PATTERNS OF KOREAN AND INDONESIAN INDUSTRIAL POLICIES: A Comparison

Arief Ramelan Karseno
Arti D. Adjı

Introduction

The aim of the paper is to compare the Indonesian and Korean industrial policies. Despite several differences between Indonesia and Korea, their respective "backwards" means they also share some common themes in their trade policies. Before analyzing the trade and industrial policies, we will begin this section by taking a brief look at the macroeconomic indicators for Indonesia and Korea.

Table 1 summarizes a comparison of macroeconomic indicators of Indonesia and Korea in 1993. In that year, the inflation rate, growth in GDP, and the ratio of foreign debt to GDP were higher in Indonesia than in Korea. In 1993, Indonesia's GDP grew at 8.1 percent, up from 7.5 percent in 1992. In 1994, growth in GDP is estimated at 7.5 percent. Meanwhile, in 1994 Korea's GNP grew at 8.2 percent while Indonesia expanded by 13.3 percent.

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<table>
<thead>
<tr>
<th>Economic Indicators, 1993</th>
<th>Indonesia</th>
<th>Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation (%)</td>
<td>8.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Growth in GDP (%)</td>
<td>6.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Per-capita GNP ($)</td>
<td>645</td>
<td>7250</td>
</tr>
<tr>
<td>Current Account (M)</td>
<td>-2.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Foreign Debt (% of GDP)</td>
<td>16</td>
<td>11.0</td>
</tr>
</tbody>
</table>

Source: AsiaWeek, August 1994.

History

Indonesia

The Period of 1945-1966/1967

During this period, the Government of Indonesia (GOI) allocated most of the country’s resources to political activities. Problems concerning international affairs and national integrity forced the government not to put economic development on the back burner. This resulted in an undeveloped economic structure and stagnant structural transformation. In 1951, the agricultural sector contributed 55.5 percent to gross domestic product (GDP) and 51.5 percent in 1964. The manufacturing sector constituted 8.4 percent in 1951 and 8.3 percent in 1966. Meanwhile, growth in per capita income was also stagnant since economic growth was offset by an equal rate of population growth (Sjahrir, 1972; Abimanyu, 1988).

By the end of the period (1965), the Indonesian economy collapsed because of the imbalance of monetary and fiscal policies. Government expenditure was increasingly financed by the printing of money rather than by taxation, foreign debt, or other form of debt financing. This meant an economy marked by hyper-inflation, a deteriorating balance of payments, and declining production in all kinds of goods.


This situation did not change until the emergence of the new leader (New Order) in 1966. The New Order government brought an immense political and economic changes, by reversing the political and economic priorities of the previous regime. In 1966, the New Order government established a new strong National Government which placed political stability as a foundation for economic development.

Between 1966 and 1973, the government introduced several economic stabilization and stabilization programs which involved implementing financial and industrial policies towards a more liberal economy. The new government reestablished financial links with Western economies by utilizing foreign funds, such as loans, grants and foreign direct investment. The old regime had been reluctant to have financial links with industrial countries, favoring such policies as self-reliance campaigns, nationalization of foreign companies, and default on debt service payments.

The political and economic policies of the new government were able to solve the problems of a substantial government budget deficit and slow economic growth. IMF initial assistance to the government...
program and budget during August and September 1966 to find the economic engine. In 1965, the budget deficit was nearly 7 percent of GDP, in 1966 this ratio was still over 5 percent but in 1967, the ratio was reduced to 0.3 percent. Indeed, the budget deficit and the associated rate of inflation induced by the printing of money, were reduced significantly.

The New Order government started to conduct planned economic development known as the Five Year Economic Development Plan (Rencana Perkembangan Lima Tahun or RPP). The First Plan covered the period 1966/1970 to 1973/1974. During this period, annual economic growth was targeted at 5 percent. In fact, economic growth reached 8.6 percent annually. This impressive economic growth was partly due to the fact that Indonesia was still in the transition period of development, during which investment required a relatively low Incremental Capital Output Ratio (ICOR). For a densely populated country like Indonesia, basic needs are strategic factors for economic stability. Therefore, in the First and Second Plans, national economic development programs focused on building a strong agricultural sector, particularly for food crops. The target of these second Plans was to achieve self-sufficiency in food production.


