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## UNLEASHING VIDEO COMPETITION:

### THE BENEFITS OF CABLE FRANCHISE REFORM FOR MISSOURI CONSUMERS

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#### EXECUTIVE SUMMARY

Economics teaches that consumers and society as a whole benefit from vigorous competition. For the last quarter-century, policymakers have debated how to best apply this principle to the cable television market. Congress enacted three bills between 1984 and 1996 designed to increase competition in the cable television market, but those efforts have seen only limited success.

Recent technological developments promise to change that. Incumbent phone companies such as AT&T say they now have the technology to offer affordable video content to their customers, but that restrictive cable franchising rules—which require them to negotiate individually with hundreds of municipalities—are standing in their way. The Missouri legislature is currently debating franchise reforms that would allow new entrants to apply

for a statewide franchise to offer video services across the state.

In this paper, I estimate the benefits of increased video competition to Missouri consumers, to state coffers, and to the state as a whole. I find that increased video competition would benefit consumers by between \$66 million and \$76 million annually. On the other hand, incumbent cable companies would be harmed by between \$45 and \$53 million per year. On net, therefore, increased competition would benefit the state by more than \$20 million per year.

Franchise reform would also benefit the state if it attracted new infrastructure investments. Based on the experience of other states, I estimate that new entrants would make \$420 million in capital investments. If made in one year, that quantity of investment would generate roughly \$17 million in additional state revenues the first year, and approximately \$1 million annually in subsequent years.

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***A review of the economics literature dealing with the video services market demonstrates that it has been hampered by a lack of competition.***

## INTRODUCTION

Statewide video franchise reform was first enacted in Texas in 2005. Since then, at least ten other states have enacted similar legislation.<sup>1</sup> The Missouri legislature is currently considering SB 284, a bill that would create a state-wide video franchise system on the Texas model. A similar proposal, SB 816, was not enacted by the legislature in the 2006 session.

A review of the economics literature dealing with the video services market demonstrates that it has been hampered by a lack of competition. The market for multichannel video programming (hereafter, MCVP) services has been dominated by cable system operators. Direct-to-home satellite has made significant gains in recent years, but it still only accounts for slightly more than one quarter of the subscriptions in U.S. households.<sup>2</sup> Because of technical limitations, direct-to-home satellite is an imperfect substitute for cable systems. Hence, for many consumers, the local cable company is the only realistic option for premium television services.

Competition is beneficial to consumers and to society. In the absence of competition, a monopolist will set his prices too high. That hurts consumers who have to pay higher prices. It also hurts those consumers who are priced out of the market entirely, but who would have purchased the product at the competitive price. Economic theory shows that these losses to consumers are larger than the gains to the monopolist—the monopoly is a net loss for society as a whole.

In this report, I project the welfare gains that would come from eliminating barriers to entry in Missouri's cable

television market. I also estimate the benefits to Missouri's economy that would flow from new entrants investing in capital projects that supply these video services. Together, these two considerations add up to a compelling case for reforming Missouri's archaic cable franchise system in order to make it easier for new companies to offer innovative video products and services to Missouri consumers.

## DEVELOPMENT OF THE CABLE INDUSTRY

Cable television began in 1952 and was designed to improve reception. It began improving network broadcast signals to rural households in the United States.<sup>3</sup> Technology progressed, permitting cable television operators to deliver additional channels.

Today, the cable television industry is the dominant provider of video services to American households.<sup>4</sup> A majority of the 109.6 million TV households subscribe to some multichannel video programming distributor. The distributors include cable system operators, direct broadcast satellites and home satellite dishes. Figure 1 plots the number of subscribers to cable systems between 1952 and 2005. It is clear that the number of subscribers to cable television has increased dramatically. Figure 1 shows that the number of subscribers peaked in 2001 and has been fairly constant during the 2002 through 2006 period. The percentage of households subscribing to cable is perhaps a better indicator of how important this distributor is to the market for video services. Of U.S. television households

subscribing to some MCVP distributor, cable's share peaked in June 2004 at 71 percent, falling to 69 percent in June 2005. According to a 2005 report by the Federal Communication Commission, 69 percent of United States households subscribed to cable.<sup>5</sup> The chief competitor is the direct-to-home satellite service, which garnered 28 percent of all U.S. households subscribing to MCVP distributors.

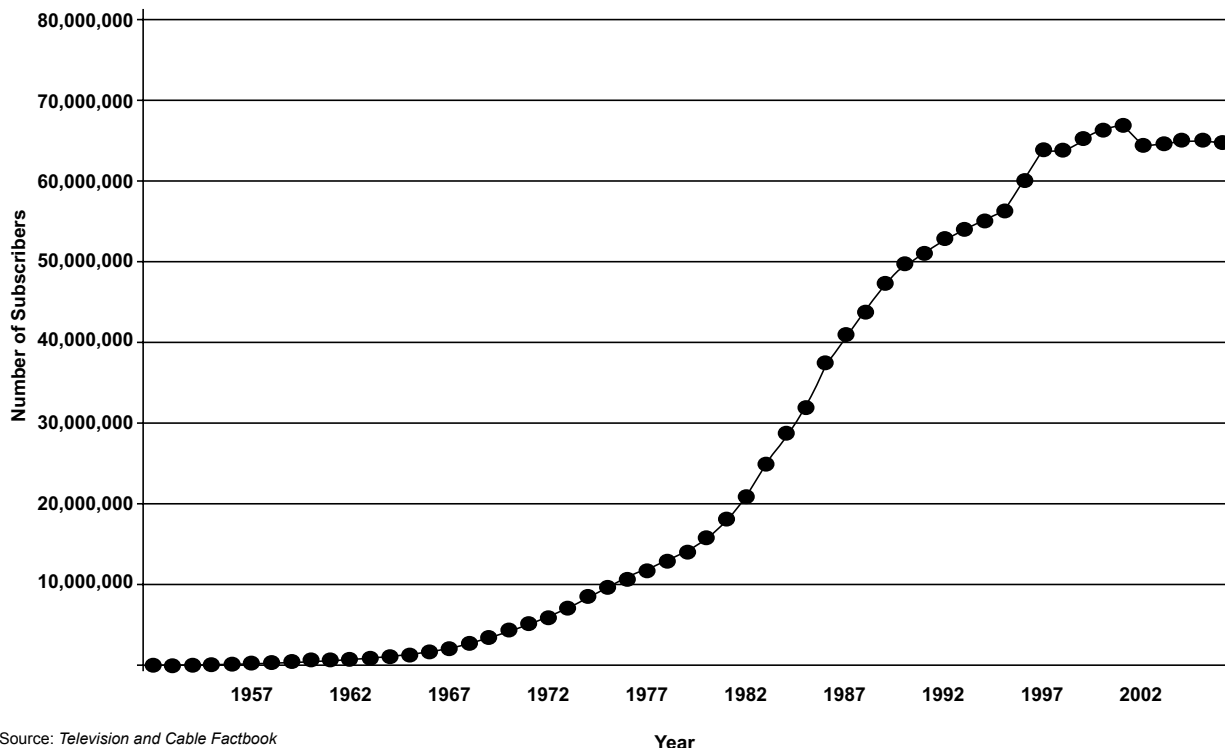
To further illustrate the dominance of the cable system operator, I compute a Herfindahl index, a standard measure of market concentration. I apply it to types of distributors. Cable system operators control 69 percent of the market, direct-to-home satellite providers serve 28 percent of consumers, and the remaining providers have 3 percent market share. The corresponding Herfindahl index is 0.559, which falls into the category of being a concentrated industry.<sup>6</sup> Of

course, this application of the Herfindahl index measures the concentration of distributors, not individual firms within the industry. Still, it suggests that the market for multichannel video programming is highly concentrated, with cable system operators as the dominant firms.

