Before the
Federal Communications Commission
Washington, D.C. 20554

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 Services, and Equipment	)))

MM Docket No. 92-266

REPORT ON CABLE INDUSTRY PRICES

Adopted: **February 8, 2001**   Released: **February 14, 2001**

By the Commission:

I.   INTRODUCTION

1.   Section 623(k) of the Communications Act of 1934 ("Communications Act"),[1] as amended by the Cable Television Consumer Protection and Competition Act of 1992 ("1992 Cable Act," 47 U.S.C. § 521 *et seq*), requires the Commission to publish annually a statistical report that compares prices charged by cable operators facing effective competition[2] with those of operators not facing effective competition for the delivery of basic service, other cable programming services, and equipment.[3] This 2000 Report is issued in compliance with that statutory obligation.[4]

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[1] 47 U.S.C. § 543 *et seq*.

[2] Under the 1992 Cable Act, effective competition is defined to exist: (1) where the franchise area is served by at least two unaffiliated multichannel video programming distributors ("MVPDs"), each of which offers comparable video programming to at least 50% of households, and at least 15% of households subscribing to programming services offered by an MVPD subscribe to services other than those offered by the largest MVPD (referred to herein as head-to-head competition or the "overbuild test"); (2) where fewer than 30% of the households in the franchise area subscribe to the cable service of a cable system (the "low penetration test"); or (3) where a municipal cable system offers service to at least 50% of the households in the franchise area (the "municipal test"). Communications Act § 623(l)(1)(A)(B)(C), 47 U.S.C. § 543(l)(1)(A)(B)(C). The Telecommunications Act of 1996 added a fourth prong, finding that effective competition exists where a local exchange carrier ("LEC") or its affiliate (or any MVPD using the facilities of such carrier or its affiliates) offers video programming services (other than direct-to-home satellite services) in the franchise area of an unaffiliated cable operator, but only if the services so offered are comparable to the services provided by the cable operator (the "LEC test"). Communications Act, § 623(l)(1)(D), 47 U.S.C. § 543(l)(1)(D).

[3] Pub.L.No. 102-385, 106 Stat. 1460 (1992), § 623(k), 47 U.S.C. 534(k) (1992). The 1992 Cable Act amends Title VI of the Communications Act of 1934. The 1992 Cable Act defines the term "basic cable service" as "any service tier which includes the retransmission of local television broadcast signals." Cable programming service is defined as "any video programming provided over a cable system regardless of service tier...other than (A) video programming carried on the basic service tier, and (B) video programming offered on a per channel or per program basis." *See* 47 U.S.C. § 522(3) and 47 U.S.C. § 543(l)(2).

[4] For the results of previous surveys, see Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992 (Statistical Report on Average Prices for Basic Service, Cable Programming Services,

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2. The information and analysis provided in this Report are based upon the Commission's 2000 survey of cable industry prices ("Survey"). On July 3, 2000, the Commission released an Order directing cable operators[5] selected as part of a random sample representative of the industry to respond to Commission data requests, pursuant to Section 623(k) of the Communications Act, no later than August 15, 2000.[6] The Survey requested data from selected cable operators as of July 1, 1999 and July 1, 2000. Limited amounts of data were requested as of July 1, 1998. The Survey collected information about each operator's regulatory status, monthly charges for the basic service tier ("BST") and cable programming service tiers ("CPSTs"), monthly charges for equipment, installation fees, reconnect fees, and fees for tier changes.

3. The Survey also sought information needed to determine average rates per channel and to explain changes in rates between the Survey dates. The Survey enables the Commission to compare the prices charged by two groups of cable operators: (1) cable operators that face effective competition as defined by the Communications Act, referred to as the "competitive group;" and (2) cable operators that do not face effective competition, referred to as the "noncompetitive group." Within the noncompetitive group, information was collected from both operators that were regulated and unregulated.[7] We also sought to gather information about the price and availability of services such as digital tiers, Internet access, and telephony offered by cable operators. In addition, we sought to gather information and analyze the effect of clustering (the practice of operating commonly owned cable systems in close proximity on an integrated basis through the use of shared personnel and/or facilities). Finally, we sought information on the number of Direct Broadcast Satellite ("DBS") subscribers in each cable operator's franchise area in order to determine if DBS penetration has had an effect on the demand for cable as well as on the monthly charges for cable service. The major findings of the Survey are summarized below.

