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ELECTRONICS INDUSTRY: SURVIVING THE GLOBAL FINANCIAL CRISIS & ATTAINING COMPETITIVENESS

**Congressional Planning and Budget Department
House of Representatives**

ABSTRACT

The growth of the Philippine electronics industry depends heavily on exports. Electronics account for 66% per annum on the average of the country's total exports for the period 2000-2007. However, after a series of declines, its share registered at only 58% in 2008 with export revenues amounting to only \$26.5 billion, the lowest compared to previous years due to the global financial crisis. The global financial crisis has severely affected the electronics industry and endangered the 462,000 directly employed and the 3.2 million workers indirectly employed by the electronics industry.

The government should resolve competitiveness issues bounding the industry (e.g., the high cost of electricity, the worsening infrastructure problems, and inadequate logistical support) and review the taxes and incentives imposed in export processing zones. Further, the government should encourage local and foreign investors to put up vertical industries that would cater to the needs of the industry and, as proposed by certain sectors, likewise aim for the coveted China +1 status—wherein multi-national companies (MNCs) apportion their investment between China and countries capable of respecting intellectual property rights (IPR).

Electronics Industry: Surviving the Global Financial Crisis & Attaining Competitiveness*

By Diomedes D. Goboledo

Introduction

The growth of the Philippine electronics industry depends heavily on exports. Nearly all of the electronics products manufactured in the country are exported to several developed countries notably the Netherlands, Japan, and the US. The onset of the global financial crisis severely affected the domestic electronics industry as global trading partners reeled from the crisis resulting in trimmed or cancelled orders.

The downturn in the electronics industry will affect the economy more so the employment aspect of the sector as industry players cut costs by trimming manpower. An industry assessment is therefore crucial in identifying issues and challenges and in rethinking government policies to help the industry weather the storm and emerge stronger from the crisis.

Industry Profile

The electronics industry in the Philippines deals with the manufacture of electronics components and semiconductors for export to various developed countries. Industry players are mostly composed of multinational companies (MNCs) specialized in the manufacture of various electronics products. As of 2008, there are 926 industry players engaged in the electronics industry wherein 72% are foreign and 28% are locally owned.

Industry players prefer to locate in Export Processing Zones (EPZ) and Special Economic Zones (SEZ) because of the fiscal incentives such as exemption from payment of local taxes and licenses, contractor's taxes, wharfage fees and export taxes, and tax deduction from labor training expenses. Incentives also come in form of streamlined government procedures, infrastructure services and good logistics support that are not normally available outside the zones.

* This paper benefitted from the discussions with Director General Rodolfo V. Vicerra, Executive Director Romulo E.M. Miral, Jr. Ph.D., and Director Manuel P. Aquino.

Among the notable MNCs located in the export processing zones are: Intel and Texas Instruments from the US; Siemens from Germany; and Philips from the Netherlands; Sony, Toshiba, Hitachi and Fujitsu from Japan; Samsung and Goldstar from South Korea; and Acer from Taiwan.

The Philippine electronics industry can be segmented into the following subsectors:

- **Semiconductors and other components.** This is the biggest industry subsector, representing 74% of total electronics exports in 2008, that is engaged in the manufacture of integrated circuits (ICs), transistors, diodes, resistors, capacitors, coils, transformers, printed circuit board (PCB) and other components. Among the major players in this subsector are Intel, Texas Instruments, Philips, Amkor, Fairchild and Semiconductors, etc.
- **Electronic Data Processing (EDP) Equipment.** This subsector is engaged in the manufacture of computers, peripheral storage and input/output devices. Among the finished products are laptops, desktop PCs, printers, computer monitors, hard disk drives, optical, ZIP and CD-ROM. Companies engaged in the manufacture of EDP are Toshiba, Acer, Epson, Fujitsu, Ionics, and Sampo Technologies.
- **Office Equipment.** This includes the manufacture of photocopiers, fax machines, and electronics calculators. Companies that are engaged in their production are Masushita Business Machines, Sharp and Seiyō Electronics.
- **Telecommunication Equipment.** The products manufactured under this subsector are telephone sets, modems, copper communication cables, and fiber optic cables. Manufacturers include ETSI Technologies, Eupen Cable; and NEC Technologies.
- **Communications and Radar.** The product lines include cellular phones, pagers, closed circuit television (CCTV), CB transceivers, radar detectors, marine and land mobile radios. Leading players include Matsushita Communication, Uniden, Casio and Euro CB.

