CHAPTER ONE

Introduction and past research

1.1 Unbounded growth

After the Second World War, American aid was very important in the assisting the industrialization of Taiwan. Taiwan had become the peripherial country to the American center, and at beginning of industrialization dependent on the financial aid and technology innovation from America and Japan. Taiwan do not quit fit into the "Dependent Theory"[1], but at this point it is uncertain that Asia four dragons will be the exception to the theory. Since 1951, Taiwan had phenonmena growth, real growth domestic product growth rate at highest was 13.59 % and real national income growth rate reach highest at 14.3% (Figure one). In 1988, President Reagan decided to remove Taiwan along with Hong Kong, South Korea and Singapore from the GSP[2] due to the remarkable economic advancements and improved trade competitiveness.

[1]Dependency theory believe that the cause of low level of developed countries (LEDC) in the less economically developed countries is their reliance and dependence on the more economically developed countries (MEDC). Some part of the dependent theory suggest that LEDC should cut off ties with MEDC so that they will be able to retain surplus production, and economically independent.
[2]Generalized System of Preference is a program of duty free preferences that the U.S. grants to developing countries.

And by 1987 Taiwan had second largest bilateral trad surplus with the U.S.[3] Taiwan had become manufacturing giant, and the growth seem to be well balanced. The income distribution was stable, and inequality at individual level dropped (Bourgnignon et al). However as with all the developing countries, the amazing economic growth is not without it's price. In the developing countries rapid growth without adequate physical infrastructures like housing and transport, has cause many social problems like traffic congestion and high housing costs. Most of the developing countries are ill prepare to deal with the problem cause by the remarkable economic growth, especially the environmental problem incurred by the industrial production. Since the developed world are concentrating on the service market, manufacturings are shift out of the developed nations into developing countries. There are fierce competition for the piece of the global manufacturing markets, corporation become powerful because they decicsions could create jobs that developing countries desperately needed. In the developed nations, there are strict environmental regulations, corporations had to spend tremendous amount of resource and time to reach standard set by those regulations so that the worker and public would not be harm. In the developing nations it is often that there are no environmental regulations, and governments have often had problems such as unemployment, poverty, illiterate

[3]Building American Prosperity in the 21st century.

labor force etc. on their hand. As developing countries competing with one another for corporation's favor, environment are sacrifice for the economic growth. In many developing countries pollution is unrestricted and environmental problems are not address by government. Because dealing with those problems might compromise economic grwoth, and render country as investment unfriendly in investors' eye. Therefore environmental pollution is serious issue with permenant long term effect which need to be bought into attention of the world.

1.2 Environmental movements

Historically environment has always taken a back seat to the capitalism. Industrial Revolution had cause many environmental and social problems in England, such as unregulated working hours, child labor, dangerous working environment, sanitary of the dormitory for the workers, air pollution, illegal dumping of the industrial waste into the rivers etc. As for United State, it began with a case in New York State in 1838, Parker v Foot (Hughes 249). Judge's rule in this case is that the prescriptive right of individual "can not apply in the growing cities and villages of this country without working the most mischievous consequences." In judicial instrumentalism, it meant that the entrepreneurial costs of economic development

were destined to be subsidies by the public at large. Environment could be polluted by industrial waste created by economic growth. But producer of those industrial wastes does not need to compensate other property owner for damage, unless negligent could be proved in courts. Which even with today's technology and knowledge is very difficult. Industrial revolution had result in tremendous growth. However this growth is not without its price, by the beginning of 19th century Britain had serious pollution problem. Thames had become one big sewer, unclean food, at same time there was the killer smog and spread of Chlorea. Many reformist had pretest against the environmental degradation suffer by the citizens, some reform start to emerged for example, regulations of working hours, prosecution of pollutions, improving health of the laboring populations etc. By the time American had industrialized, they faced same problem such as industrial pollution, and urbanization. By the end of the 19th century the major rivers had been so polluted by industrial waste and sewage, the Rivers and Harbor Act had been passed by Congress in order to preserved navigable waters. Even in the beginning of the 20th century killer smog/fog[4] continue to kill people in the major industrial cities of American and Britain. For the two hundred

