asian economies, with the exception of Hong Kong and Singapore, also used import protection through tariffs and quantitative barriers and restricted foreign investment, but utilized

incentives and exchange rate policies to promote exports. Taiwan, China moved to export-orientation in 1958, and introduced duty exemption schemes, bonded factories and export processing zones to promote of FDI for export. Korea followed in the mid 1960s, but kept a more restrictive regime for foreign investment. Trade regimes in Hong Kong and Singapore were more liberal due to their traditional role as trade hubs, although Singapore has followed a selective approach to FDI. Indonesia, Thailand, and Malaysia followed import-substitution strategies, and started promoting exports, reducing trade protection, and especially, offering incentives to FDI in the 80s. Taiwan, China, and Korea have also liberalized their economies significantly since then. China also reduced tariffs and started to open to foreign investment in that period. Since then, the growth in East Asian exports in global trade has been spectacular, from 9 percent in 1980-85 to 18 percent in 1997.<sup>41</sup> A remarkable trend in East Asia is the increase in the share of manufactured goods in exports (figures 2 and 3).

Figures 2 and 3: Manufacturing exports as a percent of merchandise exports



Source: World Development Indicators 2004.

Firms from Japan, Singapore, Taiwan, China and Korea relocated manufacturing plants to Southeast Asia and China to cut production costs. Intra-regional trade flows doubled during

the 80s, and grew three-fold in the 90s – from US\$104.3 billion in 1981, to US\$333.1 billion in 1991 to US\$702.8 billion in 2001, reflecting the emergence of production and distribution networks, especially in machinery. This is supported by the surge in intra-regional trade flows of machinery parts and components during the 90s.<sup>42</sup>

Advocates of free-trade viewed openness to trade as a crucial factor in the success of East Asia. According to this approach, East Asian governments managed to compensate the anti-export bias of import protection, leaving incentives neutral.<sup>43</sup> In contrast, critics argued that governments in East Asia ‘got the prices wrong’ using trade policy to promote sectors beyond their areas of comparative advantage.<sup>44</sup> The World Bank’s East Asian Miracle synthesized both approaches and emphasized the role of exports, and export promotion policies, in achieving higher productivity growth. The report acknowledged the possibility of reverse causation –that rapid TFP growth had led to exports.<sup>45</sup> However, it argued that exports were instrumental in helping these economies access and dominates foreign technologies. The focus on exports meant that firms based their decisions on the need to become competitive in international markets, even while they enjoyed protection. In countries like Korea, support was conditional to meeting strict export targets, which worked as a strong discipline to produce efficiently. The World Bank report attributed some success to the availability of credit to exporters, but fell short of recommending export promotion of particular sectors as a source of productivity-based growth.<sup>46</sup>

Outward orientation is considered key to rapid growth in East Asia. Yet, some researchers have different opinions on the role of exports. One scholar argued that an investment boom, not exports, was behind the take off of growth in Korea and Taiwan, China in the late 60s.<sup>47</sup> In the case of Japan, one expert claimed that exports were the result of productivity growth explained by factors such as domestic competition, and availability of human and physical capital.<sup>48</sup> Others claim that imports played a major role in technology absorption and learning, which in turn increased the competitiveness of Japanese and Korean, manufactures. Contrary to common belief, they found that less import protection would have increased productivity during the early phases of Japan’s development.<sup>49</sup>

### **3.4 Institutions and history.**

Attention to the political economy of East Asian growth intensified in the second half of the 90s. Three related reasons justify this: the advance of democratic movements that questioned previous political practices in East Asia, the growing interest on the role of institutions in economic development, and the economic slowdown in Japan and the 1997 East Asian crisis, that exposed the dangers of weak oversight in the financial sector, and led to a revision of previous thinking about the ties between bureaucrats and business. Two aspects of these debates are relevant to the topic of industrial policy and its reliability. The first one looks at the initial conditions and institutional developments that led to the adoption of industrialization strategies. The question is whether the initial context was fundamental in the outcomes of industrial policy, and whether the conditions in other places would advice similar policy choices. The second aspect focuses on the institutional capacity of the East Asian governments to implement their policies and achieve their objectives. A relevant linked question is whether the choice of policies affected this institutional capacity, and in particular, the governments’ ability to introduce reforms.

Identifying commonalities among initial conditions and institutional settings in East Asia is controversial, since each economy followed a different path, and the outcome in each case is likely to be the combination of multiple factors. Furthermore, the recent origins of the East Asian states have not been systematically explored in the literature.<sup>50</sup> Still, several arguments are mentioned as contributing to the relatively better policy outcomes in Japan and the Four Tigers. For example, that in Japan and Korea, devastation after the war created a sense of urgency to rebuild national pride, with their citizens willing to make sacrifices in current consumption to achieve future prosperity. Also, that both countries and Taiwan, China, enjoyed strong US support, including access to the US markets and technology, owing to the geostrategic priorities of the Cold War. The change in policy orientation towards exports in the early 60s in Korea and Taiwan, China, was in part driven by the reduction in US aid flows.