- Control and Instrumentation.** This refers to test and measuring instruments such as oscilloscopes, signal generators, ammeters, voltmeters, ohmmeters, cross talk meters, etc. Philippine-based companies include manufacturers of PCB assemblies for instrumentation / testing equipment, digital thermometers, microscope of PCB assemblies for instrumentation / testing equipment, digital thermometers, microscope, automotive test equipment and multi-testers. Players include Precision Microcircuits, Sara Digital Network, Phil Makoto Corp., and Insung Phils. Electronics.
- Medical and Industrial.** This covers equipment used for X-ray and other medical applications, railway signaling, security and fire alarms, spiro analyzers and smoke detectors. One of the leading players is P. Imes Corporation.
- Automotive Electronics.** This subsector is comprised of manufacturers of car stereos, anti-skid brake systems (ABS), and car body electronics (CBE). Among the major players are Temic Automotive, Fujitsu Ten, Muramoto Audio-Visuals Phils., and Clarion Mfg.
- Consumers Electronics.** This subsector is involved in the production of TV sets, VCD players, electronic games, radio cassette players and karaoke machines. The major players include Matsushita Electric (Panasonic), Sony, Sharp, LG-Collins and JVC.

The electronics industry is one of the fastest growing industries wherein export revenues reached \$31 billion in 2007 from a mere \$1.5 billion in 1990. Its share to total exports registered an average of 66% for the period 2000-2007. However, after a series of declines, its share registered at only 58% with export revenues reaching only \$26.5 billion in 2008, the lowest compared to previous ten (10) years (*Figure 1*).

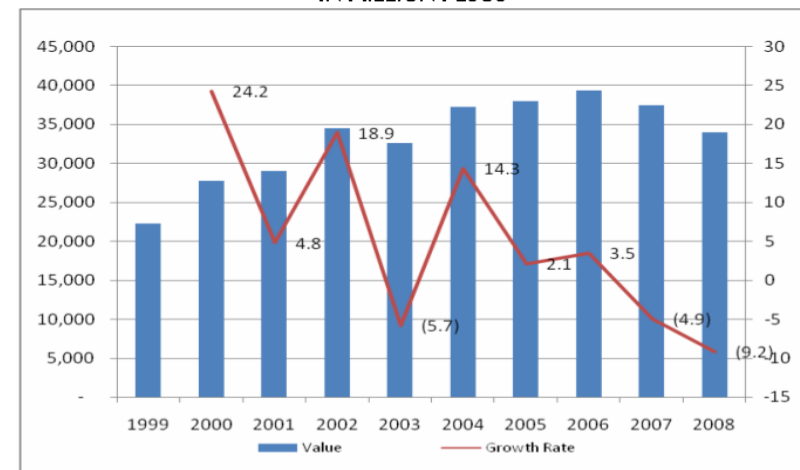
Also in 2008, the Philippines' electronics industry registered an 18% share in the global electronics market and ranked 7th among the largest producers of electronics in Asia after China, Japan, South Korea,

Malaysia, Singapore and Taiwan (Arroyo, 2008). Prior to that, the industry was producing 50% and 10% of world production of 2.5 inches and 3.5 inches hard disk drive (HDD), respectively (*Austria, 2006*).

Performance (Gross Value Added)

The gross value added of the electronics industry, representing 2.9% of GDP, is already on a cyclical downtrend since 2000 (*Figure 1*). From an all time high of 24.2% in 2000, growth in gross value added dipped to an all time low of negative 9.2% in 2008. Declining growth in gross value added suggests that the industry hardly moved up from the level of assembly and testing of imported parts and components as this segment of the production chain generate the lowest value added (*Austria, 2006*).

