

Preliminary Evidence on the Demand for Unbundled Elements

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The Telecommunications Act of 1996 requires incumbent local exchange carriers to lease elements of their networks to competitors to promote competition in monopoly markets. Prices for these elements are set by state regulatory commissions based on estimates of cost. The development of competition and, consequently, the success of the Act depends on UNE prices since demand for unbundled network elements (UNEs) slopes downward. This note provides the first empirical evidence on the demand for UNEs.

To date, the most successful form of competitive entry using elements is the UNE-Platform – a combination of unbundled loops and end-office switching, so our analysis focuses on that entry mode. A reasonable approximation of the ordinary demand for UNE-Platform is

$$\ln Q_i = \alpha_0 + \alpha_1 \ln P_i + \sum_{j=1}^n \alpha_j Z_{ij} + \varepsilon_i \quad (1)$$

where Q is the quantity demanded of loop-switching combinations in state i , P is the regulated price for loop-switching combinations in i , Z is a vector of other factors that affect demand in i , and ε is the disturbance. Variables in Z include: (Z_1) total demand, measured as the local service revenue in the state; (Z_2) the percent of total, analog switched access lines serving residential customers; (Z_3) a dummy variable for New York and Texas, both leading states in the promotion of competition; (Z_4) a dummy variable if the incumbent is allowed to provide interLATA long distance (AR, KS, MA, MO, NY, OK, PA, TX,); (Z_5) a dummy variable if the installation charge to competitors for the element combination exceeds \$50; and (Z_6) a dummy variable for the dependent variable's date (0 for June 2001, 1 for December 2001). The Federal Communications Commission provides data for Q , Z_1 , and Z_2 , and all price data is provided by Z-Tel Communications.

The estimated regression is

$$\ln Q = 6.1 - 2.7 \cdot \ln P + 0.3 \cdot \ln Z_1 + 0.75 \cdot Z_2 + 2.7 \cdot Z_3 + 0.33 \cdot Z_4 - 1.0 \cdot Z_5 + 0.15 \cdot Z_6 + \varepsilon. \quad (2)$$

Results from the least squares estimation are excellent. The R^2 is 0.68, and Ramsey's RESET Test indicates correct specification. The variables P , Z_3 and Z_5 are statistically significant at the 5% level ($t = -4.84, 4.43, -2.10$), and Z_1 at the 10% level ($t = 1.66$). The (derived) demand for loop-switching combinations increases in total market demand, is higher in New York and Texas, and declines with high installation fees. Other variables show no effect.

The own-price elasticity of demand is in the elastic region of demand (-2.7), as is the entire 95% confidence interval (-1.6 to -3.84). The quantity demanded is highly sensitive to price, and state regulators that set higher prices are reducing substantially the level of competition provided over the UNE-Platform. This result suggests that competition is inhibited where the prices of elements are high. These estimates should assist state regulators in assessing the impact of element rates that are typically determined in complex and adversarial rate proceedings.