Example 9.2
Cable TV

Cable TV illustrates three features of decreasing cost services that are discussed in Chapter 9 of the text. First, it is an example of an old-style regional natural monopoly such as the electric and water utilities, with its high set-up costs and negligible operating costs. Cable TV operators must undertake a considerable amount of investment in order to provide any service at all. They have to build a central facility with an antenna to receive television signals and equipment to package the different signals and distribute them to subscribers. They also need to send coaxial or fiber-optic cable from the central facility to each user's home or business, either underground or along existing utility poles, and provide the wiring and equipment at the site for subscribers to receive the signals. Once all this capital is in place, the cost of sending the signals to the users is essentially zero. The result of the high set-up cost and (essentially) zero marginal cost is that average cost declines all the way to the market demand, no matter how many subscribers a cable operator has.

Second, cable TV is an example of the easy case for decreasing cost services. The demand for TV is so high that cable operators can easily earn an economic profit if the government allows them to do so. Over 99% of households in the United States own television sets and 70% subscribe to a cable TV service.[1]

Third, the cable operators make variations of all-or-none offers to their subscribers. As noted in the text, all-or-none offers greatly increase the payments that firms can extract from their customers. Cable operators are well aware of this principle. Instead of allowing subscribers to purchase whatever individual channels they want, they typically offer the television programs in a set of packages or tiers. The first tier, called the basic service, consists of all the over-the-air stations, a public education station and a set of local broadcast stations that the cable operators are required to offer, and perhaps a few other channels. All subscribers purchase the basic service for a monthly fee. The second tier, called the cable programming service (CPS), consists of a set of

[1] Goolsbee, A., and Petrin, A. (2004) The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV, *Econometrica*, March, p. 351 (the 70% cable estimate) and p. 353, fn 4 (the 99% TV estimate). Both estimates are for 2001.

channels that are mostly national networks that broadcast by satellite to the various cable operators. The first such satellite network was Home Box Office (HBO) in the early 1970s. Cable operators commonly offer two or more CPS packages that have different numbers and/or combinations of channels. The cable operators also charge a monthly fee for a CPS package, as an add-on to the monthly fee for the basic service. Approximately 90% of all cable TV subscribers purchase a CPS package.[2] The third tier, called the premium service, is the only tier that is not offered on an all-or-none basis. It is comprised of individual channels that can be purchased for a monthly fee and separate pay-per-view programs.

One would think that cable TV fees would be heavily regulated given the high demand for cable and the ability of the operators to make all-or-none offers, but this turns out not to be the case. The cable operators have considerable leeway in setting their fees, often total leeway, not only for their programming tiers but also for their installation and repair services. This is not to say that cable TV is unregulated; it is indeed a heavily regulated industry and cable TV fees have been tightly regulated in the past. A brief history of cable TV regulation is in order before proceeding.

The Regulatory Structure

Cable TV began in the 1940s as a means of providing television to rural areas that could not receive the over-the-air (OTA) signals broadcast from the urban centers. In 1950 it served only 70 communities. Interest in cable started to grow in the mid-1950s and into the 1960s, primarily because it offered a much clearer signal than OTA. The growth was such that Congress decided in 1965 to establish a regulatory mechanism for cable TV under the auspices of the Federal Communication Commission (FCC). The regulatory structure consists of two separate layers, with joint regulation by the FCC and the state and local governments. Some states choose to regulate the cable operators at the state level, but most choose local regulation by the city and town governments. The local regulatory bodies are referred to as local franchise authorities, because all cable operators must obtain a franchise license from the local authority to operate in the city or town.[3]

Virtually every aspect of the cable industry is, or has been, subject to some form of regulation. In addition to the fees that the cable operators can charge their subscribers, the regulations cover such diverse items as customer service requirements (down to how long a subscriber can be put on hold when calling for a repair), the kinds of television stations that must or may be included in the basic and CPS tiers, the franchise fees that cable operators pay to the FCC and the local franchise authorities, protocols for attaching the coaxial cables to existing utility poles, and the transparency of tier packages and their prices, monthly bills, and the instructions for operating the service and accessing the channels.