FIGURE I
ELECTRONICS GROSS VALUE ADDED
IN MILLION PESOS



Source of Basic Data: NSCB

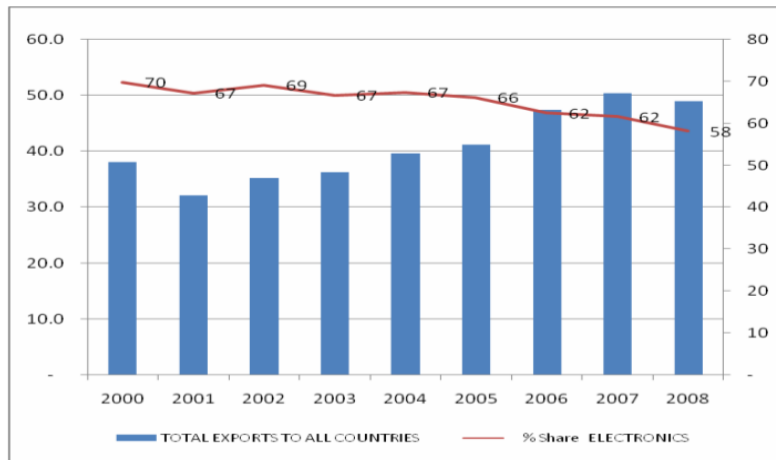
The declining value added can likewise be attributed to the dependence of the industry on imported raw materials. The high import content suggests that the ability of the industry to contribute to foreign exchange earnings is very limited. A World Bank study (1997) revealed that the average local content is only 20% in semiconductors, 25% in simple circuit products and even lower at 15% in more complex products (*Gutierrez, 2004*).

Further, Lim (2007) noted that the ratio of imports to exports of electrical and non-electrical machinery was 90.3% in 2005 compared with Malaysia's 83.1% and Korea's 66.9%. This is indicative of the import-intensiveness and the low value added to the economy of these two export categories, which constitute the bulk of exports (Lim & ADB cited in Aquino, 2008).

Electronics Exports

According to Semiconductor and Electronics Industry of the Philippines Inc. (SEIPI), nearly all of the electronics produced in the country are exported and on the average, electronics exports command a 66% share to the country's total exports for the period 2000-2008 (Figure 2).

FIGURE 2
SHARE OF ELECTRONICS TO TOTAL EXPORTS
IN PERCENT



Source of Basic Data: NSCB

Electronics exports are mainly composed of semiconductors which comprise on the average 72.6% of the country's total electronics exports or 47% of total exports for the period 2000-2008. This was followed by electronic data processing (20.9%), consumer electronics (2%) and automotive electronics (1.6%). Semiconductors posted a 74% share in the total electronics exports for 2008 alone.

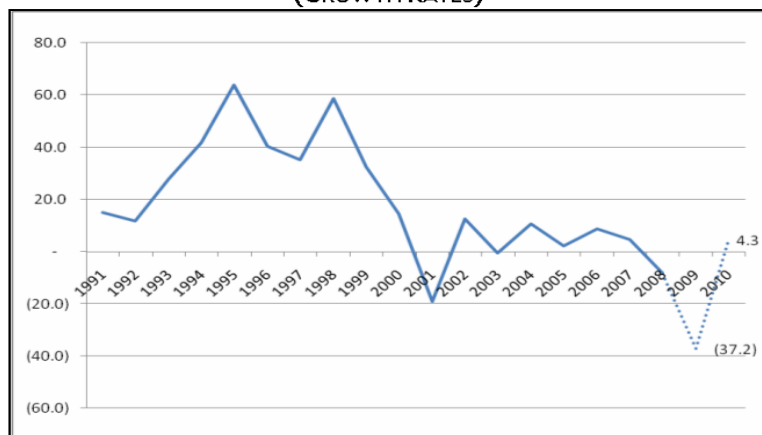
Traditionally, the US is the top electronics trading partner of the Philippines. However, in 2006, it was overtaken by the Netherlands and Japan both importing around \$4.3 billion worth of electronics products composed mainly of semiconductors against US \$4.1 billion. Other major electronics trading partners of the Philippines are: China (\$3.8 billion), Hong Kong (\$3.1 billion), Singapore (\$2.5 billion), Malaysia (\$2.1 billion), Taiwan (\$1.5 billion), Germany (\$1.3 billion) and Korea (\$0.9 billion) which unfortunately all have been badly hit by the global financial crisis.

