Externalities of Policy-Induced Scrappage The Case of Automotive Regulations

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Many transportation policies indirectly affect vehicle travel and resulting externalities by inducing changes in vehicle scrappage rates. We leverage the staggered removal of state-level safety inspection programs across the United States within an instrumental variables (IV) framework to produce the first estimates of the fleet-size elasticities of fleet travel distance and gasoline consumption. Our first-stage estimates indicate that the removal of safety inspections caused a 3-4% increase in fleet size on average. Our IV estimates of the fleet-size elasticities of fleet travel distance and gasoline consumption have 95% confidence sets that imply rejection of an assumption commonly used in prior analyses that these elasticities are equal to one. Calculations based on fleet-size elasticities of one result in substantial overestimates of the externality costs from increases in travel and fuel use from delays in scrappage due to the removal of safety inspections.

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