II. SUMMARY OF FINDINGS

4. Competitive operators increased average monthly rates for BST, CPST, and equipment by 5.8% during the 12-month period ending July 1, 2000; noncompetitive operators also increased rates by 5.8%, over the same period. These increases compared with increases of 4.5% and 5.2% for the competitive and noncompetitive groups, respectively, for the year ending in July 1, 1999.

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and Equipment), Report on Cable Industry Prices, 15 FCC Rcd 10927 (2000) (*"1999 Report"*); 14 FCC Rcd 8331 (1999) ("*1998 Report*"); 12 FCC Rcd 22756 (1997) ("*1997 Report*"); 12 FCC Rcd 3239 (1997) ("*1996 Report*"); *Report on the Cable Services Bureau's Survey on the Rate Impact of the Federal Communications Commission's Revised Rate Regulations,* 9 FCC Rcd 5484 (1994); FCC, Cable Services Bureau, Report and Summary (released Feb. 22, 1994); Report and Order and Further Notice of Proposed Rulemaking, 8 FCC Rcd 5801 (1993); Second Order on Reconsideration, Fourth Report and Order, and Fifth Notice of Proposed Rulemaking, 8 FCC Rcd 5361 (1993) ("*Benchmark Order*").

[5] For purposes of this report, a cable company is considered to be an operator for each Community Unit Identification Number ("CUID") it serves. Thus, if a company serves 50 CUIDs that are included in the Survey, that company will be referred to herein as 50 operators. A CUID is a unique identification code assigned by the Commission to a single operator within a community unless the operator also serves a separate area within the same community. In that case, there would be two separate CUIDs, one for each area served.

[6] *Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992*, MM Docket No. 92-266, Order, 15 FCC Rcd 11473 (2000).

[7] CPST regulation ended on March 31, 1999. The Commission no longer has authority to receive or act upon complaints regarding rate increases that occurred after March 31, 1999. Local communities, however, continue to have the authority to regulate the rates of the basic service tier and equipment. *See* 47 U.S.C. § 543(c)(4), *as amended*, by Telecommunications Act of 1996, Pub.L. No. 104-104 § 301(a)(1), 110 Stat. 115 (1996).

5.   For the 12 months ending July 1, 2000, competitive and noncompetitive operators attributed 44.1% and 41.4%, respectively, of their rate increases to higher programming costs. In order of importance, other specific factors that reportedly led to price increases were system upgrades, equipment cost increases, inflation, and increased costs for programming associated with newly added channels. The competitive group attributed 21.5%, and the noncompetitive group 7.5%, of their rate increases to unspecified costs. Competitive and noncompetitive operators also explain that 9.6% and 13.4%, respectively, of their rate increases were not identified with specific cost changes.

6.   Since their percent price increases were equal, the difference in average monthly rates for BST, CPST, and equipment (typically a converter and remote) between competitive and noncompetitive operators (the "competitive differential") also stayed the same at 5.3%. On July 1, 1999, competitive and noncompetitive cable operators charged $30.63 and $32.25, respectively, a 5.3% differential between the two groups. By July 1, 2000, cable operators facing competition were charging, on average, $32.40 while operators not facing competition were charging $34.11, also a 5.3% differential.[8]

7.   Within the overall average monthly rate, the rates of increase for BST and CPST services were similar for the competitive group, as BST rates rose 6.1% and CPST rates rose 5.9%. For the noncompetitive group, CPST rates rose faster than BST rates. The average rate for BST service increased by 2.3% between July 1, 1999 and July 1, 2000, while the average rate for CPST service increased by 8.3%.