Electronics exports have a big impact on the country's GDP. Villegas (2004) stated that without electronics, GDP would fall by 38.2%, in contrast to agriculture's potential impact at 13.1% and food manufacturing's 5%. The study also emphasized that every P1 increase in exports sales of electronics leads to a 31 centavo increase in household income, higher than the impact of agriculture (30 cents), industry (26 cents) and services (27 cents). Moreover, every P1 increase in export sales of electronics leads to an additional 14 centavo in taxes which is higher than the impact of agriculture (11 cents), industry (13 cents) and services (10 cents). The figures confirm that the industry is one of the main drivers of the economy because of its high export earnings.

However, Lim (2007) warned that overconcentration poses a danger as the growth of merchandise exports becomes highly vulnerable to global downturns in the electronics and machinery sectors.

The growth of the electronics exports surged for the period 1990-1995 recording its highest growth in 1995 at 64% (Figure 3). Growth declined slightly in the next two consecutive years but resumed its uptick in 1998 at 59%. However, this was not sustained as growth nosedived in the next three years. By 2001 growth rate declined by more than 19%, which can be attributed to the slump in global demand coupled with the Asian financial crisis. This was even aggravated by the bombing of the World Trade Center that sent jitters to the world economy. Although the electronics industry managed to post growth in the following years, the rates were not as high as pre-crisis levels because of the emergence of China as a preferred investment site of major players in the global electronic production network (Austria, 2006) and the continued slump in global demand.

FIGURE 3
PHILIPPINE ELECTRONICS EXPORTS, 1991-2008
(GROWTH RATES)



Source of Basic Data: NSCB

Notes: 2009-2010 CPBD growth estimates.

Benign growth prevailed for the period 2002-2007, only to decline in 2008 due to the global financial crisis. Initial simulations by the Congressional Planning and Budget Department indicate that growth may decline by as much as 37% in 2009 (much lower than the recorded decline in 2001) and a possible recovery at 4% may be expected in 2010 (Figure 3). However, while industry players earlier predicted a 20%-30% decline in 2009, news reports as of 04 June 2009 pointed to signs of improvement in month-on-month electronics exports with a possible industry outlook tilting to the upper-end, though still negative 20%.

Employment

The electronics industry is a vital source of employment. According to Villegas (2004) every P1 million invested in the electronics industry creates one direct and seven indirect jobs, thus a \$2.3 billion investment will generate almost a million jobs. Investment in the industry, however, is still way below the abovementioned figure. It is estimated that the total investment in the industry has reached \$1.36 billion in 2007 (Canlas, 2008). To validate the above estimate, the industry has generated 462,000 jobs in 2008 (SEIPI).

Table I.
Employment in Electronics Industry
(Thousands)

PARTICULARS	2001	2002	2003	2004	2005	2006	2007	2008
Total Employment in Manufacturing Sector	2,047	2,016	2,280	2,247	2,275	2,227	2,282	
Manufacture of Electrical Machinery and Apparatus NEC	54	44	66	40	61	53	50	
Manufacture of Radio, Television and Communication Equipment and Apparatus	157	182	200	229	269	270	305	
Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks	33	21	18	23	23	16	13	
Total Employment in Electronics Industry	244	247	284	292	353	339	368	462
Growth Rate		1.2	15.0	2.8	20.9	(4.0)	8.6	25.5
Percent share to Total Employment in the Manufacturing Sector	11.9	12.3	12.5	13.0	15.5	15.2	16.1	

Source: <http://laborsta.ilo.org/STP/do>, SEIPI

Electronics' share to total employment in the manufacturing sector posted an average of 14% during the period 2001-2007. In 2007 it posted its highest share at 16%. Employment in the industry grew at an annual average of 10% for the period 2001-2008. In terms of the total number employed, employment doubled from 244,000 to 462,000 in that same period.

The main source of employment in the electronics industry comes in the manufacture of radio, television, communications equipment and apparatus, having an average share of employment in the manufacturing sector of 10% or an average of 75% of total employment generated in the electronics industry for the period 2001-2007.

Economic Linkages

The electronics industry plays an essential role in the economic spectrum through its intersectoral linkages among different sectors of the economy. The importance of an industry can be measured through its backward linkage (as a buyer of inputs from the other sectors) and forward linkage (as a supplier to other sectors). A sector with high linkage index is considered relatively important in terms of investment, as growth in this sector will stimulate greater production in other sectors of the economy.