OPEC decision to increase world oil prices in 1973 and 1974 directly forced up the price of Indonesian oil. At the beginning of 1969, the price of Indonesian oil was only US$1.67 per barrel, but by November 1973 it had reached US$5 per barrel, by July 1974 US$12.60, peaking at US$35 in January 1981. These increased oil prices raised domestic revenues and government savings. In the period of oil boom, rather than reducing foreign debt or increasing debt servicing payments, Indonesia continued to clock up foreign debt. Between 1973 and 1974, oil export revenues increased by 210 percent (from US$1,680 trillion to US$5,211.4 billion). At the same time, Indonesia’s foreign debt also increased by 11.9 percent over the previous fiscal year. The motivation to reduce the debt burden was outweighed by the motivation to pursue economic growth. Government priority lay in building extensive public investment on capital intensive, resources-based industry such as fertilizers, petrochemicals and cement. These industries were fiercely protected by the government with investment division makers investing conducting export substitution policies and inward-looking strategies. Moreover, most players in the protected industries are state-owned enterprises (BUMN). Investment in capital intensive industries was expected to support the program for self-sufficiency in food production, provide other basic needs (for example, housing) for the majority of Indonesian people, and also to accelerate the pace of industrialization.

During this period, the contribution of oil and gas revenues to domestic revenues increased. In 1973/1974, the oil and gas sector contributed 39.5 percent to domestic revenues. While in 1981/1982, this figure was 70.6 percent. During the oil boom period, the economy grew at 7.34 percent annually.

Sluggish Economic Growth and Transition of Earning from Oil to the Manufacturing Sector: 1982-1985

So far, the current account balance was dominated by surpluses from oil ex-
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port revenues, leaving non-oil sectors to
export relatively small and unimportant.
However, in 1982, the international oil
price declined sharply. As a result, Indo-
nesia faced a balance of payment difficul-
ties and sluggish economic growth.
Indonesia’s current account deficit in
1982/1983 reached US$ 7.2 billion (7.7
percent of GDP), with economic growth
of just 4 percent a year. Sluggish econom
ic growth continued until 1985 when the
government started to implement policies
of industrial deregulation and reform. To
overcome the problems of economic
growth and the current account deficit, the
GOI used both fiscal and monetary poli-
cies simultaneously. GOI utilized a re
sources mobilization improvement pro-
gram through comprehensive financial
and fiscal reformulation, coupled with im-
proved efficiency in customs, ports and
shipping. Meanwhile, public expenditure
was slashed by re-phasing many large
projects and cutting back on budgetary
subsidies and expenditure. The salaries of
civil servants were frozen.

To reduce the current account defi-
cit, various import tariffs were markedly
increased during the 1983-1986 period. At
the same time, monetary policy was con-
ducted to improve Indonesia’s competi-
tiveness in non-oil exports. In March
1983, the GOI devalued the rupiah by 28
percent, followed up by more flexible
management of exchange rates. Unfortu-
nately, the monetary and fiscal policies
conducted by GOI were inconsistent with
policies on trade and industry, which be-
came even more inward oriented and more
strongly interventionary.

In general, industrial structure during
this period did not yet rely much on the
role of the private sector and market mecha-
nisms. Most business players were acting
inefficiently, with rigid state-owned en-
terprise leading the pack. Monetary and
tactical policies did not work effectively
since the real sector was unable to capture
the business opportunities provided by
more liberal policies. In fact, the policies
led to even a larger current account deficit
and higher debt service ratio (DSR).

The Deregulation Period: 1985-Present
In 1986, another sharp decline in oil
price and continued degeneration of pri-
macy commodity prices worsened
Indonesia’s terms of trade. The DSR
jumped from 26 percent in 1985 to 37
percent in 1986. To overcome these prob-
lems, the GOI, again devised a package.
Unlike the previous devaluation, the 1986
devaluation was accompanied by consul-
tions and supportive trade and industry
measures. Trade and industry policies fo-
cused on promoting non-oil investment
and exports by reducing trade barriers and
other institutional regulations which had
led to a high cost economy. The deregula-
tion package of October 1986 elimi-
nated import licensing for 197 items ac-
counting for 19 percent of the total value
of imports. This move marked the begin-
ning of a series of deregulation and refor-
mation programs conducted by the GOI to
limit the role of inefficient bureaucracy
and to promote the role of the efficient
private sector in the economy. Overall
inward-looking, import substitution ori-
ented trade and industrial policies were
replaced by outward-looking, export pro-
motion oriented policies.