[4] Kovarik, William. "Environmental History Timeline." Radford University. 1 Feb. 2004 <http://www.radford.edu/~wkovarik/hist1/about.html>
Killer smog/fog had been serious problem in major industrial city; it was cause by factories and open coal fire that was used to heat up homes. Many writers like Lovecraft, Stoker, and Doyle etc. have written about it. Killer smog have got so serious in Pittsburgh, Pennsylvania that Andrew Carnegie the Steel tycoon have complain about it to the Chamber of Commerce. Even until the 1950s, killer smog/fog still continue to kill people.

years, nations were dazzled by the raise of economic growth and national power industrialization had bought, the social problem that comes with it was ignored. Leon Trotsky, the Russian revolutionary said “The proper goal of communism is the domination of nature by technology and the domination of technology by planning, so that raw materials of nature will yield to mankind all that it needs and more besides.” This had pretty summed up the attitude of all industrial nations.

In the 60s, Rachel Carson published her influential book “The Silent Spring”; it has lead to the worldwide acknowledgment of environmental problems. Later more literatures drew attention to the side effect of the globalization. Americans start to take the environmental issues seriously; a series of environmental protection laws was passed by Congress. In 70s National Environmental Policy Act and Environmental Protection Agency was signed into law. In 1972, during the UN Conference on Human Environment, it was decided that human production were damaging the environment, and putting all living beings at risk. In 1980, UN Environment Program, World Wildlife Fund and International Union for the Conservation of Nature put together the World Conservation Strategy. Its purpose was protecting environment from selfishness of the mankind. By 1987, “Our Common Future” was published by

Brundtland Commission.[5] This report was concern about the environment and under developing countries, although the world economy must continue to grow, this growth should be in tune with the ecological condition. And it had coined the term "sustainable development", basically it means development that meets present need without compromising the ability of future generations to meet their own needs. During that period, impact of the unchecked economic growth of the past two hundred has started to take its toll on Earth. The hole on ozone layer above Antarctic was discovered, explosion of the Chernobyl nuclear reactor, Union Carbide plant leaks methyl isocyanide in Bhopal, India, as well as the discovery of the chemical leak at the Love Canal.[6] In 1992, during the United Nations Conference on Environment and Development Preparatory Committee summit meeting Agenda 21[7] was adopted, it is a global and comprehensive plan that give a summary of the actions government, organizations of United Nations System, industries and community should take in order to succeeding in attain sustainable development. Agenda 21 is global agreement on how human production has negative effect on environment and income distribution. The objectives of Agenda 21 are satisfy the basic needs, better living standards for all,

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[5] Kovarik, William. "Environmental History Timeline." Radford University. 1 Feb. 2004 <http://www.radford.edu/~wkovarik/hist1/about.html>
Brundtland Commission was sponsor by United Nations.

[6] Kovarik, William. "Environmental History Timeline." Radford University. 1 Feb. 2004 <http://www.radford.edu/~wkovarik/hist1/about.html>
In the Chernobyl incident death toll was 4200, and estimated 10 to 200 fold increase in probability of thyroid cancer. In the Bhopal incident death toll was 10000, and in 1994, estimate 50000 people were disable. During that period many industrial incidents that happen around the world, and most government lack authority and proper law to deal with gross negligent.

[7] Agenda 21 covers all issues in the UNCED Resolution 44/228 of the UN General Assembly

better protection and management of the ecosystems and safe and more prosperous future, so our own welfare could be improved. A “global partnership” has been declared by United Nations in the statement, because this task is too large for single nation to take on alone. However the objective of the Agenda 21 is satirical, we have always believe that we have achieve more than our predecessors, the living standard of the developed nations are at their highest ever, the natural resources of the third countries are constantly been acquired by the Capitalist in the developed nations, and transformed into merchandise, and the goods are than exchange for money.[8] The natural resources of the under developing nations are been exploit, the externalities of that action is bear by the citizens of the poor nations, this lead to the gross unequal distribution of gain between nations. Right now, those under developing nations could not even fulfilled their people’s basic need, and the prospect of improve their living standard are dim.

