



## Higher Environmental Standards Can Enhance Competition and Welfare

by Y. Hossein Farzin

**E**NVIRONMENTAL quality has become a prime public concern worldwide. Not surprisingly, the improvement of environmental standards is high on public representatives' agenda. However, the public desire for higher environmental standards has usually met with severe resistance by domestic industrial groups and their lobbies. Underlying this resistance has been industry's claim that by raising abatement costs, higher standards raise the polluting firms' overall production costs, thus rendering them uncompetitive and forcing them out of business. On this basis, they also argue that the consequent reductions in the industry's output, employment, and competition will be against the public interest.

Recently, President Clinton supported new EPA recommendations to toughen health standards for ozone and fine soot, despite the opposition of industry. According to the Associated Press, industry groups are waging a multimillion-dollar campaign in Congress, within the administration, and in state capitals around the country, to rally opponents to the rule. "It's clearly up to Congress to prevent EPA from inflicting this harmful proposal on the American economy," said Jerry Jasinowski, president of the National Association of Manufacturers. The Associated Press also cited Charles DiBona, president of the American Petroleum Institute, who said the new pollution con-

trols will threaten "thousands of inner city jobs" by forcing businesses out of smog plagued areas without significantly improving health protection. "The punishing new standards. . . are a noose around the neck of American business," complained Thomas Kuhn, president of the Edison Electric Institute, which represents more than 200 utilities, many of whom will be key targets of new emission requirements.

Opposition by industry to increased environmental standards has been historic. A vivid example of this position is the opposition to the 1970 Clean Air Act by Lee Iacocca, then vice president of Ford Motor Company, who warned that "compliance with the new regulations would require huge price increases for automobiles, force U.S. automobile production to a halt after January 1, 1975, and do irreparable damage to the U.S. economy." Ironically, governments also often use the same argument when negotiating the adoption of higher international or global environmental standards.

An economic analysis was conducted on the effects of environmental standards on the profitability of industry both in the short-run and in the long-run. Since industry's claim may act as a significant force to dissuade policy makers from adopting higher national or international/global environmental standards, its validity was subjected to close economic scrutiny. The analysis shows that this claim is

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not generally valid because it relies only on the cost effect of a higher environmental standard and fails to take into consideration its demand increasing effect.

The study analyzes a simple economic model of a competitive industry, in which the production of a good by identical firms inflicts a negative environmental externality. Beside incorporating the positive demand effect of a higher environmental standard, which is crucial to the results obtained, a novel and desirable feature of the model studied is that it allows for the free entry and exit of firms. The study examines how an increase in the environmental standard affects each firm's output level, profitability, the number of firms in the industry, the industry's total output and total pollution emission. Although it should be recognized that what matters for policy is social welfare and not industry output *per se*, the issue is important.

A higher environmental standard implies that at any given output level, firms should abate a greater portion of pollution they emit. This, as industries commonly claim, increases the abatement cost of the representative firm and therefore its overall production cost. This "cost" effect of a higher environmental standard is basic to almost all economic analyses of environmental standards.

What is often ignored in the claim is the "demand" effect of a higher environmental standard. The demand effect is present either when (1) cleaner environment directly or indirectly complements the produced good (therefore having a positive feedback effect on its demand) so that a higher environmental standard practiced by the firms leads to an expansion of the industry demand, or (2) consumers' preferences for the environment are altruistic. Specifically, the consumer acts out of benevolence to promote the provision of a *public* good or service in the form of higher environmental quality or greater preservation of natural and environmental resources. The first demand effect is clear in the following examples:

- Agricultural runoffs in a river serving as source of fishing, drinking water, and irrigation in downland communities, reduce demand for upland farm outputs. The runoff inflicts costs on fishermen and downland farmers in the forms of reduced harvest rates and loss of both labor and land productivity, damages to farmers' health, or use of polluted water for irrigation. In turn, these negative externalities cause losses of income and hence a reduction in the affected population's demand for the uplands' agricultural outputs.
- Higher quality standards of urban air, water, and land (e.g., beaches and recreational sites) can attract a larger tourist population and hence boost the demand for tourist services. Although all firms in the

industry will benefit from higher environmental standards, in the absence of regulations they will free-ride on each other's standards.

