THE DEVELOPMENT OF THE ELECTRONICS INDUSTRY IN INDONESIA: Policy Decisions and Revealed Comparative Advantage

by

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DECLARATION OF ORIGINALITY

I, *DEFRY Setyawan*, hereby declare that this report is my own work and has not been submitted in any form for the award of another degree or diploma at any university or other institute of tertiary education. Information derived from the published or unpublished work of others has been cited or acknowledged appropriately.

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LIST OF ABBREVIATION

ABG	: (Academics - Business - Government)
AEC	: ASEAN Economic Community
APPERLINDO	: Asosiasi Perlampuan dan Listrik Indonesia Indonesia Association for lamps and Eletrical Apparatus
ASEAN	: Association of Southeast Asian Nations
ATPM	: Agen Tunggal Pemegang Merk or Single Agent Brand
BAPPENAS	: Badan Perencanaan Pembangunan Nasional or National Development Agency
BPPT	: Badan dan Pengkajian dan Penerapan Teknologi or Agency for The Assessment and Application of Technology
CBU	: Completely Built-Up
CKD	: Completely Knockdown
COMTRADE	: Commodity Trade Statistics Database
CRTs	: Cathode Ray Tubes
EEMRA	: Electric and Electrical Equipment Mutual Recognition Agreement
EMS	: Electronics Manufacturing Services
FDI	: Foreign Direct Investment
FTA	: Free Trade Agreement
GABEL	: Gabungan Pengusaha Elektronika / Association of Electronic Businessman
GDP	: Gross Domestic Product
GPS	: Global Positioning Systems
GSP	: General System of Preferences
HS	: Harmonize System
ICs	: Integrated Circuits

ISO	: International Organization for Standardization
KKN	: Korupsi Kolusi Nepotisme / Corruption Collution Nepotism
LCD	: Liquid Crystal Display Technology
LIPI	: Lembaga Ilmu Pengetahuan Indonesia or The Indonesian Institute of Sciences
MITI	: Ministry of International Trade and Industry
MNC	: Multi National Corporation
NIEs	: Newly Industrialized Economies
NSS	: National Standards System
OEA	: Original Equipment Assemblies
OEM	: Original Equipment Manufacturing
PDP	: Plasma Display Panel
PPMBM	: Pajak Pertmabahan NIlai Barang Mewah / Sales Tax Luxury Goods
PROPENAS	: Program Pembangunan Nasional / National Development Program
RCA	: Revealed Comparative Advantage
RFID	: Radio Frequency Identification
R&D	: Research and Development
SGS	: Societe Generale de Surveillance
SKD	: Semi-Knockdown
SNI	: Standar Nasional Indonesia / Indonesia National Standardization
UNINDO	: United Nations Industrial Development Organization
UNESCO	: United Nations Educational, Scientific and Cultural Organization
UNSFIR	: United Nations Support Facility for Indonesian Recovery
VAT	: Value Added Tax
WITS	: World Integrated Trade Solution

ABSTRACT

This study is designed to analyze the development of the electronics industry in Indonesia with perspective of the development state theorists and its revealed comparative advantage position. To analyze the role of state in the electronics industry development, the study describes and explores how the Indonesian electronic industry has been developed and evaluates the dynamics of government policies and regulations to support the electronics industry. While for assessing the competitiveness of the Indonesian electronic industry in the world market, the study employs revealed comparative advantage (RCA) method. In addition, based on the findings of these two issues, the study identifies the necessary policies to be introduced to further support the electronics industry.

This research found that in general, the policy profiling of the Indonesian electronics industry will be divided into five eras, namely: 1950-1966 (Soekarno Era) imposed anti-Western principle with inward-looking policies and famous for "statism" with implemented guided economic policies without any foreign investment; 1966-1973 (Stabilization and Openness) the new era under President Suharto with 'outward-looking policies' by pursuing more liberal trade and foreign investment regimes; 1973-1986 (Deregulation and relatively tight government intervention) with import substitution and launching the "Deletion Program" in 1978 also the establishment of 'negative list' for banning the import electronic components; 1986-1996 (Deregulation and relative openness) President Suharto regime became a 'predatory state' rather than 'development state' but the government was more opened to foreign investment and issued deregulation pakcages (May in 1990 package, May in 1995 package & June in 1996 package); Post crisis (1999-Present) the government was proposed several policy instruments into national industrial development strategies such as the National Development Program (PROPENAS), and followed by short-term plans and long-term in 2004 and also some regulation from the government.

In the term of world market, the result of RCA assessment in the period 2005-2009 shown that only 82 commodities of which already have comparability superiority from 283 commodities in the six digits Harmonize System (HS) Code. In addition, the core problems that influenced the RCA of the Indonesia electronic products are technological change, conditions of law and bureaucracy, materials, support division of *research and development (R & D),* labor, machinery production and conditions *customer*.

Some suggestions given in this study are the government should continue and make a proper of policies to attract MNC investment in Indonesia, make synchronization and coordination among stakeholders, support for developing a national electronics product technology content, make some improvement in law and bureaucracy in policy making, the determination and implementation ISO with perfecting the National Standards System (NSS), and creating industrial clusters with facilities ensure a more cooperative relationship of intra-industry an effective and efficient.

CHAPTER I

INTRODUCTION

1.1. Background of Study

The electronic sector has grown rapidly and being the fastest export growth for more than two decades in the newly industrialized economies (NIEs) in the Asia Pacific (Hobday 2001, 13). According to Dicken (2007) and Yeung (2007), electronic industry covers various subsectors, from semiconductors to consumer electronics. The success story of electronic industry within the region has been confirmed by many studies; among others (Mathews, 1996; Mathews and Cho, 1998; McKendrick et al., 2000 and Yeung, 2007).

As noted by Sturgeon (2002, 2003), in the late 1990s there was a revolution within electronics industry in the sense of achieving cost efficiencies through economies of scale and supply chain management. The growth of electronics production is not only associated with growth in demand for consumer electronics, but also with the increasing electronic applications for manufacturing production and processing of information. For example, cars industry requires many electronics equipment components.

In discussing electronics industry, it is very important to see the relocation of electronics manufacturing from Japan, Taiwan, Korea and Singapore to ASEAN 4, namely Malaysia, the Philippines, Thailand and Indonesia (Rasiah 2009, 123;

Rasiah and Lin 2005). All of these four countries had benefited from the relocation of electronics manufacturing from Japan, Taiwan, Korea and Singapore. This relocation was mainly caused by the appreciation of Yen, Won, New Taiwan dollar and Singapore dollar after the Plaza Accord in 1985. Another factor was the withdrawal of a general system of preferences (GSP) from the Asian newly industrialized countries in 1988 to encourage the expansion of electronics manufacturing to Indonesia, Malaysia, Philippines and Thailand (Rasiah 2009, 125-126).

Significant foreign direct investment in electronics industry has been accepted by Thailand since the middle of 1980s, Malaysia and Philippine since the late 1980s, and Indonesian since the 1990s. For the Indonesian case, Thee and Pangestu (1998) shows the emergence of electronic exports from Indonesia in the middle of 1980s, with several local companies have gained the ability of small repairs needed for the early stages of industrialization. In the early 1990s when Indonesia started to develop export of the electronics industry, electronics industry has been a growing industry sector in the world economy. It is indicated by growth of the value-added of electronics production around 6% per year in the early 1990s, almost double the growth rate of real GDP (3.1%), and much faster than growth in manufacturing (3.8 %) (Thee and Pangestu 1998). Indonesia's export opportunities in electronic products were highly conditioned by the rapid changes in the world electronics industry. These changes included increasing worldwide sourcing of components, shortening product cycles, increasing capital intensity of production, and increasing quality requirements for even low-end products.

Indonesia electronics sector is still dominated by TNC subsidiaries, the common situation of Southeast Asia countries. This electronics industry produces many labor-intensive goods for export, the main simple consumer and industrial electronics and components (Hobday 2001, 25).

Electronics industry occupies an important role in the Indonesian economy. As a sunrise industry, electronic industry in the future is expected to bring enormous economic benefits for Indonesia if the growth and development is not hampered. The export of electronic products is one of 10 main Indonesian export products, which could give positive contribution to the Indonesia international trade (Ministry of Trade of Indonesia 2007). Indonesia is the 15th largest exporter in 2006 with the value US$ 8 Million, significantly increased from 28th position in 2000 (Ministry of Trade of Indonesia and Center of Statistic Board of Indonesia, 2008). The average market share of Indonesian exports of electronics in the world in the period year 2000-2006 was 0.99%. The export value of Indonesia electronic products to the world tend to increase in the last six years with a trend average of 41.08% (Ministry of Trade, 2008). One factor supporting the increase of Indonesia electronic exports in the world is the decreasing of world's tariffs for Indonesia electronics products from 9.28 % in 2000 to 6:41 % in 2006.

The export of electronics products gives significant contribution to the Indonesian economy. In 2008, the total value of electronics products export was U.S. $ 7.65 billion, of which approximately 11.5% of Indonesia's total exports (Ministry of Industry 2009).

Although Indonesia has a relatively high increase in market share in the world, but still less competitive when compared with other ASEAN countries such as Malaysia, Singapore, Thailand and the Philippines. The four countries in 2006 obtained a market share of 5.78 percent, 4.38 percent, 2.60 percent and 2.16 percent, respectively (Center of Statistic Board of Indonesia). The major factor of this situation is due to Indonesia is entry into the electronics industry sector in comparison with other ASEAN Countries. The development of Indonesian electronics industry is still not optimal and not “aligns" with what is developing in the world, at least in the Asia Pacific region. Some factors contribute to this situation, which were due to the unfavorable situation in the country such as a problem bureaucracy and, in particular Industrial policies in the electronics industry. These unfavorable policies were caused by many factors such as no policy that really integrated and touched to the core issues in the development of industrialization in Indonesia. During this time, the policies were mainly reactive in nature, without systematization and consistency. In addition, the industrial development policies were not supported by technology development activities such as research and development for the electronics industry (Thee 2006).

However, the Indonesian electronics industry still has various opportunities to be further developed. Of course, it should be supported by appropriate strategies and policies of government as well as stakeholder participations. In this respect, the government needs to take necessary measures, such as improving investment climate, improving infrastructure as roads, and supporting research and development (R & D) activities (Thee and Pangestu, 1998). By these concrete

actions, it is expected that electronic industry not only will further developed, but also will increase its contribution to export as well as to the economic growth at general in the future.

1.2. Research Problem

From the brief background presented above, it is very clear that although electronics industry has given important contribution to the Indonesian economy, but its development is still lack behind compared with neighboring countries such as Malaysia, Singapore, Thailand and the Philippines. In this respect, it is very important to see the dynamics of electronics industry development in Indonesia, both in terms of its performance and policies/institutional changes. To some extent, the dynamics of policies and institutions can be a sound proxy to the role of state in economic development. In addition, to see the relative comparative of strength as well as advancement of the Indonesian electronics industry, analysis of competitiveness is relevant to be presented.

1.3. The Objectives of The Study

This study is designed to analyze the development of the Indonesian electronic industry with perspective of the role of the state and its competitiveness position. In this respect, the objectives of the study can be defined as follows:

1. To describe and explore how the Indonesia electronic industry has been developed.

2. To evaluate the Indonesian government policies and regulations to support the development of electronics industry.
3. To examine the competitiveness of Indonesia electronics industry in the world market.
4. To identify the future step policy proposals for the government in order to develop the industry.

1.4. The Research Approach

This research is designed to employ both qualitative and quantitative approach. The qualitative approach is mainly employed to obtain a comprehensive description of a phenomenon, i.e. the development of Indonesia electronic industry, in terms of its performance as well as policies and institutions changes.

McNabb (2002). explained that the descriptive research design are used to develop a snapshot of a particular phenomenon of interest. Descriptive studies typically involve large samples. They provide a description of an event or define a set of attitudes, opinions, or behaviors that are observed or measured at a given time and in an environment. The uses for these data go beyond simple description of events and phenomena: rather, they are used for creating understanding, for subjective interpretation, and for critical analysis as well (McNabb 2002, 267). In this case, the developmental state theory will be used to examine the importance of the role of the state in facilitating successful industrial development in Indonesia especially for the electronic industry.

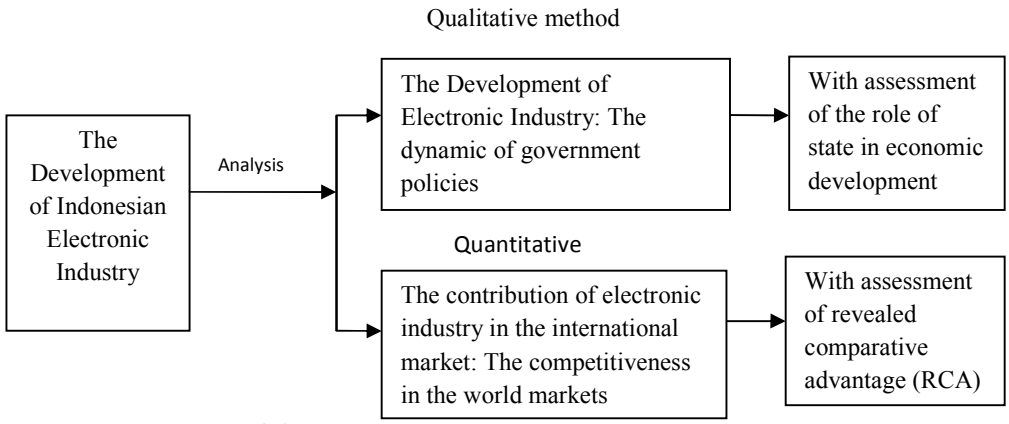
Meanwhile, a quantitative approach with RCA tools will be employed to measure the competitiveness of the Indonesian electronics industry in the world market.

The data collection can be done with the secondary data from (1) the internet such as the library materials, web sources, academic Journals, previous case study sources, website of Ministry of Trade, Centre of Statistic Board, WITS/COMTRADE and other related institutions. (2) newspaper, government or institutional sources such as the statistic data (Ministry of Trade, Centre of Statistic Board, WITS/COMTRADE), result of meeting coordination between stakeholder and companies and other related institutions.

Lastly, the conceptual framework of study:

Figure 1.1.

Conceptual Framework of Study



Source: Own Model.

1.5. Structure of Thesis

This research consists of seven chapters. There are:

Chapter I: provide the background of study, research problem and objective of study, the research approach.

Chapter II: presents the literature review. In the literature review, this study will describe by raising the relevant theories used in order to analysis the findings of this research. In this part, the researcher using the role of the state in economic development theory and revealed comparative advantage theory in order to examine the competitiveness electronic product in the world market.

Chapter III: analyst the role of state in Indonesia electronic Industry: Policy direction. In this chapter will brief about the history of Indonesia electronic industry: how the electronic industry has been developed include the policies and the regulation from the government.

Chapter IV: examines the revealed comparative advantage the export of Indonesian electronic products in the world market. The chapter provides descriptions and explanations about the data found from secondary data to examine the revealed comparative advantage of the Indonesia electronic products.

Chapter V: presents the policies proposals for the Indonesian government.