Several factors contribute to this high concentration ratio. Physical limitations render direct-to-home satellite systems imperfect substitutes for cable systems. There are also significant barriers to entry in the local markets that federal legislation has left unaddressed: the local video franchise agreement gives exclusive right-of-way privileges to one cable system operator in the defined geographic market. Historically, the argument has been that cable systems are natural monopolies, but recent technological developments have made entry more feasible. Franchise laws have become a major barrier to entry.

***Competition is beneficial to consumers and to society.***

Figure 1: Number of U.S. Households Subscribing to Cable, 1952-2006



Source: Television and Cable Factbook

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One possible solution is for federal and state legislators to enact franchise reform to save potential competitors from having to seek permission from each local government. Both the U.S. House of Representatives and the Senate have considered bills that would eliminate the local monopoly that cable system operators have on the right-of-way. But with Congress deadlocked, a handful of states have begun to deal with the issue. Texas created statewide video franchising in August 2005. As of December 2006, there are ten other states that have enacted statewide franchise reform: California, Indiana, Kansas, Michigan, New Jersey, North Carolina, South Carolina, Oklahoma, Connecticut, and Louisiana.<sup>7</sup>

Local governments may fear losing the franchise fee as a revenue source, but at least in Senate Bill 816, there is a video service provider fee that cannot exceed five percent of revenues. Because the video service provider fee is paid to the local government, municipalities should be indifferent between the existing franchise fees and the new fee.

## FEDERAL LEGISLATIVE HISTORY

At the federal level, three major pieces of legislation have shaped the cable television industry: the Cable Franchise and Communications Act of 1984, the Cable Television Consumer Protection and Competition Act of 1992, and the Telecommunications Act of 1996.

In the 1970s, cable television was frequently depicted as a natural monopoly within municipal markets. But because

deregulation was being widely applied to other industries, there was significant political pressure to deregulate the cable television industry.<sup>8</sup> Before 1984, rate regulations sought to maintain “normal” returns that are consistent with the cable system operators setting price equal to average cost. In 1984, Congress freed cable system operators from local, state or federal rate controls in any community where “effective competition” was found to exist by the Federal Communications Commission. In 1985, the FCC ruled that ‘effective competition’ was satisfied whenever three over-the-air broadcast television stations were available.<sup>9</sup> As such, cable services were priced under free market conditions with the protection of local monopoly franchise between 1984 and 1992 in nearly 97 percent of the United States cable systems.<sup>10</sup>

Cable television rates were effectively deregulated on December 29, 1986.<sup>11</sup> In practice, deregulation did not create a competitive market. The contracts between the cable television operators and the local governments typically gave one cable operator a de facto monopoly by granting exclusivity to the city’s right-of-way. Three observations marked the post-“deregulation” period between the end of 1986 and the early 1990s. First, prices for basic cable television services increased faster than inflation. Hazlett (1996) reports that between the end of 1986 and September 1991, the price of the most popular basic tier of cable programming increased by 61 percent. Over the same 4 ½ year period, consumer prices increased only 17 percent.

Second, cable operators added new channels along with greater diversity

of available programming. According to the General Accounting Office, the average number of channels offered by cable television operators rose from 24 to 31 between 1986 and 1991.<sup>12</sup> Thus, there was a 29 percent increase in one key dimension of cable television services, as the bundle of channels offered is one measure of the quality of television services supplied by the cable system operator. (The interested reader is directed to Appendix A for a detailed economic analysis of these arguments.)

Third, the number of subscribers to cable television increased after deregulation, but not as quickly as during the period immediately before prices were deregulated. Between 1987 and 1991, the number of subscribers increased from 41 million to 51 million, an increase of 24 percent. In contrast, between 1982 and 1986, the number of subscribers increased from 22 million to 37 million, a 79 percent increase.<sup>13</sup>

After attempting to deregulate and observing unexpected price increases, the federal government's knee-jerk reaction was to re-regulate. Specifically, a cable franchising authority was permitted to regulate rates for the provision of cable service if the franchising authority had jurisdiction. In addition, the franchising authority's permission depended on the reasonableness of the rates, taking into account the operator's direct costs and reasonable profit.<sup>14</sup> The Cable Television Consumer Protection and Competition Act in 1992 did not abandon the principle of competition. Section 7 states that "a franchising authority may not unreasonably refuse to award an additional competitive franchise."<sup>15</sup> The law goes further to provide an appeal

process for firms whose applications for a second franchise in a given geographical area are denied. Arguably, the intent was to continue to promote competition. However, local governments found ways to uphold the barrier. For one thing, there are over 33,000 municipal or county jurisdictions that issue cable television franchises. Dealing with each one can be a time-consuming process for a new entrant. This is especially true when the local government authority imposes administrative hurdles, including claims that the second franchise would disrupt community activities or that the entrants would be too unregulated.<sup>16</sup>

Two factors contributed to the higher rates. On the one hand, rates had been deregulated so market power opportunities were present that had previously been denied the cable system operators. On the other hand, cable system operators added channels to the cable package, thereby improving the quality of the service. Cable system operators could, therefore, reasonably claim that the higher prices owed to a better product. To illustrate this point, suppose that the pre-1984 regulatory environment kept cable television operators from setting profit-maximizing prices. Once deregulated, operators were likely to raise prices, seeking rents from their market power. However, cable system operators also expanded the number of channels offered to subscribers. So one could argue that the price increases largely reflected increased customer demand for more and better programming. Programming and the infrastructure required to deliver it do cost money, after all. Cable system operators maintained that no such monopoly power

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***Because the video service provider fee is paid to the local government, municipalities should be indifferent between the existing franchise fees and the new fee.***

existed because of the competition coming from over-the-air television and other entertainment sources.

## FEDERAL CABLE REGULATIONS TODAY

The Telecommunications Act of 1996 was the last swing in the pendulum as the federal government effectively deregulated cable rates again. So, in March 1999, prices charged on most cable television packages were no longer regulated by federal statute. With the entry of telephone companies and new cable start-ups, legislators argued that prices would be held down in the new deregulated environment. Though significant barriers remain at the local level, the stage is set for new entrants into the market. It is probable that cable rates would decline if the market for video services were more competitive.<sup>17</sup>

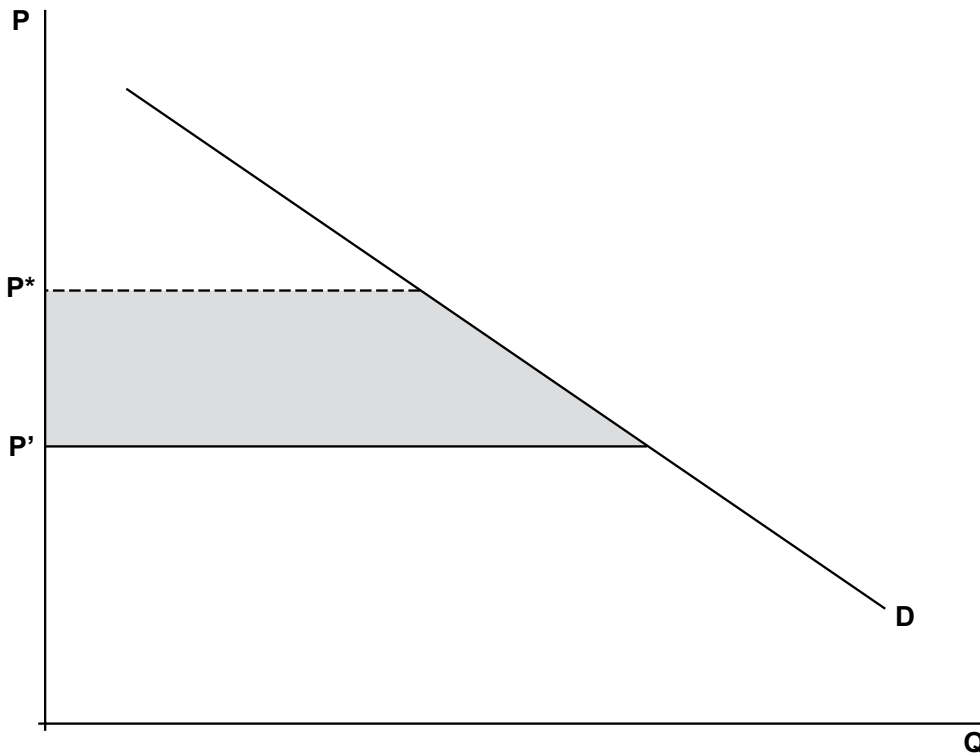
Before 1996, a cable system operator could increase prices, but only if the bundle of channels offered to subscribers increased. But after the passage of the Telecommunications Act, prices were controlled only by market forces. Beard, Ekelund, Ford and Saba (2001) focus on the narrow problem of assessing the impact of one additional channel for consumers. They examine an environment in which a monopolist is deregulated and can carry out a change in the quantity of video services at an unrestricted price. One can think of this as the first step in a process of deregulating a market: that is, before competition enters but after prices are deregulated. There is an increase in the quantity of video services that benefits consumers. However, the price of the