The government conducted at least
three types of measures aimed at re-orient-
ating, and deepening the deregulation and
reform process:

- Reduction of non-tariff barriers and the
  liberalization of protection. These reforms
  were supported by a series of deregula-
tions in infrastructure services, such as
  maritime sectors and custom services.

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- Relaxation of license requirements and foreign investment restrictions. These measures were aimed at fostering healthier competition in domestic market and to encourage more efficient private producers.
- Reduction of entry barrier for new private banks and stimulation of competitiveness among financial institutions by abolishing credit ceilings, eliminating interest rate controls and reducing subsidies and directed credit programs in 1990.

The impact of this series of deregulations was very impressive. It generated a very strong response from the private sector as indicated by the boom in private investment, rapid growth in non-oil exports, employment, labor productivity, and output (Karnes, 1996).

Deregulation packages have created a new dimension in the Indonesian economy. Structural transformation has emerged. The change in sectoral contribution to GDP from 1971 to 1993 can be observed in the Table 2.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP</th>
<th>Non-Oil GDP</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Mining</th>
<th>Utilities</th>
<th>Manufacture</th>
<th>Non-oil Mnf</th>
<th>Other</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>100</td>
<td>73</td>
<td>33</td>
<td>37</td>
<td>24</td>
<td>1</td>
<td>9</td>
<td>6</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>1980</td>
<td>100</td>
<td>72</td>
<td>24</td>
<td>46</td>
<td>18</td>
<td>1</td>
<td>11</td>
<td>8</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>1985</td>
<td>100</td>
<td>77</td>
<td>23</td>
<td>45</td>
<td>15</td>
<td>1</td>
<td>16</td>
<td>11</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>1990</td>
<td>100</td>
<td>80</td>
<td>22</td>
<td>46</td>
<td>16</td>
<td>1</td>
<td>19</td>
<td>15</td>
<td>10</td>
<td>32</td>
</tr>
<tr>
<td>1991</td>
<td>100</td>
<td>80</td>
<td>22</td>
<td>47</td>
<td>12</td>
<td>1</td>
<td>20</td>
<td>16</td>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>1992</td>
<td>100</td>
<td>88</td>
<td>20</td>
<td>47</td>
<td>10</td>
<td>1</td>
<td>22</td>
<td>18</td>
<td>13</td>
<td>34</td>
</tr>
<tr>
<td>1993</td>
<td>100</td>
<td>89</td>
<td>18</td>
<td>46</td>
<td>19</td>
<td>1</td>
<td>22</td>
<td>19</td>
<td>13</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics

To sum up, the key words to describe Indonesian economic policies during this period were continuity and change. On one hand, several policies were characterized by high sustainability (Sjafrud, 1992; Asihma, 1983).
- Balanced budget policy
- Inflation control policy by controlling the money supply and limiting government expenditure
- Sound management policy on the balance of payments deficit
- Policy of financing the government expenditures by foreign debt.

On the other hand, this period also witnessed changes in economic performance, i.e. structural transformation and deregulation.

**Korea**

Although the comparison is not really attributable to Korea, the prevailing international belief is that Korea ex-emplifies a "little" Japan. That is, Korea's success has been achieved by imitating Ju-
Selected import markets were liberalized to augment this outward-looking strategy. Since high cost or low quality domestic inputs could injure the competitiveness of exports, tariffs and import controls had to be rationalized. However, most domestic markets remained protected until the end of 1970s. The government also introduced export incentive system to allow exporters to deduct various taxes. The system of export credit subsidies played a critical role in supporting export industries up until the mid 1980s when Korean current account recorded a surplus. The government also introduced several administrative mechanisms for export promotion, annually setting goals for exports by commodity and by region. The Korea Trade Promotion Corporation expanded its overseas subsidiaries to provide marketing information and information concerning the activities of exporting companies. This strategy provided an effective performance test for firms, as the government’s support of exporting firms was based on export performance. Exporters eligible to receive support were limited only to those whose past year’s exports exceeded a targeted amount. In this way, the government maintained an efficient allocating device for picking winners and was able to reduce the risk of an interventionist approach.

