

Trade and Environment-----One Important Aspect

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How to make free trade and environmental protection mutually supportive continues to be one of the hot issues at various international fora, such as the WTO, OECD, UNCTAD etc. Arguments on PPMs (Processes and Production Methods) remain as controversial as in 1991 when the GATT panel ruled in favour of Mexico on the "Tuna case". There are several reasons why countries (in most cases, developed countries) insist on utilizing the difference of PPMs to justify their trade measures. Regardless of whether it is clearly expressed or not, their effect on international competitiveness is doubtlessly one of the main concerns. Though it is easy to find several articles which show that the differences in environmental standards among countries will not seriously affect international competitiveness^{*1}, developing countries never accept such arguments. Their concern, it seems, is that to tighten the standards might lead to a lessening of their international competitiveness. In addition, they argue that regardless of the effect of emission standards on competitiveness, they have the sovereign right to set their own environmental standards and there is no reason they will allow interference in this respect. It is my opinion that these arguments should be empirically tested. Among international organizations in charge of these matters, the Joint Session of Trade and Environment Expert of OECD is the one which tackles these issues most readily. In April 1977, its secretariat submitted valuable reports on trade and environment, including such subjects as multilateral environmental agreements and trade or life cycle approach and trade for discussion/approval at the conference. Of those reports, what interested me most is the report of a case study on eco-labelling schemes. This was the first one which analyzed empirically, though with limited data, that eco-labelling schemes so far do not have visible trade effects on products. As readers are well aware, a criteria for awarding environmental labels often include Life Cycle Assessment (LCA) of products which inevitably include the PPM related ones. However, we have to pay attention to the facts that, firstly an environmental labelling scheme is one which manufacturers of targeted products apply voluntarily and so far it has not helped the goods with these labels to sell well, secondly at this moment not so many countries use this scheme in their government purchasing policy directly. If they utilize the scheme for government purchase, the situation might become quite different. Therefore we never will

*1 see GATT Secretariat, "Trade and the Environment" Feb., 1992

be able to generalize the outcome of this study to conclude PPMs will not have serious effects on trade.

So far, most discussions have focused on whether differences of environmental standards will affect competitiveness or not. But what will happen if it proves that tightening the environmental standards reinforces their competitiveness?

There is hypothetical argument that to tighten environmental standards might strengthen those countries' competitiveness. Professor Michael E. Porter writes in his article as follows. "Strict environmental regulations do not inevitably hinder competitive advantage against foreign rivals; indeed, they often enhance it. Tough standards trigger innovation and upgrading^{*2}". In this regard, I would like to draw your attention to the undermentioned two cases Japan experienced in the 1970s.

1) Pollution abatement investment and its impact on economic growth

Throughout the 1950s and 1960s, Japan suffered seriously from industrial pollution. Especially notorious were: two Minamata disease outbreaks caused by Mercury, Itai-itai (ouch-ouch) disease caused by cadmium, and Yokkaichi asthma caused by air pollution from a nearby petro-chemical complex. Due to the visibility and wretchedness of these pollution cases, and also due to frequent press coverage, people's concerns were raised to the highest at the beginning of 1970s. In all of the above four cases which were brought into court, plaintiffs won the cases and the corporations causing the pollution were held liable and obligated to pay for damages.

In view of the adverse effects of these pollution cases, Japanese central and local governments tightened emission standards with respect to various environmental media. Take the SOx standard for example. Under the Air Pollution Control Law, SOx emission standards from stationary sources are set in dual ways: a general emission standard being applied to each and every stationary source and an emission standard cap for stationary sources located in particularly polluted areas. Among those standards, a general emission standard is set as follows.

$$q = K \times 10^{-3} \times H e^2$$

q: allowable emission volume of SOx

K: constant determined by territory

He: height of chimney \times height of smoke

When the values of K were first set in 1968, it was in the range of 20.2 to 29.2 according to each area's pollution situation. The value of K in one area where it was set initially as 20.2, was then reduced to 11.7 in 1971, 7.01 in 1972, 3.5 in 1974, 3.0 in 1975

*2 Michael E. Porter, "America's green strategy", Scientific American, April, 1991

and continues to stay at this level since. Not only for SO_x, emission standards for several other pollutants had been strengthened in the same way throughout the 1970s and the following decade.

To comply with these stricter standards, Japanese corporations were forced to invest heavily in reducing these pollutants. As shown in figure 1 below, the pollution prevention investment ratio (refer to figure 1, note 2, below for definition) kept increasing in the first half of the 1970s, and in 1975 the ratio even hit as high as 20%. When you notice that the first oil crisis hit the world economy in 1973, such a high ratio of pollution prevention investment against total capital investment in 1974 and 1975 is quite astonishing. As a matter of fact, in certain industries such as textile, paper and pulp, and steel, the amount of anti-pollution investment sometimes were almost equal to their annual profit.

figure 1

figure 1 here

"Kankyou hozengata kigyouron josetsu (On corporations which pay higher attention to environmental protection)", compiled by global environmental economy study group, 1994

Whether these investments adversely affected the Japanese economy or not is an important question. Please refer to figure 2 below. This is a comparison of net GNP between a case where anti-pollution investments were done and a case where such investments were not done. As shown, it is quite interesting to note that economic growth with heavy anti-pollution investment is higher than in the other case.

figure 2

"Nihon no kougai keiken (Japanese pollution experience)", compiled by global environmental economy study group, 1991

It is generally said that pollution prevention investment has two different effects toward economic growth. One is known as "price effect" which adversely affects economic growth.

