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An Empirical Analysis of Planned Obsolescence

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Durable goods producers face potential competition from used units because of the long-lasting nature of the products. To avoid such competition, firms may kill-off used units by periodically introducing new models. Such behavior is referred to planned obsolescence. However, economists have also argued that it is not necessary because initial price alone can capture the present value of all future transactions. If true, the periodic introductions of new models should be motivated by other reasons.

In contrast to a large theoretical literature on planned obsolescence, empirical examination on the same has been very limited. This is primarily due to a lack of data on used markets. Using new data collected from college bookshops, this paper examines the extent to which textbook publishers introduce new editions to kill-off used units. The data contain semi-annual textbook-level data for 1996-2000, including approximately 2,500 observations. For each period, I observe, among other variables, average retail prices (new vs. used) and quantity sold (new vs. used).

Empirically, I analyze the revision decisions of textbook publishers using reduced-form, discrete-time duration models. I construct a variable that captures the extent of competition between used and new units and examine how this affects the timing of textbook revision. Various textbook attributes and market structure variables are included in the estimation. In order to capture the heterogeneity across textbook categories, base-line hazard rates are allowed to vary across the categories. A split-population model that accounts for unobserved individual heterogeneity is also estimated.

I find that textbook publishers revise editions more frequently when used textbook share increases, ceteris paribus. The result is robust across various specifications. This result is consistent with the view that publishers introduce new editions to kill-off used units. Estimation results suggest that if used textbook share increases from zero to one, the probability of edition revision increases more than three times. However, I also find that hazard rates increase as textbooks become older, suggesting that publishers may also revise editions to keep the content up-to-date.

References:

Esteban and Shum (2005), “Durable Goods Oligopoly with Secondary Markets: the Case of Automobiles,” Forthcoming, *RAND Journal of Economics*.

Waldman (2003), “Durable Goods Theory for Real World Market,” *Journal of Economic Perspectives*, 17(1), 131-154

Rust (1986), “When is it Optimal to Kill Off the Market for Used Durable Goods?” *Econometrica*, 54(1), 65-86