Many of the FCC regulations are motivated by the desire to promote competition within the industry. For example, the local franchise authorities cannot offer a cable operator an exclusive franchise. Instead each local authority must establish procedures that make it relatively easy for

[2] Wise, A., and Duwadi, K. (2005) Competition between Cable Television and Direct Broadcast Satellite: The Importance of Switching Costs and Regional Sports Networks, *Journal of Competition Law and Economics* **1**(4): 680.
[3] We will assume hereafter that the state/local regulator is a local franchise authority for the purposes of this example.

new entrants to provide cable service. In addition, a few national companies own many local cable TV franchises, so FCC regulations limit the percentage of subscribers nationwide that any one company can serve. Also, many of the national cable TV companies own TV stations as well, called affiliated stations. Consequently, FCC regulations limit the percentage of a cable franchise's channels in its basic or CPS packages that can be affiliated channels, and require cable companies to offer their affiliated stations to the competing cable companies.[4] These pro-competitive regulations are in place to prevent a highly concentrated industry from becoming even more concentrated. In 2004, the two biggest cable companies, TCI and Warner, owned 55% of the cable TV franchises, and the top five companies owned 80% of the franchises. In addition, TCI and Warner owned 8 of the 13 most popular cable channels and 20% of all cable channels, and the top five companies owned 60 of the cable channels.[5] Congress very much wants to prevent such an important news and entertainment medium as television from being controlled by a few private individuals.

Our focus in this example is on the fees for the programming tiers, and on this score the regulations have varied considerably over time. In the beginning, the FCC gave the local franchise authorities the responsibility for regulating the fees. Then, in 1984, Congress decided that there would be sufficient competition from competing cable companies in most service areas. Therefore, the local franchise authorities were denied permission to regulate programming fees unless an area was served by fewer than three OTA stations. Cable fees increased rapidly in the absence of regulation and subscribers complained, enough so that in 1992 the regulation of programming fees was reinstated. The local franchise authorities were responsible for the regulation of the fees for the basic tier and the FCC was responsible for the regulation of the various CPS tiers. Premium service fees continued to be unregulated. The fees for both basic and CPS tiers were to be set in accordance with guidelines established by the FCC, which gave prominence to the fees charged in the most competitive service areas.

The final change in the regulation of fees occurred with the passage of the Telecommunications Act of 1996. Congress chose to take a decidedly unregulated, free-market approach to the setting of fees on the grounds that the provision of television programming was entering a period of rapid technological and structural change and that free-market forces would best serve the consumers' interests in such a fertile and dynamic environment. It wanted all of telecommunications to be subject to open competition.

Congress foresaw three avenues of competition for the existing cable TV systems. One was entry by competing cable TV operators into local service areas, a phenomenon referred to as overbuilds. A second was from telephone companies. The 1996 Act permitted telephone companies to offer multichannel video programming distribution services nationwide for the first time and the Baby Bells had all expressed an interest in competing with the existing cable TV systems. Before 1996, telephone companies could offer television services only to rural areas and

[4] The complete set of FCC regulations, and the assignment of regulatory responsibilities between the FCC and the state and local authorities, is described in "Fact Sheet," *Cable Television Information Bulletin*, Federal Communications Commission, June 2000. http://www.fcc.gov/mb/facts/csgen.html.
[5] "Why Are My Cable Bills so High?", Cable Action Project, 8 February 2004, http://www.ucan.org/law_policy/catvhistory.html.

other areas that would otherwise not have access to cable service. The third was from a new technology called direct broadcast satellite (DBS), which had been perfected and put into use by DirecTV in 1993. DBS delivers signals direct to users from satellites set in fixed orbits relative to the earth. DirecTV's main innovation was that its signals could be received with small satellite discs rather than the eight-foot discs that the previous satellite technology had employed. A second company, Echostar, began offering a DBS service a few years later.