During this period, the Korean economy grew at more than 9 percent a year and per capita income in 1972 was more than double the figure recorded ten years before in real terms. The manufacturing sector grew at about 18 percent. The share of manufacturing output to GNP rose from 11 percent in 1960 to 26 percent in 1972, while the share of the agriculture sector dropped from 41 percent to 25 percent.
1973-1979: The HCI Promotion

During this period, the Heavy and Chemical Industries (HCI) drive was implemented through subsidised credit and special tax policies, selective protection, entry restriction, and direct government involvement in industrial decision making. The HCI drive was motivated by the need for industrial deepening and national security. Industries like shipbuilding, automobiles, steel products, nonferrous metals, and petrochemicals were favoured by the HCI promotion.

The promotion of HCI was supported by policy instruments such as tax holidays. The commodity tax exemption previously available to all exporters was withdrawn, and key export privileges were reduced. The macroeconomic consequences of HCI drive further increased export-oriented industries. Inflation accelerated since capital formation was supported partly by rapid monetary expansion. The government also established the National Investment Fund (NFI) in 1973 to facilitate financing of long-term investments in plant and equipment for the HCI. The NFI sources were a combination of domestic funds from private financial intermediaries and government funds.

The HCI drive resulted in a rapid change in the industrial structure. In 1970, the share of HCI in the GDP was just 11.9 percent, but by 1980 it had increased to 25.3 percent. The share of HCI products in total exports soared from 12.8 percent in 1970 to 38.3 percent in 1988. The structure of exports was also shifted from labor-intensive to capital-intensive products by the early 1980s. However, the growth rate of exports slowed down to 8.4 percent in the 1973-1979 period. Meanwhile, the economy grew at 8.2 percent a year due to expansionary aggregate demand policies and heavy foreign borrowing. External debt grew at 28.8 percent and the rate of inflation reached 21.3 percent. Investment funds were preferentially allocated to HCI at the expense of light industries. Creation of HCI without adequate preparation in technology and infrastructure capacity forced Korean firms to learn very rapidly in order to survive, by assimilating technology and in turn upgrading capacity utilisation.

1979-Present: Stabilization and Liberalization Phase

During this period, the government has been pursuing the same export-oriented strategy while emphasizing domestic price stability and market liberalization. In 1979, the Korean economy faced structural problems and macroeconomic imbalances. Inflation was already high, the economy was overheated, capital utilisation in HCI was low and exports were faltering. Along with the other NICs, Korea was hit by the second oil shock in April 1979, the government mobilized a comprehensive stabilization program based on conservative fiscal and monetary policies and including a wide range of measures. The economy achieved price stability at the beginning of 1983 and regained strong growth momentum the same year. Real GNP grew by 9.5 percent, with an increase in exports being the major source of growth.

In conjunction with the price stabilization program, the government pursued a wide-ranging policy of market liberalization. The government began to reduce its role in credit allocation and to terminate policies that favored HCIs. The tax reform of 1981 reduced the scope of special tax holiday options and narrowed the scope and degree of the investment credit option. Extensive interest rate deregulation was undertaken in 1984, and an import liber-
rization program was adopted in 1983. Moreover, the government gradually relaxed restrictions on FDI in 1985 and 1990s, and the proportion of Korea’s in-
dustrial subsectors open to FDI increased from 44 percent in 1970s to 66 percent in 1984, rising to 90.6 percent in 1994. In 1995, the government introduced the au-
tomated approval system, the expansion of tax and other incentives for invest-
ments in strategic high-tech sectors, and the one stop service center.

Reshaping The Industrial Policy: From Import Substitution to Export Oriented Strategies

Many developing countries use trade policy to favor manufacturing rather than traditional sectors such as agriculture, in order to catch up with developed coun-
tries. This is because that manufacturing is viewed as a sign of national development; most developed countries are usually exporters of manufactured goods, while developing countries are exporters of pri-
mary products. Governments in many countries have been promoting manufactur-
ing through trade policies, with one of the objectives of trade policy in develop-
ing countries being promoting industriali-
zation. In most developing countries, the basic strategy for industrialization was to develop domestic market oriented indus-
tries by implementing trade restrictions such as tariffs and quotas. This kind of strategy is called import substitution. The reasons for carrying out a policy of import substitution (IS) are twofold. First, until the 1970s developing countries were pre-
iminate about their ability to export manu-
factured goods. Second, import substitu-
tion benefited powerful and established cliques. Nevertheless, the IS strategy did not yield the expected economic gains, resulting in high cost and inefficient production. In general, the efforts to pro-
mote industrialization through import sub-
stitution has fallen into disfavor among economists. Nevertheless, modest industriali-
zation among less-developed countries (LDC) has been failure. Since the mid 1960s, several LDCs have combined rapid growth of output and living standards with industrialization i.e. an export oriented strategy. These countries are often called therewith industrializing countries (NICs). Top performers among NICs were the Gang of Four namely South Korea, Hong Kong, Taiwan, and Singapore. Stabilizing orientation from domestic to foreign mar-
kets, the most impressive feature of the Gang of Four is its openness to interna-
tional trade. Although the NICs, with the exception of Hong Kong, did not fully embrace strict free trade, their levels of protection were indeed lower than those of countries taking an import substitution approach. The success of countries adhering to export oriented strategies has de-
stabilized the theory that industrialization must target the domestic market. Follow-
ing the NICs remarkable achievements, the question arose as to whether the Gang of Four’s success could be emulated by other LDCs? Was Korea’s success due to its relatively low rate of protection or because of other factors such as improve-
mements in education or the work ethic? We could investigate this question by analyz-
ing Korean industrial and trade policies (Krugman and Obstfeld, 1994)

