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AUTO CAFE STANDARDS: UNSAFE AND UNWISE AT ANY LEVEL

INTRODUCTION

Reacting to America's alleged excessive dependence on Middle East oil and to last fall's gasoline price increases, Congress is considering raising the Corporate Average Fuel Economy (CAFE) standards, which mandate average minimum miles per gallon (mpg) for the fleet of automobiles sold in America by each manufacturer. The "Motor Vehicle Fuel Efficiency Act" (S. 279), introduced by Senator Richard Bryan, the Nevada Democrat, would increase the current 27.5 mpg standard to approximately 34 mpg by 1996 and approximately 40 mpg by 2001.[1]

Supporters maintain that this increase is necessary to reduce America's fuel consumption. The recent fall in oil prices, however, removes a major reason given for higher CAFE standards. In any case, to meet higher CAFE standards American manufacturers will be forced to produce more smaller, lighter and therefore less safe cars. As it is, the current CAFE standards result in as many as 3,900 additional highway deaths per model-year fleet. The higher CAFE standards sought by the Bryan bill would force Americans truly to pay in blood, increasing the number of highway deaths attributable to CAFE by as much as 8,600 per model-year fleet.

Thousands Out of Jobs. Nearly as bad is what the Bryan bill will do to American auto workers. To meet the Bryan CAFE standards and compete with foreign automakers, American manufacturers will have to transfer operations

1 See *News from the U.S. Senate Committee on Commerce, Science and Transportation*, 102nd Cong., 1st Sess., March 19, 1991, p. 2. The bill would require each manufacturer to raise its own fleets' mpg averages to 20 percent by 1996, and then 40 percent by 1996, over the levels actually achieved in the 1988 model year. Since different manufacturers had different fleet averages in 1988, the law no longer would apply the same standards to all manufacturers after 1996; some would have to increase their fleet averages more than others.

from the United States to overseas plants. This will throw tens of thousands of American automakers out of their jobs. Next will come American workers supplying steel and auto parts who too would find themselves on the unemployment line.

Consumer Choice. Because the CAFE law looks only at average fuel economy, with the averages based on the number of cars sold, American automobile manufacturers actually can be penalized for producing more fuel-efficient cars. As American firms have produced more fuel-efficient mid-sized and large cars, many consumers have switched to these vehicles from smaller models. But given the peculiar way in which CAFE compliance is measured, such consumer choices can lower the fleet average for American manufacturers, even if the mpg for every individual model goes up.

The Bryan bill would not greatly reduce American fuel consumption or America's alleged dependence on foreign oil. It would not be effective at reducing pollution or at inducing Americans to drive less.

If energy prices rise and stay high, this itself will give consumers an incentive to purchase more fuel-efficient cars and give auto manufacturers an incentive to produce such vehicles. If fuel prices remain low, however, it does not make sense to force American manufacturers to produce cars that consumers do not need or want. If consumers decide they would rather have larger and hence safer cars, even if these cars get fewer miles per gallon of gasoline, manufacturers should not be prevented from selling these cars. The tradeoff between the safety of a vehicle and its fuel efficiency properly is the choice of each individual American, not the choice of Congress.

ORIGINS OF CAFE

The 1973 Arab oil embargo and the ensuing quadrupling of oil prices by the Organization of Petroleum Exporting Countries (OPEC) prompted Congress to enact the Corporate Average Fuel Economy (CAFE) program in 1975 as part of America's Energy Policy and Conservation Act. The aim of this program was to reduce the consumption of gasoline and thus the need for oil imports. Beginning with the 1978 auto model year, the program required all auto manufacturers to maintain certain minimum fuel economy averages for their fleets of vehicles sold in the U.S. The standard for passenger cars was set initially at 18 miles per gallon in 1978, but since has risen to the current 27.5 mpg.

