The Demand for Unbundled Elements in Telephony Revisited

Audrey D. Kline

Department of Economics, College of Business & Public Administration, University of Louisville, Louisville KY 40292. audrey.kline@louisville.edu

In the December edition of the Atlantic Economic Journal, Drs. Ekelund and Ford [2002] published a paper estimating the own-price elasticity of demand for a combination of unbundled elements commonly referred to as UNE-P (or UNE-Platform). Using a constant elasticity formulation of the demand curve, Ekelund and Ford ("E-F") estimate an own-price elasticity of –2.7 for UNE-P, indicating that regulated prices for unbundled elements have a potent effect on retail competition in local telecommunications markets.

The sizeable price elasticity has considerable policy implications, suggesting a large entry response to lower wholesale prices. When econometric evidence may influence policy decisions that have sizeable economic consequences, it is important to validate such evidence, both for practical reasons and to assess the impact of particular functional forms on the results. In this note, I conduct an empirical check on the estimates of E-F by evaluating changes in the amount of retail competition using UNE-P arising from recent wholesale price reductions.

The familiar own price elasticity of demand equation $\eta = \%\Delta Q/\%\Delta P$, can be rewritten econometrically as

$$\%\Delta Q = \eta \cdot \%\Delta P + \varepsilon,$$

where ε is the disturbance term. Using data covering (at least) two time periods, the elasticity term, η, can be estimated by regressing percent quantity changes on percent price changes, so long as the "distance" between the two periods is short enough that other factors can be treated as constant. While simple, this approach is perhaps consistent with the manner by which policymakers evaluate the effect of price reductions on competitive entry.

This least squares regression (no constant term) is estimated with quantity data for the twelve-month period June 2001 through June 2002 ($\%\Delta Q_{12}$; 35 observations) and the six-month period December 2001 through June 2002 ($\%\Delta Q_6$; 37 observations). Price data is provided by Kovacs et al., [2001, 2002], quantity data by Verizon [2002] for June 2002 data, and Drs. Ekelund and Ford for 2001 data. The estimated equations (standard errors in parenthesis) are

$$\%\Delta Q_{12} = \underset{(0.67)}{-1.83} \cdot \%\Delta P + \varepsilon, \text{ and}$$

$$\%\Delta Q_{6} = \underset{(0.45)}{-1.18} \cdot \%\Delta P + \varepsilon,$$

where the six-month elasticity is –1.18 and a twelve-month elasticity is -1.83. The larger “long-run” elasticity is consistent with theory. Over twelve-months, the own-price elasticity is close to –2.00, and the null hypothesis that the elasticity equals –2.7 cannot be rejected (Wald $\chi^2 = 1.68$). A six-month elasticity of–2.7 is rejected at the 5% level, but not at the 10% level (Wald $\chi^2 = 3.26$).

This simple test of the reasonableness of the elasticity of demand estimates of E-F affirms their findings, though the full effect of a price reduction on entry may take longer than six months to realize. State regulators that seek to expand competitive choice in retail local telecommunications markets by reducing wholesale prices can expect to see elastic responses of service provided over the combination of unbundled elements called UNE-P.

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