Korea

Korean trade reform occurred steadily throughout the 1940s. Korea conducted selective trade liberalization from which
major sectors of the economy were excluded, but the selection was accomplished in a way that did not interfere with productivity and growth. Korea allowed imports of capital goods and intermediate goods. For instance, automobile engines were first imported and then produced under license and are now Korean-designed. The average tariff was reduced from 24 percent in 1987 to 11 percent in 1989, dropping to 5 percent in 1993. Although Korea liberalized selectively, liberalization did take place. In 1960, Korea’s non-oil imports/ GDP was less than 10 percent, rising to 25 percent in 1975. By selectively liberalizing its trade sector, Korea has developed a highly competitive manufacturing sector, ranging from cars to TV and high-tech goods. In 1980, of the 12 percent of imports accounted for by finished manufacturing goods, only 1.3 percent was consumer goods. Therefore, trade liberalization concentrated on capital goods (Ostry, 1991).

It is generally agreed that government intervention played a central role in guiding, sharing, and promoting Korea’s industrial development (Lumsden and Salkin, 1980). These interventions were selective as well as functional, but with the objective aspects clearly dominant, the industrial structure evolved beyond the initial “easy” stages. This selective intervention comprised “picking winners” at the sectoral, subsectoral, product, and firm levels, and also supporting those picked by a variety of measures facilitating access to the necessary skills, information, institutions, and export support. Facilities that were technologically mature, and in need of intervention, were left to operate more freely according to market forces. However, the composition of mature industries reflected earlier interventions in flusters and/or product markets. While the ability of the chaebol to operate increasingly autonomously in world markets reinforced the strategy of building giant conglomerates and supporting them with investments in education, technology, and other institutions (Mody, 1995).

In general, policy taken up by the government of Korea could be termed a “liberal” trade strategy which avoids government intervention, while at the project level its practice is more “structuralist” and favors intervention. The evidence from Korea does not support the conclusion that selective interventions were inefficient per se. There was a consistent transfer of activities from import substitution to export orientation, and by the 1980s over half of manufactured exports were generated in heavy industry (World Bank, 1992).

**Indonesia**

During 1973-1985, the Indonesian trade and industrial policies were inward-looking and import substitution oriented. In this period, the public sector played a dominant role in manufacturing activity. Historically, GOL involvement in the manufacturing and trading activities was originally designed to substitute the lack of entrepreneurship in conducting business and industrial activities in Indonesia. The types of involvement were mainly in the form of public enterprises or government protection of selected private enterprises. The protection was provided under the infant industry argument. As time went on, the role and share of certain protected enterprises in getting stronger. Nowadays, the strength of previously protected companies turns out to be a problem for the country’s competitiveness. The infant industry argument adopted by the GOL was used by certain enterprises to gain extra profits or economic rent from the regulated market. Anticipating the coming com-
petition world and learning from other NICs, by 1988 the GOI decided to change its trade and industrial policies from inward-looking and import-substitution to outward-looking and export-oriented strategies. This policy shift was implemented by introducing a series of deregulation packages. The deregulation package for industrial reforms implemented by GOI between 1986 and 1990 has significantly increased the role of private sector activities and non-oil exports. However, the industrial structure is in no better shape.