Chapter VI: concludes the study and provides suggestion to all stakeholders and businessman with regard to developmental of Indonesia electronic industry.

1.6. Limitation of The Study

The limitation of the research is time and finance. Constraint of time and finance were two major limiting factors as far as data collection concerned. The secondary data also needs time to seek the most appropriate sources related with this research.

In Indonesia, it is difficult to get data from the government offices and companies. All of the officials from are reluctant to cooperate with the researcher, in less them familiar with him or her. In my cases, the officials of my Ministry of Trade are quite cooperating with the researcher because the researcher is official of the Ministry of Trade. In many cases, the document simply cannot be retrieved within a short time span.

CHAPTER II

LITERATURE REVIEW

This chapter presents literature review on the theoretical aspects as well as empirical studies that relevant with the topic of this thesis. It emphasizes the role of state in economic development, revealed comparative advantage, and the development of electronics industry.

2.1. The Role of the State in Economic Development

It is widely recognized that state plays on important role in economic development; not only as regulator, but also as an authorized agent in providing public services such as education, health, and infrastructure. However, there is competing arguments about position of state vis-a-vis market in the economic development. In this regards, we examine two well-known models: market-led-model vs state-led-model to be reviewed below.

2.1.1. The Market Led-Model

In the view of the market-led model, the role of the state has a limited function as a catalyst and corrector of market failure. The major institutional anchor market and East Asian development model is a symbol of development strategies, as already stated in the 1980s by the World Bank. The World Bank has consistently provided some insight straight from the neo classical approach from Alfred

Marshall's point of view emphasizing the positive effects of unlimited market in the optimal allocation of resources in order to support free trade and free market development model (World Development Report 1987). The neoclassical economies state that the success of East Asian development emphasizes the importance of market forces (little 1981, Balassa 1982 and Balassa 1988).

According to Little (1981), export success in East Asia NIEs is a positive effect of free trade conditions. Nowadays, the East Asian NIES as Korea, Taiwan, and Hong Kong have been in the transition to industrial capitalism. In this respect, the stability of government is essential to provide stable conditions for long-term business conditions as well as to provide sound regulatory frameworks and infrastructure capacity. Balassa remarks in his study of the 'lessons' of East Asian development:

> "the principal contribution of government in the Far Eastern NIEs has been to create a modern infrastructure, to provide a stable incentive system, and to ensure that government bureaucracy will help rather than hinder exports……the role of the bureaucracy in facilitating or hindering export. The Far Eastern NIEs have long assisted exports by establishing an efficient system of export incentive, eliminating administrative obstacles to export, and, more generally, creating a favorable environment for exporter……. More generally less use has been made of government regulation and bureaucratic controls in East Asia than elsewhere in the developing world. Finally, there have been fewer policy-imposed distortions in labor and capital markets, and greater reliance has been placed on private enterprise". (Balassa 1988, 286-8).

Furthermore, the function of market led model for export led growth in the East Asia Niles will briefly reviewed in the following sub section.

2.1.1.1. The Export-led Growth in East Asia

In period, export led model was a new development strategy of NIEs in economic growth. This and strategy was known as export-oriented industrialization with export manufacturing. According to Balassa (1988) the East Asian NIEs (including Hong Kong) have adopted the first phase of import substituting industrialization (the primary local market and import of consumer products are replaced by labor-intensive local production) and is opposite with Latin America NIEs that adopted the second phase of import-substituting industrialization (local production as a producer of goods, capital-intensive import substitute). Balassa notes that among developing countries, the East Asia NIEs' export growth was the most contributing to their GDP growth. Factors influencing this are (Balassa 1988, 280-1):

1. Export carried out in accordance with comparative advantage by contributing to the allocation of resources. This condition is an advantage of the new, improved efficiency based on the excellence of each industry and the country concerned.

2. East Asia NIEs exports provide to overcome the limited domestic market with to maximalist use of resources and reap the benefits of large-scale production.

3. Import substitution often leads to protectionism and monopolies; export-oriented industrialization is more towards the competition with a change

toward more modern technology in order to improve their position in world markets.

In this respectively, the four determinants of economic performance of East Asian NIEs in Balassa (1988, 268-8) viewed are:

1. Stability of an incentive system.

   History of East Asian countries shows that the system has encouraged exports by setting up incentives, eliminating administrative barriers' and created a favorable environment for exporters with a relatively stable condition.

2. Limited government intervention.

   Countries in East Asia have implemented administrative system that far more limited. This condition creates a positive environment for economic growth with free markets working.

3. Well-functioning labor and capital markets.

   The existence of the policy of East Asian countries has instituted in dealing with distortion on labor and capital markets. Another factor is the interest rate in line with market prices to provide incentives for domestic savings and to prevent capital outflow.

4. Dependence on private capital.

   In East Asia NIEs private companies takes an important role in making the necessary investments, and through the relationship of international competition develops more efficient and profitable companies.

2.1.2. The State-led models

The state-led model was emphasize the role of the state has a big function as a catalyst and corrector of market failure. State led model is very opposite perspective with the neoclassical view. The story of the revised outlook from East Asia to the view of the market led to a state model of development led to the concept of state has been expressed by Wade (1990), Amsden (1992), Castell (1992), as well as success in industrialization on late development in the context of state as the biggest agent in the transformation has been expressed by Gerscenkron (1962). He viewed that the more backward an economy in the early development of more specific conditions that may occur during growth: consumption would be squeezed in supporting investment (eg, savings) in these countries started from far behind, and there may be a greater reliance on bank-banks, state enterprises, and other means of direct investment, among others.

In line with static view, the state intervention is required for successful late industrialization (Amsden 1989). This is consistent with Gerschenkron perspective that underscores the importance of strong state to overcome the lack of defects, and lack of smooth industrial markets. (Gerschenkron, 1962; Rueschemeyer and Evans, 1985).

Wade and White observe that:

> "If we turn to Japan, South Korea and Taiwan, among the most dramatic and equitable Cases in the history of Capitalist development, industrialization has in each case been accompanied by aggressive government intervention. The authorities have acted to guide markets and moderate the competitive process in a way

> that neo classical economics says public officials cannot get right". (Wade and White 1984, 1)

While Deyo in discussing capacity model strategic emphasizes that the new industrialism East Asia:

> "[the] state's commitment to economic expansion and, more important, its capacity to implement well-chosen development strategies differentiates these NIEs from other developing Countries better endowed in natural resources, scale of domestic markets, and other economic assets". (Deyo 1987, 228)

In other ways, Amsden (1989) stated that the industrialization of East Asia is characterized by 'Late' instead of 'Newly' of his (such as the economy in new industries). As a newcomer, East Asian companies must be able to compete with Western companies in terms of technology.

In addition, Wade (1992) said that the magnitude of problems faced by latecomers from the developmental state is to offset the weakness that is often faced by companies in East Asia into international competition and the transfer of its industrial structure to a more dynamic activity technology.

2.1.2.1. The interdependence between state-business

These are portraits of importance of the relationship between state development, conglomerates private sector, banks and other institutions in economic development. So the bureaucracy and public-private sector can work together in bringing a strong autonomous states that are not only able to formulate strategic development objectives, but also able to translate national goals into broad effective policy measures to promote late industrialization in East Asia.

The state theory are emphasizes state autonomy in making decisions and dominate capacity to bring the result of the market (Chiu and Lui 1998, 149). In the institutionalists view they emphasize the interaction and institutional linkages between government (elite state) and social actors (businessman). In the case of East Asia, Gilbert and Howe said:

> "We argue that state-cent red theorists disregard the interrelation of state and society; in viewing the state as an independent entity, they fail to see how it is related to the wider society. Further, they oversimplify & societal forces and ignore class conflict within and beyond the state. State and society are interdependent, and must be analyzed as such". (Gilbert and Howe 1991, 205)

Weiss (1995, 594) argued the 'governed interdependence theory', premised on the proposition that "The ability of East Asian firms and industry more generally to adapt quickly to economic change is based on a system that socializes risk and thereby coordinates change across a broad array of organizations – both public and private".).

On the other hand, Weiss argues not only about autonomy is emphasized in state-led model but also the attributes of institutional capacity for coordination with the appropriate type of relationship industrialized countries. Weiss said that:

> "in Korea, Taiwan and Japan, the complex matrix of institutions have been established between state institutions and the private sector such as policy networks provides an important mechanism to obtain information and to coordinate cooperation with the private sector with examples of MITI in Japan" (Weiss 1995, 600).

This differs with the opinion Samuels (1987, 8) in his study of Japan's energy policy saying that it is an iterative process of confidence among market participants and public officials, which works better where the patties are stable and negotiations where institutions compacts that ensure their survival. Samuels suggests that Japanese nationals wishing to pursue an energy policy that aims to maintain a stable private market rather than be used to compete or replace private entrepreneurship.

Another example, Okimoto suggest about the close relationship of government business:

> “It has served as the main instrument for consensus building, the vehicle for information exchange and public-private communication. Close government business relations would be hard to imagine in its absence. Indeed the whole system of Consensus, on which Japan's political economy relies, would be hard to maintain without industrial policy as an integrative mechanism”. (Okimoto 1989, 231).

Also like Okimoto, Calder said about

> "the financial industry in Japan and the formulation of the 'strategic capitalism' also emphasizes the public-private hybrid system, 'pushed ahead in the calculation of market-oriented private sector, but with the active involvement of the public sector to encourage public spiritedness and long-term vision "(Calder 1993, 16).

Finally, Evans also highlighted the fact that states the successful development can not only be autonomous, they are also 'embedded in a concrete set of social ties that bind the state to society and provide institutionalized channels for continual negotiation and re-negotiation objectives and policies' (Evans 1995, 12).

2.2. Revealed Comparative Advantage

The concept of comparative advantage was pioneered by David Ricardo in which he had opposed the theory of absolute advantage introduced by Adam Smith in The wealth of Nations. In the theory of comparative advantage, David Ricardo states that the country must produce and export goods and services that are relatively more productive than other countries and import goods and services from other countries that relatively more productive (Mahoney et al 1998). This theory defines productivity based on technological differences in each country.

In literature several techniques are used to measure a nation's competitiveness by using comparative advantage. There are a number of ways to examine the comparative advantage of the country. One common method is to determine just how special of a country in the production both through building 'Balassa index' or revealed comparative advantage index. Revealed comparative advantage (RCA) was developed by Balassa (1965). RCA essentially measures normalized export shares, in connection with the same industrial exports in the reference state. RCA index is used to determine the position of international competitiveness in terms of trade. RCA approach has been widely used to test industrial excellence in exports in international market.

RCA index is defined as the ratio of a country's share in world exports of a given industry divided by the share of overall world trade. RCA is widely recognized as a valid measure of comparative advantage in industries across the countries. The

formula to measure a country's revealed comparative advantage (RCA) is as follows:

$$\text{Index RCA} = \frac{x_{ij} / x_j}{x_{iw} / x_w}$$

in which:

Xij = value exports commodity i country j

Xj = total value exports country j

Xiw = value exports commodity i world

Xw = total value exports world

RCA → volume and value exports

- RCA > 1 → comparability superiority
- RCA < 1 → doesn't has comparability superiority

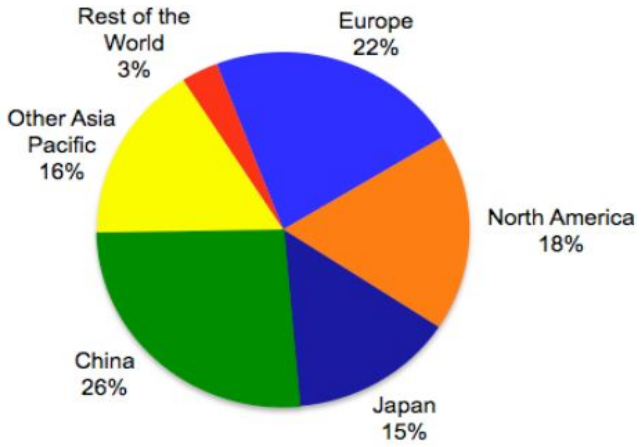
2.3. Electronics Industry

Electronics industry has grown rapidly in the twentieth centuries. The production of electronic industry achieved US$ 1.338 trillion in 2005, being the largest manufacturing industry in the world. In terms of production area, the biggest share belongs to Asia Pacific (36.8%), followed by America (25.54%), and Europe and Japan, 21.35% and 15.11%, respectively (Reed Research, 2005).

Electronics industry is undergoing phenomenal changes and remarkable today. Electronics industry worldwide is distinguished by rapid technological progress and has grown faster than other industries during the last 30 years. In the Asia Pacific, Japan, Korea, China, Taiwan, India and Singapore is a major manufacturing center for electronic products that stated almost 60% of total world electronic production (figure 2.1).

Figure 2.1

World Electronic Production per Region 2008



Source: DECISION – April 2009

The worldwide of Electronics industry is the most developed sector and is very diverse consisting of manufacturers, suppliers, dealers, retailers, electrical engineer, electrical, electronic equipment manufacturers, and trade unions. This sector has grown rapidly with the discovery of innovative technologies and a growing customer trend toward electronic goods and services.

Santiago (2007) notes that the major growth drivers and trends in the electronics industry are as follows:

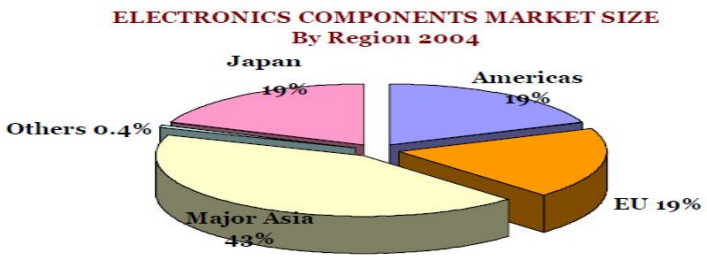
1. Consumer Products: TV flat panel, high definition TVs, iPods, digital cameras and set top box.
2. Communications products: 3G handset, TV reception on handsets, mobile services.
3. Electronic Industry: Radio Frequency Identification (RFID), green electronics, optical recognition
4. Automotive electronics: products such as global positioning systems (GPS), hybrid cars and electronics for safety purposes.
5. Electronic games for casinos.

Today, with rapid technological advances that have occurred shift segmentation of electronic product with a tendency to electronic networking such as communications, computer, and consumer electronics in the Asia Pacific region including China amounted to 2 / 3 electronic products (Santiago 2007).

In terms of electronic components market size, figure 2.2 shows that the major Asian countries contribute 43%, excluding Japan 19%, bringing the total Asian countries' contribution accounts for 62% of the total market; while Western countries such as Americas and European contribute only 38%. Over the last few years, Asian countries have also penetrated electronics manufacturing services (EMS) business in the world and are expected to reap 67% of the global EMS revenue in 2009.