About a decade ago, United State Congress demand depletion of natural resources and ecosystem damage to be written into the national income accounts by Department of Commerce, the Agency for International Development and major international agencies like World Bank and International Monetary Fund. But due to the lack of resources and incentives, nothing came out of the requisite. In 1993, United State

[8] The Marx’s mode of Capitalist production.

president Clinton in his Earth Day speech called for computation of the Green Gross Domestic Product. By 1994,the Department of Commerce Bureau of Economic Analysis announced outline of the economic environmental accounting. The objective is that Natural resources and balance of the ecosystem are important productive assets, and must be protected in a well-performed economy. The depletion of natural resources and investment in environmental improvement must be taken into account. So better understanding of the nation's assets and maintainable income could be measured. The environmental and economic accounting was successfully implemented by United Nation, International Monetary Fund and World Bank. But in 1994 The House Appropriations Committee block the environmental accounting program in bill for FY2000, American have lag behind in development of Green Gross Domestic Product when compare with other international organizations. American stand on the environmental issues has always been ambiguous, they often veto International consensus on environmental issues.[9] In 2003, second Bush

[9] History: Timeline. 18 Feb. 2004. U.S. Environmental Protection Agency. 18 Oct. 2004 <http://www.epa.gov/history/timeline/>
In 1982, United States veto the United Nations World charter for nature, it was voted 111 against 1 (United States).
In 1989, United States refused to sign the 1994 Basel Ban to prohibiting toxic waste exports from industrial to developing nations.
In 1992, during the Earth Summit in Rio de Janiero, United States refused to sign the Convention on Biological Diversity, and rejected the Statement of Principles on Forests.
In 1994, United State industry against the Basel Convention stalled full implementation of the treaty sign by most industrial nations.
In 1997, United States rejected the Kyoto Protocols, and American industry predicts catastrophe if CO_2 reductions are enforced.
In 2002, President Bush did not attend the Earth Summit in Johannesburg, South Africa. And United Stated was criticized by other countries for rejection of Kyoto Protocols. Many people believe that the world leaders have give in to the World Trade Organization and Mega corporations.

administration seeks to amend Clean Air Act, Clean Water Act, Superfund, Right to Know Act, Marine Mammal Protection Act etc. it is hoped that in weaken the protection of environment and populations, economic gain for corporations could be realized.

It is obvious from above, that environmental movement had made much progress in the past forty years, but it seem to have come to a stand still in the last decade. Today, the resources of the third world is been exploited by developed nations, and government of the under developed nations are powerless to stop their environment been despoiled, since most of the growth are not sustainable. Or in another word, the growth of the economy is plan by the Capitalist, who main interest is not welfare of the people of the host nation. The fact is productions now have global effect, and this will affect all of us. Ghandi once said, “Live simple that others may live simple”, widely diversified living standard of people on the Planet shows Capitalist production are not the best mode of the production. But what is the best mode of production? This is topic for further future study.

1.3 Economics on nature

Nature has been substantially transformed by human actions. Man believed we

hold the ownership of the natural resources, and it is to be barter and trade at will. At beginning production means labor act upon nature, with circulation of commodities, money and surplus value capital are formed. The expansion of value takes place with constantly renewed limitless circulation of money. Nature become dominated by capitalistic production (Marx 149). However different school of economics have different thought as to how economy interact with nature.

Adam Smith believe that the production is limited by the abilities of the labor not by the soil climate and extent of the terrritory of particular nation (128). Although Smith had use “invisible hand” to promote harmony of interests, but he did point out that there are situation of conflict of interest and also human selfishness. This has become crucial in the creating the environmental regulation, as interest groups tend to bargain to protect their interest, as corporations control vast resources, they are in a better position to engaged in rent seeking activities.

The Neoclassical economist acknowledge scarcity of resources, nature and man made capital are substitutes in production. As natural resource become scarce, price will rise human technological innovation will produce substitutes, price would drop.

Neoclassical economist assume that global market economies provide a foundation for achieving a sustainable future. As market spred, living condition will rise, population growth rate fall, thus growth is sustainable with well function and

regulated market. To the neoclassicalist the economic is study of allocation of scarce resource among alternative end. The theory center on utility and profit maximization. Supply curve of the consumer goods and demand curve of factors of production are derive from utility and profit maximization. Because the neoclassical focus on the individuals in the economy, the long term issue such as desirability of the economic system and limited natural capital are pretty much obscure.

On the other hand, Marx had place man and nature on the equal footing by point out that man and nature participate in labor process, because nature are passive so man control and regulates the relationship with the nature. Nature's production are taken by mankind and transformed to suit man's own desire. This way the external environment has been alter nature environment and condition of the natural capital for the physical basis of the social division of labor. When those change, man have to adjust own desire, means and modes of production. It become important to have natural force under control of mankind, and economising, take exclusive possession of or conquer it on a large scale by labor. Marx himself had been more concern about the balance between materialism and humanism (Vaillancourt 58), in another word the scarcity of nature was not such a great concern to Marx, as he probably believe that technology would be able to create abundance of resources. Engel was the one who did take nature into consideration

Ecological economics assumes there is an inherent link between the health of ecosystem and wellbeings of human beings. By treating the natural resource as factor of production interchangeable with labor and capital, the natural resource had being undervalued. Ecological economics centered on uneconomic growth and measuring wellbeings.