In an input-output analysis conducted by Villamil & Reyes (2007), the industry's ranking in consumer of inputs from other sectors progressed from 9th in 1994 to 1st place in 2000. Likewise, its position as a supplier to other sectors also jumped a notch from 3rd place in 1994 to 2nd in 2000 (Table 2). With forward linkage greater than backward linkage, Table 2 indicates that the industry has a high degree of linkage as a provider of inputs rather than as a consumer. In addition, the electronics industry is a vital source of investment and creates significant multiplier effect in the other sectors of the economy. Hence, Lim (2007) posed the challenge of ensuring the backward linking of the electronic and semiconductor industries.

In 2000, the industry provided input to 220 sectors (out of 228). Among its major consumers are telephone service, constructions and manufacture and assembly of motor vehicles. Likewise, in 2000 it required inputs from 83 sectors of the economy. Among its important suppliers are wholesale and retail trade, non-ferrous foundry and electricity.

TABLE 2.				
ELECTRONICS INDUSTRY				
ECONOMIC LINKAGES				
Particulars	1994	Rank	2000	Rank
Backward Linkages	2.7	9th	9.5	1st
Forward Linkages	6.5	3rd	47.1	2nd

Source: Villamil and Reyes, 2007

Technology Transfer

Transfer of knowledge and skills that MNCs impart to their employees is one important aspects of the electronics industry. The industry provides 13 million hours of training yearly. This translates to an average of 40 hours per year, per employee at P60,000-P100,000 training cost. Training programs are conducted all year round to keep employees abreast with new technologies and practices that impact on the industry. Some of the employees are sent abroad and immersed in 1-3 years experience and specialized training and certification. Various training programs being provided include process engineering, product engineering, equipment engineering, IT trainings and manufacturing specialist upgrading (Villegas, 2004).

Electronics companies also provide their employees local educational programs and in-house bachelor's degrees and master's degrees.

The Current Crisis

The bulk of the demand for Philippine-made electronics products comes from developed and industrialized countries such as the US, Japan, and Netherlands. The onset of the global financial crisis has left these economies in a downward spiral resulting in sober consumer spending or if not declining demand most especially for consumer electronics products. Moreover, as credit in the financial sector tightened in advanced countries, global demand declined so sharply that commodity prices actually came down (Spence, 2009).

Much of the growth of the domestic electronics industry depends on the demand for semiconductors used in end-products such as personal computers, cellular phones, digital players and other consumer electronic devices. According to the SEIPI, the market for personal computers and notebooks was badly hit by the crisis, with demand dropping 14%-15% in 2008. Likewise, demand for mobile and cellular phones also declined by 12.5% and consumer and electronic devices by 27%-30% (*Young, SEIPI*).

The initial impact of the crisis started when 20% to 40% of customers cancelled orders due to financing problems on the 4th quarter of 2008 (Santiago, SEIPI). As a result, exports growth declined by 8.3% in 2008 from 5.1% in 2007. In terms of value, total electronics exports dropped to \$28.5 billion last year from \$31 billion in 2007. As mentioned earlier, industry players estimated that growth will decline by 20%-30% in 2009.

The crisis has put at risk the 462,000 workers directly employed and the 3.2 million workers indirectly employed by the electronics industry (*Santiago, SEIPI*). As of March 2009 there were 23,399 workers affected and at risk of losing their jobs as companies implement cost cutting measures such as compressed workweek, temporary lay-off, retrenchment, freeze hiring and reduction or elimination of overtime work.

Issues and Challenges

Even before the ongoing global financial crisis, the domestic electronics industry has not gained its pre-2000 growth rate levels mainly due to the Asian financial crisis of 1997 and the persisting local and global issues and challenges facing the industry.

In the 38 years of its existence, the manufacturing activity of the electronics industry has been relegated to mere assembly and testing. It has not moved to higher level of production chain. As a result, the high growth of electronics exports over the years has not manifested in the growth of the overall manufacturing sector. In contrast, the rapid expansion of the electronics exports of the Newly Industrialized Economies (NIE) such as South Korea, Singapore, Hong Kong and Taiwan is coupled with the concomitant expansion of their manufacturing sector (*Austria, 2006*).

There are several local issues that constrain the electronics industry from moving up to a higher level of productivity and these are:

- **High manufacturing cost** – this includes among others, the cost of electricity, labor and taxes.