The CAFE standards apply to any manufacturer, domestic or foreign, that sells over 10,000 cars per year in America. These manufacturers must satisfy CAFE requirements for each of several vehicle categories. For instance, vehicles manufactured abroad are considered separately from those manufactured in the U.S. Thus, a manufacturer with a 30 mpg average for its combined output of foreign and domestically produced passenger automobiles nonetheless would fall short of CAFE requirements if its domestically built passenger cars taken separately averaged only 25 mpg. The standards are the same for foreign and domestic fleets, but different standards apply to different types of vehicles. A lower mpg level is

required for light trucks, for example, whether foreign or domestically produced, than for passenger vehicles.

The mpg performance of each model vehicle is calculated from the combined average of city and highway mileage, according to tests conducted by the Environmental Protection Agency. If a manufacturer's average for a particular fleet falls below the mandated levels, a penalty is imposed amounting to $5 per vehicle for each one-tenth of a mpg by which the fleet average falls below the required CAFE level. Significantly, the penalty applies to all cars sold in the fleet in question, not just the particular models that bring the average below the minimum level. Thus if a manufacturer produced one million cars per year and its fleet CAFE average was 27.4 mpg instead of 27.5 mpg, it would pay a fine of $5 million to the federal government. The Bryan bill would increase these penalties. Beginning with the 1996 model year it would: 1) index fines for inflation, and 2) double the fine for any manufacturer that failed to meet the applicable standard by one-half mile per gallon or more three years in a row.

It is questionable whether the 1970s CAFE standards did much to increase the fuel efficiency of American cars. What actually did boost mileage per gallon for American-made cars was the searing competition from the high mileage imports and the sustained high gasoline prices. In response to this, American manufacturers invested $88 billion to make their vehicles more fuel-efficient.[2] As oil prices dropped in the 1980s, the rate of fuel efficiency gain slowed. The reason: more Americans preferred larger cars.

CAFE KILLS

While conservation of fuel is valued by proponents of higher CAFE standards, they usually ignore what is more important: human life. The evidence now is overwhelming that CAFE kills. The reason is simple. The easiest way to increase a vehicle's fuel efficiency, and beyond a certain point the only way, is to reduce the vehicle's weight by reducing its size and its steel content. While technological improvements in engines or body design also contribute to increased fuel efficiency, there are limits to what technology alone can do. In fact, other federal regulations often limit such improvements. Controls on auto emissions, for example, have forced changes in engine and exhaust system design that reduce gas mileage.[3]

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2 Milton R. Copulos, "Why Auto Mileage Rules Should Be Relaxed," Heritage Foundation *Backgrounder* No. 426, April 23, 1985, p. 3.

3 Thomas Gale Moore, "The Unresolved Conflict Between Auto Safety and Fuel Efficiency," *Journal of Regulation and Social Costs*, Vol. 1, No. 1 (September 1990), p. 72.

Light-weight Cars. As such, reducing auto weight is the main means by which CAFE standards have been met. The weight of the average American automobile has been reduced 23 percent since 1974.[4] Cars over 4,000 pounds accounted for about one-quarter of all cars sold during the 1978 model year; they constitute only one percent of the cars built since 1984. Cars of more than 3,500 pounds made up over 70 percent of the 1978 fleet, but were only 36 percent of the 1987 fleet.[5]

While some car weight reduction would have occurred without CAFE, the standards have had a significant effect in recent years. According to a study by economists Robert Crandall of the Brookings Institution and John Graham of the Harvard School of Public Health, the average weight of passenger automobiles for the 1989 model year is about 500 pounds less than it would have been without CAFE regulations.[6] Raising the CAFE standard still further will force additional weight reductions, especially since many of the technological improvements that can increase fuel economy have already been made.

This decline in vehicle weight reduces safety. Crandall and Graham explain that "the negative relationship between weight and occupant fatality risk is one of the most secure findings in the safety literature."[7] Today's cars have less steel in their frames and bodies to absorb the force of a collision. Furthermore, with their narrower wheelbases they are more prone to turn over in an accident. The result: More accidents each year produce major injuries and deaths.