The existence of government protection means that many manufacturing sectors faced no competition in the domestic market for a relatively long period. This afforded many advantages to certain agents to exercise their rent seeking behavior. By the end of the Fifth Plan, some enterprises emerged as huge conglomerates holding very strong positions in domestic market competition. Their market power was very strong and their contribution to national economy of great significance. This position is considered a very effective lever in government decisions on regulating the national economy, particularly if government regulations offer them no benefit.

An oligopolistic domestic market and lack of anti-monopoly regulations have made the conglomerates feel very comfortable and yields up no rivals in the domestic market. Anti-competitive operations in the industrial sector has been attracting economists' attention in recent years. A study by Ahsanuzz and Xie (The World Bank, 1995) concluded that industrial concentration in Indonesia remains high. However, they suggest that high concentration ratios alone are not sufficient to infer a lack of competition in an industry. It was possible for an industry to competitively price products although

highly concentrated over time, one example being the sheet glass industry. Mehdi, while a recent study suggested that highly concentrated industrial sectors could contribute to the rate of inflation. Using an error correction mechanism, this study investigated the impact of industrial concentration upon price adjustment in Indonesia and found that a one percent increase in concentration (CPI) led to 0.59 percent increase in price adjustment. Moreover, by using the Hirshman-Herfindahl Index as a measure of industrial concentration, the study also yielded consistent estimates. Indonesian industrial data suggested that cooperation between sellers is more effective where industrial concentration is high, in highly concentrated sectors which are characterized by low costs of search and communication among sellers, price changes can be effectively coordinated. Imperfect competition may impede price change at low levels of concentration. An oligopolistic coordination may improve as concentration increases. Therefore, their rate of industrial price adjustments is positive and consistently related to industrial concentration (Adjii, 1996). Since the domestic market is still large enough to absorb all the output produced by firms, competition in the world market is less interesting. A regression of export per output on C6 showed a negative relationship. Highly concentrated industries tend to export less than low-concentrated industries. Meanwhile, a regression of profit per output on C6 showed that higher concentration led to higher profits more highly concentrated industries tended to obtain larger profits. It is suspected that the low export performance of highly concentrated sectors is due to this larger scale margins. Highly concentrated industrial sectors seemed to put less effort than competitive sectors into ex-

Footnotes: 1841; JAI 1841.
porting their output in order to obtain a significant increase in revenue (The World Bank, 1996).

Indonesia is experiencing a disparity in production capacity. Domestic industries still depend heavily on imports, and imports of raw materials have been growing rapidly, while exports of capital goods have been sluggish. Augmentation of capital goods is the engine of production since without increased capital there would be no increase in production. Sluggish growth in production capacity will widen the gap between aggregate demand and supply, in turn leading to higher value of imports.

The GOI have also faced institutional problems on regulating the industry. Regulations on industrial sectors could be issued by several different ministries, which undoubtedly confuses and complicates the management of an enterprise. There are at least three different concepts of industrial and trade policies currently being implemented by the GOI (Karsono, 1996):

- The Comparative Advantage Theory. This theory is adopted in the main by the Ministry of Finance, Ministry of Trade and Coordinating Ministry of Economy, Finance and Development Monitoring. It is used in particular to control the flow of budgets. The theory gives the basis of argument to select those sectors which enjoy incentives from the GOI in order to promote their business.

- The Industrial Linkage Theory. This theory is adopted mostly by the Ministry of Industry which is responsible for regulating the manufacturing sector. This Ministry is mainly concerned with issues of a domestic nature, value added, job opportunities, and building a strong industrial base.

- The High Technology Argument. This concept is used by the Ministry of Research and Technology to guide the policy of scientific industry development. According to this Ministry, policies to promote the manufacturing sector must be related to high technology and high value added. According to this argument, the comparative advantage theory would harm future competitiveness in order to be competitive, a country has to master technology as a base to gain the extra profit. Having extra profit, firms would have enough surplus to provide the research funds necessary to maintain the market power.