bundle of services increases, which hurts the consumer. On balance, Beard, et. al. find that the effect is a wash: consumer surplus increases, but only by about \$0.05 per customer per month.

Entrants may not be necessary to induce incumbent cable system operators to lower prices; incumbent cable system operators may elect to strategically preempt and lower prices in an effort to deter entry. Savage and Wirth (2005) use data from the 1999 *Television and Cable Factbook* on 500 randomly selected cable systems to study the pricing decision. They construct a two-step method to estimate (i) the probability that a new entrant will compete in a given market; and (ii) the effect on price and quantity of video services to the market. They find that potential competition can affect the pricing decisions of incumbents. They report that if the likelihood of competition increases from 3 percent to 42 percent, the typical consumer would see an additional six channels offered with price rising from \$24.64 to \$24.81. Note that the average price per channel *drops* from \$0.77 to \$0.66.

Goolsbee and Petrin (2004) argue the direct broadcasting satellite (DBS) systems are the closest existing competition for cable system operators. There are some physical constraints that render DBS unusable for some consumers. For example, there has to be line-of-sight with the satellites. Goolsbee and Petrin conclude that cable prices are \$4 per month lower than they would be without DBS. For the 67 million cable subscribers, the price effect yields a \$3.22 billion annual gain. In addition, Goolsbee and Petrin estimate that the additional competition

Figure 4



***After attempting to deregulate and observing unexpected price increases, the federal government's knee-jerk reaction was to re-regulate.***

spurred quality improvements to the cable package that are worth about \$1 per month per customer—\$800 million annually. Thus, DBS entry has benefited consumers to the tune of \$4 billion annually.

## QUANTIFYING THE WELFARE IMPACT FOR MISSOURIANS

There's little doubt that increased competition benefits consumers and society as a whole. (Those in doubt are invited to consult Appendix B on the economics of monopolies.) In this section, I estimate the magnitude of these benefits for Missouri. To compute the effect that increased competition in the multichannel video programming distribution will have on the welfare of Missourians, I use the standard approach to measuring welfare gains: I compute the increase in consumer

surplus and subtract the reduction in producer surplus. The difference represents the net gain (or loss) to society. Consumer surplus is a straightforward concept. It measures the value of a good to consumers in excess of the purchase price. Suppose, for example, that the price of a good falls from an initial value  $p^*$  to a new value  $p'$ . The change in consumer surplus is the area of the quadrilateral bounded by  $p^*$ ,  $p'$ , and the demand curve. This region is shaded in Figure 4.

To compute this area, I need to estimate the elasticity of demand to compute the change in consumer surplus. Formally, elasticity is

$$\varepsilon = \frac{p}{q} \frac{\Delta q}{\Delta p}$$

so that percentage change in the quantity is captured for a given percentage change in the price of the multichannel video programming. The elasticity of demand

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has been studied by several researchers. The estimates range from -1.5 to -3. Goolsbee and Petrin estimate that the elasticity of demand for expanded basic cable to be -1.5. I follow Hazlett (2006) and use -1.5 in my calculations.

Next, I need an estimate of the change in the price. A recent GAO report finds that in markets where “overbuild” competition exists, the price for expanded cable declines 15 percent. FCC Chairman Kevin Martin notes that in the absence of competition, monthly expanded basic cable prices are \$43.33 and that when a second cable operator is present monthly expanded basic cable prices are \$35.94.<sup>18</sup> That’s a drop of \$7.39. The General Accounting Office reports that cable rates are 15 percent lower in the markets in which wire-based competitors exist.<sup>19</sup> That suggests that in markets where competition exists, the price for expanded basic cable would be \$36.83 or \$6.50 lower.

In my calculations, I will use both \$6.50 and \$7.39 as measures of the price decline for expanded cable services. In October 2005, there were 758,792 subscribers to expanded basic cable in Missouri. I compute the impact on the quantity for both cases, assuming that the elasticity of demand is equal to -1.5. If the price falls by \$6.50 (a 15 percent reduction), the quantity demanded will increase to 929,520 subscribers. On the

other hand, if prices fall by \$7.39 (a 17 percent reduction), the quantity demanded will increase to 953,802.

The results of the calculation are shown in Table 1. The gain in monthly consumer surplus is roughly \$5.5 million using the GAO estimate, and \$6.3 million with Chairman Martin’s estimate. That is \$66 million and \$76 million, respectively, on an annual basis.

Mine is one of the more conservative estimates of the impact on consumer surplus produced in the literature. Missouri has about two percent of the nation’s population. Adjusting for population, Hazlett’s estimates suggest consumers would gain by approximately \$178 million. My calculations are based only on the number of subscribers to expanded basic whereas Hazlett uses subscribers to both expanded basic and basic cable television packages. In Missouri, the number of subscribers to basic cable is about 1.3 times larger than the number subscribing to expanded basic. Nationally, the ratio of basic cable subscribers to expanded basic cable subscribers is 2.3. I chose not to include basic cable because the evidence presented on price changes bears directly on the expanded basic cable package. In short, I compute a conservative estimate of the gain in consumer surplus. It is straightforward to extend this calculation to include the number of subscribers to basic cable packages by assuming the

**Table 1: Change in Consumer Surplus for Missouri When Competition is Present in Cable TV Markets.**

PRICE REDUCTION	TOTAL SUBSCRIBERS AFTER PRICE REDUCTION	CHANGE IN CONSUMER SURPLUS
\$6.50	929,520	\$5,487,014
\$7.39	953,802	\$6,328,035



Table 2: Change in Producer Surplus for Missouri When Competition is Present in Cable TV Markets

PRICE REDUCTION	SUBSCRIBERS AFTER PRICE REDUCTION	REDUCTION IN PRODUCER SURPLUS
\$6.50	929,520	\$3,752,418
\$7.39	953,802	\$4,433,513

percentage change in prices is the same for basic cable as it is for expanded basic cable.<sup>20</sup>

Brito and Ellig (2006) compute the size of the wealth transfer from consumers to cable system operators. They estimate the effects of market power, nonprice concessions (such as producing public access, education and government channels), and the franchise fee. My calculations are limited to the size of the price change owing to market power. In addition, Brito and Ellig assume the elasticity of demand is two, a higher value than I use. Together, these two facts account for why they measure a much larger wealth transfer than I compute for the gain to consumer surplus.