Increasing Fatalities. Crandall and Graham estimate that the 500-pound decrease in vehicle weight caused by the current CAFE standard of 27.5 mpg already has increased the number of occupant fatalities that will occur over the life of each model year's cars between 14 percent and 27 percent. This amounts to between 2,200 and 3,900 additional deaths per model year, spread out over the lifetime of the vehicles. Crandall and Graham also estimate that an additional 11,000 to 19,500 serious injuries are likely to occur over the life of each model year's cars because of the current CAFE standards.[8]

These additional deaths and injuries already are occurring because of the existing CAFE standards. Raising the standards further will add to the CAFE death and injury toll. Based on his study with Graham, Crandall estimates that the sub-

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4 Robert W. Crandall and John D. Graham, "The Effect of Fuel Economy Standards on Automobile Safety," *Journal of Law and Economics*, Vol. XXXII (April 1989), p. 101.

5 R.M. Heavenrich, et al., "Light-Duty Automotive Fuel Economy and Technology Trends Through 1987," Society of Automotive Engineers, Inc., *Technical Papers Series*, May 1987, p. 12.

6 Crandall and Graham, *op. cit.*, pp. 100-110.

7 *Ibid.*, p. 110.

8 *Ibid.*, pp. 111-116.

stantial weight and steel-content reductions that would be needed to achieve a fleet-wide average of 40 mpg would raise the CAFE death toll to between 4,800 and 8,600 deaths per model year fleet.[9]

Penalizing Safety. Some defenders of CAFE argue that these weight reductions can be offset by other safety measures such as air bags. Yet while a small car with an air bag might be safer than such a car without one, it still will not be as safe as a large car with an air bag. The weight reductions necessitated by CAFE tend to neutralize the benefits from air bags and other safety measures. By one estimate, adding air bags to a car is equivalent, from a safety standpoint, to increasing the car's weight by about 385 pounds.[10] Yet CAFE has led to average vehicle weight reductions of about 500 pounds. Moreover, air bags, anti-lock brakes, improved bumpers, and other safety features also increase vehicle weight and hence also reduce fuel economy. Higher CAFE standards would punish auto makers for introducing similar lifesaving improvements in the future if the improvements would make cars heavier.

The Department of Transportation's National Highway Traffic Safety Administration (NHTSA) has conducted several studies that confirm a significant relationship between vehicle size and the incidence of death or serious injury.[11] NHTSA Administrator Jerry Curry, Transportation Secretary Samuel Skinner, and Energy Secretary James Watkins on safety grounds have criticized proposals to raise CAFE standards further. Watkins has called Bryan's bill the "Highway Death Act of 1991."

Even self-proclaimed consumer advocate Ralph Nader's Center for Auto Safety in 1972 observed that "Small size and light weight impose inherent limitations on the degree of safety that can be built into a vehicle."[12] Nader, who does not own a car himself but is an ardent supporter of the Bryan bill, conceded in an interview in 1989 that "larger cars are safer" because "there is more bulk to protect the occupant."[13]

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9 See testimony of Competitive Enterprise Institute and Consumer Alert (Sam Kazman) before the Subcommittee on Water, Power, and Offshore Energy Resources of the House Committee on Interior and Insular Affairs, 101st Cong., 2nd Sess., September 11, 1990, p. 4.

10 Leonard Evans, "Passive Compared to Active Approaches to Reducing Occupant Fatalities," General Motors Research Laboratories, March 1989, p. 7.

11 Two such studies are reported together in *Effect of Car Size on Fatality and Injury Risk in Single-Vehicle Crashes* U.S. Department of Transportation, National Highway Traffic Safety Administration, August 1990.

12 Center for Auto Safety, *The Nader Report: Small – on Safety* (New York: Grossman Publishers, 1972), p. 87.

13 Rebecca E. Greer, "Be Safer in the 90's: New Warnings from Ralph Nader," *Woman's Day*, October 24, 1989, p. 32.

CAFE COSTS AMERICAN JOBS

The CAFE standards already have cost over 200,000 American jobs. CAFE will cost more if the Bryan bill becomes law. By making new cars more expensive, CAFE reduces the demand for new cars. Studies indicate that a 10 percent increase in the price of large cars decreases their demand by 30 percent.[14] New car sales thus would slide, and along with them the jobs of American autoworkers. More jobs would be destroyed by the shift to those small cars that meet Bryan CAFE levels, since small cars require less labor per car built than large cars.

