

A Simple Method for Bounding the Elasticity of Growing Demand with Applications to the Analysis of Historic Antitrust Cases

By WALLACE P. MULLIN AND CHRISTOPHER M. SNYDER

Online Appendix

This online appendix contains supplementary exhibits omitted from the published paper for space considerations. This appendix is labeled D, following Appendixes A–C included in the published paper.

TABLE D1—UPPER BOUNDS ON ELASTICITY OF DEMAND FOR LOW-DENSITY POLYETHYLENE UNDER ALTERNATIVE SPECIFICATIONS

| Year | Linear demand | | | | Logit demand | | | |
|------|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | Quantity: Prices: Dropped: | Sales Nom. 1963 | Prod. Nom. None | Sales Real 1963 | Sales Nom. 1962 | Sales Nom. 1963 | Prod. Nom. None | Sales Real 1963 |
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| 1958 | 2.50 | 2.47 | 2.29 | 2.17 | 1.98 | 1.96 | 1.82 | 1.65 |
| 1959 | 0.09*** | 0.26** | 0.08*** | 0.09* | 0.09** | 0.26** | 0.08*** | 0.09* |
| 1960 | 0.08 | 0.23 | 0.07 | 0.08 | 0.08 | 0.23* | 0.07 | 0.08*** |
| 1961 | 0.61*** | 0.48*** | 0.55* | 0.61*** | 0.66** | 0.51* | 0.60*** | 0.66* |
| 1962 | 0.68* | 0.61*** | 0.61*** | — | 0.79*** | 0.69*** | 0.70** | — |
| 1963 | — | 0.52*** | — | 0.44* | — | 0.60*** | — | 0.49** |
| 1964 | 0.52*** | 0.49*** | 0.46*** | 0.52* | 0.64*** | 0.60*** | 0.56*** | 0.64 |
| 1965 | 0.57*** | 0.59*** | 0.48*** | 0.57** | 0.72*** | 0.76 | 0.60*** | 0.72** |
| 1966 | 0.64*** | 0.18*** | 0.54*** | 0.64*** | 0.62*** | 0.18*** | 0.53*** | 0.62*** |
| 1967 | 0.49*** | 0.15*** | 0.41*** | 0.49*** | 0.51*** | 0.15*** | 0.42*** | 0.51*** |
| 1968 | 0.42*** | 0.42*** | 0.32*** | 0.42*** | 0.60*** | 0.50*** | 0.44*** | 0.60*** |
| 1969 | 0.44*** | 0.45*** | 0.31*** | 0.44*** | 0.66*** | 0.68*** | 0.44*** | 0.66*** |
| 1970 | 0.44*** | 0.49*** | 0.08*** | 0.49*** | 0.78** | 0.78* | 0.08*** | 0.78** |
| 1971 | 0.49*** | 0.50*** | 0.08*** | 0.49*** | 0.79** | 0.82 | 0.08*** | 0.78** |
| 1972 | 0.49*** | 0.50*** | 0.29*** | 0.49*** | 0.84* | 0.86 | 0.46 | 0.84* |

Note: All specifications use method incorporating local information. Results are upper bounds on demand elasticity assuming linear or logit under four alternative specifications. Baseline specification in (1) uses sales for the quantity variable, nominal prices, and drops 1963 to preserve the condition that $SW^+ = \emptyset$ for all e_t , necessary for Assumption 4 to hold. Specification (2) is the same as (1) except uses production rather than sales as quantity variable. With this alternative quantity variable, there is no longer need to drop a year because the condition that $SW^+ = \emptyset$ —necessary for Assumption 4 to hold—is no longer violated for any t . Specification (3) is the same as (1) except uses real rather than nominal prices, deflated by the Consumer Price Index. Specification (4) is the same as (1) except drops 1962 rather than 1963 to preserve the condition that $SW^+ = \emptyset$ for all e_t . Significantly less than 1 in a one-tailed test at the *ten-percent level, **five-percent level, ***one-percent level based on the Zelterman (1993) bootstrap.

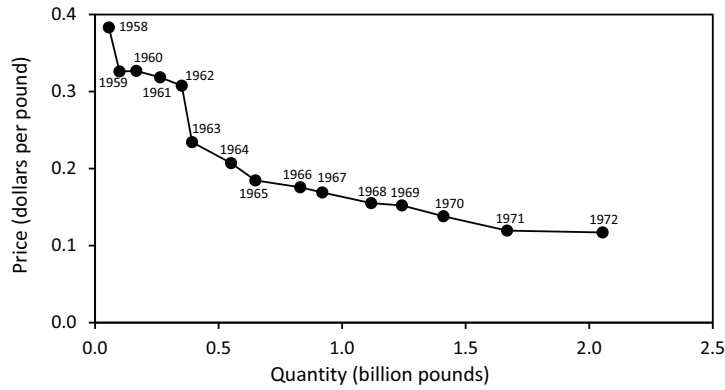


FIGURE D1. EVOLUTION OF EQUILIBRIUM IN THE HIGH-DENSITY POLYETHYLENE MARKET

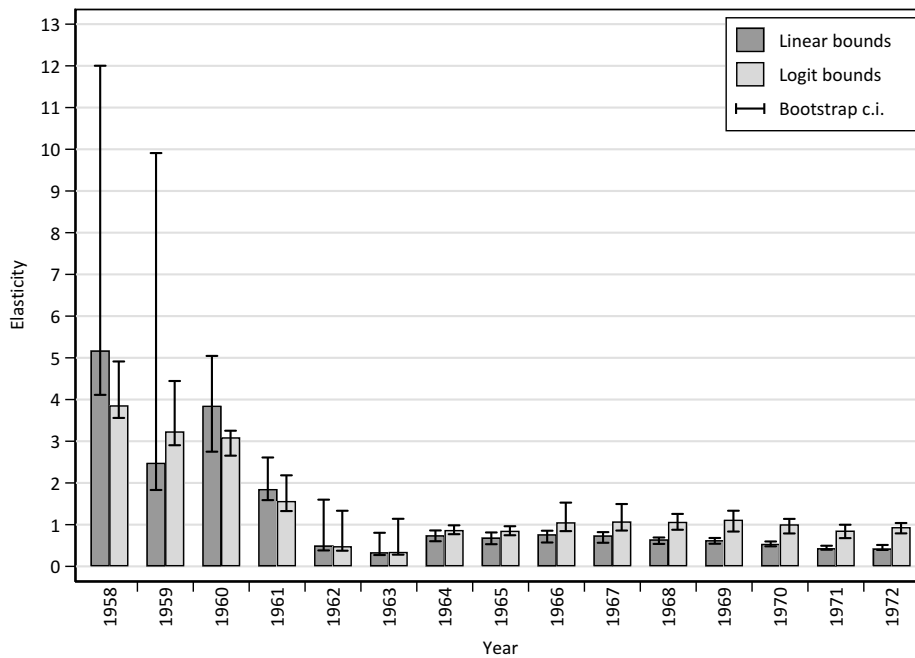


FIGURE D2. ELASTICITY BOUNDS FOR HIGH-DENSITY POLYETHYLENE.

Note: Uses method incorporating local information, sales data for quantity, and nominal prices. With this product, there is no longer a need to drop any years because the condition that $SW^+ = \emptyset$ —necessary for Assumption 4 to hold—is no longer violated. Shaded bars are bounds on the demand elasticity assuming linear demand (dark bars) or logit demand (light bars). Whiskers are 90% two-sided confidence intervals on the upper elasticity bound based on the Zelterman (1993) bootstrap. Upper elasticity bound is thus significantly less than the upper whisker in a one-sided test at the 5% level.