Externality is center of the environmental economics, some economic activity was not taken into consideration when the final product is being priced. The externality could be deal with by having better defined property law, tax, tariff, and quotas on pollution. Also externality could occure when a less environmental conscious producer undercut price of a more environmental conscious producer. This situation lead to the Natural capitalism, which is the change in industrial process and business practices to economize on what is now the limiting factor of production. Because the natural capital is scarce and diminishing, and are normally not taken into account by firms. So natural capital tend to be misused and wasted by the mass public. Hawken and Lovins set down four elements in the natural capital business models, which are dramatically increase the productivity of the resourced used, shift to biologically inspired production with no waste and toxication, continuous flow of business, not focuse on sporadic sale of goods to reduce inventory and fluctuation of profit and lastly investment in natural capital (Hawken, Lovins).

Green economist believe that the economy is part of the ecosystem. They reject the concepts of factor (mean) of production, because it could not distinguish the important difference between living and non living beings in the production process[10]. The Green economist tend to be extreme, to them the economic growth is just a delusional idea, and cause destruction of natural environment. The fundamental assumptions to the Green are the increasing importance of natural capital in the production, creative capital use in the greater energy economy, and local scale of measure is more reliable than the global measure. Because of their extreme views they are consider outside of mainstream economics.

1.4 Cost of pollution

As pollution create cost to society and cause damages to others, in order to be fair economist Pigou believe that the government should tax polluter accordingly. One advantage of the Pigou's tax is that the government did not have to have complete information regarding the pollution in order to impose the tax[11]. Coase opposite this view, by using the example from the custom or English common law, he was able to

[10] This is the view of Allen Lipietz, who was member of the French Green Party
[11] Henderson, D. R. "Ronald H. Coase (1910-)." *The concise encyclopedia of economics*. The library of economics and liberty. 18 Oct. 2004 <http://www.econlib.org/library/Enc/bios/Coase.html>

prove that the government intervention does not always produce the Pareto Optimum outcomes, and if left to the market mechanism a better outcome could be achieved. The externality produce by one party would have to be absorbed by one of the two parties, and because the fairness is not the same as the social Pareto outcomes, therefore the result might not be just, but is socially optimal. The above is possible under the assumption of the absence of the transaction costs, in here the transaction cost means the expenses occurred while trading, which include cost of information, draw up contract etc[12]. In case of pollution, the externality occurs when one party is suffering from the action of the polluter, if the government who has perfect information makes the regulations than the Pigou's tax would be the Pareto optimum solution, but unfortunately it is not possible in the real world so the outcome would not be efficient. Coase Theorem state that if there is absence of transaction costs, parties would only made agreements that mutually beneficial, regardless of the distribution of the initial legal right. However there are some problems with above theorem:

1. It is impossible for the world to be without transaction costs, Coase himself believe that is the reason for the existence of the firm. Therefore the market mechanism alone would not insure the socially optimum outcomes.

[12] "Transaction Cost." 24 Sep. 2004. Wikipedia. 18 Oct. 2004 <http://en.wikipedia.org/wiki/Transaction_cost>

2. Pollution today could influence thousands of people, living in different geographic area, and who is not aware of the decision made by the polluter, thus social welfare falls.
3. The unequal bargaining position of the parties is another major problem; Coase does imply some sort of equal bargaining position. However from the Marx's point of view we know that the individual Capitalist accumulate capital, through production and the concentration of the capital. That way the bargaining power of the individual Capitalist increase, with that their influence increase as well. Thus the parties are not on the equal bargaining position, and they can only rely government to establish regulations to regulate behavior of the Capitalist. But if the Capitalist has great influence and does lobby for their interest in political arena than even the government cannot be count on to be just.

Coase was criticized for his view, but he was soon able to convince the neo-classical economist such as Friedman, Stigler etc. of his view on the social cost. Coase's ideal was base on a very broad assumption as with all other economic theories, but he does present another point of view.