Other theories rely on political factors to explain the development experience in East Asia, such as an external threat that provided legitimacy to a strong state with a large incentive to develop. South Korea faced the threat of an invasion by North Korea, and Taiwan, China, that of mainland China. Strategic motivations may also help explain the importance of FDI in Singapore. After independence from Malaysia in 1967, attracting FDI was seen as a way to ensure that foreign powers would have a stake in the survival of the country. Similarly, the drive towards heavy industry in Malaysia was in part motivated by the goal of integrating an economically disenfranchised ethnic group.<sup>51</sup>

The role of resource endowments in East Asia has been examined in the context of comparing the poor in natural wealth but successful Four Tigers, and the rich in natural resources but less thriving Malaysia, Indonesia, and Thailand. The scarcity of natural resources may have been an advantage in moving toward export orientation.<sup>52</sup> In addition, investment in human capital played a key role in achieving growth in East Asia. This is not the case with initial education levels, which were not significantly different from those in other developing countries when growth accelerated in East Asia (table 1).

**Table 4: Levels of education in Asia, 1960**

	<i>Literacy rate</i>	<i>Percentage enrolled in primary school</i>	<i>Percentage enrolled in secondary school</i>
Hong Kong	0.70	0.87	0.24
Korea	0.71	0.94	0.27
Singapore	0.50	1.11	0.32
Taiwan, China	-	0.63	0.38
Indonesia	0.39	0.67	0.06
Malaysia	0.53	0.96	0.19
Thailand	0.68	0.83	0.12

Source: Pack (2001)

The debate on institutional capacity is relevant to the effectiveness of industrial policy.<sup>53</sup> Early studies on the role of East Asian governments in development highlighted the capacity of the bureaucrats and their autonomy from class and industry interests.<sup>54</sup> Evans used the term “embedded autonomy” to describe the capacity of governments to provide the coordination necessary for rapid economic transformation.<sup>55</sup>

The 1993 World Bank study also praised the cooperative relations between business and bureaucrats. Yet, a recent study argued that the bureaucratic coordination in Japan was suited for the highly complementary industries promoted in the 50s and 60s, but that the system showed its limits for the development of computer and telecommunication industries since the 80s. Ministries competed over jurisdiction and the government was slow in introducing competition in the telecom sector.<sup>56</sup> Other authors have also supported the idea that East Asian governments suffered from “institutional inertia,” and some policies outlived their usefulness, and slowed adaptation to changing circumstances in global trade and technology.<sup>57</sup>

Compared with bureaucrats in other regions, the civil servants in some East Asian economies were considered to have a long-term vision of development, and be less influenced by vested interests. However, there was some misconception about the idea of an insulated bureaucracy. As it turned out, resisting pressures from interests groups proved as difficult in East Asia as everywhere else. Rent-seeking behavior and corruption emerged as a result of the protection of specific sectors.<sup>58</sup>

However, capture by vested interest seems to have been less problematic in Japan, Taiwan, China, and Korea than in other interventionist states. The need of these governments to establish legitimacy by promoting “shared growth” has been mentioned as a possible explanation.<sup>59</sup> These economies were not free from corruption, as the case of Korea illustrates. After the 1997 crisis, corruption trials brought public revelations that *chaebol* leaders had made payments to politicians since the 60s.<sup>60</sup> Some have also argued that rising democratic forces during the 90s, in countries such as Korea, led bureaucracies to lose their long-term orientation to focus on short-term political calculations.<sup>61</sup>

The East Asian Miracle praised the “pragmatic flexibility” of East Asian governments in applying the instruments that worked and discontinuing the use of those that did not. In doing so, governments avoided some of the highest costs of sustaining failed policies. The reversal of the HCI drive in Korea in the light of mounting costs and the privatization of public enterprises in Malaysia are two examples of pragmatic adjustments. Another example would be the elimination of the Statute for Encouragement of Investment in Taiwan, China, after a government review that showed administrative problems and high costs.<sup>62</sup>

Despite this “pragmatic flexibility,” the extended use of industrial policies introduced long-term difficulties, mainly weaknesses of the financial sector, and reversing some of the policies turned out to be difficult. The extensive use of directed credit weakened the development of good regulatory oversight in the financial sector, and in turn, gave rise to moral hazard problems and misguided investment decisions, as banks were confident on government bail out in case of failure.<sup>63</sup> In Korea, directed credit and other privileges led to the concentration of wealth in the hands of a few *chaebol*, controlled by powerful families. The Korean government often faced the dilemma of having to support and discipline the *chaebols*.<sup>64</sup>

These problems were further exposed during the East Asia crisis. Some authors claimed that there had been an irrational shift of confidence in East Asian institutions.<sup>65</sup> Indeed, multiple factors contributed to the economic crisis. However, the corporate governance problems due to

the close ties between bankers and business leaders, and the misallocation of credit have been clearly documented.<sup>66</sup>

Both advocates and skeptics of industrial policies highlight the discipline of East Asian governments in linking incentives to performance.<sup>67</sup> The Korean practice of using export performance as a yardstick for government support avoided nurturing inefficient firms for extended periods of time. Non-performing firms would lose their privileges.

### 3. Overview of Industrial Policies in a Selected East Asia economies

How did governments actually intervene in East Asia? The truth is that each economy followed a very different strategy (table 5). With some exceptions, the economies shared a few common characteristics: stable business environment with low inflation, prudent fiscal policies, exchange rate to promote export competitiveness, financial development with gradual liberalization, efforts to minimize price distortions, emphasis on education and skill acquisition.<sup>68</sup> However, there were big differences in the importance of foreign investment, state-owned enterprises, and import protection. And differences in performance were also significant.