While consumers certainly gain from lower prices, producers are worse off. Indeed, cable television operators will see a decline in their profits because of the lower price. Hazlett (2006) offers the following equation to compute the change in producer surplus:

$$(\Delta q \times p_i) - (\Delta q \times mc) - (\Delta p \times q_o)$$

The first term captures the additional revenues earned by producers after competition is permitted. The second term, with mc measuring the marginal production cost per unit, is the change in the cost structure. The third term measures the reduction in revenues earned by the cable system operator

owing to the price reduction. I follow Hazlett in using \$29.92 as the implied industry average marginal cost. The results of my calculations are reported in Table 2.

According to Table 2, producer surplus declines by between \$3.8 and \$4.4 million. In annual terms, the decline in producer surplus is \$45 million to \$53 million.

To quantitatively assess the impact that greater competition would have on the cable television market, I subtract the reduction in producer surplus from the increase in consumer surplus. The resulting sum is net societal gain, or welfare gain. The welfare gain is \$21 million annually under the smaller price drop and \$23 million with the larger decrease.

The traditional measure of welfare gain is net societal benefit. Intuitively, consumers benefit from lower prices. Producers with market power lose when prices fall. In the aggregate, consumers own the producers. Hence, one could argue that the transfer is akin to taking from one pocket and putting some into the other.

However, this view may not be accurate at the state level. Imagine, for example, that the cable system operator is privately owned by someone whose residence is outside Missouri. The gain to Missouri consumers is measured by the change in consumer surplus. However,

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***In addition to the welfare gains accruing to Missouri citizens from price competition, there are also positive effects from new capital being injected into the Missouri economy.***

**Table 3: Planned Investment and Number of Expanded Basic Subscribers, by State**

STATE	INVESTMENT (MILLION)	NUMBER OF SUBSCRIBERS	INVESTMENT PER SUBSCRIBER
Michigan	\$620	785,133	\$790
California	\$1000	3,265,808	\$306
Texas	\$800	1,954,378	\$409
Kansas	\$247	307,855	\$802
Indiana	\$250	546,856	\$457

Source: *Television and Cable Factbook*; Investment numbers provided by AT&T

a narrowly defined notion of net “state societal” benefit would not include the decline in producer surplus. In this special case, the welfare gain to the state is closer to \$70 million than \$20 million annually. One possible conclusion for policymakers is that the annual welfare gain to Missourians is between \$20 million and \$70 million, depending on the fraction of ownership of the cable television systems by Missourians.

## THE BENEFITS OF CAPITAL INVESTMENT

In addition to the welfare gains accruing to Missouri citizens from price competition, there are also positive effects from new capital being injected into the Missouri economy. In this section, I estimate how capital investment affects the state economy, using gross state product (GSP) as my measure of the value of output produced in Missouri. In addition, I estimate how an expanding economy will affect state government revenues.

For entrants into the cable television market, some investment is necessary. Firms will need to invest in building

their wire networks in order to serve households with multichannel video programming. The impact that the investment has on GSP is captured by the following equation:

$$Y_t = AK_t$$

where  $Y$  is GSP,  $K$  denotes physical capital, and  $A$  is an index measuring the state of technology. Here, I assume that hours worked is constant.<sup>21</sup> Note that  $A > 0$ , and measures the marginal product, or return to capital.

To compute the expected investment in Missouri, I use the planned investment in five of the states that have enacted statewide franchises. Table 3 reports the planned investment and the number of subscribers to expanded basic cable.

As Table 3 shows, the investment per expanded basic subscriber ranges from \$306 in California to \$802 in Kansas. The sample mean across these five states is \$553. I assume that the investment in Missouri is equal to the product of the sample mean and the number of expanded basic subscribers. Thus, with investment per subscriber equal to the sample mean, investment by entrants into Missouri is expected to be \$420 million.

Suppose that investment in Missouri increases the capital stock by \$420 million in year one. Let  $A = 1.07$ .<sup>22</sup> Thus, in year one, the increase in GSP is \$449 million. I also compute the flow of GSP from undepreciated capital investment for years two through twenty-five. I assume the depreciation rate is 6 percent per year. The flow of GSP is the product of undepreciated capital and the annual real return. I assume the annual real return is 7 percent. Lastly, I convert the future flow of GSP into its present value. The discounted sum of future GSP is captured by the following equation:

$$PV = \sum_{j=2}^{25} (\beta^j \times GSP_j)$$

where  $\beta$  is the time rate of preference and GSP is the flow of additional GSP generated by the undepreciated capital. I assume that  $\beta = 0.96$ .

With an initial investment of \$420 million, I compute the discounted sum to be \$698 million. Thus, the new infrastructure investments that would likely result from franchise reform would expand Missouri's economy. Over the next 25 years, the discounted sum of additional GSP is \$698 million. Note that net general revenues paid to the Missouri government are, on average, 3.8 percent of GSP. Therefore, the discounted sum of additional GSP will increase state revenues over the next 25 years by \$26.5 million. This benefit to Missouri government revenues does not require any additional spending or tax abatements so that indeed, the \$26.5 million is a net gain in state revenues.<sup>23</sup> Put another way, as a result of increased investment in the cable television market, the state will receive additional revenues of roughly \$17

million in the first year, and approximately \$1 million each year thereafter.

## CONCLUSION

Economists agree that the most efficient organizational structure is one in which the consumer pays a price that is equal to the marginal cost of the product. (Remember that the marginal cost concept includes a normal rate of return paid to owners.) Competition is the industrial structure that realizes this outcome.

Despite federal legislation aimed at encouraging greater competition, there remains one significant barrier to entry in the local market for multichannel video programming. Cable system operators are sheltered from competition by video franchises that give them exclusive right-of-way; that is, the franchisee is the sole entity permitted to lay cable in the region specified in the franchise agreement. Local governments have some incentive to maintain this arrangement since there is revenue flow tied to the video franchise. Frequently, the concept of a natural monopoly is used as the economic basis for maintaining this revenue flow. Is a natural monopoly the appropriate guide for regulating the video services market? Perhaps at one time it was. Over time, however, technological advances have shifted the cost curves down, clearing the way for new entrants and rendering the natural monopoly model obsolete. This literature review does not take a stand on whether the conditions for a natural monopoly have changed or not. Rather, it provides the reader with a framework demonstrating how barriers to entry harm

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**Recent technological advances give competitors a better chance, but the video franchise agreement continues to bar entrants from laying down cable and competing.**

consumers by keeping prices inefficiently above marginal cost.

The economics literature produces two principal results. These results owe chiefly to the pendulum swings in the federal regulatory environment, especially between 1986 and 1992. The first main result deals with the changes in cable prices following the deregulation associated with the 1984 cable reforms. After deregulation was implemented in 1986, prices rose. In part, the technology had not progressed sufficiently to allow new firms to enter the market. In addition, the federal laws did not take into account the video franchise agreements. Together, these two features resulted in opportunities for cable system operators to exert market power.

Congress tried again with the 1996 Telecommunications Act. As with the 1984 Act, the federal government tried to foment competition in the market for video programming. Recent technological advances give competitors a better chance, but the video franchise agreement continues to bar entrants from laying down cable and competing. The results in recent years have been encouraging. Although they are an imperfect substitute, research has examined the impact that direct-to-home satellite companies have had on prices for cable services. Both prices and product quality improvements have been considered, with researchers finding that the gains to consumers nationally are substantial, raising consumer welfare by over \$3.5 billion.

In this report, I quantify the impact that statewide franchise reform would have on the Missouri economy. I find that Missourians can expect to be \$20

million better off if competition is allowed by removing local municipal franchise agreements.