Shifting Production Overseas. Higher CAFE standards, moreover, would prompt American manufacturers to shift their large car production overseas, cutting their U.S. payroll and employing more foreign workers. This is because the CAFE law divides each manufacturer's production into two separate fleets, domestic-made and foreign-made, with each fleet required to meet the CAFE requirements independently. Because U.S. manufacturers already build many of their smaller cars overseas, it is even more difficult for them to meet the CAFE requirements with their domestic fleets. By moving some of their large car production abroad, they would be able to offset the lower fuel economy of their larger cars with the higher fuel economy of their smaller and lighter foreign cars. At the same time, moving production of larger cars abroad would raise the average fuel economy of their domestic fleet.

In a similar fashion, CAFE also forces foreign auto manufacturers with American assembly plants to purchase parts from abroad. To be classified as a foreign car, at least 70 percent of the total price of a vehicle must consist of value added outside the U.S. Since their American-built cars tend to be larger and incapable of meeting CAFE standards by themselves, these manufacturers have to keep their U.S.-built cars classified as foreign for CAFE purposes.

Then, by reducing domestic auto production of U.S. and foreign auto companies, CAFE eliminates jobs in industries that supply the auto industry. The impact of higher CAFE standards on the steel industry would be especially pronounced since reducing the steel content of cars is the easiest way to increase fuel economy.

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14 See Andrew N. Kleit, *The Impact of Automobile Fuel Economy Standards*, Federal Trade Commission Working Paper No. 160 (February 1988), Technical Appendix, p. 3.

CAFE PENALIZES EFFICIENCY

CAFE is not calculated on the basis of fuel efficiency improvements model-by-model, but rather on the average efficiency of all autos sold.[15] As a result, changes in customer choices can place a manufacturer in violation of the CAFE standards even though every car in its fleet may be more fuel-efficient than the year before.

Because auto makers have increased significantly the fuel economy of their larger cars over the past decade, and because oil and gasoline prices have fallen sharply during the same period, more Americans are again buying larger, safer cars. And yet, although automobiles of all sizes are more fuel-efficient now than they were in the past, this shift in consumer demand from smaller to larger cars brings down the fleet average mpg of American manufacturers. Thus, because the CAFE formula takes the ability to comply out of the hands of the manufacturers, the CAFE standards can actually have the perverse effect of penalizing American auto manufacturers for the efficiency gains they have made in the past.

Bizarre Situation. American auto manufacturers are in the bizarre situation of having to protect themselves against the wishes of their own customers. If a manufacturer allows its customers to buy too many efficient but large cars, the manufacturer will end up in violation of the CAFE standards. To prevent this, auto makers change the "mix" of cars they sell by increasing the prices of larger cars and lowering the prices of smaller cars.[16] In effect, CAFE acts as a tax on larger, safer cars which is used to subsidize sales of smaller, higher-mpg, but less safe cars.

This skewed pricing system imposes burdens on consumers because it limits their ability to purchase the cars of their choice. As a result, many legitimate desires or needs of consumers can go unfulfilled. Large families, for example, may need a large car. Older citizens often prefer larger cars because they are easier to enter and exit. CAFE standards make it more expensive for these buyers to exercise their choices. In this way, CAFE and the Bryan bill penalize large families and the elderly.

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15 The averaging method currently used by the EPA counts low-mpg cars more heavily than high-mpg cars, making it even harder for manufacturers to achieve their fleet-wide targets. Thus, if two cars are sold, one of which gets 20 miles per gallon and the other 40 miles per gallon, the average for the two is not 30 under the EPA method but 26.7 See Insurance Institute for Highway Safety, *Status Report*, Vol. 25, No. 8 (September 8, 1990) p. 5.

16 For evidence that automakers actually do this, see, e.g., *Competitive Enterprise Institute v. NHTSA*, 901 F.2d 107, 124-25 (D.C. Cir. 1990) (Ginsburg, J., concurring).