Figure 2.2

Electronics Components Market Size

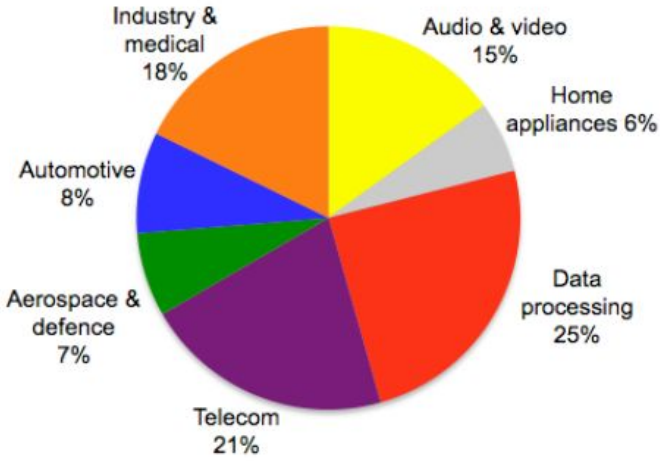


Source: Santiago, 2007

In the period 2008, the world electronics industry production per application sector shown that the biggest production are data processing; telecommunication; industry and medical; audio and video (figure 2.3)

Figure 2.3

Word Electronics Industry Production per Application Sector 2008



Source: DECISION – April 2009

In terms of competition, electronic products manufacturing companies are under constant pressure to develop new and innovative products in shorter time cycles, at cost less, and with good quality. Global electronics industry is driven by demand for durable products, lighter, cheaper, and better than that, they replace. To meet growing market demand, industry is slowly and gradually shifted its base to Asia Pacific countries, which now becomes the main source of electronic components and will soon become the main destination for consumer electronics.

Interlink between industries has also significantly contributed to the development of electronics industry. One of industries highly uses electronics industry products is automotive industry, especially in the forms of various electronic components and parts. Currently electronics industry components and parts contribute about 30% of total cost of cars production and are expected to continuously rise in the future.

The future seems prosperous for electronics industries in terms of the expected surge in global demand and an increase in investment. Many trends, such as excess capacity in the markets of developed countries, globalization, technological advances, regulatory and environmental considerations, market fragmentation and product proliferation will lead to accelerated growth in this sector.

CHAPTER III

THE ROLE OF STATE IN THE INDONESIAN ELECTRONICS INDUSTRY: POLICY DIRECTIONS

This chapter mainly presents the historical aspects of the development of the Indonesian electronics industry and the policy directions. The history of the Indonesian electronics industry is divided into five periods, namely: 1950-1966 (Soekarno Period), 1966-1973, 1973-1986, 1986-1996 and 1998-present (post Asian crisis). The periodisation is based on the dynamics of policy changes.

3.1. 1950-1966 (Soekarno Era)

This period was known as Soekarno era or the old era. In this period President Sukarno imposed anti-Western principle and became the "statism" view (the state as the dominant player in the economy) (Thee, 2008). This view is in line with the statist view that the state-led model was emphasize the role of the state has a big function as a catalyst and corrector of market failure. As a newly independent nation, President Sukarno believed that the state intervention can bring the successful of economy and industrialization in Indonesia. The government has task to control of the Indonesia economy includes the industry, trade, education and social welfare, etc. It is in line with Amsden (1989) said that the state intervention is required for successful late industrialization.

In this area of industrialization, the government launched the policy (table 3.1).

Table 3.1

Government Policies in Electronic Industry Period 1950-1966

No.	Year	Description
1.	1950	Inward-looking policies that shaped of the policy of protection, subsidies, technical assistance and policy licenses.

Sources: Author's own from many sources.

The era of President Sukarno was an era of inward-looking policies that shaped of the policy of protection, subsidies, technical assistance and policy licenses. During 1953 to 1965, President Soekarno had implemented guided economic policies. In this era, Indonesia did not have foreign investment, causing the lack of resources for economic development. At the end of President Sukarno in the mid-1960s, Indonesia experienced a stagnant output, increased poverty and hunger play area, the condition of damaged infrastructure and hyperinflation nearly 600 percent because of runaway deficit-financing (Kie 2008, 1). Booth and McCawley (1981) note that since the year 1950, domestic production and investment sectors had been stagnant or even drastically dwindling compare to years before its independence.

Indonesian electronics industry had evolved quite a while since the beginning of industrialization in Indonesia. The development of electronic industry in Indonesia is closely parallel with the development of the Indonesian economy in

general. The existence of industrial and electronic trade in Indonesia has been around since the 1950s or shortly after the independence of Indonesia.

In this period, electronic industry in Indonesia was still undeveloped. At that time the electronics industry in Indonesia was run by small groups and serviced repair services importer of small-scale repairs. In 1950 all radio electronics goods were imported in which by Philips Nederland Corp dominated as a sole holder of imported electronic goods. After that many radio factories were established in Indonesia, namely:

1. Philips Nederland Corp located in Bandung and Surabaya, which later turned into a factory bulb.
2. Transistor Radio Manufacturing Corp (now known as National Panasonic Gobel Indonesia Corp) producing transistor radios under the brand "Tjawang" in 1956, and
3. Nusantara Polar Corp with a brand Nusantara in Medan.

In 1958, Transistor Radio Mfg Corp received technical assistance from Electric Japan Corp, where the signing of the contract conducted by Drs Thayeb Gobel and Mr. Takahashi. In addition, the black and white television was produced in the early of 1960s by Transistor Radio Mfg Corp and LEPPIN. This production was mainly motivated by the intention of President Soekarno to make the Indonesian people able to watch Asian Games events. Because of this Asian Games centrist objective, the production was not continued after the Asian Games. This step might be an impact from the policy of the Soekarno regime of

the time which loaded with all aspects of government intervention in the economy.

3.2. 1966-1973 (Stabilization and Openness)

1966 was the start of the new era under President Soeharto, well known as the New Order era. Unlike the Sukarno era, the New Order government leaved the "statism". According to the Thee (2008, 8), President Suharto imposed policy which was widely known as state development. Johnson (1992, 25) defines state development as an implementation of principle of legitimacy and its ability to promote and sustain development. It was a combination of high stable levels of economic growth and structural changes in the productive system, both domestically and in relations with the international economy. Furthermore, private companies, both domestic and foreign, were encouraged to invest in various economic activities to promote economic growth and employment.

In this area of industrialization, the government launched several policies, among others (table 3.2)

Table 3.2

Government Policies in Electronic Industry Period 1966-1973

No.	Year	Description
1.	1966	Outward-looking policies' by pursuing more liberal trade and foreign investment regimes.
2.	1967	The Law of Foreign Investment was adopted.

No.	Year	Description
3.	1968	The Law of Domestic Investment was enforced.
4.	1970	The government imposed regulation to banned imports of television sets and radio receivers in the form of completely built-up (CBU) products.
5.	1973	The Indonesian tariff schedule was revised and the dispersion of rates was reduced.

Sources: Author's own from many sources.

In this era, by implementing of outward-looking policies the government introduced more liberal trade and foreign investment regimes. This was indicated by among others, reestablishing good relations with the Western countries and Japan. These good relations were deemed crucial to rescheduling repayments of the large foreign debts inherited from the Sukarno government; to obtaining foreign aid to support the balance of payments and the budget; and to attracting new foreign direct investment (Posthumus 1971, 12). For this purpose, in 1967 the Law of Foreign Investment was adopted and Law of Domestic Investment was enforced in 1968. Hill highlighted that the "open door" policy towards foreign investment attracted new foreign investment flows into the country, particularly in the oil and other mining projects (Hill 1988, 81). Both laws provided a positive impact on the development of electronic industry in which those laws encouraged the emergence of joint venture companies.

In order to develop the local electronics industry, in the early 1970s the government launched a regulation to banned imports of television sets and radio receivers in the form of completely built-up (CBU) products. It means the government was restricted the import of electronic goods and electrical appliances only for domestic assemblers linked to a foreign principal (Thee and Pangestu 1998, 222-3).

In January 1973 the Indonesian tariff schedule was revised and the dispersion of rates was reduced with the proportion of classifications with tariffs above 40 per cent was reduced from 52 to 45 per cent, and duty was imposed at rates of 10 to 20 per cent on many intermediate and capital goods which had formerly been duty-free. On balance, these changes probably reduced average nominal and effective rates of protection (Glassburner 1973, 107).

A series of policies were issued by the government with the objectives to build the national electronics industry. The Indonesia electronics industry development started with the Original Equipment Assemblies (OEA) system, by taking advantage of low labor cost (Thee and Pangestu 1998). Original Equipment Assemblies (OEA) was operated in the form of the semi-knockdown (SKD) production method, which installed the components for example, a TV set. Furthermore, because SKD only had low added value, the government encouraged industries to improve methods of production a completely knockdown (CKD) system. In addition, to support the local assembling industry, the government introduced low import duties SKD products. Later, in 1973, there were dozen

companies operated as both sole agents of foreign brands (*Agen Tunggal Pemegang Merk* or ATPM) and as producers of local brands.

In this period, The Indonesia electronic industry grew up with several products. In 1967, Transistor Radio, Mfg Corp changed the name became "Gobel & Tjawang" with the product such as a part the type of radio, radio, and gramophone and radio transistor radio cassette, recorder, black-and-white TV and a fan.

During the oil boom era of the 1970s, Indonesia had pursued an import-substitution pattern of industrialization and the government was launched a policy in order to stimulate joint ventures between domestic and foreign companies. The policy was resulted increasing flow of FDI from Japanese and European multinational companies. The first joint venture was PT. National Gobel established on July 27th, 1970 as result of cooperation between Drs. H. Thayed Gobel and Matsus Electric Industrial Corp Ltd. It followed by the establishment of dozens of joint venture companies, including National, Sanyo, Grundig and ITTI.

In the 1973 alone there were dozen companies operating both as sole agents of foreign brands (*Agen Tunggal Pemegang Merk* or ATPM) and as producers of local brands. Among others were:

1. Yasonta Corp that assembled television with a brand Sharp of Japan,
2. Sanyo Industries Indonesia Corp with assemble radios, TVs and household appliances under the brand National from Japan,
3. Asia Electronics Corp. which assembled the radio and television with the German brand Grundig.

4. Galindra Electric Ltd. assembled radio, television, and Telesonic Corp assembled tape recorder.
5. Wily Space Electronics Corp assembled television Toshiba brand,
6. Alfa Intone international Corp assembled television LTT brand from Germany,
7. Adab Alam Electronics Corp assembled an amplifier, tape deck speakers - the system-with the Pioneer brand of Japan,
8. National Electronic Benn radio Corp assembled Belna brand,
9. Duta Nanjak Corp assembled radio and radio cassette Kingsonic brand,
10. Hartono Palace Electronic Corp assembled electronics products brand Polytron, and
11. Scortarius Jaya Corp produced brands Videos.

3.3. 1974-1986 (Deregulation and relatively tight government intervention)

The period was mainly characterized by import substitution under the influence of the oil boom. During the bombing of oil in 1973, industrialization in Indonesia much driven by massive investment made by state owned enterprises accompanied by several measures of protection. The adoption of liberal economic policies became increasingly interventionist at the time of the Indonesian government revenues benefited from windfall oil receipts.

Import Substitution Strategy set by the structuralists like Presbish (1950) in which that strategy is assumed as needed to replace import. According to Hunt (1989, 50), "[o]nly government promotion of a steady process of structural

transformation, focusing above all on the development of a diversified domestic industrial sector, including capital goods production can overcome these problems." Other scholar, Chang (2002) went further by showing that all developed countries have adopted the infant industry argument for promoting industrialization and national industry is protected.

The core of this strategy is to protect "infant industries", especially heavy industry, by replacing imports with locally produced goods through government intervention for the overall economy. Government may implement this protection not only through tariffs and quotas but also through exchange rates, prices of production factors and interest rates.

In this decade several government policies had been launched to support the development of industry especially for electronic industry, among others (table 3.3)

Table 3.3

Government Policies in Electronic Industry Period 1974-1986

No.	Year	Description
1.	1974	Import Substitution industrialization.
2.	1978	Deletion Program.
3.	1982	The government introduced the other quantitative restriction policies.
4.	1982	The Minister of Trade and Cooperatives in 1982 issued the decree No.29/KP/I/1982 about "import ban on some types of electronic goods".

No.	Year	Description
5.	1985	The government also issued a policy in the form of Presidential Instruction No. 4 Year 1985 regarding the flow of goods to support economic activity (examination of goods imported through SGS) and changes in import duty and VAT luxuries.

Sources: Author's own from many sources.

McCawley mentioned that in the period of the oil boom, industrialization in Indonesia was marked by ambitious industries, import substitution and industrialisms second stage that were driven by the role of the State of massif after the first stage of import substitution industrialization (McCawley 1979, 13). Import substitution industrialization of this second phase generally included the establishment of various upstream industries, state-owned industries, basic industries including steel and aluminum smelting industry.

In respect of supporting components and industrial development to strengthen the structure of the national electronic industry, the government issued a policy called "Deletion Program" in 1978. The purpose of this program was to stimulate electronics companies to produce components for their own needs, so that the value added of electronics industry would be increased. Apparently some subsidiaries directly responded by establishing component factory. For example, National Gobel Corp produced speakers. There were other companies that produced a kind of mechanical parts and cable as well.

In the late of 1970s and the early of 1980s, the government introduced the other quantitative restriction policies, influencing the electronics industry. The first measure was the establishment of 'negative list' banning the import of products and imported electronic components included in the Negative list. This policy was part of efforts to encourage the use of local contents in the decades before the 1970s and 1980s that continued until the middle of the decade. In 1982, the government also set quantitative restrictions by allowing only importer who had a permit to import electronic products and electronic appliances for household (domestic electronic appliances) for the local domestic assemblers associated with the company's overseas principals (Pangestu, Wie and Dall, 1998)

While Dick emphasize that trade and investment policies continued to become more restrictive in the period of 1982 to 1986, in which oil revenues remained high even though the price of oil began to decline. In 1982 the government restricted foreign-flag shipping to four major international ports (Dick 1985, 12).

The Minister of Trade and Cooperatives in 1982 issued the decree No.29/KP/I/1982 about "import ban on some types of electronic goods". Although in fact, since 1973 until the 1980's the electronic components still imported around 80 percent, although the number of companies continued to evolve in terms of the product.

But unfortunately in 1985 the government also issued a policy in the form of Presidential Instruction No. 4 Year 1985 regarding the flow of goods to support economic activity (examination of goods imported through SGS) and changes in

import duty and VAT luxuries. A result of this policy was to ban imports of the Deletion Program policy became void. The still-continuing process of gradual relaxation of barriers to trade and foreign investment began in March 1985, when the tariff code was completely revised and the average level of tariffs was reduced by about one third (World Bank 1991, 10).