Second, I measure the impact that entrants into the cable television market would have on the state economy. Entrants will need to invest in the Missouri economy in order to deliver multichannel video programming services. Based on the planned investments in other states, I estimate that entrants will invest \$420 million to serve Missouri consumers. Over the next 25 years, the discounted sum of additional GSP is \$698 million. As the Missouri economy expands, so will revenues paid to the state government. I estimate that the flow of GSP over the 25 year span will add \$26.5 million, in present-value terms, to state revenue.

## REFERENCES

- Anstine, Diane Bruce (2001). "How much will consumers pay? A hedonic analysis of the cable television industry." *Review of Industrial Organization*, 19, 129-47.
- Anstine, Diane Bruce (2004). "The impact of the regulation of the cable television industry: the effect on quality-adjusted television prices." *Journal of Applied Economics*, 36, 793-802.
- Beard, T. Randolph, Robert B. Ekelund, JR, George S. Ford, and John D. Jackson (2001). "Price-quality tradeoffs and welfare effects in cable television markets," *Journal of Regulatory Economics*, 20(2), 107-23.
- Beil Jr., Richard O., P.T. Dazzio, Robert B. Ekelund and John D. Jackson (1993). "Competition and the price of municipal cable television services: an empirical study." *Journal of Regulatory Economics*, December, 5(4), 401-15.
- Brito, Jerry and Jerry Ellig (2006). "Video killed the franchise star: The consumer cost of cable franchising and proposed policy alternatives." *Journal of Telecommunications and High Technology Law*, 5(1), 199-252.
- Emmons III, William M. and Robin A. Prager (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, 28(4), 732-50.

Feenstra, Robert (1995). "Exact hedonic price indices." *Review of Economics and Statistics*, 72, 634-53.

Freeman, A. Myrick (1979). *The Benefits of Environmental Improvement: Theory and Practice*. Baltimore, MD: Johns Hopkins University Press for Resources for the Future.

Goosbee, Austan and Amil Petrin (2004), "The consumer gains from direct broadcast satellites and the competition with cable TV." *Econometrica*, March, 72(2), 351-381.

Haslag, Joseph H. (1998). "Monetary Policy, Banking, and Growth." *Economic Inquiry*, 36(3), 489-500.

Hazlett, Thomas W. (1986). "Competition vs. franchise monopoly in cable television." *Contemporary Policy Issues*, April, 4(2), 80-97.

Hazlett, Thomas W. (1996). "Cable television rate deregulation." *International Journal of Economics and Business*, July, 3(2), 145-63.

Hazlett, Thomas W. and Matthew L. Spitzer, (1997). *Public Policy Toward Cable Television: The Economics of Rate Controls*. Cambridge, MA: The MIT Press.

Hazlett Thomas W. (2006). "Cable TV franchises as barriers to video competition." unpublished mimeo.

Jaffe, Adam B. and David M. Kanter (1990). "Market power of local cable television franchises: evidence from the effects of deregulation." *RAND Journal of Economics*, Summer, 21(2), 226-34.

Levin, Stanford L. and John B. Meisel (1991). "Cable television and competition: theory, evidence and policy." *Telecommunications Policy*, 15, 519-528.

Mayo, John W. and Yasuji Otsuka (1991). "Demand, pricing, and regulation: evidence from the cable TV industry." *RAND Journal of Economics*, Autumn, 22(3), 396-410.

Prager, Robin A. (1992). "The effects of deregulating cable television" evidence from the financial markets." *Journal of Regulatory Economics*, December, 4(4), 347-63.

Rosen, Sherwin (1974). "Hedonic prices and implicit markets: product differentiation in pure competition." *Journal of Political Economy*, 82, 34-55.

Rubinovitz, Robert N. (1993). "Market power and price increases for basic cable service since deregulation." *RAND Journal of Economics*, Spring, 24(1), 1-18.

Savage, Scott J. and Michael Wirth (2005), "Price, programming and potential competition in US cable television markets." *Journal of Regulatory Economics*, 27(1), 25-46.

*Television and Cable Factbook*. vol. 2, 2006, Washington, D.C.: Warren Publishing.

United States General Accounting Office (1991). *1991 Survey of Cable Television Rates and Services*. GAO/RCED-91-195, June.

Varian, Hal R. (1987). *Intermediate Microeconomics: A Modern Approach*. New York: W.W. Norton and Company.

## APPENDIX A

### Assessing the Impact of Deregulation in 1986

As I discussed in my review of the federal legislative history, there was some confusion over the effects of deregulation, especially of the Cable Franchise and Communications Act of 1984. It is undisputable that the price of cable television packages rose relative to the general price level. However, the nature of the cable television packages also changed when the package of channels offered to consumers expanded. It is argued, especially by cable system operators, that demand increased with the product improvement.<sup>24</sup>

The cable systems operators argue that product improvement resulted in greater demand for their services. Figure A.1 illustrates the impact on price and quantity.

As I show in Figure A.1, a rightward shift in the demand curve—from D to D'—results in a rightward shift in the marginal revenue curve from MR to MR'. The unregulated monopolist would choose a higher price and expand the quantity produced in response to such a demand shift. The identification problem is that price increases would also occur if the monopolist exerted market power. Without a deeper understanding of the changes in the market, one is left comparing an apple—the regulated environment—to the deregulated environment's orange.

Researchers have devoted considerable effort to disentangle the changes in price from the changes in product. Indeed, the central question can be rephrased as follows: What would the consumer have paid for the new bundle of channels offered by cable system operators in the regulated environment? Once one knows the answer to this question, one can adjust the prices for the new

bundle of channels over time to take inflation into account and compare the estimated price under the regulated setting to the price charged by the cable system operator in the deregulated environment. If the estimated price in the regulated environment is, for example, the same as the price charged in the deregulated environment, then one can conclude that the price increase owes entirely to the added channels. In contrast, if the estimated regulated price is below the price charged in the deregulated environment, it is possible to attribute the price hike to the extra channels and to exercising monopoly power. Finally, if the estimated regulated price is less than the price charged by the cable system operator in the deregulated environment, then one would conclude that no additional monopoly rents are being realized by the operators as a result of deregulation.

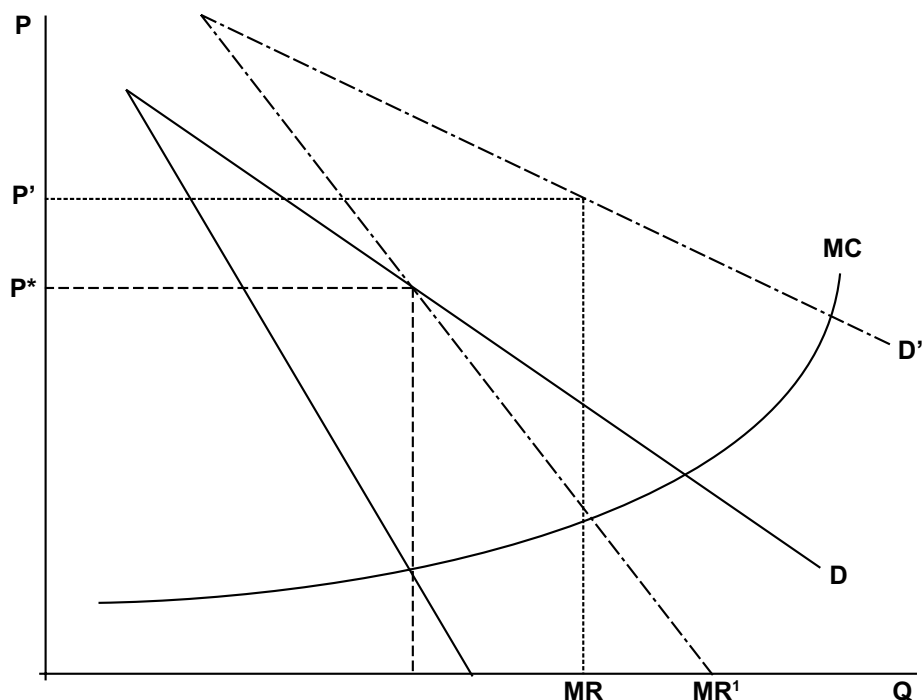
Jaffe and Kanter (1990) use sales price data from cable franchises to assess the impact that deregulation had on cable system operators. If cable system operators were exerting market power, the price increase would also translate into greater profits. Presumably, financial market participants would recognize this tactic and one would expect to see the prices for cable systems rise after deregulation. Jaffe and Kanter report that the sale price of cable franchises increased substantially in markets that are outside the top 100 television markets in the United States based on population. However, in the top 100 markets, there was no significant change in the sales price. Jaffe and

Kanter conclude that there are more substitutes in the top 100 markets, especially in the form of more over-the-air broadcast channels.

