Business Demand for Broadband Access Capacity*

KEVIN T. DUFFY-DENO

PriMetrica, 2382 Faraday Ave, Suite 140, Carlsbad, CA 92008
E-mail: kduffydeno@primetrica.com

Abstract
Using data garnered from a quarterly survey of U.S. business establishments from 2Q2000 through 1Q2001, the study estimates an aggregate model of business demand for broadband access capacity. The primary goal is to estimate price elasticities for the demand for access capacity conditional on a business establishment having made the decision to adopt some form of broadband access. The primary findings are (1) on average, the demand for broadband access capacity is price inelastic; (2) the sensitivity to price differs substantially across establishments of different sizes with small establishments exhibiting the greatest sensitivity to price; and (3) the estimated elasticities have important implications for public policies designed to extend broadband networks to unserved areas.

Key words: broadband access, price elasticity, business broadband demand, broadband public policy

JEL Classification: L96, H54

1. Introduction

The last few years have seen heightened interest, at both the federal and state level, in extending the reach of broadband to all households and business establishments. During the 107th Congress, for example, 14 pieces of proposed legislation having something to do with the promotion of broadband deployment were making their way through the legislative process.1 At the state level, various initiatives were begun to explore ways to extend the reach of broadband. In Arizona, for example, aggregation of government demand for broadband is used to entice service providers into contracts that result in broadband connections for government offices, schools, and libraries.2

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* The majority of the work on this study was conducted while the author was with TNS Telecoms. An earlier version of this paper was presented at the 2001 International Communications Forecasting Conference in Washington, DC. The author wishes to thank, without implicating, Richard Emmerson, Steve Parsons, Ryan Sullivan, Dennis Weisman, and three anonymous reviewers for helpful comments on earlier drafts.

1 http://www.usia.org/legis/107bills.doc

2 This program is called Telecommunications Open Partnerships for Arizona (TOPAZ). See http://gita.state.az.us/telecom
Despite the policy trend towards universal broadband connections, a host of unanswered questions exist. How to finance the extension of broadband networks to unserved areas, regulatory treatment of competing broadband technologies, and “field of dreams” planning (if we build it, they will come) are a few of the outstanding issues. From an economic demand perspective, there is also a paucity of information on the price sensitivity of broadband end-users, particularly for business establishments.

Although it is a new area of inquiry, some work has been done on estimating the sensitivity of U.S. households to the price of broadband access. Studies have found that household demand for access (i.e., does a household have or does not have a broadband connection) is fairly elastic, with point estimates generally in the –0.75 to –1.5 range.³ No study to date has examined the residential demand for broadband access capacity. The reasons are that few broadband households have more than one “broadband pipe” into the home and it has been only recently that broadband service providers have started to offer, on a widespread basis, different sized pipes at different price points.

Even less is known about the effect of price on business demand for broadband access or on broadband capacity (i.e., the aggregate size of the “pipe” that links business establishments to the network and to each other). The primary impediment to this knowledge has been a lack of data. Historically, studies have examined business telecommunications demand using data supplied by Local Exchange Carriers, but these studies generally have not focused on business access demand, particularly the demand for access bandwidth.⁴ To augment the knowledge base on this issue, the current study presents an aggregative examination of the demand for broadband capacity, conditional on having broadband access, on the part of business establishments in the United States. The goal of the study is to estimate demand elasticities with respect to the average price of broadband capacity faced by business establishments.

2. Background Data

The study is made possible by end-user survey data collected by TNS Telecoms (TNST).⁵ On a quarterly basis TNST elicits responses from a nationally representative sample of 3,500 business establishments in the United States as to the number and type of access lines they have as well as to their monthly expenditure on these lines. The data extend back to the second quarter of 2000. A few summary findings from the TNST business establishment survey will set the stage for the empirical analysis.

The first pertains to per unit access capacity. On a per business establishment employee basis, access capacity (both narrowband and broadband) has increased 21% from 2Q2000

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³ For example, see Kridel et al. (2001) and Rappoport et al. (2002). In comparison, the residential demand for dial-up Internet access has been found to be quite inelastic (see Kridel et al. 1999 and Rappoport et al. 2002).

⁴ Taylor (1994) provides a review of business demand studies. In the area of business access demand, he writes “…knowledge of business access demand remains close to being a void” (page 65).

⁵ www.tnstelecoms.com