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New Vehicle Characteristics and the Cost of the Corporate Average Fuel Economy Standard

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Recent legislation has increased the Corporate Average Fuel Economy (CAFE) standard by 40 percent, which represents the first major increase in the standard since its creation in 1975. Previous analysis of the CAFE standard has focused on the short-run effects (1-2 years), in which vehicle characteristics are held fixed, or the long-run effects (10 years or more), when firms can adopt new power train technology. This paper focuses on the medium run, when firms can choose characteristics such as weight and power, and have a limited ability to adopt technology. We first document the historical importance of the medium run and then estimate consumers' willingness-to-pay for fuel efficiency, power, and weight. We employ a novel empirical strategy that accounts for the characteristics' endogeneity, which has not been addressed in the literature, by using variation in the set of engine models used in vehicle models. The results imply that an increase in power has a similar effect on vehicle sales to a proportional increase in fuel efficiency. We then simulate the medium-run effects of an increase in the CAFE standard. The policy reduces producer and consumer welfare and causes substantial transfers across firms, but the effects are significantly smaller than in the short run.