This policy was part of efforts to encourage the use of local contents in the decades before the 1970s and 1980s that continued until the middle of the decade. In 1982, the government also set quantitative restrictions by allowing only importer who had a permit to import electronic products and electronic appliances for household (domestic electronic appliances) for the local domestic assemblers associated with the company's overseas principals (Pangestu, Wie and Dall, 1998)

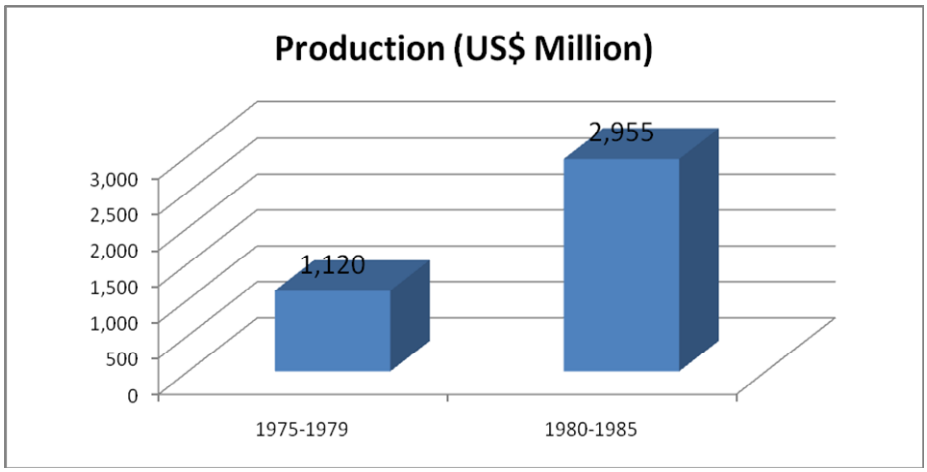
In this period, the Indonesia's electronics industry was still developed with the Original Equipment Assemblies (OEA) system with capital intensive and emphasized to encourage the use of local contents. By this, the value added of electronics industry was expected to be increased. Apparently some subsidiaries directly responded by establishing component factory. Other government actions were making emerge the new companies with the investors from Japan, Korea and Taiwan were begun arriving mainly in the form of relocation, for examples the products with Korean Branded was pretty much. Until in the 1985, electronics companies were increased to 58 with various brands of products, where most foreign brands manufactured came from Japan. In addition, the foreign brands

came also from Taiwan and Korean. In this respect, it can be said that in Indonesia began a new era in the development of electronic industry in 1985.

The value of electronics industry production in the 1979 (at 1983 constant prices) reached half of the value of domestic consumption. In the 1975-1979, the expansions of production began to be seen by the electronics export of labor-intensive and capital-intensive. The development of electronics exports in 1980 was showing the high potential of this industry to the Indonesian economy as well as foreign recipients who were developing a high-tech industry. Capital-intensive industrialization policy in the early New Order had an impact on the structure of Indonesian exports of electronics. Table shows that in the period 1975-1984 electronics-intensive commodities and human capital intensive played a relatively very small in the structure of commodity exports electronics.

Graphic 3.1

The Production of Electronic Industry 1975-1985



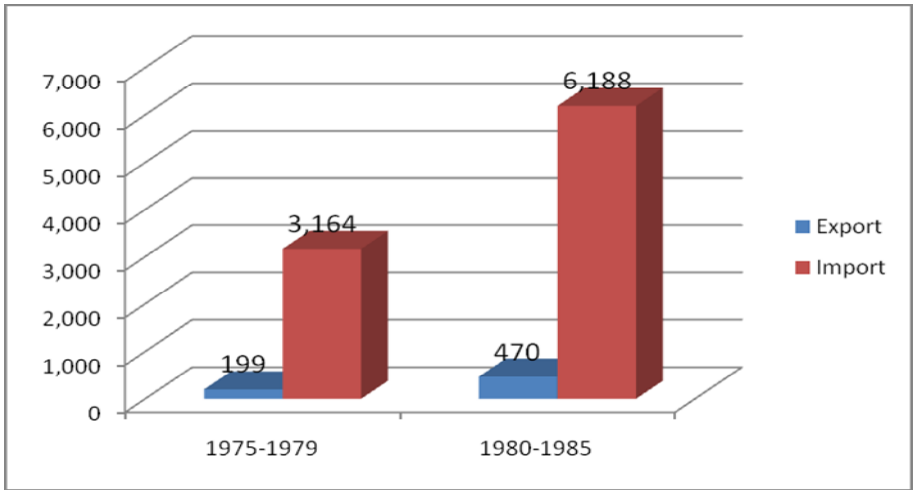
Source: Center of Statistic Board (BPS), Statistics of Large and Medium Enterprises, International Trade Statistics, various editions.

During the period of 1975-1979, total production of the Indonesian electronics industry reached U.S. $ 1,120 Million and the period of 1980-1985 reached U.S. $ 2,955 Million (graphic 3.1). In terms of export-import during in the period of 1975-1979, exports reached U.S. $ 199 million while imports reached U.S. $ 3,164 million. This was because the domestic needs of electronic products were mainly fulfilled from import. The same condition also occurred in the period of 1990-1985 in which imports were much greater than exports (see graphic 3.2)

Graphic 3.2

The Realization of Export Import of the Indonesia Electronic Product

Period 1975-1985 (US$ Million)



Source: Center of Statistic Board (BPS), International Trade Statistics, various editions.

3.4. 1987-1996 (Deregulation and relative openness)

In this era, the President Suharto regime became a 'predatory state' rather than 'development state', because the actively encouraging the corruption related to

resource, or income flows associated resource extraction with reduces the efficiency of policy and administration (Coxhead 2005, 73).

This was reflected by the fact that by the late 1980s started rising concerns about the level of corruption that occurred openly at all levels of government, the collusion between political power holders and their business cronies, as well as developments in policy produced both issued by the central government and local government (World Bank, 1995: 45). In this era, it is clear that the widely and openly KKN practices as defined above, countries are increasingly gaining the characteristics of the New Order a "predatory state".

As Booth highlighted that in the late 1990s, Indonesia was rapidly reaching the stage where 'apathy and acceptance of the state's rules, no matter how repressive, giving way to the challenges of new economic forces demanding the removal of the final vestiges of predators state' (Booth 1998, 336). For example, a family business ventures or associates of President Suharto received relating to the privileged few: one such company was granted a private monopoly on internal trade in cloves, the other received a monopoly on inter-island citrus exports from West Kalimantan; special tariff protection given to Chandra Asri Giant petrochemical project.

The fall in oil prices in 1986 was brought the government to be more open to foreign investment in order to maintain high investment levels. In response to this need, a series of reform packages during the period 1986-1994 were introduced by opening previously closed sectors to foreign investors. The cumulative effect of

these reforms was to open almost all sectors, except for traditional crafts, to foreign investment (Pangestu 1994, 39-43).

There are several policies from the government in this period (table 3.4):

Table 3.4

Government Policies in Electronic Industry Period 1987-1996

No.	Year	Description
1.	1987	The government banned on imports of television event fully assembled, radio, jeeps, passenger cars, commercial vehicles, and motorcycles.
2.	1990	May in 1990 package.
3.	1995	May in 1995 packages.
4.	1996	June in 1996 package.
5.	1996	The Minister of Finance Decree No. 379/KMK.01/1996.
6.	1996	The Minister of Industry and Trade Decree No.135/MPP/Rep/6/1996.

Sources: Author's own from many sources.

In the 1987, the government banned on imports of television event fully assembled, radio, jeeps, passenger cars, commercial vehicles, and motorcycles. In the manufacturing sector a combination of high tariffs and quantitative restrictions on various consumer durables and cars and motor cycles effectively insulated domestic producers from foreign competition (Booth, 1992: 25).

In the package May 1990 with deregulation had all the electronic goods can be imported by the public as well as the trade system electronics imports of finished goods was revoked and replaced with a system of tariffs. Import tariffs for final products were derived from 20-60% to 20-40%. While import tariffs were reduced to 0-5% component. The policy package in May 1990 had significant implications for the development of the national electronics industry. Deregulation policy was not powerless against smuggled electronic goods. Moreover after applied of Luxury Tax (Sales Tax on Luxury Goods) was levied against the products of electronic product. The policy was resulted in increased product prices by 10-30% forced emotion. In other side, there was a difference in treatment between producers and importers of electronic products. Manufacturers have to pay Luxury Tax 10 - 30% plus 10% Value Added Tax. In addition, there were still problems associated with high dependence on imported components which reach about 80%. Many scholars argued that if the structure of the national electronics industry did not immediately repaired, meaning component industry and local parts did not grow, it was impossible to maintain the level of electronic industry growth for the period ahead.

Pakmei '95 (Package May 23, 1995) cut so many tariffs and facilitates the flow of goods traffic. The decline of import duty was done in stages. For goods that were previously subject to import duties exceeding 20% will be lowered gradually to as high until 10% in 2003. Whereas for the goods that were previously subject to import duty of 20% or less, will be gradually lowered to a maximum of 5% in 2000. This deregulation package was perceived not give much meaning to the

national electronics industry. One of them was due to decrease in import duties that almost did not touch the components, parts and raw materials. Yet efforts to repair the structure of electronics industry should pay attention to the domestic component industry.

Pakjun 96 (Package June) was perceived by entrepreneurs as one revolutionary step in the field of electronics industry. But unfortunately this step was not followed by policy measures towards the elimination of Luxury Tax electronics products should no longer be considered a luxury item. In fact, no matter how complete a package of deregulatory policies without / touching Luxury Tax was still felt bland by entrepreneurs.

In 1996, the government also issued a policy of Minister of Finance Decree. 379/KMK.01/1996 of exemption from import duty and additional duty on imports of raw materials for the manufacture of electronic sub-components in order to strengthen the structure of the electronics industry that was necessary to provide special behavior of the electronic components industry. It was then followed up by the decree of the Minister of Industry and Trade No.135/MPP/Rep/6/1996 about the establishment of the industry that were classified as electronic component industry.

In this period, government wants to develop the electronics industry in the framework of policies as presented before. With the acceleration of growth in industry and part component became important to secure the rate of growth in production and export electronics is high in the future. In addition, the availability

of domestic component would enhance Indonesia is competitive advantage in order to attract multinational companies to relocate their companies to move to Indonesia and to support the multi-national companies that already existed in Indonesia and have been exporting products to overseas.

To support the development of electronics industry, since the 1990s the Indonesian government had established cooperation with the Singapore government in the broader economic context. One of the cooperation was developing the Batam island became the center of electronics industry as a bonded zone in 1991 (Mitarai 2004). Since the operation of Batam Island and a large number of electric companies and affiliates of Japanese electronics maker has started operating in Batam Island with the location in Batamind Industrial Park (BIP). Many of the electronic companies from other countries such as Korean operated their industry in Batam Island. They came to Indonesia to take advantage of low-cost labor forces as well as being attracted by Indonesia's potential as a large market. Those companies have formed clusters in the industrial parks of Batam Island.

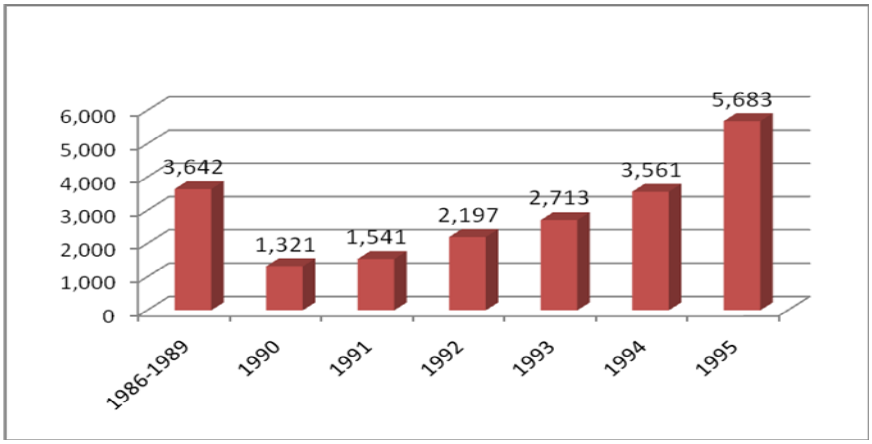
The Indonesian chamber of commerce and industry (2007) noticed that the Indonesia electronics industry was still original equipment assembly (OEA). Although, the electronics industry in this period was still OEA but some new factory was set up in Indonesia, such as PT Tabung Gambar Indonesia, PT Goldstar Display Devices Indonesia, PT Sharp Semiconductor Indonesia, PT NEC Semiconductor Indonesia, and PT Panasonic Semiconductor Indonesia.

In the period 1996, PT Tabung Gambar Indonesia and PT Goldstar Display Devices Indonesia was set up a factory producing cathode ray tubes (CRTs) for televisions and also PT Sharp Semiconductor Indonesia, PT NEC Semiconductor Indonesia, and PT Panasonic Semiconductor Indonesia opened factories producing active components, mainly semiconductor devices and integrated circuits (ICs).

For the period 1986-1995 Indonesian realization of electronics production was continuously increasing every year, which in 1990 still reached U.S. $ 1,321 million and increased sharply in the period 1995 to reach 5,683 million (graphic 3.3)

Graphic 3.3

The Production of Electronic Industry 1986-1995 (US$ Million)

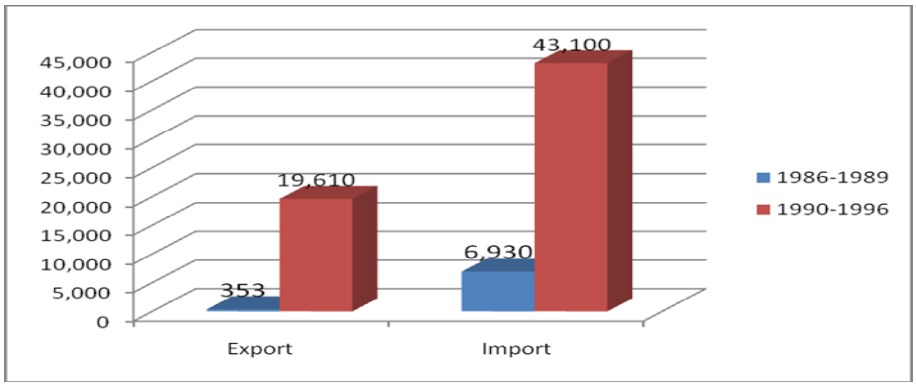


Source: Center of Statistic Board (BPS), Statistics of Large and Medium Enterprises, International Trade Statistics, various editions.

While in international trade, exports of Indonesia electronics products in the period 1986-1989 was approximately U.S. $ 353 million and imports reached U.S. $ 6,930 million. This condition gradually was improved with the indicated an increase in electronics exports, the period 1990-1996 to reach with a relatively open policy of the government's development of electronic product exports to reach U.S. $ 19,610 million and imports surged to reach U.S. $ 43,100 million (graphic 3.4).

Graphic 3.4

The Realization of Export Import of the Indonesia Electronic Product Period 1986-1996 (US$ Million)



Source: Center of Statistic Board (BPS), International Trade Statistics, various editions.

3.5. Post crisis (1999-Present)

In general, the economic development of Indonesia in the post Asian economic crisis began to improve due to the positive influence of various factors including the development of world economy, conducive social political developments in the country as well as stable monetary situation. The success of the Government's

foreign debt rescheduling and the end of the cooperation with the IMF, also helped lift the image of the success of the Government at that time.

When viewed from either the Government macroeconomic policies of fiscal or monetary policy angle, it can be seen that the industrial sector plays a strategic role in the effort to achieve economic development goals. Development of industrial sector becomes very important because of its contribution to the achievement of national economic development goals, especially in the formation of GDP.

In the era after the Asian crisis of 1997, the Government proposed several policy instruments into national industrial development strategies (table 3.5).

