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Laura B. Campbell

Mary Carmin Madrid-Crost

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The Competitive Effects of U.S. and Japanese Auto Emission Standards: Are Strong Environmental Regulations the Reason Japanese Cars Sell Themselves?

*Laura B. Campbell**
*Mary Carmin Madrid-Crost***

I. INTRODUCTION

A recurring argument of many U.S. businesses is that strict environmental standards in the United States reduce their ability to compete in the international marketplace due to the costs of achieving compliance. In response to these concerns, Vice President Quayle's Council on Competitiveness has aimed to limit implementation of environmental regulations in order to enhance the ability of American companies to compete. During the Earth Summit held in Rio de Janeiro in June 1992, President Bush refused to sign a treaty on biodiversity joined by every other industrialized country based on his concern over the treaty's potentially negative effects on the competitiveness of American companies of an international regime linking protection of biodiverse areas and the development of biotechnology and pharmaceutical products.

In an era of global markets, the effect of stringent environmental regulation on an industry's ability to compete internationally is an important issue for policymakers to address in setting domestic environmental standards. This article looks at the evolution of U.S. and Japanese automobile emission standards since 1970, in order to assess the competitive effects of environmental regulation on an important segment of American business: the auto industry. It is acknowledged that a number of other factors have influenced the relative market shares of U.S. and Japanese car companies. However, the purpose of this article is to explore whether auto emission standards in the United States and Japan affected the competitive positions of the auto industries of each country.

II. EXECUTIVE SUMMARY

While the United States enacted stringent auto emission standards in 1970, it failed to implement these standards, largely because of com-

* Deputy Coordinator, Ozone Secretariat, United Nations Environment Programme (Nairobi, Kenya); Professorial Lecturer in International Environmental Law, the National Law Center, George Washington University (Washington, D.C.).

** 1992 Candidate for Masters Degree in Comparative Law, the National Law Center, George Washington University (Washington, D.C.).

plaints by industry that meeting them was technically infeasible. In fact, the strict “new” nitrogen oxide standard included in the 1990 Clean Air Act Amendments is the same standard which was originally passed in 1970, but successively weakened over the years.

Japan adopted the 1970 U.S. auto emission standards in 1972, and met all of them by 1978, even the technologically difficult to achieve nitrogen oxide standard. In both the U.S. and Japan, the emission standards were not technologically-based; that is, no specific technology was mandated to meet the standards. Because no technology that would meet the standards existed at the time of their enactment, companies were required to develop new technology in order to meet them.

The means chosen by Japanese car companies to meet the standards — including engine modification, fuel injection and exhaust gas recycling — also had the unexpected result of increasing fuel efficiency by thirty percent from 1976 to 1980. Consequently, Japanese companies were in an excellent position to increase market share when consumers became energy conscious in the late 1970s and early 1980s. Thus, having been required to make the technological improvements necessary to meet stringent environmental standards actually improved the competitive position of the Japanese car industry rather than having had a negative impact.

III. ADOPTION OF AUTO EMISSION STANDARDS IN THE UNITED STATES AND JAPAN

By the early 1960s, air pollution in major cities such as Los Angeles and New York highlighted the need for regulation of car emissions. Therefore, in 1963, the federal government adopted the first auto emission standards by regulating crankcase hydrocarbon emissions of cars purchased by the government.

To qualify for sales to the U.S. Government, Japanese companies modified the export versions of their cars to meet the emission standards. Although the Japanese Government requested that the car manufacturers employ the same controls on models sold in Japan, the companies refused to do so on the grounds that in the absence of domestic regulation, the increased price of emission controls might place them at a competitive disadvantage.

In 1967, the U.S. Public Health Service, the agency responsible for air quality prior to the creation of the Environmental Protection Agency (“EPA”), announced that five foreign car companies had met the standards to enable them to compete for sales to U.S. Government agencies and that two of these were Japanese companies — Toyota and Nissan. This announcement created a public furor in Japan, as Japanese citizens discovered that auto companies were manufacturing less-polluting cars for export than they were for the domestic market.