**Table 5: Different Strategies followed in East Asia**

	<i>Deepening Industrial Structure</i>	<i>Raising local content</i>	<i>FDI Strategy</i>	<i>Raising Technological Effort</i>	<i>Promotion of large enterprises</i>
Hong Kong	None	None	Passive Open Door	None, except technology support for SMEs	None
Singapore	Very strong push into specialized high skill/high tech industry, without protection	None, but subcontracting promotion now started for SMEs	Aggressive targeting and screening of TNCs, direction into high value-added activities	None for local firms, but TNCs targeted to increase R&D	None, but some public sector enterprises enter targeted areas
Taiwan	Strong push into capital, skill and technology intensive industry	Strong pressures for raising local content and subcontracting	Screening FDI, entry discouraged where local firms were strong, Local technology diffusion pushed	Strong technology support for local R&D and upgrading by SMEs. Government orchestrated high tech development	Sporadic: to enter heavy industry mainly by government
Korea	Strong push into capital, skill and technology intensive industry, especially heavy intermediates and capital goods	Stringent local content rules, creating support industries, protection of local suppliers, sub-contracting and promotion	FDI kept out unless necessary for technology access or exports, joint ventures and licensing encouraged	Ambitious local R&D in advanced industry, heavy investment in technology infrastructure. Targeting of strategic technologies	Sustained drive to create giant private conglomerates to internalize markets, lead heavy industry, create export brands

Source: Lall (2003)

This section briefly describes the evolution of industrial policies and the main policy instruments applied in Japan, Korea and Taiwan, China, with brief references to Singapore,

Hong Kong, Malaysia, Thailand and Indonesia. With the exception of Hong Kong, these economies applied similar instruments, yet with different intensity. However, the circumstances in which the policies were applied varied significantly.

## **Japan**

Japan has been the most successful economy in the region and pioneer in the use of industrial policies. The pattern of industrial policies has evolved according to the evolution of growth in Japan: the post WWII reconstruction period until 1960, the rapid growth era until the oil crisis, and the period until the economic slowdown in the 90s.<sup>69</sup> After the end of the American occupation in 1952, industrial policy focused on the reconstruction and expansion of large-scale industries. Prewar high levels of human capital and knowledge networks, and US procurement during the Korea War facilitated the reconstruction of heavy industries. The government promoted sectors (steel, shipbuilding, automobiles and aluminum refining) based on their potential for economic growth and national self-esteem revitalization.<sup>70</sup> During the rapid growth era starting in the late 50s, the government intervened with the goal to strengthen the international competitiveness of Japanese firm, avoiding excess capacity associated with rapid growth. In the 70s, the focus shifted to developing knowledge-intensive sectors such as electronics and semiconductors. In addition, the government focused on addressing environmental problems caused by rapid growth. During these decades, Japan's comparative advantage moved to R&D intensive activities.

Industrial policy instruments have evolved over time, from the state-planned economy of the postwar years to the reliance in market allocation, and the gradual integration of Japan in the international economic system. The next paragraphs look at the different modes of intervention in Japan: subsidized credit and tax incentives, trade protection, R&D incentives, direct subsidies, purchases of foreign technology, barriers to entry and regulation of competition, consultative mechanisms, and administrative guidance.<sup>71</sup>

Subsidized credit has been the main policy instrument in quantitative terms, especially in the reconstruction period.<sup>72</sup> The Fiscal Investment and Loan Program (FILP), funded by postal savings and social security funds, has been an important tool for bureaucratic allocation of subsidized credit to favored sectors. The FILP were distributed through public financial institutions such as the Japan Development Bank (JDB) and the Export-Import Bank of Japan (EIBJ) that offered loans at below the market rate.<sup>73</sup> Tax incentives, such as special depreciation schemes also were offered for the acquisition of capital goods, and for the acquisition of computers and robotics. In general, tax incentives are less important than subsidized credit, and both have declined over time.

Japan has also used trade protection extensively. The Ministry of International Trade and Industry (MITI) controlled the allocation of foreign exchange. Imports of inputs and technology essential for the large exporting industries or high-tech sectors were given priority, while imports of products competing with protected industries or luxury goods were restricted. Since the 1960s Japan has increasingly liberalized its economy, yet with extreme caution. Effective rates of protection (ERP) have traditionally been high, although gradually decreasing in manufacturing, and stood still at an average 17 per cent in 1987.<sup>74</sup>

R&D incentives have been important for the promotion of high-tech sectors in Japan. The government provided direct subsidies, subsidized credit by public institutions, and tax preferences to promote R&D activities. The subsidies went primarily to research consortia.<sup>75</sup> In the 70s, subsidies were granted for the development of computers, and in the 80s for cutting-edge technology in new materials, biotechnology and new electronic devices. The government also promoted R&D indirectly through a wide range of public and private institutions. However, total government support compared with private R&D expenditure is low (less than 5% for the whole economy). The most favored sectors by public R&D have been mining, petroleum and coal production and the transportation equipment industry.<sup>76</sup>

Except during the initial years, direct subsidies have not been a significant policy instrument for industry promotion. Other policy goals directed the distribution of budget subsidies, primarily the support of declining sectors and employment. Between 1955 and 1970, agriculture, forestry and fishing accounted for 80 per cent of the subsidies, followed by small business, textiles, and coal mining. Shipbuilding reached a peak of 5% in the 1965 and then declined. High-technology industry reached a maximum share of 4% in 1974 and declined since.<sup>77</sup>