Prager (1992) also examined the impact of deregulation by looking at financial market prices. He found that deregulation did result in greater profitability, on average, for the cable system operators. He also provides evidence that, at the time that deregulation was implemented, there was no change in share prices for the cable companies. The absence of the “announcement effect” does not necessarily mean that the increased profitability was entirely unexpected by financial market participants. Rather, it is possible that the impact was incorporated into share prices as market participants continually assessed the likelihood that deregulation would occur. At the time Prager examined the share price, market participants could have already anticipated that deregulation was going to pass.

There is a set of papers aimed at trying to measure the impact that deregulation had on prices. Mayo and Otsuka (1997), for example, examine the evidence on the demand, pricing, and regulation of the cable television industry. In their analysis, they address whether the empirical evidence can shed light on whether regulation did keep prices below what the cable system operators would have set in a deregulated environment. Mayo and Otsuka show that the elasticity of demand for cable television is lower in rural areas—that is, closer to -1—than in urban areas where demand is more elastic. They

**Figure A.1: Comparing Outcomes When Facing a Shift in Demand**



also provide evidence that the price for the basic cable television package during the regulated period was above marginal cost, but below what would have been set by a pure monopolist. Lastly, they present evidence that basic cable television service and pay-channels, like HBO, are complementary goods. One possible implication is that during the regulated-price period, cable firms charged higher prices for pay-cable channels.

Mayo and Otsuka do not address how much of the price increase after deregulation can be attributed to exerting market power. Rubinovitz (1993) investigated the effects of the 1984 deregulation, seeking to attribute the price increase to quality improvements and to monopoly power. Rubinovitz correctly asserts that the Jaffe-Kanter analysis does not account for changes in the quality of basic cable packages over time. He estimates a “quasi-supply” function for the cable system operators.<sup>25</sup> The idea is that it is possible to identify two different combinations of prices and quantities that the monopolist would choose—one in the regulated environment and the other in the unregulated environment—while holding quality improvements and other cost factors constant. Rubinovitz concludes that 43 percent of the price increase owes to cable system operators exercising market power in the deregulated environment.

One criticism of the Rubinovitz study is that it assumes that channels added to the basic cable package were equally valued by consumers. To illustrate this point, if a consumer in the regulated cable television environment could have received both ESPN and Northeast Angling channel, Rubinovitz assumes that the marginal value is the same for each channel to the representative consumer. Arguably, ESPN provides programming that encompasses Northeast Angling and therefore would be more valuable to the typical consumer.

Anstine (2004) re-examines the effect that cable television deregulation had on prices by employing a two-step procedure. The first step aims to estimate the price that a typical consumer would have been willing to pay for a particular channel in the regulated environment. She uses the actual price of the cable television package to estimate the implicit price of a specific network or channel in the deregulated setting. This first step uses a modified version of the hedonic pricing model.<sup>26</sup>

The second step uses the information from the first step to infer the price, holding the size of the cable television package constant. She reports that in 1985, the estimated price for a basic cable television package would have been \$13.92 in the average United States’ city while the actual price was \$9.87. For the highest tier of cable television packages, the predicted price would have been \$14.77 while the actual price was \$11.39. She concludes that

regulation did hold down prices because the predicted price that the consumer would have been willing to pay was greater than the actual regulated price.<sup>27</sup>

Anstine further reports that between 1985 and 1990, the actual price for the basic cable television package increased \$5.38 to \$15.25 from \$9.87. Of this \$5.38 increase, she attributes \$1.23 of it—about a quarter—to quality improvements, and the other \$4.15 to the cable companies exerting their monopoly power. Thus, by inferring the different marginal willingness to pay for each channel, Anstine ascribes a much larger proportion of the price increase implemented by cable system operators to exerting market power than does Rubinovitz.

Based on the evidence, Anstine draws the following three conclusions. First, regulation did keep prices below the consumers’ estimated willingness to pay for the basic cable television package of channels. Second, consumers were generally charged a lower price than they would have had to pay if cable system operators had been able to exert their market power. Third, holding the package of cable channels constant, the typical cable consumer would have paid a higher price in the deregulated environment than she had to pay in 1985.

Economic researchers have been interested in decomposing the price increase that followed the Cable Franchise and Communications Policy Act of 1984. Because the number of channels offered also increased, the price could have increased because quality improved. But the consensus among researchers is that at least some of the price increase owes to cable system operators exerting market power.

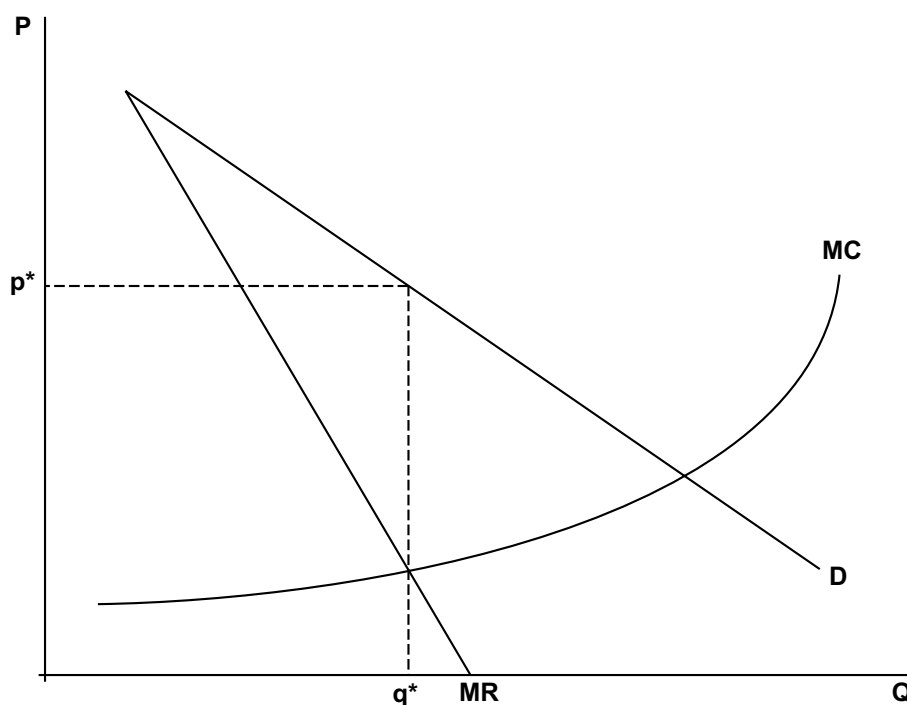
Overall, the first attempt at deregulating the cable television market did not really improve things for consumers. Arguably, the technology did not provide for competitive forces. Over-the-air broadcast channels did not provide the same programming or the same quality reception as the cable system could offer.