In 1970, the United States passed the Clean Air Act, establishing the

first comprehensive scheme dealing with air quality, including stringent limitations on car exhaust emissions. The Clean Air Act required a ninety percent reduction in emissions (from unregulated levels) of hydrocarbons and carbon monoxide by 1975 and of nitrogen oxides by 1976. An important feature of these standards, particularly from the view of technological innovation and international competitiveness, was that they were not technologically-based like many other U.S. regulations. Essentially, lawmakers set the standards based on the pollution reductions necessary to protect human health and the environment. No pollution control technology to achieve the standards existed at the time of their enactment. The idea was that the standards would be “technology-forcing” by encouraging the development of new technology in order to meet the requirements.

During this same time period, air pollution had become so severe in major Japanese cities that people had to stop periodically at local oxygen stations. The number of cases of respiratory illness, especially in the Tokyo to Osaka corridor, soared. An increasingly powerful and vocal citizens movement began to press for both air pollution regulation and compensation for health damage caused by pollution. In 1962, the Soot and Smoke Regulation Law was passed which provided for a study of potential emission limitations and controls on mobile source emissions.

As with so many public policy issues, mobile source pollution was propelled to the top of the Japanese political agenda at least partially due to the direct effect of car emissions on a politician. Japanese politicians frequently campaign from an open vehicle. While campaigning for election in 1963, a congressman became very ill from exposure to pollution from a truck driving in front of him. The congressman subsequently complained bitterly about his experience to the press and in the Diet. The experience turned out to be a common problem for campaigning congressmen; it was even alleged that several elderly congressmen had died shortly after the election due to pollution exposure during their campaigns.

In July 1970, high levels of lead in the blood of people living near major Japanese thoroughfares were reported, and this report, combined with the tremendous increase in other diseases caused by air pollution, created additional public outrage and concern. A public demand for a ban on lead gasoline caused the government to require a fifty percent reduction in the lead content of gasoline in 1972, with a total phase-out over a five-year period.

Also in 1972, the Japanese Environment Agency was created, and the newly-formed Agency began to study the U.S. auto emission standards. An advisory committee, consisting primarily of academic and medical experts, was established to provide advice to the Agency on the technical feasibility and appropriateness of adopting auto emission standards. After careful study, the Japanese Government decided to adopt the same standards and deadlines as the United States, with some adjust-

ments to account for differences in the certification procedures for prototype automobiles, traffic and driving patterns.

IV. IMPLEMENTATION OF THE EMISSION STANDARDS

In 1972, the United States and Japan had the same auto emission standards and deadlines. By February 1972, however, the U.S. Office of Science and Technology had issued a report concerning the effect of emission regulations on the cost of auto transport and advocating flexible enforcement of the standards in order to minimize the cost of auto production.

Meanwhile, during a 1972 meeting of the Air Management Section of the Organization for Economic Cooperation and Development ("OECD") in Tokyo, the press reported that two Japanese car companies, Mazda and Honda, had developed a car that could meet the 1975 standards for hydrocarbons and carbon dioxide. The U.S. delegation was shocked; they did not believe that the report was true and asked for documented verification. Mazda and Honda were small companies in comparison with Toyota and Nissan; for them, introducing a car which met the standards before the big car companies represented an opportunity to increase their market share.

Despite the news of the Japanese companies' ability to meet the standards, in April 1973, the United States postponed implementation of the 1975 standards until 1976. Key Japanese ministries with authority for enforcement of the emission standards, such as the Ministry of International Trade and Industry ("MITI"), carefully observed the situation in the United States. As might be expected, MITI is more industry-oriented than the Environment Agency and was looking for an opportunity to relax Japan's standards.

Politically, however, it was not feasible at this time in Japan to delay implementation of the 1975 hydrocarbon and carbon monoxide standards due to intense public pressure on the government. Therefore, the Japanese Government decided to implement the 1975 standards for hydrocarbons and carbon monoxide and study further the feasibility of meeting the 1976 standard for nitrogen oxide. The Japanese Government advised car companies to phase out production of models which would not be able to meet the 1975 standards.

Japanese car companies were watching the U.S. implementation of its auto emission standards, hoping that flexible enforcement in the United States would lead to the same action in Japan. Following the U.S. announcement that it would delay implementation of the 1975 standards, the auto industry began to lobby heavily for changing the 1976 deadline for the nitrogen oxide standard. To increase the likelihood of achieving this result, the car companies announced publicly that it would be technologically infeasible to meet the nitrogen oxide standard by 1976.