The access to foreign technology in the strategic industries was controlled by MITI. The goal was to ensure that Japanese firms did not make excessive payments for licenses of foreign technology. Licensing was the main way of technology transfer due to the restriction of inward FDI. Frequently, a single firm was designated to acquire the technology and then forced to share the information with other companies. MITI often intervened directly in the negotiations, bargaining for lower prices. MITI also regulated competition in the key industries, as the bureaucrats were wary of the capacity of the price mechanisms to guide investment decisions. Mergers were encouraged to achieve economies of scale and to create barriers to entry to avoid “excessive competition”. At the same time, as the Japanese large conglomerates grew stronger, they became less amenable to MITI’s dictates. In fact, MITI advised contrary to viable projects claiming overproduction, i.e. the creation of the Mitsubishi Automobile Company in 1965, and Honda’s shift from motorcycle to automobile production.<sup>78</sup>

Other informal mechanisms include the “administrative guidance” of MITI and the deliberative councils of business leaders and government officials. MITI’s informal guidance increasingly replaced direct intervention. Proponents of industrial policy claim that the non-quantifiable role of informal mechanisms has led skeptics to underestimate the importance of industrial policy in Japan.<sup>79</sup>

## **Korea**

Korea has followed the steps of Japan in the utilization of industrial policy.<sup>80</sup> The Korean War (1950-53) devastated the peninsula, and during the 50s, Korea relied heavily on American aid. Most of what was left of the industrial infrastructure built during the Japanese colonization was located in the North. However, Korea enjoyed relatively high levels of human capital, which grew rapidly in the following decades due to the government’s commitment to education. The regime of General Park introduced wide reforms to promote exports in the mid 60s, but not

aimed at changing the composition of exports, primarily textiles. In 1973 policy orientation changed to more explicit promotion of the heavy and chemical industries (the so-called HCI drive). The rationale for upgrading the Korean industrial structure was both economic –avoid balance of payments problems caused by dependence on imported capital equipment–, and strategic –increase defense capacity. However, the recession in 1979 led to the gradual abandonment of the HCI drive policies. The cessation of preferential loans to the heavy machinery, shipbuilding, overseas construction and shipping industries contributed to the rapid accumulation of non-performing loans in the commercial banks during the 80s. During the 80s the government emphasis changed to the development of high-tech exports, and to scale back previous industrial policies.<sup>81</sup>

The policy instruments in Korea are similar to those utilized in Japan. During the export promotion period, support depended on export performance. Individual firms that achieved their export targets received more favorable treatment. They received exemptions from duties on imported inputs, tax incentives, preferential access to capital, reduced prices for utilities and “wastage allowances” on duty free imports. Price controls were maintained until 1973 and the state-owned banking sector allocated credit to private business according to government’s priorities.

The most important policy instruments during the HCI period were subsidized loans and tax incentives. In 1977, 45 per cent of the total domestic credit of the banking system was allocated to support the HCI sector. Implicit interest subsidies were estimated in 1977 at 3 per cent of GNP. The preferred sectors enjoyed extensive tax incentives, that represented effective tax rates as much as two-thirds lower for the preferred sectors.<sup>82</sup> Strict controls were placed on foreign-exchange expenditure. Technology licensing was preferred to foreign direct investment.

Similar to Japan, the government emphasized the achievement of economies of scale, regulated entry and competition in the preferred sectors, and encouraged mergers and market sharing agreements. The government used the financial system to regulate the diversified industrial networks of the *chaebol*. The size and diversification of the *chaebol* were key for their international expansion.<sup>83</sup> Firms were required to report regularly their performance, so the government had up-to-date information of the developments in each sector. State-owned firms in the oil, coal, gas, steel and utilities sector strengthened the public sector control over important industrial inputs.<sup>84</sup>

Korea experienced high growth rates and export expansion since the mid 60s. The export promotion phase in the 60s illustrates the discipline of the government in granting support to private firms. The HCI drive changed the structure of industrial production in Korea. Heavy industries grew at an annual average of 39.5 per cent in 1973-78 compared to 18 per cent in the rest of manufacturing sector.<sup>85</sup> Heavy manufactures also increased its share from 14 per cent to 60 per cent of manufactured exports between 1960 and 1984.<sup>86</sup> However, this expansion also led to excess capacity in sectors such as steel, shipbuilding and automobiles, which aggravated the 6 per cent fall in GNP in 1980.<sup>87</sup> The HCI policy also required the repression of private consumption. Paradoxically, despite being a major exporter of cars, high taxes and restriction of consumer loans discouraged car ownership in Korea.<sup>88</sup>

## **Taiwan, China**

Similar to Korea and Japan, but in a less systematic way, the Taiwanese government intervened to direct the sectoral evolution of manufacturing.<sup>89</sup> Growth accelerated after the shift from import-substitution to export promoting policies in 1958. The shift was partly motivated by the reduction in US economic assistance. The government hired the Stanford Research Institute to help it decide the best sectors for export promotion. Until the early 70s, the favored sectors were plastics, apparel, consumer electronics, and home appliances. In contrast with Japan and Korea, FDI played a major role in the Taiwanese export expansion, mainly concentrating in export-processing-zones. Competition from other low-wage countries and infrastructure constraints, undermined the possibilities of export-led growth, and the state invested heavily in capital-intensive sectors and infrastructure. Again, the orientation of industrial policy changed during the 80s, toward information and other high-tech sectors such as biotechnology.<sup>90</sup>