## APPENDIX B

### The Economics of Regulated Monopolies

It is helpful to model the cable industry as one in which one distributor has exclusive rights to lay cable. I use the characterization of the pricing behavior for a pure monopolist. I do not intend to portray the video franchise as creating a pure monopolist. Rather, the framework is a useful guide for seeing how changes in market conditions affect pricing behavior. The principal assumption is that the firm maximizes profits. The video franchise serves as a barrier to entry to the provision of video services. Here, the term market typically refers to the local government that issues the franchise. Hence, we

Figure A.2: The Pricing Decision for a Monopolist



assume that the video franchise holder is the sole provider, or a monopolist.

Economic theory indicates that a monopolist faces a downward sloping demand curve. Under standard conditions, Figure A.2 depicts the decision faced by the video franchise holder in the simplest possible setting. Here, the maximum profit is attained at the point where marginal revenue equals marginal cost. This is depicted in Figure A.2 by the point of intersection between the MC curve and the MR curve, resulting in quantity  $q^*$  and price set at  $p^*$ .<sup>28</sup>

The monopolist chooses a price that is greater than marginal cost and produces less than he would in a competitive market. Because of this higher price, consumers are worse off in a market in which there is only one producer. True, the monopolist benefits, but from society's perspective this is not a zero-sum game between the firm and the consumer.

To illustrate this point, suppose that the monopolist could sell  $q^*$  units at price  $p^*$  generating revenues  $p^*q^*$ . Now, suppose that the monopolist could produce one extra unit of output, selling it at price  $\hat{p}$  such that  $MC < \hat{p} < p^*$ .<sup>29</sup> The monopolist would gain from the extra profit. Consumers would benefit because  $\hat{p} < p^*$ . Hence, both consumers and the monopolist are better off without harming anyone. The social improvement is clear, implying that the monopolist's price-quantity choice is socially inefficient. Indeed, the social inefficiency is

eliminated when price is equal to marginal cost.<sup>30</sup>

One factor that complicates the analysis of franchise laws is the fact that a so-called "build-out" requirement—mandating that everyone in a geographic area be served—is typically part of the franchise contract. The build-out requirement is believed to result in a larger number of people being served than if the cable operator chose price and quantity like an unregulated monopolist. Because the cost curves for a cable operator are not observable, there is no way of knowing the exact impact that the build-out requirement has on the market. In other words, the social inefficiency could be nearly eliminated by the build-out requirement or it could be essentially the same as it would be with an unregulated monopolist.

Because the argument has been made that cable television services are a natural monopoly, I will extend the framework in Figure A.2 to characterize conditions under which a natural monopoly exists. Fixed costs play an important role in this analysis. Suppose that the government imposes a marginal cost pricing rule on the monopolist. In this case, one important question is whether the regulated monopolist will produce. Figure A.3 depicts the monopolist's decision for a case in which marginal cost pricing is enforced. Here,  $p(mc)$  denotes the price in this market and  $q(mc)$  denotes the quantity.



This is the efficient outcome. However, average cost lies above price when evaluated at  $q(mc)$ . Consequently, the efficient outcome is not profitable for the monopoly producer. The monopolist would choose to produce no output if forced to sell at marginal cost. With average cost pricing—where price equals average cost,  $p(ac)$ —it is profitable enough for the monopolist to operate, but the output level is below the efficient level.

Though the marginal revenue curve is omitted from Figure A.3, it is important to note that the quantity chosen in a regulated natural monopoly lies between what the monopolist would choose if unregulated and the quantity at which marginal cost equals price. Thus, the regulated natural monopoly is a social improvement compared to an unregulated monopoly in the sense that  $q(ac) > q^*$ .

Cable television is often cited as a natural monopoly that is operated by private owners, but this perspective has shifted over the years. Congress predicted that cable was not a natural monopoly and began deregulating the industry in 1984. When prices rose so rapidly relative to the general price level, that belief changed and regulation was re-instituted. Deregulation was given new life in 1996, as technological progress made entry more feasible.

The legitimacy of the natural-monopoly argument has changed over time, especially with the technological advances that have been realized. Legislators are beginning to be swayed by these arguments. Based on the basic pricing decision

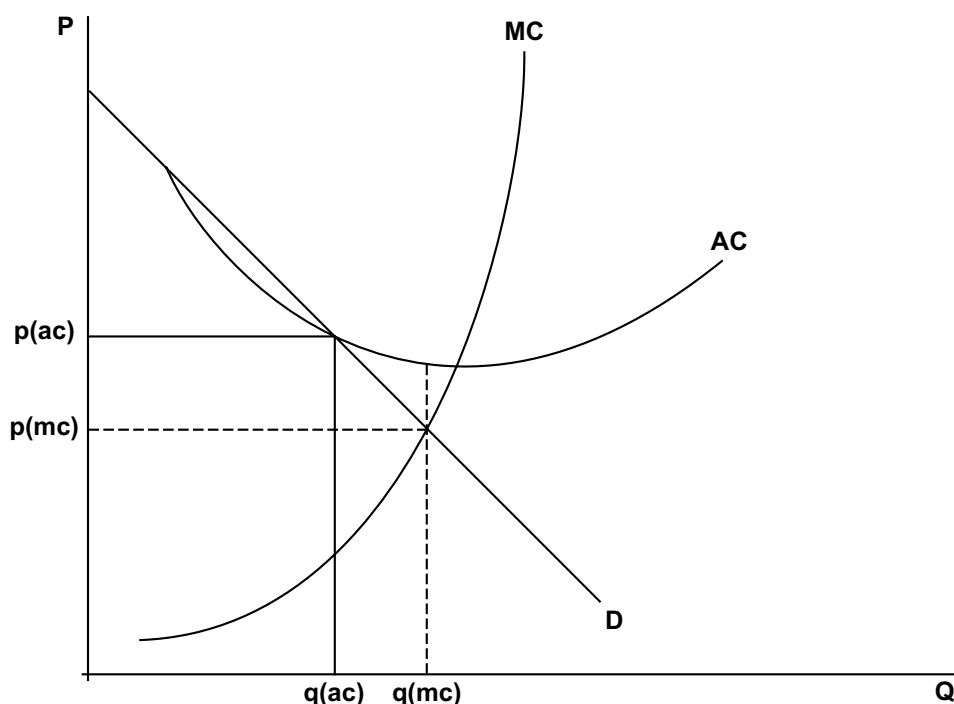
depicted in Figure A.2, the market structure—that is, the number of firms operating in a market combined with the pricing outcome—owes chiefly to demand for the product relative to the cost structure. Put most succinctly, Varian (1987) asserts the following:

“Thus, the shape of the average cost curve, which in turn is determined by the underlying technology, is one important aspect that determines whether a market will operate competitively or monopolistically.” (p. 409)

The point is that if costs are low relative to overall market demand, competition is likely to emerge. In contrast, if costs are high relative to market demand, too few producers will enter and monopoly outcomes are more likely. With so many technological breakthroughs over the past 25 years, it is expected that some experimentation will occur with respect to the appropriate level of regulation.