While Japan's central government was basically amenable to the

idea of relaxing the nitrogen oxide standard, local governments were not. The municipal governments of seven major cities — including Tokyo, Osaka and Kawasaki — had been elected on environmental platforms at a time of tremendous pollution, and the members of these governments were not of the same political party as central government members. Therefore, when the central government announced that it was not technically possible to meet the 1976 standard, the municipal governments formed their own council to study the situation. The municipal government council interviewed each auto company separately and determined that at least two of the companies were willing and able to meet the nitrogen oxide standard — not in 1976, but in the near future.

At the same time, it was revealed that the advisory committee which had been assisting the central government had allowed an industry representative to attend its meetings while denying the public access to information supporting the feasibility of meeting the nitrogen oxide standard. The central government's position was exposed as one based on political rather than technological concerns. A new committee was formed, and a new report was issued indicating that it was probably technically feasible to meet the nitrogen oxide standard.

Suddenly, in 1976, all of the Japanese auto manufacturers except Suzuki, which was experiencing problems due to its two cylinder engine, announced that they would be able to meet the nitrogen oxide standard within about a year. It was obvious that all of the companies had been developing emission reduction technology and had been waiting to see if they would be required to use it. The Japanese Government reacted by requiring all car companies to meet the nitrogen oxide standard by 1978, which they did.

Because the Japanese emission standards were technology-based, the means of achieving compliance varied among manufacturers and included engine modification, lean combustion, exhaust gas recycling and fuel injection. Each of these techniques also had the effect of making the car more fuel efficient. While reduced fuel efficiency had been a strong argument against imposing a stringent nitrogen oxide standard, overall fuel efficiency of Japanese cars increased thirty percent from 1976 to 1980.

In the meantime, the United States proceeded slowly, meeting the carbon monoxide standard in 1981 and the hydrocarbon standard in 1988. The 1990 Clean Air Act Amendments included a tough "new" nitrogen oxide standard: ninety percent reduction from unregulated levels — the same standard that had been enacted in 1970.

V. ENVIRONMENTAL REGULATION AND INTERNATIONAL TRADE

In November 1976, the OECD carried out a study on air emissions and auto exhaust and concluded, among other things, that the Japanese auto emission standards had not been enacted as a non-tariff trade bar-

rier, but were, in fact, necessary and reasonable to achieve the air quality goals of the Japanese Government. To avoid trade friction, however, the Japanese Government granted U.S. and European car manufacturers a three year grace period to meet the 1978 nitrogen oxide standard on cars being exported to Japan.

In 1976, the issue of whether the failure to implement auto emission standards which were protective of human health and the environment constituted an impermissible subsidy under the provisions of the General Agreement on Tariffs and Trade was not discussed.

Without citing well-known statistics about the global market share enjoyed by Japanese auto manufacturers, it is easy to conclude that Japanese industry was not disadvantaged by the imposition of stringent environmental regulations. In fact, the technological innovation required by the emission standards also resulted in greater fuel efficiency and better combustion, giving Japanese companies a competitive advantage, particularly against less fuel efficient American cars.

VI. CONCLUSIONS

Far from creating a disadvantage for the Japanese auto industry, the enforcement of stringent emission standards required companies to undertake technological innovation that in the long term resulted in a more competitive product. U.S. companies, on the other hand, in not being required to meet the 1970 standards, may have lost a crucial chance to keep pace with technological advances made by their Japanese counterparts.

The United States now has the opportunity to take a different approach than it did in the case of auto emission standards. For example, under the Framework Convention on Climate Change signed by the United States and most other industrialized countries at the 1992 Earth Summit, nations pledged to find ways to reduce their emissions of so-called "greenhouse gases" which are thought to cause serious changes in the Earth's climate. While the United States focuses on the costs of reducing carbon dioxide emissions generated by combustion of fossils, one of the major greenhouse gases, countries such as Germany and Japan are searching for ways to increase energy efficiency. Clearly, manufacturing processes using less energy will result in lower-priced, more competitive products in the future.

If the United States wants to compete in the global marketplace, its policymakers must begin to see environmental regulation not only from the perspective of short term costs, but also as a necessary element of a technologically competitive industry.

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