Taiwan, China has utilized similar instruments to Japan and Korea to direct the sectoral evolution in manufactures. Trade protection, fiscal incentives and selective credit were available to the promoted sectors according to the government's shifting industrial policy priorities. The Statute for the Encouragement of Investment (SEI) offered firms that met certain requirements the choice between accelerated depreciation and tax exemptions. Most companies chose accelerated depreciation. After almost 30 years, the mechanism was phased-out after a report found high fiscal and administrative costs. The estimated tax revenue loss in Taiwan due to the Statute for the Encouragement of Investment between 1981 and 1990 was 6.8 per cent of total tax revenue in the period.<sup>91</sup> The use of tariff and non-tariff barriers has been significant, with nominal rates of protection in excess of 31 per cent being offered to more than 40 per cent of imports as late as 1980.<sup>92</sup> Low-interest loans were granted to exporting firms, and since the 70s to public utilities and heavy industries. During the 90s the government has considerably lowered trade barriers in manufacturing. State-owned enterprises (SOEs) have played an important role in Taiwan, China. SOEs were created in the 70s in heavy and petrochemical sectors to provide intermediate goods for the export industries.

Since the 80s, the advance of high-tech sectors has been supported by the creation of two major public projects, the Industrial Technology Research Institute and the Hsinchu Science Park. The first conducts R&D and disseminates foreign technology. The second aims to capture the externalities from the presence of foreign and domestic high-tech companies. More recently, the government has offered direct grants and subsidies to finance private R&D efforts in high-tech sectors and has promoted venture capital funds

Taiwan, China is a good example of the debate about industrial policies in East Asia, due to the combination of export promotion and FDI, and government guidance in manufacturing. A main difference between Taiwan, China, and Japan or Korea, is the predominance of small and medium manufacturing enterprises, instead of large conglomerates.

## **Hong Kong and Singapore**

Hong Kong and Singapore, both successful city economies, have also followed different strategies of industrialization. Hong Kong is traditionally considered a laissez-faire regime, with

the exception of the highly intervened land market. In Singapore the government has played a more direct role in economic development. The key ingredient in Singapore has been its ability to attract FDI. The government has invested heavily in education, R&D, and infrastructure and also targeted potential investors, offering them generous incentive packages. As Singapore lost its advantage in labor-intensive activities, the state focused increasingly in promoting high-tech sectors. The government also participated directly in manufacturing, mainly in the shipbuilding sector.<sup>93</sup>

### **Southeast Asia**

Thailand relied on inward foreign investment and export orientation, after the disappointment with import-substitution policies to promote textiles, automobiles and pharmaceuticals. Indonesia experimented with import substitution fueled by oil revenues in the 70s, before moving to outward orientation and openness to foreign investment in the mid-80s. The government also promoted high-technology sectors such as aircraft production, with little success.<sup>94</sup>

Malaysia has also relied on export oriented manufacturing by attracting foreign investment, mainly to export processing zones like Penang. Some incentives were not effective, and a study found that the tax incentives that granted “pioneer status” to some firms in Malaysia actually imposed a net penalty on most investors.<sup>95</sup> In the 1980s, Malaysia followed Korea’s steps in promoting heavy industry and chemicals with the creation of the Heavy and Industrial Corporation of Malaysia (HICOM) with interests in petrochemicals, steel, automobiles, cement and paper. However, state-owned firms were less profitable than anticipated, and HICOM was subject to a privatization and adjustment process in the late 80s.<sup>96</sup> The PROTON automobile, a joint venture between Mitsubishi and the state-owned company, illustrates the difficulties of the Malaysian industrialization efforts. The project failed to achieve economies of scale, resulting in high-priced automobiles in the domestic market, and lower than expected exports.<sup>97</sup> More recently, the government has emphasized high-tech sectors, with the launching in 1996 of the Multimedia Supercorridor (MSC), a 750 sq-km area to promote foreign and domestic investment in technology intensive projects.<sup>98</sup>

### **4. Replicability**

East Asia was not the only region in which governments intervened with the goal of promoting industrialization and growth. All countries, including today’s more developed, have followed similar strategies for centuries.<sup>99</sup> So did Latin America in the 20<sup>th</sup> century, and in some countries such as Brazil at the end of the 70s, the strategy seemed to work for some time. However, as the pace of technological change accelerated Latin American countries were not able to adapt fast enough. Several reasons help explain the difference between Latin America and East Asia: poor macroeconomic management, falling investment in education at all levels, technology policies that failed to create incentives in firms to innovate, and lack of discipline in government support to firms.<sup>100</sup> In Africa, after disappointing experiences with import substitution, attempts to follow export promotion strategies largely failed due to exchange rate policies, lack of capacity and trust, and poor infrastructure.<sup>101</sup>

What are the lessons that can be learned of the East Asian debate for other countries looking for successful developing strategies? The first lesson should be about the diversity of experiences. The selection and implementation of policies varied enormously and was highly dependent of the conditions facing each of the East Asian governments.

There is a consensus about the ability of the most successful East Asian countries to get the fundamentals right. With some exceptions, they enjoyed macroeconomic stability, promoted education at all levels; invested heavily in infrastructure, and possessed a civil service committed to development. Efforts to promote industrial sectors, without having the fundamentals in place have been unsuccessful (for example in the Philippines). There is a high risk that favored sectors will capture the policies and resist attempts to reverse them.