Despite all the changes in federal regulations, local governments continue to create barriers to entry. Hazlett (2006) argues that video franchise agreements act like a barrier to entry in the local cable television markets. According to the FCC, there are 33,000 municipal and county jurisdictions that issue video franchises.<sup>31</sup> Local governments receive significant payments from the video franchises. Not surprisingly, local governments have joined with existing cable system operators in opposing changes to the current video franchise arrangements.<sup>32</sup>

Figure A.3: A Natural Monopolist



## NOTES

- <sup>1</sup> See Steven Titch, *IT&T News*, February 1, 2007, The Heartland News. Also found at <http://www.heartland.org/Article.cfm?artId=20535>.
- <sup>2</sup> Source: MB Docket No 05-255, Federal Communications Commission, FCC 06-11.
- <sup>3</sup> See *Television Factbook*, 2005.
- <sup>4</sup> Television watching is the activity that dominates Americans' non-work time. According to a Nielsen Media Research report, the average U.S. household tuned into television for 8 hours and 11 minutes a day in 2005. Nielsen Media Research, *Nielsen Reports American Watch TV at Record Levels*, September 29, 2005. The estimates are based on its National People Meter service.
- <sup>5</sup> The report can be found at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-06-11A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-11A1.pdf). It reports that there are 109.6 TV households in the United States as of June 2005.
- <sup>6</sup> A Herfindahl index equal to 0.18 and above is generally regarded as being a concentrated industry.
- <sup>7</sup> See the article by Steven Titch that is referenced at <http://www.heartland.org/Article.cfm?artId=20535>.
- <sup>8</sup> See Goolsbee and Petrin (2004).
- <sup>9</sup> See the General Accounting Office report, GAO-03-742T for a description of the conditions associated with effective competition in the television market.
- <sup>10</sup> Normal returns follow from a pricing strategy in which price equals average economic cost. Economic cost takes into account the opportunity to owners, thus including rates of return. The downside is that the firm's cost structure is not observable, creating problems for regulators. I will develop this framework more thoroughly in the next section.
- <sup>11</sup> See Jaffe and Kanter (1990), p. 227.
- <sup>12</sup> See GAO report RCED-91-195. Hazlett (1996) reports evidence supporting the notion that quality improved after deregulation. In 1983, cable program spending per subscriber was \$8.12. By 1992, operators spent \$35.14 per subscriber on basic cable programming. Thus, programming-spending-per-subscriber increased by 334 percent during this nine-year period. Clearly, spending increased at a much faster rate than the growth rate in the number of channels.
- <sup>13</sup> The data are obtained by the *Television and Cable Factbook*, 2006 ed. The number of subscribers are estimated as of January 1 of each year and thus may differ from the number of subscribers reported by the Federal Communications Commission reports.
- <sup>14</sup> The specifics are itemized in Section 623 of Public Law 102-385, October 5, 1992. See pp. 7-8 <http://www.caltelassn.com/Reports06/CommLaw/CableTVConsumerProtectionAct1992.pdf>
- <sup>15</sup> P. 25 of Public Law 102-385, October 5, 1992. See <http://www.caltelassn.com/Reports06/CommLaw/CableTVConsumerProtectionAct1992.pdf> for the bill.
- <sup>16</sup> The Wall Street Journal cites Telesat's efforts in Dade County Florida as an example of the unregulated entrant. Dade County officials asserted that Telesat would get more favorable treatment than the incumbent cable system operator. A six-month long feasibility study led to a 2 ½ year wait, at which point Telesat withdrew its application.
- <sup>17</sup> See Hazlett (1986), Levin and Maisel (1991), Beil, et al (1992), and Emmons and Prager (1997).
- <sup>18</sup> Statement of Chairman Kevin J. Martin in response to the Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992, State Report on Average Rates for Basic Service, Cable Programming Service, and Equipment, MM Docket No 92-266.
- <sup>19</sup> See *Issues Related to Competition and Subscriber Rates in the Cable Television Industry*, GAO-04-08, October 2003.
- <sup>20</sup> According to FCC News, December 20, 2006, the monthly price for basic cable in 2006 was \$28.74. A 15.6 percent reduction in the monthly bill would result in a price equal to \$24.26. The initial numbers of subscribers to basic cable in Missouri is 1,033,424. Thus, following the equation would yield an increase in consumer surplus equal to \$50.6 million.
- <sup>21</sup> This production function is often referred to as the production part of the AK model. Note that K is often interpreted as a combination of physical and human capital. In this report, I will be interested in changes in physical capital.
- <sup>22</sup> This value is adopted from the economic growth literature. Values for A range from 1.06 to 1.07. See Haslag (1998) for an example.
- <sup>23</sup> There is an impact on revenues paid to local municipalities. Franchise fees will vanish if statewide franchise is permitted. Cities, however, will be permitted to sell right-of-way to the entrants. In addition, Senate Bill 816 provides for a video service provider fee that shall not exceed five percent of revenues that will be paid to the political subdivision. Presumably, the political subdivision is indifferent between the franchise fee and the video service provider fee.
- <sup>24</sup> Hazlett and Spitzer (1997) assert that "The fact that output appears to rise during the deregulation period is evidence the price increases were driven—and matched—by quality improvements." (p.101)
- <sup>25</sup> Here, the term "quasi" captures an important economic distinction. In textbook economics, there is no supply function for the monopolist because the single producer faces the market demand curve. As the analysis above shows, the monopolist chooses the quantity that maximizes profits, subject to any regulatory constraint, and sets price from the market demand curve. As such, there is no schedule

that represents the combination of prices and quantities from which a single producer will choose. The monopolist chooses a single point that is the combination of price and quantity. In a competitive setting, the supply curve is a collection of prices and quantities that maximize profit.

<sup>26</sup> See Rosen (1974) and Freeman (1979) for examples of hedonic pricing models. Anstine (2001) develops this first step thoroughly, describing how to derive the hedonic pricing equation for cable channels. She uses the modification suggested by Feenstra (1995) to correct for the inherent bias that price will exceed marginal cost.

<sup>27</sup> Interestingly, different cable system operators had different outcomes in terms of what their customers would have paid and what they actually paid during the regulated period. More specifically, consumers could have seen higher or lower prices during regulation relative to what they would have paid. For instance, consumers in Thousand Oaks, CA paid \$21.90 in 1985, but valued the package at \$12.15 based on the estimates of the marginal willingness to pay. In contrast, consumers in Pasadena, CA actually paid \$11.95 in 1985 while the package was valued at \$45 based on the marginal willingness to pay estimates.

<sup>28</sup> For now, I am leaving out the average cost curve. Thus, the assumption is that  $p^*$  is not less than the average variable cost evaluated at  $q^*$  so that the monopolist will not shut down.

<sup>29</sup> This is where the monopolist's profit maximization problem differs from the illustration developed here. If the monopolist produces one extra unit, she assumes that all units sell for that single price. Thus,

$$\frac{\Delta r}{\Delta q} = p + \frac{\Delta p}{\Delta q} q;$$

that is, marginal revenue is equal to the price plus the slope of the demand curve times the quantity. Since the demand curve is downward sloping, the second term is negative and profits fall when marginal revenue is less than marginal cost.

<sup>30</sup> Frequently, the monopolist pricing decision is framed in terms of the elasticity of demand. Marginal revenue is represented by the following equation:

$$MR = p\Delta q + q\Delta p \quad (1)$$

According to the first term in equation (1), the change in revenue is equal to the gains

from the additional output sold at the price. In addition, the monopolist faces a second impact owing to the demand curve; hence, the extra quantity is sold at a lower price so that the marginal revenue must take into account the quantity sold times the change in the price. After dividing both sides of equation (1) by the change in quantity and rearranging, I define the elasticity of demand as

$$\varepsilon = \frac{\Delta q}{\Delta p} \frac{p}{q}$$

The result is that we can represent marginal revenue as

$$p \left[ 1 + \frac{1}{\varepsilon} \right] \quad (2)$$

Since marginal cost is always positive and the elasticity of demand is negative by the Law of Demand, it follows from equation (2) that the monopolist will only sell quantities in the elastic portion of the demand curve; that is, where  $\varepsilon < -1$ .

<sup>31</sup> Federal Communications Commission, *In the Matter of Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992, Statistical Report on Average Rates for Basic Service, Cable Programming and Equipment: Report on Cable Industry Prices*, MM Docket No. 92-266.

<sup>32</sup> For the interested reader, Hazlett (2006) provides an excellent overview of the franchise agreements and the incentives that are at work.

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