Given these potential competitors, the 1996 Act specified that the FCC could regulate the CPS tiers only until March 31, 1999, after which regulation of these tiers would cease. The local franchise authorities could continue to regulate fees for the basic tier (and for installation and service charges), but only in those areas that were not effectively competitive. An area was considered to be effectively competitive if it met any one of four criteria:

1. There is only one cable TV franchise in the area, and less than 30% of the households subscribe to it.
2. There are two or more multichannel video programming distributors (MVPDs) in the area offering comparable services, including competing cable TV franchises and DBS, and
    a. each MVPD offers comparable services to at least 50% of the households, and
    b. at least 15% of the households subscribe to all but the largest MVPD provider.
3. The local franchise authority is itself an MVPD and offers its services to at least 50% of the households.
4. A telephone company offers comparable services to an existing cable TV franchise (with no percentage requirements for either type of MVPD).[6]

Competition Matters

Congress was willing to forgo the regulatory approach to cable TV programming fees in 1996 because it was confident that competition would develop for the existing systems. Moreover, the FCC had compiled data at the time suggesting that competition succeeds in keeping cable TV fee increases in check, and careful econometric analysis by economists had generally concluded that it did. To cite one example, William Emmons and Robin Prager estimated separate equations for the basic tier fees and the number of channels offered in the basic tier in four sets of markets in 1983 and 1989, being those served by:

- a single private cable TV operator
- two or more competing private cable TV operators (overbuilds)
- a single municipally owned cable TV operator
- all other non-private cable TV operators (most often subscriber-owned).

The reason for choosing the two dates was to see if removing the fee regulations before 1984 made any difference.

Their conclusions on basic fees were striking. Relative to the areas served by a monopoly private cable TV operator, and holding constant all other factors that might affect fees, fees were

[6] The history of cable TV fee regulation can be found in the FCC "Fact Sheet," op. cit., pp. 5–7. The provisions of the 1996 Act relating to the telephone companies are described on pp. 18–19.

lower in the other areas in the two years by the following amounts: two or more competing operators, 20.1% and 20.5%; municipally owned operators, 23.9% and 25.6%; other non-private operators, 47.8 and 50.3%. If the second operator in a service area was a non-private firm, the fees were lower by 70.8% and 73.7%. Emmons and Prager estimated that approximately 20% of the private monopoly cable TV operators' fees in those two years represented pure economic profit.[7] Conversely, they did not find any significant differences in the number of channels offered in the basic tier across the different market structures, with one exception: The other non-private operators offered fewer channels. They also found no significant differences in the 1983 and 1989 data for basic tier fees, suggesting that the pre-1984 regulations by the local franchise authorities had been ineffective. Perhaps the regulated cable TV operators had captured the regulators, as often happens in a regulatory environment.

Congress took a huge gamble that competition would evolve after 1996 because it had not until that time. The only source of competition to existing monopoly cable TV operators until the entry of DBS in 1993 was from overbuilds, and they were insignificant. For example, in Emmons and Prager's data, two or more private competing cable TV operators existed in just 14 of the 5,600 service areas in their 1983 data and 93 of the 9,050 service areas in their 1989 data. Similarly, non-private operators existed in only 106 areas in their 1983 data and 121 areas in their 1989 data. In truth, almost all cable subscribers pre-1993 were served by a local private monopoly.

Furthermore, the hope that competition would evolve after 1996 for the existing monopoly operators from overbuilds and telephone companies was never realized. Overbuilds represented less than 2% of all cable TV systems by 2002.[8] Most new entrants ran into financial difficulties and eventually dropped out of the market. Only two of the five Baby Bells, BellSouth and Ameritech, entered the cable TV market and neither on a very large scale.[9] By 2005, the vast majority of cable TV subscribers were still served by a single monopoly operator.