Table 3.5

Government Policies in Electronic Industry Period Post Crisis (1999-Present)

No.	Year	Description
1.	1999	The National Development Agency (BAPPENAS) issued a program called the National Development Program (PROPENAS).
2.	2001	Minister of Industry and Trade issued in Industrial Revitalization program.
3.	2007	Government Regulation No. 1 / 2007 concerning Income Tax Facilities for Certain Business Fields or in Specific Areas.
4.	2008	Government issued the Regulation of the President of the

No.	Year	Description
		Republic of Indonesia No. 28 of 2008 on the National Industrial Policy.
5.	2008	Government Regulation of Republic Indonesia No. 62 in 2008 on the Amendment of government regulation No. 1 of 2007 on income tax facilities for investment in certain business areas and or in certain regions.

Sources: Author's own from many sources.

In 1999, the National Development Agency (BAPPENAS) issued a program called the National Development Program (PROPENAS), and followed by short-term development plan and long-term development plan in 2004. In this program, the government intends to adopt an approach in order to develop the industry through the formation of industry groups and supported by a series of non-distorting policies.

On the other hand, Minister of Industry and Trade issued Industrial Revitalization program in late 2001 that would be implemented until 2004. This Policy instrument was emphasized on the sectoral approach with a focus on employment opportunities, identifying a number of key sectors, including industry with short-term impact of increased employment opportunities. In addition, this policy instrument also identified export-oriented industries such as textile, wood products, electronics, footwear, and the crust of paper and paper products that would be revitalized (UNSFIR, 2004).

In the 2007, government issued the government regulation about new package of incentives contained in the revision of Government Regulation (PP) No. 1 of 2007 concerning income tax facilities for certain business fields in specific areas or officially released. This revision includes the addition of coverage on six new sectors to tax incentives, namely manufacturing industry, agribusiness, electronics and telematics, conveyances, creative industries, and close industries.

Facilities provided by the government include the reduction of net income 30% of the total investment for six years each 5% per year and the acceleration of amortization and depreciation of fixed assets. Another facility is the imposition of income tax dividends paid to foreign tax subject to 10% or a lower rate under a tax treaty to avoid double taxation (double tax). That does not include compensation for losses that are older than five years, but no more than 10 years.

In 2008, government was issued the Regulation of the President of the Republic of Indonesia No. 28 of 2008 on the National Industrial Policy. The policy referred to in this rule include create the new industry, national industrial development strategy, and government facilities. The Minister of industry in charge of and responsible in the industry to prepare and establish a guide map (road map) development of priority industrial clusters covering manufacturing industrial base, agro-based industries, industrial transport equipment, electronics industry, supporting industries and creative industries and creative industries certain particular small and medium industries.

Government Regulation of Republic Indonesia No. 62 in 2008 on the Amendment of government regulation No. 1 of 2007 on income tax facilities for investment in certain business areas and or in certain regions. This indicates that the proposal has been accommodation of some industrial sectors (shipbuilding, automotive components, electronics) to obtain tax incentives. Publication of Government Regulation of Republic Indonesia No. 62 in 2008 is in order to improve the investment climate and national competitiveness. In Government Regulation of Republic Indonesia No. 62 in 2008, the government increased the number of businesses that get tax incentives from 15 to 23 fields of business. This regulation was increasing the location where investors to invest increased from 9 to 15 regions. Tax incentives were given is a reduction in net income 30 percent of the total investments to be expensed over six years by 5 percent each year. Then, depreciation and amortization, the imposition of dividend tax on dividends paid to foreign tax subject by 10 percent. In addition there is also compensation for losses between five and 10 years. It is expected that more new investors both from domestic and abroad who will invest in the field of industry.

The above polices are showing how the government give some incentive to the business in order to develop the industry. This is reflected from the many authors about the relations between government and business. In the statist view they emphasize the interaction and institutional linkages between government (elite state) and social actors (businessman). In the case of East Asia, Gilbert and Howe said:

> "We argue that state-cent red theorists disregard the interrelation of state and society; in viewing the state as an independent entity, they fail to see how it is related to the wider society. Further, they oversimplify & societal forces and ignore class conflict within and beyond the state. State and society are interdependent, and must be analyzed as such". (Gilbert and Howe 1991, 205)

On the other hand, Weiss (2005) argues not only about autonomy is emphasized in state-led model but also the attributes of institutional capacity for coordination with the appropriate type of relationship industrialized countries. Finally, Evans also highlighted the fact that states the successful development can not only be autonomous, they are also 'embedded in a concrete set of social ties that bind the state to society and provide institutionalized channels for continual negotiation and re-negotiation objectives and policies' (Evans 1995, 12).

In this period, the government introduced some industrial policies above in order to develop electronics industry. The Indonesia electronic industry evolved became original equipment manufacturing (OEM) based on component assembly and manufacturing (Ministry of Trade 2008). The survey of Ministry of Trade shows that the manufacturing companies (manufacturing) amounted to 60.5% and the category of assembly (assembly) of 39.5%. Products that include the type of manufacture (manufacture) such as audio video (PT Panasonic), energy saving lamps (PT GE Lighting Indonesia), TV (PT. LG Elektronic Indonesia, refrigerators (PT Sanyo Indonesia), and speaker (PT. Indoyoke) . The kind of electronic products assembly (assembly) as a CD room & LCD (PT Samsung electronics Indonesia), gas stove (PT. Indosurya Kencana), fan (PT. Langgeng victorious), and LCD (PT. Casio electronic Indonesia).

Many others actions were introduced to make Indonesia become the production base for electronics product in the world. In the 2008, the government has succeeded in making Panasonic Manufacturing Indonesia as a production base for one-door refrigerator in ASEAN by the parent company and LG Indonesia as a production base for the refrigerator in the term to fill the markets of Australia, Cuba and Russia (Ministry of Industry 2009). The government also supported the development of energy-saving lamp industry (LHE) in line with a program of prevention of global warming and national energy savings. In 2008 there was the new LHE investment by 4 companies and today almost 15 companies have producing LHE in Indonesia.

In order to anticipate the challenges of electronics industry in the future, the government established a working group, to improve and develop the technology of electronic industry. This action will carry out in cooperation between Universities and Research Institutions such as BPPT, LIPI. Electronics Industry development programs include: establishment of the Center for Electronics Industry, development of electronics industry to the region of North Sumatra and South Sulawesi. In order to facilitate the strengthening and development of consumer electronics industry cluster, increase coordination with relevant agencies about oversight of electronic goods in the market in the application of SNI, the application of the use of manual and warranty card in the Indonesian language, promoting cooperation with industry associations (Gabel and APERLINDO) and improve coordination in the use of domestic production. In order to prepare Indonesia for the Electric and Electrical Equipment Mutual

Recognition Agreement (EEEMRA), had facilitated the establishment of electronic component test lab in Batam and had compiled six SNI products include audio video electronics, fan, refrigerator, TV, washing machine and pump and in 2008 was upgraded to ISO mandatory.

This period is a new era for the TV industry starting with a breakthrough technology that includes technology CRT, plasma display panel (PDP) and liquid crystal display technology (LCD). In order to meet the needs of consumers in Indonesia, several large companies such as Sharp, Toshiba, Panasonic, LG, and Samsung had decided to make Indonesia their production base for LCD TVs. All products are almost 60% to 90% of its components is a import product from the principal LG LCD TV panels from South Korea while about 30% to 40% of the components to be purchased locally, Panasonic LCD panels imported from Japan and Toshiba imports some major components (more than 90%) from Japan and Taiwan.

The existence of the television boom was due to the government had offered fiscal stimulus, including the elimination of sales tax on luxury goods for electronic goods and directly control the habits of the red line in order to support the development of the local electronics industry. The abolition of luxury taxes for electronics in the first quarter of 2003 make the sales of electronic products grew by 6% per year.

On the other hand the government still needs reflection in the presence of closed and relocation abroad by Sony Electronics Indonesia in May 2003 after operating

locally since 1991. This evidence was should really be a warning for the domestic electronics industry. Sony Electronics Indonesia moved to Malaysia and Thailand because these two countries offer a more favorable business environment. This failure came from a variety of factors, including unfavorable investment climate, low labor productivity, poor security, and poor infrastructure. Indonesia was never seemed to learn from past policy failures. Booth said that Indonesia had already lost the opportunity to become part of the production network with the relocation of Fairchild Semiconductor and the NSC in 1986 because of the investment policies that was less profitable for the semiconductor industry (Booth 1998).

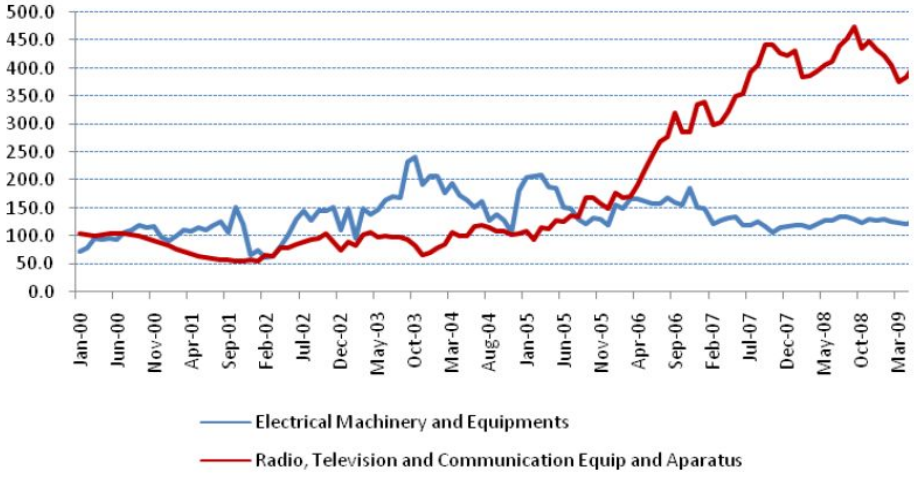
At this time the electronics industry including consumer electronics industry, electrical equipment, industrial electronics and control equipment business and electronic components were progress very well. In the year 2005, there were about 235 companies with investment value of U.S. $ 481 million, provided employment for 235 thousand people. The biggest contributor of electronics exports were multinational corporations from Japan and Korea such as Panasonic, Sanyo, LG, Samsung, Toshiba and Sharp.

Based on the index was known that the total production of electronic industry production increased which compared with the period year 2000. The radio industry, television and communication equipment and apparatus were able to sharply increase its production since 2005 and reach peak production in the period October 2008 with index 450. This indicates an increase in demand for these products such as LCD TVs and plasma TVs both inside the country and around

the world since 2005. Unfortunately the electrical machinery production there was no sharply increase in production and the highest production of this product is in the period October 2003 which was able to reach the index 250. This shows that the production machinery and other electrical equipment were relatively stagnant (see figure 3.1).

Figure 3.1

Monthly Electronics Industrial Production Index, January 2000 – June 2009

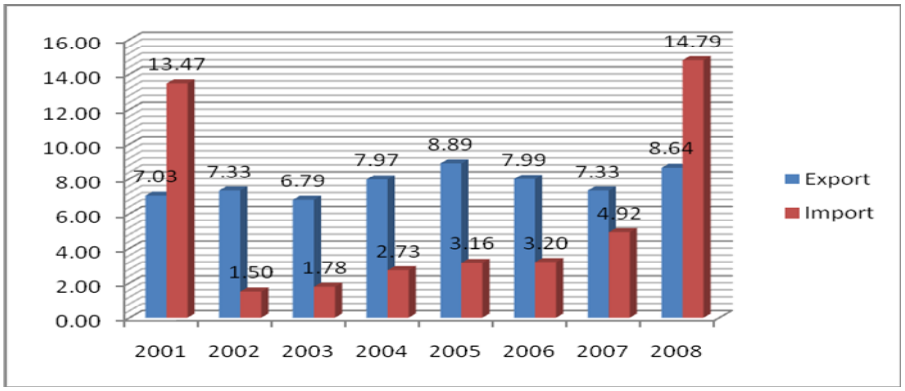


Source: Monthly survey of selected firms (medium and large manufacturing establishments) Center of Statistic Board (BPS).

In the period 2001-2008, the value export import of the development electronic was found that the growth of export value of electronic products was relatively stable which could reach a total of over U.S. $ 7 billion. In the export side in 2005 was the highest export achievements with a total export value of U.S. $ 8.89 billion and imports in 2008 were the highest achievements with a total value of imports reached U.S. $ 14.79 billion.

Graphic 3.5

The Realization of Export Import of the Indonesia Electronic Product Period 1986-1996 (US$ Billions)



Source: Ministry of Trade and Center of Statistic Board (BPS), International Trade Statistics, various editions.

Table 3.6

The Share of Value Export Electronic Industry to the Total Value of Industrial Export

Export	Year							
	2001	2002	2003	2004	2005	2006	2007	2008
Export Electronic (USS Billion)	7,030	7,330	6,795	7,970	8,889	7,987	7,328	8,120
Export Industry (USS Billion)	37,671	38,730	41,981	47,029	55,140	64,895	76,461	82,370
Share Electronic (%)	18.66%	18.93%	16.19%	16.95%	16.12%	12.31%	9.58%	9.86%

Source: Ministry of Trade and Center of Statistic Board (BPS), International Trade Statistics, various editions.

CHAPTER IV

THE REVEALED COMPARATIVE ADVANTAGE OF THE INDONESIAN EXPORT OF ELECTRONIC PRODUCTS IN THE WORLD MARKET

4.1. The Profile of Indonesian Electronic Products

The Indonesian electronic products make significant contributions for the foreign exchange accumulation. Accordingly, changes in production and trade of electronics products become very important and influential in the Indonesian economy. Electronics sector has a pivotal role in propelling the economy of Indonesia. The export of electronic products becomes one of the top ten exporting products of Indonesia. The average market share of Indonesian exports in the world's electronics in the year 2000-2006 was 0.99%. However, the electronic products export has grown significantly in the last six years with a trend average of 41.08%.

Survey conducted by the Ministry of Trade in 2008 found that the Indonesian electronics industry is still concentrated in the regions of West Java and Banten, Riau Island, Jakarta and East Java with a percentage of the industry amounted to 59.70 percent, 17.14 percent, 12.05 percent, and 8.10, respectively (picture 4.1). In these regards, the development of infrastructure is very important to support Indonesia's competitiveness in electronic products.

Picture 4.1
Map of Electronic Industry in Indonesian

Source: Ministry of Trade (2008).

The Indonesian electronics sector growth still has a chance to be further developed. Of course, should be supported by appropriate strategies and policies of government and *stakeholder* participation. There are several factors that can be taken into consideration in encouraging the growth of electronics industry of Indonesia. First, the condition of the domestic market is big enough. Second, the availability of appropriate technology with market needs a low-tech electronic products-intermediate. Third, the potential human resources that support increased production and absorption of technology. Fourth, there still exists an international market demand for particular products criteria.

The Indonesia electronics products are divided into three groups consisting of:

1. **Electronic products for consumption;** their functions are intended for household needs, such as radio, television, *video cassette recorders,* refrigerators, washing machines.