On the cost of electricity. Electricity cost is a major manufacturing cost of the electronics industry: Intel's operating budget for electricity is 41%, Texas Instrument 25%, and for a more labor intensive operations such as Team Pacific 13% (*Deloitte Consulting, 2002*). With the high cost of industrial electricity in the Philippines (Table 3), it is no wonder that the electronics industry is less globally competitive.

Table 3.
Comparative Industrial Electricity Rates
in Selected Asian Countries

For the year 2006

	(US \$ per kWh)
<i>Asian Countries</i>	
Philippines	0.170
PRC	--
India	--
Thailand	0.066
Indonesia	0.059
Malaysia	0.065
Singapore	0.096
South Korea	0.065
Taiwan	0.057

Source: *Institute for Management Development (WCY 2008)*

On labor cost. The cost of labor in the country remains relatively expensive, which ranked 8th among selected Asian countries (*Table 4*). While Filipino productivity is generally favored by MNCs, the high cost of labor would be a major turn-off to would be investors. The enactment of minimum wage law is one of the major reasons for the high labor cost in the country. From 1990 to present, the Regional Wage Boards have issued a total of

221 Wage Orders, 129 or 58% were issued moto proprio and 92 or 42% were issued by virtue of petitions. Government intervention on wage hike affects the competitiveness of the electronics industry as the wage board sets the minimum wage and not the market (*Deloitte Consulting*).

Table 4.
Comparative Wages in Selected Asian Countries

as of May 18, 2009

Country/City	Monthly Wage	
	In Country Currency	In US\$
Cambodia	189,000 - 210,000	45.10 - 50.11
Vietnam	710,000 - 870,000	39.33 - 48.20
Indonesia/Jakarta	547,000 -1,020,000	51.06 - 95.22
China/Beijing	750 - 850	109.81 -124.45
Thailand/Bangkok	4,290 - 5,730 b	124.87 - 171.27
Philippines/Metro Manila	3,900 - 11,460	81.77 - 240.27
Malaysia	733 - 1,570	203.87 - 436.66
Taiwan	17,280	521.59
South Korea	904,800	709.03
New Zealand	2,304 - 2,880	1,348.99 -1,686.23
Singapore	880.00 - 3,650.00	509.81 - 1,672.16
Japan	163,680 - 172,560	1,655.48 -1,745.30
Australia	1,648.80 - 3,297.60	1,234.36 - 2,468.73

Source: *National Wages and Productivity Commission*

On taxes and incentives. Neighboring countries have competitive tax structures and flexible tax incentive schemes. It is very apparent that neighboring countries are very aggressive in recruiting and retaining targeted industries.

- **Inadequate technological capabilities that constrained industrial upgrading** – the low level characteristics of the electronics industry (assembly and testing) prevented the industry to absorb new and more advanced technologies which is a necessary factor to remain competitive in the global production network (Gutierrez, 2004).

Table 5.
Comparison of Taxes and Incentive of Neighboring Countries

Particulars	Philippines	China	Malaysia	Thailand
Statutory Corporate Tax Rate	Originally 35% but for 2009 it is already down to 30%	30% -National , 30% Local	28%	30%
Corporate Tax Provisions High Technology	PEZA 5%	15%	See below	See below
Tax Holidays	<ul style="list-style-type: none"> - BOI & PEZA: 6 years for newly registered pioneer firms, 4 years non-pioneer and 3 years for expanding firms ; - BOI: 6 years for P/NP on LDA's, 3 years modernization projects. - Special cases another 3 years but not exceeding 8 years. 	<ul style="list-style-type: none"> - No corporate tax for 2 years after becoming beneficial. - Advanced technologies; 2 additional years and 50% reduction for the next 6 years (7.5%) 	<ul style="list-style-type: none"> - Pioneer status: 510 years from production start date (30% capacity) varying rules of compliance 	<ul style="list-style-type: none"> - Zone based - Zone 1: (Bangkok area): 3 years exempt if 80% export. - Zone 2: 3 years exempt and expandable to 7 years. - Zone 3: 8 years exempt and 50% reduction after exemption period. - Priority projects – 8 years regardless of location.
Other Key Tax Incentives		100% tax refund for export oriented enterprises (70% export)	<ul style="list-style-type: none"> - Investment Tax Allowance: 60-100% of qualifying capital expenditure. - Reinvestment Allowance (RA): 60% allowance for 15 year period. - Accelerated Capital Allowance for 3 years after RA eligibility - Export incentives 	

