Intermediate Microeconomics
Economics 520

Professor D. Weisman
Fall 2001

Take-Home Essay Question 2

Instructions: This is the second take-home essay question for this class and it is worth 50 points. This essay is to be turned in (without exception) no later than the beginning of class on Thursday, December 6, 2001. The essay must be typed, either double-spaced or one and one-half spaced, and use a font size no smaller than 12 pt. While there is no definitive page constraint, you are encouraged to practice economy of presentation. You need not type any graphical analysis used in support of your answer, but such graphs should be constructed with precision. Your name and student number should appear in the upper right-hand corner of your essay. You are encouraged to work with your classmates in developing the ideas necessary to answer this question, but the write-up itself should be your own work. These instructions should be followed precisely.

The Department of Justice (DOJ) is charged with overseeing mergers in the United States to determine if they are in the *public interest*. A merger is considered in the *public interest* if consumers' surplus does not fall as a result of the merger. The DOJ is currently deciding whether to allow the pending merger between AT&T and Sprint to proceed. The market demand for long-distance telephone service is given by $Q = 28 - 2P + s$, where Q is quantity demanded, P is price, and s is an index of service quality. The market served by these two long-distance carriers is currently competitive. In addition, both long-distance carriers currently use the same technology for producing long-distance telephone service which is given by $Q = K + 1/2L$. AT&T CEO, Michael Armstrong, has told Wall Street analysts that the merger will result in efficiency gains. This implies that the production function for long-distance telephone service post-merger will be given by $Q = x [K + 1/2L]$, where $x > 1$ is the productivity factor. Suppose that $r = 10$ and $w = 5$, and the pre-merger service quality index is $s = 12$.

a) (20) Suppose that the long-distance market is a monopoly following the merger between AT&T and Sprint and that $x = 5/4$. Assume that s remains constant at 12. Should the DOJ allow this merger to proceed? Provide a careful economic analysis in support of your recommendation.

b) (15) Continue to assume that $x = 5/4$, but the market for long-distance telephone service remains perfectly competitive following the merger. For what values of s will the DOJ approve this merger?

c) (15) Derive the cost function for AT&T/Sprint post-merger for any value of x. Suppose that service quality declines by one-third to $s = 8$ following the merger. In addition, assume that the market for long-distance telephone service remains perfectly competitive following the merger. Determine the values of x for which the DOJ will approve this merger.