Thus, whether indirectly (as in the first example) or directly (as in the second), environmental quality is complementary to the produced good. In both cases, lowering pollution has a *positive* feedback effect on the demand for the good. However, low pollution is a *public* good and hence is external to an individual producer.

The second justification for the demand behavior postulated above is an *altruistic* attitude of the representative consumer toward the environment. Altruistic actions (choices) may be manifested by a willingness to pay a higher price for a commodity if its production, distribution, or consumption involves less harm to the environment, thereby increasing the demand for the good. Or, it may be displayed by choosing to completely forego (boycott) the consumption of an environmentally harmful commodity, thereby reducing (or even cutting off) its demand. In either case, the consumer incurs a cost, but need not necessarily share in the benefits of his/her action. These benefits may well occur in far distant places (the boycott of hamburgers produced from cattle ranches in the Amazon Rain forests), or in the far distant future (switching to low emission or emission-free vehicles to mitigate the global warming effect of burning fossil fuels). The following are further examples:

- Consumer's preference for organic over conventionally produced agricultural products, where preference is derived not only from concern for the quality of the products, or food safety and health risks, but rather from the beneficial environmental effects associated with organic farming.
- Consumers' preference for cruelty-free cosmetics over the animal tested ones, for "eco-friendly" de-



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tergents, for CFC-free aerosols, for recycled paper, or by their aversion to electricity produced using nuclear generating technology.

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**rBST**—cont. from page 7

There were some interesting differences between those who were currently using rBST, or who used it in the past, and those who said they would consider using rBST in the future. Current and past users clearly had fewer if any concerns about public opinion or adverse prices and were mostly concerned about herd health and cost effectiveness. Prospective users of rBST, on the other hand, still had concerns about public opinion and adverse prices as well as herd health.

We asked each respondent who said they would consider using rBST in the future what single factor would play a major role in their decision to use rBST. A major proportion of them (45 percent) felt that they would only use it if economic forces compelled them to adopt it. That is, many producers felt that there were better ways of increasing herd productivity than using rBST, but they were not prepared to neglect the technology in their decision making; they would use it if they needed to in order to remain competitive. Another 26 percent of respondents said they would use rBST in the future if they could obtain a release from the affidavit they signed with their cooperative or creamery agreeing not to use it. The rest of the respondents gave a variety of reasons for considering using rBST in the future, including consumer acceptance, recommendation from the veterinarian, easier administration methods, and waiting until the issues had played themselves out.

### Conclusions

A panel survey of about 260 California dairy producers between 1987 and 1993 indicated a declining interest in using rBST immediately after it became available. Preliminary results of the survey (of the continuous sample) in 1994 and 1996 indicated that about 10 percent of the total California herd was currently being treated with rBST. Average milk yield response appeared to be about

11 percent. Therefore, rBST use in California in 1994 and 1996 probably resulted in an increase in milk production of less than 1 percent per year.

There was clearly still some uncertainty about rBST use among its current and future users. Concerns about public opinion and the effect on milk sales have diminished dramatically. However, current and prospective users still had concerns about the effect of rBST on the health of their herds, adverse prices as a result of increased milk production, and the cost effectiveness of the new technology.

Future use of rBST will depend largely on how producers adapt the new technology to their current management styles and the effect that it will have on their profit margins in the next 2-3 years. A 1997-98 study is in progress, in which a greater number of dairy producers are included in the survey.

### Publications Cited

The citation numbers below correspond to those used in the text.

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2. Butler, L.J. and G. Cohn. The Economics of New Technologies in Dairying: BGH vs. Rotational Grazing. Chap. 5 in *The Dairy Debate*. W.C. Liebhardt, ed. Davis: University of California, Sustainable Agriculture Research and Education Program, 1993.

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A higher environmental standard in the short-run can increase firms' profitability and scale. In the long-run it can encourage more firms to enter the industry than would be the case with a lower standard, and, despite the possibility of lowering each firm's output level, expand the industry's aggregate supply. Importantly, these positive effects can be obtained in addition to improvements in environmental quality and increased social welfare.

The analysis shows that each firm must achieve a *minimum* amount of pollution abatement to stay in the

market. That amount is higher in *less* efficient industries.

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