Source: *Deloitte Consulting, 2002*

- **Poor infrastructure and Logistics** – One of the key issues that turns off potential investors is the dilapidated road and the horrible traffic congestion most especially in the CALABARZON area where some of the economic zones are located. Added to the woes is the poor logistics such as the lack of charter flights needed for cargo movements, lack of direct shipping and air routes or linkages to export processing zones, inadequate cargo hub operation, and the high cost of freight and cargo handling services. Inadequate or poor logistics leads to increased production costs.

On the global front, there are three major issues that affect the electronics industry. These are: (1) the emergence of global contract manufacturers based in North America; (2) the emergence of China as a priority investment target for electronics global production networks; and (3) growing bilateral free trade areas (FTAs) and regional trading arrangements (RTAs) (*Austria, 2006*). Among these three issues, the emergence of China as a priority investment site poses the greatest threat to the local electronics industry as MNCs are attracted towards China because of cheap labor and attractive taxes and incentives. To cite few examples, China's individual economic zones and industrial parks are offering extra incentives such as extended tax holidays, free land-use, factory relocation assistance, and pre-training of staff. Total foreign direct investment in China has gone over US\$400 billion in 2002 from just a mere \$46 billion in 2001 (*Deloitte Consulting, 2002*).

The country could eventually lose out to China because of its low labor cost if not for the issuance of intellectual property rights. In the four stages of the semiconductor industry (fabrication, sorting, assembly and testing) testing is the most exposed to violation of intellectual property rights as this involves the opening of the source code. To insure protection of intellectual property rights, the China+1 scheme was floated, wherein MNCs apportioned their investment partly to China and partly to countries that are capable of respecting the intellectual property rights. Thus, the Philippines has to compete with other countries to be able to attain the coveted +1 status (*Manzano cited in CPBD, 2006*).

Conclusion and Recommendations

The importance of the electronics industry to the Philippines cuts across the different sectors of the economy. It is the main source of the country's exports, a major source of employment, and a valuable conduit of technology transfer.

However, the industry is vulnerable to global or regional economic aberration as demonstrated by the Asian financial crisis and now by the global financial crisis because of its demand-driven nature. With or without the crisis the electronics industry has hardly moved to a higher productivity level as shown by its exports performance. It has not recovered its pre-crisis growth since the Asian financial crisis. Moreover, its declining value added is an indication that its full potential as driver of the economy is not being realized because of several issues hounding the industry. Added to the industry woes is the emergence of China as a priority investment site of some MNC's, because of its huge untapped consumers and attractive taxes and incentives.

The decline or failure of the electronics industry would definitely weigh down on the Philippine economy. Hence, it is imperative for the government to explore all avenues to make the electronics industry globally competitive. It is crucial for the government to evaluate its policies towards the electronics industry to help the industry recover from the crisis and emerge stronger.

- Resolve competitiveness issues hounding the electronics industry:
 - Lower the cost of electricity to help the industry cope with the crisis. The electronics industry is pushing for the passage of Senate Bill 3148, titled "Electricity Rate Reduction Act of 2009" which aims to reduce natural gas royalties, that according to SEIPI, is one measure that is highly effective and most expeditious in lowering electricity rates;
 - Address the worsening infrastructure problems and the inadequate logistical support most especially in the export processing zones;

- Review the taxes and incentives imposed on the export economic zones locator and make it more attractive if not at par with neighboring countries; and
 - Ensure the effective functioning of the Regional Wage and Productivity Board to inhibit national government intervention in minimum wage setting;
- Aim for the coveted China +1 status through judicious and committed protection of intellectual property rights to attract semiconductor firms to venture into the higher value chain in the country away from mere assembly;
 - Encourage local and foreign investors, by providing incentives, to put up vertical industries that would cater mainly to the needs of the industry such as gold refining, lead frame manufacturing and toxic waste disposal. Moreover, strengthen research and development towards utilizing local materials capable of replacing imported raw materials; and
 - Address the country's over-dependence on electronics as a main source of export earnings by diversification of exports products and markets, while still fostering the backward linkage of the electronics and semiconductor industry.

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