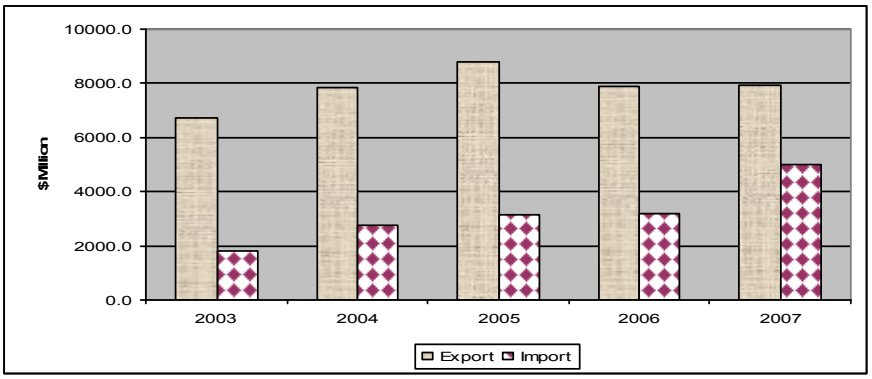
2. **Electronics products for business/industry;** their functions are aimed for business or industry needs; among others, computers, calculators, medical equipment.
3. **Electronic product components** that is parts of an electronic product, such as a tube television, integrated circuit, resistor, capacitor, motherboard.

4.2. Overview of the Trade of Indonesian electronic Products

Electronics product is one of the ten major export products of Indonesia. Considering its absorbent product of labor, investment value and export value, electronics products got serious attention from the authorities. However, since the year of 2006, the export of electronic products has been declining both in value and volume. In the same time, the import has increased both in value and volume. Figure 4.1 and Figure 4.2 show the trend of export and import of the Indonesian electronic products in terms of value and volume, respectively.

Graphic 4.1

The Value of Export and Import of Electronic Products

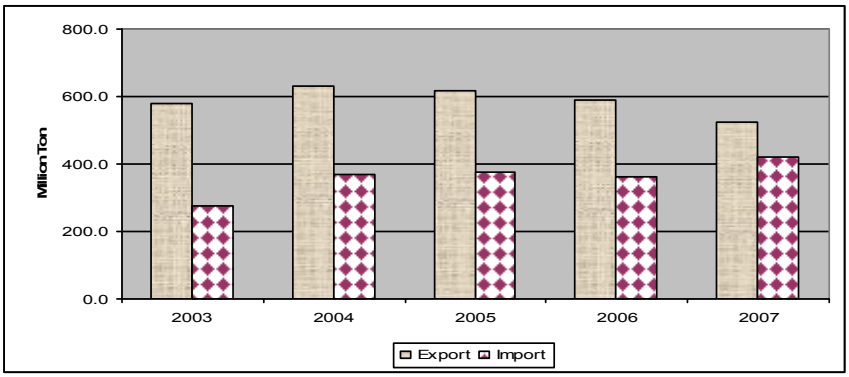


Source: Central Board of Statistic (BPS)

The features shown in the Figure of 4.1 and 4.2 consistent with the results of research conducted by the Ministry of Trade (2008) finding that there is a decrease in the Indonesian exports of electronics products in the last two years. As for when the same time, imports of Indonesian products for these products show significant improvement. The study also found that electronic business in Indonesian began to shift domestic outlets than export markets. However, domestic entrepreneurs has risen complain about the difficulty in competing with imported products from Chinese which much cheaper, beyond the issues of quality.

Graphic 4.2

The Volume of Export and Import of Electronic Products



Source: Central Board of Statistic (BPS).

Increasing imports of electronic products in Indonesia since 2006 occurred after the implementation of the Free Trade Agreement (FTA) between ASEAN and China. By this FTA, there has been large-scale removal of tariffs on industrial products in trade between ASEAN countries and China. The decrease of value and volume of export showing the lose competitiveness of Indonesia in the international market. This condition is worsened by the less competitive of the

Indonesian electronics products to the imported products from China for the domestic market.

In addition, ASEAN integration is one milestone that will change the structure of the electronics industry. ASEAN integration will encourage integration between the company and electronics manufacturers in ASEAN. The Government of each ASEAN country will remove tariff and non tariff protection in the electronics sector, and facilitate the creation of such integration.

Table 4.1 shows that the trend Indonesian electronics exports in the last five years increased by 1.01 per cent. The export destinations of Indonesian electronic products in the last five years are Singapore and the United States. However, in the years 2006 and 2007 appear decline in Indonesian exports to the United States. This is due to Indonesia's products competing with products from Chinese are cheap and modern.

Table 4.1
The Export of Main Partners Indonesia In Last 5 Years

NO.	Negara	2002	2003	2004	2005	2006	2007	Trend
1	SINGAPORE	2,028,097	1,966,814	2,223,276	3,109,964	2,475,991	2,512,750	1.06
2	UNITED STATES	1,249,336	932,467	1,236,967	1,286,080	821,709	606,219	0.89
3	JAPAN	849,295	949,963	1,148,780	1,015,877	816,572	847,619	0.98
4	HONG KONG	273,431	299,135	322,671	315,105	461,787	364,106	1.08
5	NETHERLANDS	287,783	174,283	285,868	415,977	382,578	181,284	1.01
6	MALAYSIA	263,188	362,422	388,583	418,360	315,879	211,282	0.96
7	CHINA	111,307	139,702	229,107	229,313	308,997	345,097	1.26
8	KOREA, REPUBLIC OF	105,034	117,135	123,923	171,089	201,999	150,091	1.11
9	GERMANY	174,939	189,579	213,009	194,707	193,226	206,404	1.02
10	BELGIUM	149,881	177,492	162,954	167,080	187,759	213,571	1.06
	Lainnya	1,755,002	1,401,456	1,526,070	1,459,173	1,695,858	1,458,013	0.99
	TOTAL	7,247,293	6,710,448	7,861,207	8,782,724	7,862,355	7,096,436	1.01

Sources: Center of statistic Board (BPS)

On the other hand, Table 4.2 shows that the trend Indonesian imports increased by 24.60 percent. It shows that the imports of Indonesia electronic products in the last

five years increased by 24.60 per cent per year. In addition, Table 5.2, shows that Chinese's penetration of electronic products for the domestic Indonesian market increased by 41.54 per cent per year. As for other countries that have the largest increase in import trend are Finland and Sweden, amounting to 47.52 percent and 78.48 percent per year. However, from the three countries, the value of imports from Chinese is extremely large; almost three times the value of imports from Finland and Sweden.

Table 4.2
The Import of Main Partners Indonesia In Last 5 Years

NO.	Negara	2002	2003	2004	2005	2006	2007	Trend
1	CHINA	218,024	254,467	489,421	568,849	706,205	1,304,956	41.54
2	SWEDEN	100,024	49,658	180,165	248,484	309,127	475,984	47.52
3	FINLAND	12,397	32,927	108,581	233,233	253,757	180,251	78.48
4	JAPAN	184,449	185,653	256,403	304,823	253,220	299,657	10.61
5	SINGAPORE	111,077	134,411	193,857	208,443	236,248	342,281	23.51
6	UNITED STATES	114,150	122,519	163,531	168,670	201,355	249,130	16.76
7	THAILAND	70,021	99,508	177,892	212,105	182,647	242,356	26.42
8	GERMANY	173,665	176,662	328,597	328,538	164,565	434,182	13.29
9	MALAYSIA	80,321	89,878	135,971	138,842	155,707	183,479	18.02
10	HONG KONG	24,951	41,210	39,170	67,659	93,522	160,296	42.13
	Lainnya	380,247	551,581	591,404	595,753	526,954	846,695	11.70
	TOTAL	1,469,327	1,738,473	2,664,993	3,075,399	3,083,306	4,719,265	24.60

Sources: Center of statistic Board (BPS)

The above data shows that the trend value of imports was much higher than the trend value of exports. This suggests Indonesia gained control of the pressure in the export market and at the same time face competition with foreign products in the fight over the domestic market. In the domestic market and exports, Indonesia has experienced great pressure from Chinese's products. Therefore, they need to formulate a series of domestic policies to improve Indonesian competitiveness in both export and domestic markets.

The data in Table 4.3 below shows the main port to the door of export the Indonesian electronic products. Based on these tables, it seems that electronics exports are concentrated in three ports, namely Tanjung Priok, Batu Ampar and Sukarno Hatta Airport. The percentage of exports from these three ports reaches 70 percent of total electronics exports of Indonesia.

Table 4.3
Main Ports to Export Electronics

PELABUHAN	Ekspor Indonesia					Trend	Share
	2003	2004	2005	2006	2007	2003-2007	
TOTAL INDONESIA	6,712,045,022	7,865,341,465	8,800,901,343	7,883,836,403	7,924,234,629	3.4	100.0
TANJUNG PRIOK	3,059,799,519	3,824,054,135	3,786,330,455	3,499,488,281	3,049,469,396	-1.0	44.0
BATU AMPAR	732,505,666	1,086,733,415	1,733,625,575	1,309,651,359	1,624,324,337	19.5	16.3
SUKARNO HATTA (U)	1,049,952,707	1,192,293,621	1,258,868,759	1,427,565,203	1,610,707,306	10.9	16.7
SEKUPANG	829,088,927	788,725,671	937,272,534	627,246,954	477,337,129	-12.5	9.4
KABIL/PANAU	238,529,666	293,013,723	367,522,075	276,964,947	375,838,194	8.9	3.9
TANJUNG UBAN	440,771,668	262,015,300	324,052,085	316,187,638	300,247,440	-5.6	4.3
HANG NADIM (U)	146,179,887	200,305,270	190,837,181	223,518,891	228,414,516	10.5	2.5
TANJUNG PERAK	121,757,642	125,407,779	148,586,876	159,594,540	189,374,008	11.9	1.9
LAINNYA	93,459,340	92,792,551	53,805,803	43,618,590	68,522,303	-12.9	0.9

Sources: Center of statistic Board (BPS)

4.3. The Data Analysis of the Competitiveness the Export of Indonesian Electronic Products in World Market

In this research, the researcher uses data export realization of Indonesian in the world market and the realization of export of all countries to the world market from period 2005 to 2009 by using data from Center of Statistic Board of Indonesia prepared by Center of Trade Data of Ministry of Trade of Indonesia. The data collected will be examined using the RCA model. The formulas RCA (Revealed Comparative Advantage) (Balassa 1965, 1977, 1979, 1986):

$$\text{Index RCA} = \frac{x_{ij} / x_j}{x_{iw} / x_w}$$

Explantation:

Xij = value exports commodity i country j

Xj = total value exports country j

Xiw = value exports commodity i world

Xw = total value exports world

For examples:

<u>Coin or disc-operated record-players</u>:

∑ Export Indonesia Coin or disc-operated record-players to world market 2009 = US$ 5,106

∑ Total Export Indonesia electronic products to world market 2009 = US$ 9,358,887,119

∑ Export all countries Coin or disc-operated record-players to world market 2009 = US$ 5,106

∑ Total Export all countries electronic products to world market 2009 = US$ 12,400,803,559

$$\text{Index RCA} = \frac{5{,}106 / 9{,}358{,}887{,}119}{5{,}106 / 12{,}400{,}803{,}559}$$

Index RCA = 194.9

All of products will be counted with the same ways in index RCA.

This calculation will show that Indonesia was quite capable of participating in an electronic export trade. Based on these data revealed that the Indonesian electronics products in the 2009 already includes more than 283 commodities in

the six digits Harmonize System (HS) Code, and 82 commodities of which already have high competitiveness. The products with RCA > 1 or comparability superiority:

Table 4.4

The Product with RCA >1 in 2009

HS	DESCRIPTION	RCA				
		2005	2006	2007	2008	2009
	Electronics	**0.5961**	**0.4576**	**0.4283**	**0.4742**	**0.5550**
851910	Coin or disc-operated record-players	3.6203	2.6223	0.3657	1.5655	194.9077
854340	Electric fence energisers	1.5490	62.0546	119.4223	194.8863	194.9077
900912	Electrostatic photo-copying apparatus :-- Operating by reproducing the original image via an intermediate onto the copy (indirect process)	0.0001	0.0007	176.9749	192.9205	194.9077
852410	Recorded gramophone records	0.9967	10.9274	176.2788	92.4612	194.3416
852822	Video monitors :-- Black and white or other monochrome	2.2848	1.0995	4.4083	5.9684	194.2111
852491	For reproducing phenomena other than sound or image	0.0000	0.0000	0.8038	0.1314	166.3973
846920	Other typewriters, electric	133.4583	124.7089	95.7054	106.7865	114.2649
850680	Primary cells & primary batteries n.e.s. in 85.06	23.9749	20.0233	17.8099	19.6995	27.9465
854011	Cathode-ray television picture tubes,inc video monitor tubes,colour	5.7314	6.9657	8.9262	14.1532	23.5619
852499	Recorded media for sound/image, nes	0.0025	0.0137	95.9836	66.8700	18.2226
852713	Radio-broadcast receivers capable of operating without an external source of power, combined with sound recording/repr. apparatus (excl. of 8527.12)	0.0082	0.0354	0.7126	4.9534	13.4863
854099	Parts of valve and tubes, nes	0.0064	3.7951	4.3031	4.6723	12.1270
854890	Electrical parts of mach	13.8058	12.2376	9.8169	8.7722	11.8717
853290	Parts of electrical capacitors	5.2929	5.2160	0.1946	3.9974	11.8346
853229	Electrical capacitors, fixed, nes	4.7130	7.3666	7.7735	8.6202	11.7519
852190	Video recording or reproducing apparatus nes	3.3245	3.4024	2.6178	3.4547	11.5034
854221	Digital	0.0000	0.0000	0.0979	2.2913	11.1125
850610	Manganese dioxide primary cells and batteries	8.0818	9.8740	9.5806	9.7871	10.9910
900699	Parts & accessories for photographic flashlight apparatus & flashbulbs	0.0804	0.1319	0.1655	5.4323	10.2500
852721	Radio rece nt capabl of op w/o ext source of power f motor veh,combind	7.7756	5.6817	7.6582	8.3443	9.8610
853222	Electrical capacitors, fixed, aluminium electrolytic, nes	2.0976	2.3251	4.2522	5.0638	9.8558
852540	Still image video cameras and other video camera recorders; digital cameras	4.4672	3.6630	3.4189	3.9610	9.3122
850431	Transformers electric power handling capacity not exceeding 1 KVA, nes	9.0509	10.6526	8.7017	6.7553	8.9115
851850	Electric sound amplifier sets	9.1556	9.0647	9.1943	7.4298	8.9065
850650	Lithium primary cells and batteries	6.1794	7.9568	7.4654	6.4454	8.5677
853390	Parts of electrical resistors, rheostats and potentiometers	0.3928	1.5751	1.4355	4.3825	8.2400