1.5 The high tech industry

The common believe is that high tech industry is relatively cleaner than other industries. However this “clean and green” image is a illusion, high tech industry causes very serious environmental problem, with the highly toxic materials used in production of silicon chips, semiconductors and computers, as well as the energy intense production, have pose serious danger to health and safety of worker and community. The Silicon Valley in Santa Clara, California has 29 Superfund site, more than any other county in United State. Eighty percent of those sites were cause by high tech electronics production. In 1996, estimated twenty out of twenty-nine Superfund site were caused by production process of silicon wafers and high tech electronics components. And five out of the twenty-nine sites were cause by the related industries such as chemical suppliers and waste disposal etc. The Americans were not only in forefront of technology, but also at forefront of the toxic pollution by high tech industry, as they are producing products by using chemicals which relatively little are know about their effect on society.

Jan Mazurek and Fumikazu Yoshida had study the pollution of Silicon Valley, Mazurek study the effect of regulatory program on the production and it’s effectiveness, her research is especially useful since semiconductor production process is clearly describe, and the shortcoming of regulatory program by the US

government were look at, and even with the firms cooperation it is expensive to establish laws that is tailor made for individual production facility. Fumikazu focus on the pollution and its impact on the workers and local residences. The conclusion was the high tech pollution is a fact not myth, and the effect of chemical poisoning on the environment and humans were devastating, government should tried to prevent pollution by proper regulation and monitoring system.

In 70, there was large flow of American foreign direct investment to the Asia, which mostly concentrated in manufacturing sector. The cheap labor and government support of the Asian countries had enable phenomenon growth be possible, especial in the Asia four dragons. In Table One, the figures show that the amazing growth experience by Taiwan economy, by the mid 70s Taiwan economy falter because of the energy crisis and new competitor in the global market. Government decided to promote new industry, and the search was on to find the industry that will bring Taiwan another economic boom. At that time the United State manufacturer tended to invest in areas where they have technological advantage (Wilkins), during that period American was in the lead in IT manufacturing. And Taiwan had been able to purchase the technology know-how of IC production from RCA, which had been the beginning of the semiconductor production.

Since 70s, Taiwan had been developing the IT industry. In 1980, Hsinchu Science-based Industrial Park was established; Taiwan had started to offer foundry service to the overseas IT manufacturers, by 1986 value of the IT hardware industry reaches two billion dollars. In 1992, price fall, firms began to look for producers whom were able to produce high quality products at low cost, and they found Taiwan with all the requirements. By 1995 the amount was at twenty one billion dollars. Taiwan rank third as the producer of the IT products, after America and Japan. If we look at the profit before tax in the manufacturing sector, out of top twenty firms there are six IT manufacturing corporations. Between 1991 and 1995 the value of the IT hardware industry grow by average rate of 19.6. This is stunning performance for a relatively new industry. In 90s PC related industries started to receive orders from major corporations, with the competitive price the management strategies of the corporations have change, started to outsourcing production to Taiwanese firms. The achievement of the IT industry in Taiwan had bring about further economic growth, success of the Hsinchu Science-based Industrial Park had cause a spread of Science-based Industrial Park. The feasibility of this development has not been properly investigated. Environmental problems at Hsinchu Science-based Industrial Park are traffic congestion, air pollution, groundwater and land contamination, pollution of rivers etc. Those problems result from the lack of capacity in dealing with

industrial waste, imperfect information lead to ineffective regulation, lack of proper waste management.

Although there are cost and benefit to the successful high tech industry, most are ignored about the negative externality spin off from the capitalistic production; economic analysis of this problem could help us understand the issue in depth.

1.6 Taiwan Researches

Hsichu Science Industrial park was established in the 1980, and the research on influence of semiconductor production on the environment has only begun in the last decade. In 2002, M. C. Liu had done mobility and mortality survey of a neighborhood of an industrial park, P. L. Huang conducted research on the establishment of indicator of environmental assessment of the semiconductor industry, it conclude that firm focus on the production process and environmental management, and in order to improved environmental performance, firms should stress importance of the both factors. In the beginning most of the materials were done by the environmentalist, most of them live in Hsinchu and their living standard were severely affect by the semiconductor production. As local residences, they notice the change in the local environment, and the causes of the change were investigated by individual effort or

arrange communities to form environmental watch group. Therefore the environmentalists were able to document the changes in the nearby area, and their accounts were post on the web site such as Cool loud, Nan Fan, and Environmental information Center. The articles by Sam Lin[13], Gao Ching Bo（高清波）[14], Zhong Shu Ji（鍾淑姬）[15], Chiou Hwa Mei （邱花妹） were good documentation of the actual event, and in which they criticized government for cave in under pressure from the Capitalist, method with which government deal with the pollutions, as well as negligence and lack of responsibility on the part of firms in the Hsinchu Science Industrial Park.

