

Abstract:

Goodhart's law suggests that when an economic measure becomes the target of regulation, its measurement accuracy is eroded by strategic manipulation. We model a regulator who seeks to correct for externalities in such a setting. In our model, prior to the introduction of policy, a firm that strategically manipulates ratings will alienate consumers and lose market share once manipulation is revealed. Once policy has been introduced, however, consumers experience private benefits from manipulation, which aligns the interests of the consumer and firm against that of the regulator. This eliminates the market's self regulation and can induce gaming. We then consider an empirical application from environmental regulation, specifically the regulation of carbon emissions from automobiles in the European Union. We document a sea change in the reliability of laboratory-based carbon emissions ratings that coincided with the roll out of stringent regulations based on these test ratings. Using panel data on 18 million fuel station visits from thousands of drivers, we estimate that the difference between on-road fuel consumption and official laboratory tests increased tenfold, from 5% before the regulation to more than 50% by 2014. This implies that 75% of the improvement in fuel economy attributed to the new regulation is in fact due to gaming. At a social cost of carbon of \$40 per ton, the program generates \$1.2 billion less in carbon mitigating benefits than a naive estimate would suggest. The carbon emissions tests are also the basis of consumer-facing fuel consumption ratings on new vehicle stickers and advertising. We use a demand model to calculate lost consumer surplus from the erosion of reliable information about vehicle fuel consumption. Where consumers are unaware of the manipulation of the test ratings, welfare losses can easily exceed \$1 billion per year.