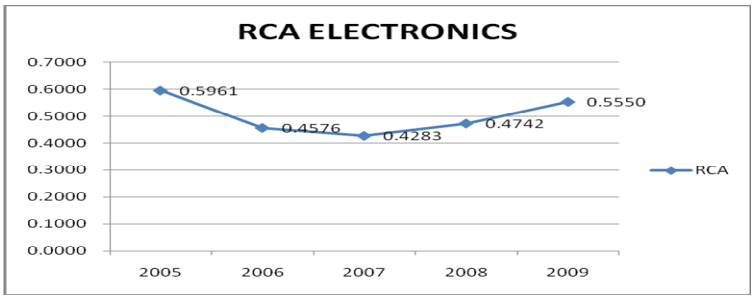
HS	DESCRIPTION	RCA				
		2005	2006	2007	2008	2009
847160	Input or output units, whether or not containing storage units in the same housing	3.0831	2.8113	3.4092	4.8633	8.0494
852290	Parts and accessories of apparatus of heading Nos 85.19 to 85.21, nes	1.5516	3.1581	3.1588	2.8560	7.6864
900711	Cinema cameras f film of less than 16 mm width/for double-8 mm film	0.0022	0.0379	0.4750	0.3669	7.2614
841829	Refrigerators, household type, nes	29.6901	0.3817	0.1465	4.1653	7.1867
853922	Electric filament lamps (excl. sealed beam/ultra-violet/infra-red/tungsten halogen lamps), of a power not >200W & for a voltage >100V	3.5386	4.3347	4.1866	4.9144	7.1552
853223	Electrical capacitors, fixed, ceramic dielectric, single layer, nes	4.6355	2.6278	2.2599	2.4479	6.5739
853931	Fluorescent lamps, hot cathode	7.0166	5.1438	4.6281	4.5362	5.2792
847350	Parts and accessories equally suitable for use with machines of two or more of the headings 84.69 to 84.72	0.8990	1.6715	3.3441	3.9838	5.1341
851890	Parts of microphones,loudspeakrs,headphones,earphones&elec sound ampli	2.2875	3.6488	3.3088	4.7005	4.9025
853180	Electric sound or visual signalling apparatus, nes	0.0022	0.5084	0.6577	2.2662	4.6649
852692	Other :-- Radio remote control apparatus	4.3396	3.0753	2.9011	3.4166	4.5082
851640	Electric smoothing irons	0.0300	0.1709	0.2128	0.1562	4.4772
851829	Loudspeakers, nes	4.8706	5.5267	4.0581	3.8683	4.4479
842310	Personal weighing machines, including baby scales; household scales	5.6449	5.3614	7.1467	8.1723	4.2560
854150	Semiconductor devices n.e.s. in 85.41	6.1540	5.1401	3.7301	3.4518	4.0669
853929	Filament lamps, excluding ultraviolet or infra-red lamps, nes	1.1609	2.5914	2.5921	2.8760	3.7943
900661	Photographic discharge lamp (electronic) flashlight apparatus	0.0000	0.0000	0.0000	0.0000	3.4534
851821	Single loudspeakers, mounted in the same enclosure	1.7720	1.6063	2.3506	2.4367	3.2439
850790	Parts of electric accumulators, including separators therefor	1.1588	1.3877	6.8007	5.7352	3.1712
847050	Cash registers	2.4605	2.3408	1.9172	1.9879	3.1558
847190	Automatic data processing equipment nes	0.3835	0.2617	0.6306	2.3604	3.1151
853339	Wirewound variable resistors,including rheostat and potentiometers,nes	12.9670	4.8826	6.4552	3.3106	3.0514
853690	Electrical app for switchg/protec elec circuits,not exced 1,000V,nes	1.5338	1.5239	1.1178	1.7891	2.9802
854160	Mounted piezo-electric crystals	2.0622	2.2632	1.9815	1.9781	2.7421
853941	Arc-lamps	0.0000	0.0000	0.0000	0.0001	2.6900
841451	Fans :-- Table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output not exceeding 125 W	2.8065	1.7001	2.1964	2.5577	2.5326
851010	Shavers, with self-contained electric motor	3.0094	1.5675	1.1523	1.2841	2.5112
852812	Colour television receivers	1.1981	1.1721	0.7104	1.1685	2.4966
850780	Electric accumulators, nes	1.6987	1.4927	0.7503	1.3206	2.4255
853225	Electrical capacitors, fixed, dielectric of paper or plastics, nes	1.7173	2.0545	1.6227	1.9062	2.3811
850690	Parts of primary cells and primary batteries	1.2125	11.5172	2.7858	0.5123	2.2543
854091	Parts of cathode-ray tubes	0.8041	1.0430	1.7497	1.6948	2.1825
842010	Calendering or rolling machines, excluding for metals or glass	2.7807	3.0704	1.8538	2.3940	2.1516
852830	Video projectors	0.0165	0.0405	0.1133	0.9499	2.1231
851830	Headphones&earphones, whether/not combined with microphone &sets consisting of a microphone&one or more loudspeakers	3.3697	2.3029	1.3782	1.0117	2.0850

HS	DESCRIPTION	RCA				
		2005	2006	2007	2008	2009
852210	Pick-up cartridges for use solely/principally with the apparatus of 85.19-85.21	2.0545	16.4459	59.0099	40.1593	2.0600
853340	Electrical resistors (excl. heating resistors, light dependent resistors), n.e.s. in 85.33	1.1054	1.7350	2.7530	1.3102	2.0385
852990	Parts suitable f use solely/princ w the app of headings 85.25 to 85.28	0.6947	0.3064	0.7499	0.8174	2.0232
854071	Magnetron tubes	0.0001	0.2726	1.3303	0.3512	1.9184
940530	Lighting sets of a kind used for Christmas trees	0.0009	0.0000	0.0711	1.4918	1.9138
850410	Ballasts for discharge lamps or tubes	2.1214	1.7604	1.3294	1.2021	1.7312
847030	Calculating machines (excl. of 8470.10-8470.29)	0.0520	0.5154	1.3606	0.0096	1.6541
853310	Electrical resistors, fixed carbon, composition or film type	2.0126	1.4181	1.0299	1.2996	1.6409
900719	Cinematographic cameras, nes	0.1218	0.1916	0.0004	0.3224	1.6233
847170	Computer data storage units	0.9928	1.3157	1.5250	1.0720	1.4531
850440	Static converters, nes	0.2662	0.2388	0.0514	0.0952	1.3837
853521	Automatic circuit breaker f a voltage > 1,000 volts but < 72.5 KV	1.1826	2.4894	1.0537	0.5304	1.3724
853650	Electrical switches for a voltage not exceeding 1,000 volts, nes	0.3378	0.6803	1.8474	1.1234	1.2619
853540	Lightng arresters,voltage limiters & surge supp voltage > 1,000 volts	1.1789	1.6800	1.3960	1.3693	1.2603
901590	Parts and accessories for use with the apparatus of heading No 90.15	0.5236	0.1537	0.4572	0.3268	1.2404
847330	Parts&accessories of automatic data processg machines&units thereof	0.6874	0.5159	0.8995	1.0118	1.2345
851719	Telephone sets, nes	5.4173	7.0387	1.5243	0.4593	1.2206
853321	Electrical resistors fixd for a power handlg capacity not exceedg 20 W	0.6592	0.5507	0.7915	0.4462	1.1778
902300	Instruments, apparatus and models, designed for demonstrational purposes (for example, in education or exhibitions), unsuitable for other uses.	0.5408	0.8041	0.5742	1.0695	1.1715
851822	Loudspeakers, whether or not mounted in their enclosures :-- Multiple loudspeakers, mounted in the same enclosure	2.2958	1.5985	1.2242	1.0765	1.1350
841821	Refrigerators, household type, compression-type	1.0477	0.9282	1.0909	0.7610	1.0497

Sources: Author's own calculation.

Figure 4.1

The Trend RCA of Indonesia Electronic Products



Sources: Author's own calculation.

Table 4.5
The position of the RCA of the Export Electronic Products in the World Market

Total Commodity	283 Commodity
Commodity With RCA < 1	82 Commodity
Commodity With RCA > 1	201 Commodity

Sources: Author's own calculation.

Overall picture of the product groups that already have competitive power can be divided into two groups: The first group consisted of 82 types of electronic commodities with high competitiveness in the world market. The second group consists of 201 kinds of commodities that do not have competitiveness (table 4.6). It means, only 82 commodities have competitiveness in the world market. From the several data collection from meeting coordination between stakeholder and business; survey and verification from the Ministry of Trade; publication from Ministry of Industry, Ministry of Trade, Electronic Group Community (GABEL) were shown that the competitiveness of Indonesia electronics products caused by several factors. These factors, namely:

a. Technological Change

Technology is one of the most important prequisition to win the competition in the world market. For East Asia country case, Amsden (1989) stated that the industrialization of East Asia is characterized by 'Late' instead of 'Newly' of his (such as the economy in new industries). As a newcomer, East Asian companies must be able to compete with Western companies in terms of technology.

In addition, Wade (1992) noted that the magnitude of problems faced by latecomers from the developmental state is to offset the weakness that is often faced by companies in East Asia into international competition and the transfer of its industrial structure to a more dynamic activity technology. Rao and Soumya (2007) said that technology Advances have expanded production potential, product range variety, and increased outward expansion opportunities (Rao and Soumya 2007, 491).

For Indonesia case, Rasiah (2004) concluded that foreign firms enjoyed higher export incidence and technological intensities than local firms in the auto parts, electronics and garment industries in Indonesia. Minstry of Trade (2008) stated that 9.98% of factor influence the competitiveness of Indonesian electronics products is influenced by technological change (the result of survey and verification for enhancing of the export of Indonesian electronic products in 2008, Ministry of Trade 2008).

Most of the Indonesia electronics industry in term of structural conditions is still dominated by low and medium technology-based include labor-intensive industries have relatively low added value. This is highly impact the Indonesian electronics sector because of its inability to create new products *(follower).* These are some aspects that relate to factors of technological change:

1) **Lawsuits against high tech products**

The demand of electronic products for high technology contributed 7.76% of the Indonesian electronics industry competitiveness (the result of survey and

verification for enhancing of the export of Indonesian electronic products in 2008, Ministry of Trade 2008). However, in fact, Indonesian electronics companies are still capable of producing products that are low-tech medium. One reason is that technology transfer has not been optimal because of the absence of government regulations governing the obligation to perform the transfer of technology for the electronics sector investment in Indonesian. On the other side, electronics companies classified in the category of MNC was reluctant to develop *core* technologies outside their own country.

2) Life Cycle Products is Short

Changes in the production of electronics technology that very quickly lead to increasingly short product shelf-life *(life cycle of products)* that contribute on the competitiveness of Indonesian electronics products. Indonesian electronics products are currently only able to follow the existing products in world markets, because the Indonesian electronics industry has not been able to develop design and technology of a new product. With the above conditions, the pressure on the competitiveness of products will increase because many countries that have the same level of technology will make a similar product. As of conditions in the domestic market, domestic electronic productions also face competition with similar products at lower prices, particularly of electronics products imported from Chinese.

b. Conditions of Bureaucracy

Bureaucracy is the major factor in order to develop a country. The successful of development in country is depending on the bureaucracy because bureaucracy has capacity to make policy and regulation, to operate the government, to control state finance, etc. Umeh (1992) said that capacity in government is the process of identifying and developing the management skill necessary to address policy problem, attracting, absorbing and managing financial, human, and information resources and operating program effectively including evaluating program outcomes to guide future activities (Umeh, 1992, p. 58). So the bureaucracy and public-private sector can work together in bringing a strong autonomous states that are not only able to formulate strategic development objectives, but also able to translate national goals into broad effective policy measures to promote late industrialization.

Weiss (1995) said that:

> "in Korea, Taiwan and Japan, the complex matrix of institutions have been established between state institutions and the private sector such as policy networks provides an important mechanism to obtain information and to coordinate cooperation with the private sector with examples of MITI in Japan" (Weiss 1995, 600).

The competitiveness of electronics products is influenced by legal and bureaucratic factors. They include wage labor, in-consistency in governmental regulations, customs regulations, and import duty exemption. Ministry of Trade (2008) said that 1.11% of the survey results stated that the competitiveness of electronics products is influenced by legal and bureaucratic factors (the result of

survey and verification for enhancing of the export of Indonesian electronic products in 2008, Ministry of Trade 2008).

Meanwhile, when viewed under the Central or Local Government policies, the illegal business of 64.9% stated that these policies support the development of electronic business of Indonesia and the amounted to 35.1% that do not support / inhibit. Some reasons are considered to hamper is as follows:

Table 4.6

The reason is considered to impede / does not support

Which has not supported / Inhibit	Total (%)
The duration of a permit process	24.7
Charges levied	24.2
Income tax (PPh 21)	13.2
In-consistency of regulation	11.0
Bureaucracy in the customs system	6.6
Taxes, water / PAM expensive	6.0
Permitting foreign labor	4.9
Labor Issues	4.9
Roads / transport are not yet sufficient	1.6
Other	2.8
Total	**100**

Source: Ministry of Trade (Prepared by DG of Foreign Trade)

c. Raw Materials

Raw materials are the important factors affecting the condition of industry in the term of competitiveness. Porter (1990, 79) said that when companies face a

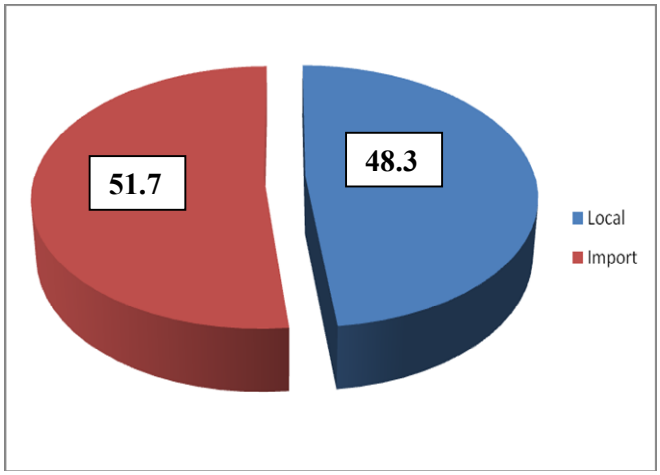
selective disadvantage, like high land costs, labor shortages, or the lack of local raw materials, they *must* innovate and upgrade to compete.

Others author, Haider (2007) said that the Bangladesh government provides the advantage of duty-free raw material imports usable in the manufacturing of export products to encourage and accelerate in garment industry. It means, the government of Bangladesh has tried to make some policy in order to fulfill the raw material for the garment industry that they has expected this industry can compete in the international market.

In the case of Indonesia electronic industry, Ministry of Trade (2009) stated that raw materials give considerable influence on the competitiveness of Indonesian electronics products (the result of survey and verification for enhancing of the export of Indonesian electronic products in 2008, Ministry of Trade 2008).

Graphic 4.3

Total Origin of Raw Material Composition



Source: Ministry of Trade 2008 (Prepared by DG of Foreign Trade)

Table 4.3 showes that 51.7% of Indonesian electronics companies in a survey claimed to use imported raw materials, while 48.3% use local raw materials it means, the Indonesian electronics industry has indicated a fairly high dependence on imported raw materials. Factors influencing raw materials are the price of imported raw material is high, the difficulties of raw materials, and continuity of supply.

d. Support Division of Research and Development (R & D)

Research and development is very important for the electronic industry. According to Sturgeon (2002) and Yeung, (2006) in the electronic global electronic industry, the lead firms are system integrators, specializing in high return premium product markets and high value-added activities such as R&D, product design, branding and marketing.