The reason is that due to these investments, the price of goods inevitably increases which leads to decrease in turnover. The second one is known as "income effect" which promotes economic growth. Anti pollution investment itself is new demands for machinery and equipment to abate or reduce pollution, and thus leads to an increase in turnover for manufacturers of those machines. The above two figures (figure 1 and 2) seem to suggest the latter effect can be construed as having superseded the former effect. Of course we should be very careful to presume this always will be the case. Also, this shows relationship between pollution prevention investment and economic growth, not trade itself.

However, if huge investment against pollution in the first half of 1970s adversely affected Japan's international competitiveness, economic growth ratio with anti pollution investment will be less in comparison to that without such investment. Therefore, at least, we will be able to suppose such investment did not hurt Japanese industries' competitiveness as a whole.

So far the argument is confined to the macro economic aspects. Now let us focus on more concrete cases.

2) Tightening the standards and competitiveness---Japanese automobile industry's experience

1970 U.S. Clean Air Act Amendment is still remembered to have newly adopted quite challenging emission standard for automobiles. The Muskie standard which was named after then senator Edmund S. Muskie who proposed the standard, intended to reduce pollutants from passenger automobiles. Take the NOx standard for example. It was aimed at achieving 0.4 gram per mile (g/m) for 1976 model year cars. As a matter of fact 0.4 g/m was 90% stricter in comparison to 1971 model year cars (4.0 g/m). In the early 1970s no such technology existed anywhere in the world. Automobile manufacturers were expected to develop it by themselves. Automobile manufacturers argued it is almost impossible to develop such technology in a reasonable time and cost, and asked to postpone implementing the standard. After various discussions and public hearings, the tight standard of 0.4 g/m was put off year by year while accepting an interim standard of 3.1 g/m since 1975. The standard became stricter gradually, such as 2.0 g/m for 1977 model year cars, 1.0 g/m for 1981 models. However one had to wait until the 1990 Clean Air Act Amendment where, finally, 0.4 g/m was set and applied for 1994 model year cars or later.

Japan also suffered from photochemical smog in the early 1970s and did not have any regulation for pollutants emitted from automobiles. In view of the introduction of very tight

emission standards in the United States (Muskie standard), and supported by the general public's consciousness against any health damage by pollution, the director of the Japanese Environmental Agency (JEA) asked the Central Pollution Council in September 1971 to study how to regulate CO, HC and NO_x emissions from automobiles. The JEA was established in July 1971, so this request was made only two months after its set up. In the course of study, it became clear that the council aimed at setting roughly the same standard as the Muskie standard. As in the United States, this caused serious confrontation between the automobile industry and the general public. Also as in the United States this became a political issue. What made the situation more confusing was repeated postponement, in the United States, of implementation of originally intended 0.4 g/m standard. It is rather seldom in Japan that regulation is not implemented at the intended effective date. What happened finally here in Japan is, due to strong public pressure and auto manufacturers efforts, 0.4 g/m (0.25 g/km) was finally set in late 1976 to take effect on or after 1978 model year cars. In parallel to this, the market share of the Japanese cars in U.S. market increased constantly since the early 1970s and in the early 1980s it reached roughly 20 % (more than three times in comparison to the early 1970s), to become an issue of trade friction between U.S. and Japan. As in the case of the relationship between pollution prevention investment and economic growth, we should be very careful not to conclude that strengthening environmental regulations helped to develop new technology and, as a result, enhanced the regulated industry's competitiveness. However, again as in the previous case, it could be said that there are cases where tightening standards did not adversely affect the regulated industry.

So far we have focused on two actual cases in Japan which "suggest" tightening of emission standards did not affect adversely the economic growth nor the competitiveness. However, at this moment, there is no definite evidence of the above. Neither, to my knowledge, no such study ever appeared to prove the strengthening of environmental standards lead to enhance international competitiveness. The author expects that there are similar cases in various countries as described above which indicate tightening the standards did not necessary decrease competitiveness of regulated industries. If those similar cases, being gathered and analyzed, empirically proves the "Porter hypothesis" that strict environmental regulations often enhance competitive advantage, this will greatly contribute to solve the disputes between developed countries and developing countries. Not to force developing countries to raise their standards but can encourage them to strengthen their standards for their competitive advantages. One important aspect left to GETS--JISPRI collaboration is to show under what conditions developing countries enjoy having both cleaner environment (by setting stricter environmental standards) and international competitiveness.