Recreational users also would suffer from an increase in CAFE standards. This is because reducing engine horsepower can increase fuel economy. And yet, large engines are needed for trailer hauling, off-road driving, and other recreational uses.[17]

CAFE IS UNNECESSARY FOR ENERGY CONSERVATION

The average fuel economy average of new cars sold in America has risen substantially, from about 20 mpg in 1978, when CAFE first took effect, to about 28 mpg in 1987.[18] CAFE supporters point to this as evidence of CAFE's success. In truth, CAFE had little to do with this dramatic improvement. The evidence shows that fuel economy rose as the market responded to high fuel prices.

Indeed, the average fuel efficiency of cars driven in America began to increase before CAFE standards were enacted. In the four years before CAFE took effect, new car fuel efficiency rose 40 percent.[19] When gasoline prices climbed from 36 cents per gallon of regular leaded gasoline in 1972 to 53 cents per gallon in 1974,[20] consumers began to demand more efficient automobiles. No federal regulation was needed to tell auto makers to improve fuel economy – the market was sending an unmistakable signal. Thus when CAFE went into effect in 1978, its mandated 18 mpg standard was below the average at the time of almost 20 mpg.[21]

From 1978 through 1982 new car mpg averages improved by another 35 percent[22] as the average price of leaded gasoline reached a high of $1.31 per gallon (or $1.88 in today's dollars) in 1981.[23] According to research by Brookings economist Crandall, these efficiency improvements were almost exactly what could have been predicted from changes in gas prices alone.[24]

Restricting the Market. Predictably, too, fuel efficiency improvements in new model cars slowed somewhat after oil prices began declining in 1982. This is because of the greater demand for larger, more comfortable, and safer cars. Even so, the average mpg still increased another 8 percent after 1982.[25] But with lower

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17 Engine power can sometimes be a safety factor as well. Some minimum degree of engine power is needed to be able to accelerate quickly enough to get out of the way of oncoming traffic and to get across railroad intersections quickly and safely. See, e.g. Center for Auto Safety, *op. cit.*, p. 73.

18 James L. Gattuso and Kent Jeffreys, "The Mounting Dangers of the 'CAFE' Mileage Standards," Heritage Foundation *Backgrounder* No. 676, October 13, 1988, p. 4.

19 *Ibid.*

20 U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 1987,* p. 145.

21 Gattuso and Jeffreys, *op. cit.*, p. 4.

22 *Ibid.*

23 *Annual Energy Review 1987, op. cit.*, p. 145. Conversion to 1990 dollars based on *Economic Report of the President, 1991,* Appendix B, Table B-58, p. 351.

24 Robert W. Crandall and Theodore E. Keeler, "Public Policy and the Automobile," in Richard L. Gordon, Henry D. Jacoby, and Martin Zimmerman, eds., *Energy: Markets and Regulation* (Cambridge, Mass: MIT Press, 1987).

25 Gattuso and Jeffreys, *op. cit.*, p. 4.

gasoline prices, and the resulting increase in demand for larger cars, the CAFE standards finally began to restrict the car market, preventing auto makers from responding to the turnaround in consumer demand. Instead of simply selling more large cars, as their customers wanted, manufacturers raised the prices of larger cars to avoid selling too many of them and thereby running afoul of the CAFE standards.[26]

CAFE DOES NOT SIGNIFICANTLY REDUCE FUEL CONSUMPTION

Advocates of higher CAFE standards apparently reckon that if cars get more miles per gallon of gas, people will burn less gas driving the same number of miles. But, by reducing the number of gallons of gas needed to drive a given distance, CAFE makes driving less expensive. Americans have responded to this as would be expected; they drive their cars more miles. Greater fuel efficiency prompts more leisure driving and discourages car pooling and the use of public transportation.

At the same time, CAFE makes new cars, particularly large models, more expensive to buy. Thus it creates an incentive for those who want the comfort, convenience or safety of a larger car to keep their older cars longer. Others buy used instead of new cars. Yet, older cars are generally less fuel-efficient than new ones. The result is that these drivers use more gasoline in a year than they would have if they had been allowed to buy the kind of car they wanted at a price they could afford.