A successful deregulation policy is the one which is capable of fostering a good competitive atmosphere in the domestic market. Every deregulation measure has to result in a decrease in barriers to entry, a decrease in Effective Rate of Protection (ERP), and an increase of Revealed Comparative Advantage (RCA). However, deregulation does not always yield the expected results since each Ministry of the GOI often implements partial policies which are inconsistent with the main goal of the deregulation. Karsono (1996) found little change in the RCA figures between 1988 and 1992. The furniture, textile, and garments sector showed increasing RCA, while other commodities with RCA > 1 are mostly natural resources based. Figures for average ERP showed a declining trend, with a significant difference between two kinds of estimated ERP: ERP under prevailing conditions and ERP under free trade. It was found that elimination of a license system would very much reduce ERP and accelerate the achievement of reforms and deregulation goals (Karsono, 1996).
Transfer of Technology

**Indonesia**

Under an oligopolistic domestic market, transfer of technology would be a very unfavorable choice for enterprises in Indonesia. Total Factor Productivity (TFP) is the indicator of transfer of technology and improvements in organization systems, showing a company’s optimum capacity to optimize technology and organization. The average rate of TFP reveals that since the beginning of the deregulation period in 1986, TFP has increased in Table 3. R & D Expenditures

<table>
<thead>
<tr>
<th>Year</th>
<th>R &amp; D Expenditures</th>
<th>% of GNP</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970/71</td>
<td>0.31</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>1980/81</td>
<td>0.37</td>
<td>0.56</td>
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<td>1981/82</td>
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<td>1982/83</td>
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<td>0.63</td>
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<td>1983/84</td>
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</tr>
<tr>
<td>1986/87</td>
<td>0.22</td>
<td>0.46</td>
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<tr>
<td>1987/88</td>
<td>0.12</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>1988/89</td>
<td>0.16</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>1989/90</td>
<td>0.15</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>1990/91</td>
<td>0.18</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>1991/92</td>
<td>0.22</td>
<td>0.42</td>
<td></td>
</tr>
</tbody>
</table>


The government has promoted innovation through R&D investment and direct incentive packages such as preferential financial and tax concessions. Although the Korean economy recorded one of the world’s fastest growth rates, R&D expenditures rose even faster than GDP, rising from 0.77 percent of GDP in 1980 to 1.05 percent in 1990, and 2.33 percent in 1993. The private sector accounted for 32 percent of the nation’s total R&D expenditure in 1971, 75 percent in 1985, and 83 percent in 1993—one of the highest rates among advanced and NICs (Secneg, 1996).
Concluding Remarks

Despite huge differences in level of education, R & D expenditure, per capita income and work ethic, Indonesia and Korea share a similar pattern of adopting trade and industrial policies. Initially both countries favored import substitution poli- cies, shifting low-cost-oriented industries and after becoming aware of the disadvantages of these policies, both countries have also selectively liberalized their in-
dustrial sectors, simultaneously implementing fiscal and monetary policies to accompany deregulation in the real sector. Indonesia, however, is about 15 years behind Korea in adjusting its industrial policy. In the beginning, the deregulation measures yielded higher concentration ratio of industrial sectors in both countries. The difference being that Korea adopted a strategy of picking winners to gain export facilities, while Indonesia favored a con-
nection system.

References
Ratnawati, Anggit (1988), Masyarakat Berorientasi Laju Negeri dalam Perekonomian Indonesia, Yogyakarta.


Table 1: R & D Activities in Korea (U.S. Million)

<table>
<thead>
<tr>
<th>Year</th>
<th>R &amp; D Expenditure</th>
<th>Government</th>
<th>Private Sector</th>
<th>Govt vs Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>282.5</td>
<td>180</td>
<td>102.3</td>
<td>63.6</td>
</tr>
<tr>
<td>1985</td>
<td>1287.3</td>
<td>306.4</td>
<td>500.3</td>
<td>765.3</td>
</tr>
<tr>
<td>1990</td>
<td>3349.9</td>
<td>651</td>
<td>2089.9</td>
<td>1268</td>
</tr>
<tr>
<td>1993</td>
<td>6153</td>
<td>1039</td>
<td>5174</td>
<td>175.3</td>
</tr>
</tbody>
</table>

Manufacturing Sector:

<table>
<thead>
<tr>
<th>Year</th>
<th>R &amp; D Expenditure</th>
<th>% of Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>75.97</td>
<td>0.54</td>
</tr>
<tr>
<td>1985</td>
<td>684.9</td>
<td>1.51</td>
</tr>
<tr>
<td>1990</td>
<td>2134.7</td>
<td>1.95</td>
</tr>
<tr>
<td>1993</td>
<td>3596.6</td>
<td>2.32</td>
</tr>
</tbody>
</table>

Source: Seng (1990), p. 33


The World Bank (1992), World Bank Support for Industrialization in Korea, India, and Indonesia, May.

The World Bank (1987), Korea, Managing the Industrial Transition, March.
