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EDITORIAL

Automotive Fuel Efficiency

During this century the automobile has had a key role in shaping where people live and work. To live comfortably today most people feel that they must have the mobility a car can provide. They also like the sense of power and freedom they feel while driving. The relation between owner and vehicle has often been described as infatuation. For the foreseeable future, this situation will continue, but there are clouds on the horizon. It can be argued that motor vehicles are responsible for the U.S. negative balance of trade. Dependence on imports of fuel for these vehicles creates a national security problem. Moreover, trucks and automobiles are sources of local air pollution and of a greenhouse gas (CO_2). They are involved in more than 40,000 deaths each year. Traffic snarls and delays during urban rush hours are annoying and continue to increase.

For at least the remainder of this century, the United States faces a growing dependence on imported oil. Costs are substantial, and they will mount. In June 1992, net imports provided nearly 50% of supplies, and their cost was $4.3 billion. Cost of net imports of motor vehicles and parts amounted to $3.0 billion. The two items combined totaled more than the negative trade balance of $6.6 billion. The light-duty highway fleet alone accounted for 38.2% of U.S. oil consumption in 1988. Correspondingly, the fleet was a substantial emitter of air pollutants—NO_x, CO, and nonmethane hydrocarbons. In addition, it was a major source of CO_2. The twin problems of oil imports and pollution would be ameliorated if the fuel economy of cars and trucks could be improved and their emissions were also reduced. Both the Congress and the Administration have sponsored studies on the matter.*

In principle, the mileage of U.S. automobiles could be substantially improved. But on purchasing a car, U.S. buyers rank fuel efficiency eighth when making their choice. They are attracted to options that lower mileage. Among them are ability to accelerate rapidly from 0 to 60 miles per hour. Four-wheel drive adds 150 to 200 pounds; anti-skid brakes add 30 to 45 pounds; air bags add another 30 to 45 pounds. Consumers also tend to prefer large cars over small ones for reasons of safety. Increasingly, buyers are purchasing light trucks and vans that have inferior fuel efficiency. As a result of the above trends, the average mileage of the U.S. automotive fleet has been diminishing. As long as fuel is available at comparatively low prices and there is no federal requirement for better mileage, improvement is unlikely. Moreover, even if improvements were mandated, change would be slow. The time required by the U.S. auto industry to design, test, and make other preparations for production of a new model is about 5 years. Designs of models that will be built in 1996 are already established. Once a new model is launched, car makers need about 8 years of production to recover investments.

More efficient cars are being designed and built to meet market demand in countries where costs of fuel are much higher than in the United States. For example, the 1992 Honda Civic has a city fuel economy (miles per gallon) of 53 and a highway fuel economy of 67. The U.S. companies that build cars in Europe, where fuel costs are high, are also producing more fuel-efficient vehicles there than they sell in the United States. Their designs for the U.S. market are based on estimates of consumer preferences and are shaped by federal actions.

Air pollution regulations formulated to minimize emissions of NO_x, CO, and nonmethane hydrocarbons will impact U.S. car design. They will tend to increase weight and lower fuel efficiency. They may forestall use of efficient diesel and other engines because of difficulty in meeting tight NO_x standards. Before regulations are carried to extremes, high-polluting, gas-guzzling older cars should be removed from the transport fleet.

Despite obstacles to improving automotive fuel efficiency, an effort should be made to accomplish it. One method that has been proposed would be federal action to mandate an increase in the Corporate Average Fuel Efficiency. This could be made effective only slowly if the domestic auto industry is to survive. Consumers also might not be quick to buy the new vehicles if they lacked luxury features. A second method would be to schedule an expanding federal fuel tax. Opposition to such a move might be lessened if the revenues were allocated to creating alternative fuels and to cutting the federal debt.

Philip H. Abelson

*U.S. Congress, Office of Technology Assessment, *Improving Automobile Fuel Economy: New Standards, New Approaches,* OTA-E-504 (U.S. Government Printing Office, Washington, DC, October 1991); "Automotive fuel economy: How far should we go?" (National Academy Press, Washington, DC, 1992).