The literature highlights that policies have evolved over time, as the domestic and international context changed. East Asian countries have increasingly liberalized their economies, lowered their trade barriers and changed their regulations to promote competition and a more efficient use of resources.<sup>102</sup>

Another important lesson is the need to look at the changing circumstances. Currently, governments are more focused on creating a good investment climate for private firms. The paradigm of industrial policy has also evolved. The emphasis is less on direct government selection of promising sectors, and more on the use of indirect mechanisms to promote technological upgrading, by means of attracting FDI and developing local technological capabilities.<sup>103</sup>

The world's production and trade patterns have changed. As global integration increases it becomes more difficult for governments to predict what sectors a country can produce with advantage. As an example, the initial success of the software industry in India was facilitated in part by the easing of government intervention.<sup>104</sup> New production patterns put governments willing to promote individual sectors in a difficult position. This is true even sectors with simpler technologies, such as apparel, as production chains become increasingly dispersed and the most labor-intensive tasks are rapidly relocated based on trade preferences. The fast-paced technological change and knowledge flows around the world also present advantages and disadvantages for developing countries. Countries can access better technologies, but they also have to compete with each other for access to markets, technologies, and investment.<sup>105</sup>

A frequent argument made by proponents of greater government intervention is that the international trade regime limits the instruments available to developing countries.<sup>106</sup> They claim that international trade rules constraint the possibility of using the tools that proved effective in East Asia –mainly local content requirements and export subsidies). Three comments can be made regarding this argument. First, the impact of these instruments is not clear, and they are subject to the risks of abuse by special interests. Even in East Asia, experiences with these instruments varied substantially. Second, the current trade regime under the WTO still offers governments some margin to promote the manufacturing sector, especially for less developed countries. They have longer transitory periods to decide how quickly they want to liberalize. In addition, certain kinds of subsidies (i.e. promotion of R&D activities) are still permitted. Finally, the purpose of international trade rules is to create a more level playing

field and avoid beggar-thy-neighbor policies and this should benefit developing countries. Certainly, there is room for improvement in international trade rules to better serve the needs of developing countries.<sup>107</sup>

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<sup>1</sup> According to the World Bank (1993) these economies are Japan, the Four Tigers (Hong Kong, the Republic of Korea, Singapore, and Taiwan, China) and the three newly industrializing economies (NIEs) of South East Asia (Malaysia, Indonesia, and Thailand). The rest of the paper focus mainly on these economies, although since the 1980, China, and during the 90s, also Vietnam, have experienced rapid growth.

<sup>2</sup> Several scholars have made this observation including Bhagwati (1996), Krugman (1995), and Rodrik (1997).

<sup>3</sup> Johnson (1996) and Amsden (1989).

<sup>4</sup> For a literature review of the theories of market and government failure see Chang (1994).

<sup>5</sup> For a recent discussion, see the contributions to the "Symposium on Infant Industries," organized by Adrian Wood, chief economist of the UK Department for International Development, and published in *Oxford Development Studies* Vol. 31, Issue 1, 2003.

<sup>6</sup> Lall (1996), World Bank (1991) and Pack and Westphal (1986).

<sup>7</sup> Lall (2000).

<sup>8</sup> Cited works are Balassa (1982), Bhagwati (1978), Hughes (1988), and Krueger (1978).

<sup>9</sup> The most relevant books are Johnson (1982) on Japan, Amsden (1989) on Korea, and Wade (1990) on Taiwan.

<sup>10</sup> The East Asian Miracle examined the effects of sectoral promotion on the industrial structure and on sectoral TFP growth. In both cases, with the possible exception of Japan, it concluded that industrial policies had been ineffective.

<sup>11</sup> See Wade (1996). Jomo (2003) speculates with reasons for the relatively fair treatment that interventions in the financial market received in the World Bank report.

<sup>12</sup> Krugman (1994).

<sup>13</sup> Amsden (1994), Wade (1994), Lall (1994), Rodrik (1994b) and Chang (1999); Wade (1996).

<sup>14</sup> For research supporting the report's views see Leipziger (1997), and Campos and Root (1996). See also Asian Development Bank (1997).

<sup>15</sup> See Stiglitz and Yusuf (2001), and Ohno and Ohno (1998)

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<sup>16</sup> See for example, Wade (1998).

<sup>17</sup> Chang (2002) argues that industrialized economies followed industrial policies in their early stages of development and once they were developed, have prevented other countries from pursuing a similar path. See also Lall (2000). For a study critical to industrial policy in East Asia see Noland and Pack (2003).

<sup>18</sup> Yusuf (2003) emphasizes stability and international openness but recommends East Asian governments to focus on innovation, promoting education, R&D, investments in ICT infrastructure, etc. Other authors go further in framing the industrial policy debate in terms of the acquisition of technological capabilities and recommending proactive government policies; see Amsden and Chu (2003), Lall (2003), and Jomo, Felker, and Rasiah (1999).

<sup>19</sup> Noland and Pack (2003) evaluate the evidence available on the effects of industrial policies in Japan, Korea and Taiwan.

<sup>20</sup> Chang (1999).

<sup>21</sup> Three exercises that use counterfactuals are Pack (2000) on Korea and Taiwan, World Bank (1993) on Japan and the “Four Tigers”, and Yoo (1993) on Korea.