It thus is questionable whether increased CAFE standards would reduce American gasoline and oil consumption significantly. If the standards did reduce oil consumption, moreover, they would increase the share of oil that America imports. The reason: when demand falls, it is the marginal, highest-cost suppliers that drop out of the market. Since American oil producers face substantially higher costs per barrel than producers in other parts of the world, the Americans would be forced to stop selling oil if the Bryan bill were to succeed in reducing U.S. oil consumption.[27]

NO ENVIRONMENTAL IMPROVEMENT

Some advocates of higher CAFE standards maintain that cars with higher mpg will pollute less. But by inducing drivers to keep older, less efficient cars longer, CAFE may increase total emissions of pollutants by delaying the introduction of newer cars with cleaner-burning engines and exhaust systems.

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26 See note 17, above.

27 In fact, the percentage of oil imported has no connection with "dependence" on foreign oil. See, e.g., Victor A. Conto, "It's BTU-tiful: Energy Markets in the New Era," A.B. Laffer Associates, September 8, 1987.

CAFE represents, moreover, an indirect and very ineffective approach to controlling pollution. If Congress wants to protect the environment, it can do so at a much lower cost to consumers and the economy by adopting measures that target auto emissions directly.

Studies have shown, for example, that approximately half of all auto emissions are produced by only 10 percent of all cars, most usually poorly tuned.[28] A properly-tuned car puts out less emissions than an untuned one, even if both are driven the same distance, use the same gasoline, and have the same mpg. CAFE provides no incentive to keep engines in tune nor does it help to get high-pollution vehicles off the road. A much better approach would be to measure periodically the exhaust each car produces and levy a fee directly on the worst polluters.

Higher CAFE standards sometimes are defended as a way to deal with the alleged problem of "global warming." The fear is that increased concentrations in the atmosphere of what are called "greenhouse gases," such as carbon dioxide and chlorofluorocarbons (CFCs) supposedly will warm up the Earth's atmosphere, causing droughts in some areas and coastal flooding in others. But automobiles are a relatively minor source of these greenhouse gases. While an "Intergovernmental Panel on Climate Change" and the U.S. Environmental Protection Agency have estimated that at least a 50 percent to 80 percent worldwide reduction in carbon dioxide emissions would be needed to keep the atmosphere's temperature at its current level,[29] the Bryan bill would reduce such emissions by only about 0.5 percent, even under the most optimistic assumptions.[30]

CONCLUSION

An increase in CAFE standards is a poor way to deal with the alleged problem of high fuel consumption. The bill introduced by Senator Richard Bryan uses a regulatory, "command-and-control" approach that fails to balance the need for more energy-efficient cars with consumer demands. It ignores the market forces which in the past did increase fuel efficiency. What is worse, higher CAFE standards would not achieve any of their ostensible purposes. They would not significantly reduce American fuel consumption or America's alleged "dependence" on foreign oil. They would not reduce pollution, nor have any significant effect on the alleged global warming problem.

Tragic Consequence. At the same time, the Bryan bill would reduce the range of choices available to American car buyers while requiring them to pay substan-

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28 See, e.g. "Roadside Emission Test Targets Prime Offenders," *Chemecology*, November 1990, pp. 10-11; Rick Henderson, "Going Mobile," *Reason*, August/September 1990, pp. 32-36

29 See Office of Technology Assessment, U.S. Congress, *Changing by Degrees: Steps to Reduce Greenhouse Gases* (Washington, D.C.: U.S. Government Printing Office, 1991), p. iii.

30 This figure is calculated from data given in *ibid.*, pp. 5, 7, 8, 21.

tially more for their cars. The bill also would reduce the number of American jobs, first in the auto and steel industries, and then in other sectors that serve the auto industry. Most tragic, by forcing manufacturers to sell lighter and smaller cars than customers want, the Bryan Bill would increase major injuries and deaths on the highways.

If Congress wants to foster energy conservation, it simply should allow the price system to operate freely. As long as Congress does not reimpose price controls on gasoline and other petroleum products, as it did in the early 1970s, market prices will provide consumers with the proper incentive to conserve.

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