In the case of East Asia, UNINDO noted that the Korea R&D expenditures is now the highest in the world, Taiwan and Singapore now have the second and third highest ratio in the world of enterprise financed R&D in GDP (UNIDO, 2002).

In the period 2006, Japan R&D spending are now the highest in the world with 3.1% of GDP, USA and China Singapore now have the second and third highest ratio in the world of enterprise financed R&D in GDP (table 4.7).

The competitiveness of Indonesia electronic products is still low comparing others ASEAN countries because this industry still have lack in Research and

development support (table 4.7). This industry has lack in the innovation / diversification of products and lack of government support for R & D. On the other hand basically technological development is inseparable from efforts to develop human resources and R & D activities in their respective companies.

Table. 4.7

R & D Indicators 2006

	Sector of performance			Sector of funding			R&D spending	
Country	Bisnis	Govern't	University	Bisnis	Govern't	University	US$ billion	% of GDP
Korea	76.1	12.6	10.1	74	23.9	1.7	20.8	2.5
Singapore	63.8	10.9	25.4	54.3	36.6	2.3	2.2	2.2
Taiwan	62.2	24.8	12.3	63.1	35.2	0	12.2	2.3
Indonesia	14.3	81.1	4.6	14.7	84.5	0.2	0.3	0.1
Malaysia	65.3	20.3	14.4	51.5	32.1	4.9	1.5	0.7
Philippines	58.6	21.7	17	59.7	24.6	7.5	0.4	0.1
Thailand	43.9	22.5	31	41.8	38.6	15.1	1.1	0.2
China	62.4	27.1	10.5	60.1	29	10	72	1.2
Japan	75	9.3	13.7	74.5	17.7	6.3	106.4	3.1
USA	70.1	12.2	13.6	63.7	31	5.3	275.1	2.6

Source: World Bank (2007) based on UNESCO (2006)

Therefore, support for R & D is very critical in every electronics company in Indonesia for innovation in developing competitive products in the face of competition in an increasingly competitive electronics market in the future. Some of the reasons for underdevelopment of R & D in Indonesia are:

1) The high cost needed to develop R & D

In term of industry, is required considerable expense in the area to develop of R & D, this is indicated by the limited use of science and technology in business. Most businesses still rely on electronic technology from abroad, or

its parent technology. The presence of *Foreign Direct Investment* (FDI) which has the potential to transfer the technology could not be implemented optimally.

2) The high of principals resistance to develop the core technology

One thing which is feared by the principals as the cost of imitation of technology needed to conduct R & D is quite large. Therefore, the resistance principal to develop *core technology* in the country of production base is quite high.

3) Indonesian does not provide incentive systems that support the development of *research and development.*

Cooperation between research institutions or universities to industry has not seen in its full potential. This is because the government is less support for research institutions. Therefore, the process of research and development must combine elements of ABG (Academics - Business - Government).

e. Labor

Labor is one of the important factors in the development of industry in order to compete with competitor in the international market. Alic and Harris (1986, 35) said that only by using labor effectively and efficiently-which often means changes both in product design and in the production system-can firms in high-wage economies maintain their international competitiveness.

Today, labor in Indonesian is not able to be optimized in effective and efficient in the term of production, although viewed from the population; Indonesian is the fourth largest populated country in the world. This factor made influence of the competitiveness of Indonesian industry. The existence of large population is not only an asset for the growth of labor-based industries but also an opportunity for the growth of solid science and technology based industrial sector. But in reality Indonesian human resource potential has not been used maximally, because today labor in Indonesia still influenced by strikes/protest factor and lack of skill human resources factor.

Ministry of Trade (2008) stated that labor contributes to the competitiveness of Indonesian electronics products. There were some weakness with labor in Indonesia, namely:

1) **Strikes / protests is quite high**

   Strikes / protests is quite high in Indonesia. Accordingly to the Labor Law in Indonesia, the strike is the right of every employee. But the strike could lead large losses, especially if performed by employees who work in industries that have great impact on society, such as trade or public service. This makes the business people are worried that a strike could hamper production process that ultimately will hamper business. That is why the strikes and protests influence the competitiveness of Indonesian electronics industry.

2) Lack of skilled human resources

One of the problems faced by the Indonesian electronics companies are the lack of skilled human resources. These factors affect the competitiveness of Indonesian electronics products because many labor in Indonesia with the level education is very low (almost form senior high school level). It is very difficult when the labor meets and uses the machine with the advance technology. Another factor, the lack of Indonesian is between migrant workers with the level of education and skill higher than domestic workers. For the industry using the advance technology such as electronic industry, the Indonesian electronics company has a fairly high dependence on foreign labor. It means the cost of production become higher than using the domestic labor. Therefore, it is necessary to develop human resources through *research and development* (R & D) in order to continue to be developed in the future. Primarily to provide further education for local workers to be more productive so that expected future use of foreign workers will be on the wane.

f. Machinery Production

Machinery production is very important to supporting of the industry in order to compete with competitor in the world market. Dhanani (2000, 35) said that Indonesia manufacturing can become more competitive, not by developing new products, but by employing current best manufacturing practices, including plant layout, inventory control, improving machine reliability, reducing scrap rates and

eliminating production bottlenecks. It means the machine capability is very important to support the Indonesia manufacturing industry.

Ministry of trade (2008) stated that machinery production is the one of factors that influencing the competitiveness of Indonesia electronic product. In this industry, many companies think that the machines used at the moment still in accordance with the needs / market demand. This indicates that the effort of product development (differentiation, product innovation) is very less.

General speaking on the condition of the machine, showed that in a survey and verification of Indonesia electronic product 2008 stated that 71% Indonesian electronics company claimed that the machine condition is still quite competitive to fulfill the market demand eventhougth the condition of machine is quite old (Ministry of Trade 2008). These conditions are not realized by the electronics industry that use the old machines in good condition with low-medium technology will affect the competitiveness of electronic products in world markets. In other ways, 29% have stated that the machine had not competitive again to fulfill the market demand. They said that the company prefers to buy new machines in order to compete with broad competitor in world market.

g. Conditions *Customer* (Customer)

In the international competitiveness, customer can influencing by the preferred to choose products related with their own orientation. In the global competitiveness report 2008-2009, Porter and Schwab said that:

> Market efficiency also depends on demand conditions such as customer orientation and buyer sophistication. For cultural reasons, customers in some countries may be more demanding than in others. This can create an important competitive advantage, as it forces companies to be more innovative and customer oriented and thus imposes the discipline necessary for efficiency to be achieved in the market (Porter and Schwab 2008, 5).

In the Indonesia electronics industry, today customer is preferred to choose the electronic products related with standardization, quality and of course the cheap price. In the global market place demands a shift in the security standards of quality, function, product, fashion (following the latest styles), and the price are the factors that influencing the customers. Whereas in the domestic market has been a shift in the demand for cheap products with attractive designs. One driving factor is the increasingly rapid flow of imported goods with an attractive design and a cheaper price compared to local products, particularly products from Chinese. It is in line with the result of the result of survey and verification for enhancing of the export of Indonesian electronic products in 2008, Ministry of Trade 2008 stated that this factor influencing the competitiveness of Indonesian electronics products.

CHAPTER V

POLICY PROPOSAL

Indonesia still has opportunity to develop the electronic industry and to enhance the export of electronic product in the world market. It founds from the result of RCA that Indonesia has 82 product can compete in the world market. It implies that the government should make some appropriate actions such as policies to be formulated in order to support the Indonesian electronic products in world market. In this chapter we will present the policies should be done by the government. The policies proposals are:

1. The government should make effort to attract new investment of the electronic industry. The government actions are:
    a. Infrastructure improvements must be done, but in the short term - medium can be focused on the formation Electronics Sector Industrial Area which has special facilities and attention to transportation / distribution of goods and availability of water and electricity supplies are adequate. Another advantage of this condition will encourage clusters - clusters more industry partnerships guarantee the availability of efficient intra-industry.
    b. Determination of specific policies to attract new investment in industrial raw materials and / or components that optimize the processing of natural resources that is available in large quantities.
    c. Improving competitiveness through the development of the domestic market as *a market base* for electronics products in domestic production,

should be supported with an efficient harmonization of tariffs (especially for imported raw materials or components) and can reduce distribution costs in the country including the establishment of PPMBM (Sales Tax Luxury goods) are right on target.

d. The fiscal incentives in order to attract foreign investment needs to be given, for example in the form of tax breaks and import duty on capital goods, raw materials and auxiliary; tax incentives for R & D activities

e. Encouraging the publication of legislation or government regulation instead of effective legislation in the implementation of the provisions of "Control of Goods Supply." It will be necessary considering the scope of activities' which include the authority of the Cross Sectoral wide including cooperation with local governments.

f. Providing legal certainty and synchronization rules that made at central and local levels, as well as transparency of charges, taxes and import duties.

g. Improving the image of Indonesia as the location of a safe and profitable investment through Indonesian Investment year program with improving the quality of promotional activities and investment cooperation with more targeted and focused.

2. Government support for developing national electronics product technology content. It can be done by granting fiscal incentives such as tax reductions (tax deductible), as implemented in other countries such as Thailand. This policy can be directly attributed to technological research and development activities

as well as education of local labor-related technology development. It needs the cooperation between the Ministry of Trade, Indonesia Chamber of Commerce and Industry (KADIN) and the university (research institute) to encourage domestic industry to produce technologically advanced electronic products according to world market demand

3. The efforts from government in order to finalize the employment laws are important factors that need government attention, given their impact on opportunities attract inflows of investment is very dominant. Availability of labor laws that contain the aspirations of employers and labor parties became effective tool for creating harmonious relationships between the communication business, labor and government.
4. In the determination and implementation ISO with perfecting the National Standards System (NSS) and to expand awareness of the importance of standardization of business and increase their active participation in the development of NSS. NSS mandatory provisions for the expansion of electronics product needs to be done include:

    a. Developing a *Mutual Recognition Agreement* with various countries and trading partners in setting the mandatory implementation of NSS.
    b. Developing cooperation with developing country trading partners in the national standards for electronic products.

c. Opened opportunities for private parties to participate in the development of testing laboratories and certification of electronics products that are marketed in Indonesia.

d. Encourage cooperation between the Indonesian electronics manufacturers in accordance with the concept of ASEAN Economic Community (AEC).

5. The promoting of Indonesian exports of electronics products which using the promoting media representative such as geographic information system.

6. Creating industrial clusters with facilities ensure a more cooperative relationship of intra-industry an effective and efficient. Industrial cluster it must meet several criteria to attract industry and small-medium industries relocating to the cluster. The facilities from government are:

   - Facilities and conveniences like a one-stop services for various permits required, including service in the field of export and import.
   - Obtaining raw materials and other auxiliary materials, industrial cluster can be given the status of Export Destination Product Entreport or bounded Zone Plus which the production of components and spare parts of this cluster are traded freely both inside and outside the country.

CHAPTER VI

CONCLUSION AND SUGGESTION

6.1. Conclusion

On the basis of descriptions on chapter III and IV, the researcher concludes that:

1. The policy profiling of the Indonesian electronics industry will be divided into five periods, namely:
   a. 1950-1966 (Soekarno Era) imposed anti-Western principle with inward-looking policies and famous for "statism" (the state as the dominant player in the economy) also had implemented guided economic policies without any foreign investment. In this period, electronic industry in Indonesia was still undeveloped and only producing the black and white television for Asian Games centrist objective, the production was not continued after the Asian Games.
   b. 1966-1973 (Stabilization and Openness) with the new era under President Soeharto, well known as the New Order era and 'outward-looking policies' by pursuing more liberal trade and foreign investment regimes. In this period, the government not only make regulation with banned imports of television sets and radio receivers in the form of completely built-up (CBU) products but also import-substitution pattern of industrialization and the government was launched a policy in order to stimulate joint

ventures between domestic and foreign companies to increasing flow of FDI from Japanese and European multinational companies.

c. 1973-1986 (Deregulation and relatively tight government intervention) with characterized by import substitution under the influence of the oil boom. In this decade several government policies had been launched to support the development of electronics industry such as “Deletion Program” in 1978 in order to strengthen the structure of the national electronic industry. The government was also making the other quantitative restriction policies with the establishment of 'negative list' banning the import of products and imported electronic components included in the Negative list.

d. 1986-1996 (Deregulation and relative openness) with the President Suharto regime became a 'predatory state' rather than 'development state' but the government was more opened to foreign investment. A number of deregulation pakcages were introduced, namely were May in 1990 package, May in 1995 package and June in 1996 package. Lastly, the government was also issued a policy of Minister of Finance Decree. 379/KMK.01/1996 of exemption from import duty and additional duty on imports of raw materials for the manufacture of electronic sub-components and The Ministry of Industry and Trade with released Decree of the Minister of Industry and Trade No.135/MPP/Rep/6/1996 about the establishment of the industry that were classified as electronic component industry.

e. Post crisis (1999-Present) with the government was proposed several policy such as the National Development Agency (BAPPENAS) issued a program called the National Development Program (PROPENAS), and followed by short-term plans and long-term plans in 2004, Minister of Industry and Trade issued in industrial revitalization program, the revision of Government Regulation (PP) No. 1 of 2007 concerning Income tax facilities for certain business fields in specific areas or officially released, government was issued the Regulation of the President of the Republic of Indonesia No. 28 of 2008 on the National Industrial Policy and Government Regulation of Republic Indonesia No. 62 in 2008 on the Amendment of government regulation No. 1 of 2007 on income tax facilities for investment in certain business areas and or in certain regions. In order to improve and develop the technology of electronic industry had been carried out in cooperation with Universities and Institutions such as the Research and Technology BPPT, LIPI.

2. From the result of RCA assessment in the period 2005-2009 with includes more than 283 commodities in the six digits Harmonize System (HS) Code shown that only 82 commodities of which already have comparability superiority.
3. The core problems that influenced the RCA of the Indonesia electronic products are technological change, conditions of law and bureaucracy, raw materials, support division of *research and development (R & D),* labor, machinery production and conditions *customer* (customer).

6.2. Suggestion

In this part the researcher gives some suggestions that are possible to be done by the government, namely:

1. The government should continue and make a proper of policies that will attract MNC investment in Indonesia and as well as build R & D division in Indonesia.
2. The government should make synchronization and coordination among stakeholders in order to find the best solution for the creation of competitive electronic products, especially such as regulations, infrastructure, R&D, etc.
3. The Government should support for developing a national electronics product technology content, it can be done by granting fiscal incentives such as tax reductions (tax deductible), as done in other countries such as Thailand.
4. The government should make some improvement in law and bureaucracy in order to create legal certainty and good bureaucracy in policy making, regulatory certainty and always sided with the people and the business world.
5. In the determination and implementation ISO with perfecting the National Standards System (NSS) and to expand awareness of the importance of standardization of business and increase their active participation in the development of NSS.
6. Creating industrial clusters with facilities ensure a more cooperative relationship of intra-industry an effective and efficient.

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