<sup>22</sup> The World Bank (1993) concluded that during the HCI drive in Korea, the share of sectors with low-value added per worker grew faster, an indicator that low wages and low capital-intensity, rather than heavy industry promotion, were still predicting the pattern of growth. Results for the same test in Japan were inconclusive. However, this exercise was highly criticized. Amsden (1994) argued that Korea effectively promoted the textile industry and opposed the idea that industry structure in Korea had developed according to “market conforming” patterns.

<sup>23</sup> Noland and Pack (2003) argue that the scarcity of systematic data for the take-off period in Korea and Taiwan, China, make it difficult to drive conclusions.

<sup>24</sup> Ito (2001) argues that comparative advantage and Japan’s example made it easier for other East Asian countries to decide what sectors to promote.

<sup>25</sup> Smith (2000).

<sup>26</sup> Chang (1999).

<sup>27</sup> This argument is valid only if part of the East Asian growth was due to technological catch-up, and not to mere capital accumulation. (Section two presents an overview of the debate on what explains growth in these countries)

<sup>28</sup> Noland and Pack (2003). They acknowledge the sensitivity of TFP estimations to changes in the underlying assumptions.

<sup>29</sup> Noland and Pack mention the studies of Beason and Weinstein (1996) and Lawrence and Weinstein (1999) for Japan. The second find some positive effect of differential tax rates, and not of subsidies or subsidized credit. In Korea, Lee (1996) found that industrial policies may have stimulated growth in the initial years. Trade protection has a negative effect on labor productivity and sectoral TFP growth, while tax incentives and subsidized credit had no impact on TFP.

<sup>30</sup> Smith (2000).

<sup>31</sup> Pack (2000).

<sup>32</sup> Yusuf (2001).

<sup>33</sup> Changes in TFP have been traditionally interpreted as technological change. However, it also represents other factors that affect the efficiency in combining inputs and technology such as institutional change, changes in government policies, and so forth.

<sup>34</sup> Krugman (1994). Bhagwati (1996) argues that regardless of the TFP calculations, the real miracle lies on the exceptionally high and sustained rates of private investment in East Asia.

<sup>35</sup> Kim and Lau (1994), Young (1992) and Young (1995).

<sup>36</sup> Rodrik (1997).

<sup>37</sup> See, for example, Kim and Lau (1994) and Bosworth and Collins (2003). How East Asia was able to sustain such high rates of investment has been the focus of long debates; see for example Bhagwati (1996), Stiglitz (1996).

<sup>38</sup> Easterly and Levine (2001).

<sup>39</sup> For an example of how firms in Korea, Taiwan, China, Singapore and Hong Kong learned to adapt new technologies see Hobday (1995).

<sup>40</sup> For an overview of the different technology policies followed in each country see UNCTAD (2003), Ernst, Ganiatsos, and Metelka (1998), Mathews and Cho (2000) and Wong and Ng (2001). For an overview of current policies and future prospects see Yusuf (2003). See also Komiya, Okuno, and Suzumura (1988) and Sato (2001) for Japan, Kim (1997), Lim (1999), and World Bank (2000) for Korea, Wong (2001) on Singapore, and Jomo, Felker, and Rasiah (1999) for Malaysia.

<sup>41</sup> Urata (2001), includes China. See also UNIDO (2002).

<sup>42</sup> Ando and Kimura (forthcoming).