DBS

The savior for the competitive strategy turned out to be the two DBS providers. Satellite TV has a number of advantages relative to cable, including a better signal, a larger number of channels, and various sports and international programming options that are not available on cable. It also has two main disadvantages. One is cost – a satellite dish is much more expensive than a cable box. The other is that the dish must have an uninterrupted line of sight facing south to pick up the signals from the satellites. This is more likely to be possible for single-family houses than for apartments in multi-unit buildings. Nonetheless, the advantages were substantial enough that DBS quickly caught on. DBS subscriptions increased from 0.4 million households in 1994 to 16.1 million households by 2001, a market share of 17% of all households (versus 70% for cable TV).[10]

---

[7] Emmons, W. III, and Prager, R. (1997) The Effects of Market Structure and Ownership on Prices and Service Offerings in the U.S. Cable Television Industry, *Rand Journal of Economics*, Winter. The fee differences by market structure are on pp. 739–40; the percentage of overbuilds and non-private systems, p.734; and the profit estimate, p. 746.

[8] Goolsbee and Petrin, op. cit., p. 354, fn 5.
[9] Cable Action Project, op. cit., p. 4.
[10] Goolsbee and Petrin, op. cit., Table 1, p. 355.

Notice that, on average, the penetration of DBS is likely to satisfy the second criterion for effective competition even in markets served by a single cable TV operator, since it has more than a 15% market share nationwide. This does not mean, of course, that its market share is 17% in all service areas.

Two recent econometric studies indicate that the market penetration of DBS has had at least some of the restraining effect on the private monopoly cable TV operators that Congress envisioned. Andrew Wise and Kiran Duwadi estimated the effect of DBS on the combined basic plus first CPS tier monthly fees using FCC data on DBS subscriptions and cable TV fees in July 2002. They also collected data on households from the 2000 Census. They had data on 524 service areas, mostly those served by the larger cable TV operators that are likely to be most comparable to DBS service. They found that DBS penetration responds positively to large increases in cable fees (10% or more), suggesting that DBS has a restraining effect on cable fee increases. DBS penetration does not respond to fee increases of less than 10%, however, probably because of the fairly large costs of switching from cable to DBS.[11]

Austan Goolsbee and Amil Petrin used data from a 2001 survey of the television provider choices made by 30,000 households living in 317 cable service areas.[12] They were able to estimate demand functions for four choices (with the percentages chosen by those surveyed in parentheses): OTA (22%); expanded basic service – basic plus CPS (45%); premium cable service of some kind (23%); and DBS (10%). They found that the existence of DBS lowered expanded basic fees by about $4 a month (15%), and had a small effect in increasing the number of channels offered in the expanded basic package. They estimate the annual welfare gains of DBS to be between $2–3 billion for DBS subscribers and $3–4 billion for cable TV subscribers. [13]

Whatever the competitive effect of DBS on the monopoly cable TV systems may have been in the early 2000s, it is likely to increase over time. This is so because of two factors causing cable TV and DBS to become ever-closer substitutes. One is price: Cable TV fees continue to rise whereas DBS equipment costs have fallen considerably. The other is programming: As cable TV has continually increased the number of channels in its basic and CPS tiers and DBS can now offer local broadcast stations (as of 1999) that were previously available only on cable TV. It remains an open question, however, whether competition from DBS is sufficient to justify the deregulation of cable TV fees. One would like to know whether the growth of DBS has reduced economic profits for cable TV and DBS over time and, if not, whether other forms of competition to cable TV and DBS will emerge in the near future.

[11] Wise and Duwadi, op. cit. Their data are described in section V, pp. 694–5, and their results in section VI, pp. 695–701.

[12] The survey was conducted by Forrester Research.

[13] Goolsbee and Petrin, op. cit. Their data are described in section 3, pp. 355–60 and the results are summarized on pp. 376–8.