Government's attitude is very important when dealing with pollution, as Taiwan is an island economy, and government had control the direction of the economic development. Over the years, pollution had become more and more serious, Professor C. S. Wang[16] had criticized the government for the way they deal with firms, government tend to break down the responsibility of the environment regulations and then responsibility was given to different departments, which means duties and rights could overlap. This means that environmental pollution become complicated issue to

[13] Head of Taiwan Green Peace Organization.
[14] General director of Hsinchu Foundation, member of Hsinchu Science Industrial Park Environmental Monitoring Team.
[15] Chairman of Hsinchu Public Nuisance Prevention Society. Member of Hsinchu Science Industrial Park Environmental Monitoring Team.
[16] Professor C. S. Wang specialized in Environmental sociology, urban planning, and environmental management.

deal with, since jurisdiction and authority overlap. At same time the firms' bargaining power had become greater and they take advantage of this situation, to exploit the nature environment for profit. As firms tend to realize the profit in relative short term, they ignored the long-term effect of pollution, therefore although the society benefit from the wealth bought by the IT industry; it also was harm by the negative externality of the IT production.

By 2000, Environmental Monitoring Team was establishing under the Management of Hsinchu Science Industrial Park, its function was to monitoring the production within the park. Professor Huang Tea Yuan from National Ching Hwa University is the head of the team, Professor Huang had measured the pollution factors, and put the meeting minute which recorded the complain made by the community near Hsinchu Science Industrial Park, progress and result of the improvement make by the firm or park management. This would be useful in the future study of the effect of Science Industrial Park on the natural environment.

From above cognition, the chapters of the thesis are arrange as follow:

Chapter one is the research topic, environmental movement and past research.

Chapter two is the development of Hsinchu Science-based Industrial Park. And the early pollution problems like LCY and RCA, which were closely related development

of semiconductor sector was examined, and which also demonstrate government's attitude to the environmental contamination by the corporations.

Chapter three is the cases study, in which the environmental pollution cause by Hsinchu Science-based Industrial Park is look at. Pollution cases that caused by high tech production, and the unsolved cases of rivers pollution cause by firm/firms within the Hsinchu Science-based Industrial Park. Also brief comparison between the U.S. and Taiwan situation in terms of environmental program and regulation are examined.

Chapter four is the conclusion; there is urgent need for the proper environment regulation, in order for that to be possible cooperation from the industrial sector is necessary. The environmental responsibility of the firm had to be promoted; it is not acceptable for society to carry the burden of the capitalistic production. The information regarding the pollution and environmental decision-making is insufficient; government and industrial sector need to make it transparent.

Table One Taiwan Economic Indicator from 1969 to 2003

Year	% of GDP growth rate	% of national income growth rate	Year	% of GDP growth rate	% of national income growth rate
1969	8.95	10.9	1986	7.84	8.2

1970	11.37	12.4	1987	8.23	8.4
1971	12.90	12.9	1988	5.39	5.4
1972	13.32	12.3	1989	7.55	7.4
1973	12.83	-0.4	1990	7.49	7.3
1974	1.16	4.0	1991	7.01	7
1975	4.93	14.3	1992	7.11	6.3
1976	13.86	9.6	1993	6.42	5.0
1977	8.17	11.9	1994	6.10	7.2
1978	7.30	8.6	1995	6.68	6.7
1979	6.16	5.5	1996	4.57	5.3
1980	3.55	4.3	1997	5.42	3.8
1981	8.45	8.6	1998	5.86	3.5
1982	10.60	11.6	1999	-2.18	-1.8
1983	4.95	5.4	2001	3.59	3.7
1984	11.64	15.6	2002	3.24	1.4
1985	12.74	12.9	2003	4.74	2.8

From Third Department of Directorate General of Budget Accounting and Statistic Executive Yuan. *Statistic Abstract of National Income In*

Taiwan Area, Republic of China (Mar. 2004)