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- <sup>43</sup> Balassa (1991), Balassa (1982), Krueger (1993), Little (1994), and Blumenthal (1972).
- <sup>44</sup> Amsden (1989), Wade (1990), Singh
- <sup>45</sup> Aw, Chung, and Robert (2000) study Korean and Taiwanese firms in textiles, apparel, plastics, electrical machinery/electronics, and transportation equipment. Only in Taiwan, China they find a significant widening of the TFP differential between export entrants and non-exporters. Westphal (2001) defends the learning by exporting thesis, based on the existence of export-related knowledge-transfer mechanisms that may be higher for new export products than continuing exports.
- <sup>46</sup> Jones and Sakong (1980).
- <sup>47</sup> Rodrik (1994a) argues that the change in orientation did not bring a significant change in the profitability of exports, which explains export booms in other places.
- <sup>48</sup> Porter (1990) and Sakakibara and Porter (2001).
- <sup>49</sup> Lawrence and Weinstein (1999).
- <sup>50</sup> Vu (2003). He also argues that in general, the story of the extremist character of the East Asian states has been overlooked. For example, in Korea, support to reforms in the early period was obtained through coercion. Contestation was suppressed but the government saw a need to build legitimacy based on engaging the population in a long term vision of prosperity. He compares the period of rapid growth between 1960 and 1980, in Korea and Indonesia and concludes that Indonesia's performance was more unstable and less impressive due to the existence of well-organized opposition by the popular sectors to economic reforms.
- <sup>51</sup> Jomo (2003).
- <sup>52</sup> Natural resources may also have contributed to the more unequal distribution of income in Southeast Asia, reducing the incentives for land redistribution.
- <sup>53</sup> Chang (1999) argues that the lack of institutional capacity does not affect the argument of whether countries should emulate industrial policies in East Asia because institutional capacity is also necessary for the success of laissez-faire policies.
- <sup>54</sup> Amsden (1989) and Johnson (1987).
- <sup>55</sup> Evans (1995).
- <sup>56</sup> Okazaki (2001).
- <sup>57</sup> Wong and Ng (2001).
- <sup>58</sup> Haggard (1990).
- <sup>59</sup> Rodrik (1994a).
- <sup>60</sup> Woo-Cumings (2001), see also Ades and Di Tella (1997) about corruption in the defense procurement system. According to the indicators of corruption provided by Weder (1999), Korea ranks close to Malaysia.
- <sup>61</sup> Wade (1998). Yusuf (2001) also points out the difficulty of bureaucracies to prevent their best professionals from going to the private sector, with the exception of Singapore.
- <sup>62</sup> Noland and Pack (2003) and Ohno and Ohno (1998).
- <sup>63</sup> Vittas and Cho (1996).
- <sup>64</sup> Woo-Cumings (2001). The government intervened to avoid the bankruptcy of the *chaebol* on several occasions: the debt crisis in 1972, between 1979 and 1993 by providing subsidies to firms in heavy industries, and in 1984-88 to restructure the debts of firms overseas construction, shipbuilding, shipping, textiles, and machinery.
- <sup>65</sup> See, for example Wade (1998).
- <sup>66</sup> Chow (2000), Flatters (2000), and Dollar and Hallward-Driemeier (2000).
- <sup>67</sup> See Jones and Sakong (1980), World Bank (1993), and more recently, Hausmann and Rodrik (2003), and Noland and Pack (2003).
- <sup>68</sup> Yusuf (2001).
- <sup>69</sup> For a detail account of Japanese industrial policy see Komiya, Okuno, and Suzumura (1988).
- <sup>70</sup> World Bank (1993). With scarce natural resources and a large population, the architects of industrial policy decided that Japan had to promote an industrial sector that was competitive in world markets. Komiya, Okuno, and Suzumura (1988) point out the "neomercantilist" rather than neoclassical logic prevailing during the reconstruction period.
- <sup>71</sup> This section follows Noland and Pack (2003).
- <sup>72</sup> Kokko (2002) mentions that almost one third of all credit allocated to industry in the 1952-55 years was subsidized.
- <sup>73</sup> The JDB focused in electric power, sea transport and coal mining until 1960, computers in the late 60s, and regional development and pollution control after the oil crisis. The shipbuilding industry was the main beneficiary of the EIBJ loans until 1965, and after that, also the exports of heavy machinery.

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- <sup>74</sup> World Bank (1993).
- <sup>75</sup> The most famous of this consortia was the Very Large Scale Integrated Circuit (1975-85) to compete in the semiconductor industry of which 22 per cent was financed by the government.
- <sup>76</sup> Noland and Pack (2003).
- <sup>77</sup> Komiya, Okuno, and Suzumura (1988)
- <sup>78</sup> World Bank (1993)
- <sup>79</sup> Chang (1994).
- <sup>80</sup> Amsden (1989) provided a detailed account of the goals and strategies for industrial development of the Korean state. Industrial policy in Korea since the 60s has been determined by the Five Year Plans that designated the promoted sectors. The second Five Year Plan designated chemicals, steel and machinery (67-71), non-ferrous metals, shipbuilding and electronics added in the third and fourth plans, corresponding to the HCI drive (1972-81). The fifth and sixth plans (1982-91) designated machinery, electronics, automobile, chemical, shipbuilding and high-tech industries. Chang (1994).
- <sup>81</sup> World Bank (1993). In the late 80s the rationalization programs introduced “sunset clauses” to grant promotion for infant industries and ease the phasing-out of declining sectors. Chang (1994).
- <sup>82</sup> World Bank (1993).
- <sup>83</sup> Woo-Cumings (2001).
- <sup>84</sup> Chang (1994).
- <sup>85</sup> Chang (1994).
- <sup>86</sup> Amsden (1989).
- <sup>87</sup> Woo-Cumings (2001).
- <sup>88</sup> Chang (1994).
- <sup>89</sup> Wade (1990) provides a detailed account of industrial policy in Taiwan, China.
- <sup>90</sup> World Bank (1993).
- <sup>91</sup> Smith (2000), cited in Noland and Pack (2003).
- <sup>92</sup> World Bank (1993).
- <sup>93</sup> Wong (2001).
- <sup>94</sup> World Bank (1993).
- <sup>95</sup> Boadway, Chua, and Flatters (1995).
- <sup>96</sup> World Bank (1993).
- <sup>97</sup> See Moran (1998), The Economist (2004).
- <sup>98</sup> Economist Intelligence Unit (2003) and Wysocki Jr. (1997).
- <sup>99</sup> Chang (2002).
- <sup>100</sup> Cardenas, Ocampo, and Thorp (2003), and Meyer-Stamer (1995).
- <sup>101</sup> Harrold, Jayawickrama, and Bhattasali (1996).
- <sup>102</sup> Mody (1999) argues that the promotion of competition does not necessarily mean less government, as is the case of marked economies in developed countries.
- <sup>103</sup> For an example of different framework of industrial policy see Kosakoff and Ramos (1999). For a catalogue of current industrial policies in Latin America see Melo (2001).
- <sup>104</sup> Saxenian (2001) and O'Connor (2003).
- <sup>105</sup> World Bank (2003).
- <sup>106</sup> Lall (2000).
- <sup>107</sup> For more on the topic of industrial policy and international trade rules see Bora, Lloyd, and Pangestu (2000), Pangestu (2002), Bora (2002), Chang (1999), and Noland and Pack (2003). See also World Bank (2004).