8.   Both competitive and noncompetitive groups increased the average number of channels offered on BST and CPST service during the 12 months ending July 1, 2000. The competitive group averaged 59.9 channels and the noncompetitive group averaged 54.8 channels as of July 1, 2000, increases in channel offerings of 4.0% and 5.4%, respectively.[9] Despite an increased average number of channels, the per channel rate for the competitive group was unchanged at $0.57 over the 12 months ending July 1, 2000, and increased for the noncompetitive group from $0.65 to $0.66 per channel over that period.

9.   Many cable operators offered digital and non-video services in 2000. As of July 1, 2000, the percentage of surveyed cable operators that offered a digital programming tier doubled from 27% a year earlier to 54%. Further, 47% offered Internet services and 7% offered telephone service. Clustering did not lead to increases in the availability of Internet or telephony services or a reduction in the average monthly rate charged for cable services when compared with non-clustered operators.

10.   Revenue from non-video sources increased as a percent of total revenue from 1.5% to 3.5% between 1999 and 2000. This may be attributed to the growing importance of these services and the

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[8] Ideally, when calculating price changes, we would like to take into account changes in the quantity and quality of service provided. In the case of cable rates, however, that is difficult to do because both the quantity and quality of services provided have changed significantly in recent years as cable operators have upgraded their systems' capacity. Increased system capacity, typically, results in additional channels of service and may also result in improved signal quality, improved system reliability and the provision of new services. Therefore, we report average monthly rates on a per channel basis as a proxy for quality adjusted price changes. *See* ¶ 8, *infra.*

[9] These figures only include channels devoted to BST and the most highly subscribed CPST service, and do not include channels devoted to premium or pay-per-view services (i.e., services offered on a per channel or per program basis), digital services, or non-video services. Taking into account these additional channels and unused capacity, the average channel capacity reported by the competitive group rose from 96.8 channels to 100.5 channels, an increase of 3.8%. Similarly, average channel capacity for the noncompetitive group rose from 85.2 channels to 90.3 channels, an increase of 6.0%. Of the operators in our Survey, 9.1% of competitive and 11.4% of noncompetitive operators reportedly increased capacity during the last 12 months.

increasing number of operators offering Internet and telephony services. Of the cable operators surveyed, 52% received revenue from non-video subscriber services during the 12-month period ending July 2000, an increase from the 32% who reported receiving such revenue during the 12-month period ending July 1999.

11.   Operators also reported that DBS service has captured, on average, an estimated 14.7% share of television households in their service areas. In addition, we found that the demand for cable service is somewhat sensitive to changes in monthly cable rates.

III.   SURVEY METHODOLOGY

A.   Sample

12.   To compare the average prices of the competitive and non-competitive CUIDs, we selected a sample from each group independently. The competitive CUIDs in our sampling universe consisted of 575 cable operators, including those found by the Commission to face effective competition and the cable operators that are their competitors. To gain more precise estimates, we used a stratified sampling methodology. The 575 competitive CUIDs were divided into five subgroups (or strata) according to the test by which effective competition was determined. The five strata were (1) local exchange carrier ("LEC"); (2) wireline overbuild; (3) DBS overbuild (*i.e.,* where the competitor is a DBS operator); (4) low penetration; and (5) municipal.[10]

13.   We selected a total of 352 CUIDs among these five subgroups to receive our questionnaire.[11] Selections included all 15 of the CUIDs in the municipal subgroup in order to have enough observations within that subgroup for adequate statistical precision. The proportion of subscribers nationwide within each subgroup determined the division of these selections among the remaining four subgroups. High proportions of subscribers resulted in 100% sampling of the 193 CUIDs in the LEC subgroup and the 61 CUIDs in the wireline overbuild subgroup. The remaining selections were divided among the low penetration and DBS overbuild subgroups. Sixty-seven out of 176 CUIDs from the low penetration subgroup, and 16 out of 130 CUIDs in the DBS overbuild subgroup, were randomly chosen.

14.   The noncompetitive group in our sampling universe included 31,006 CUIDs.[12] We divided these CUIDs into five strata by cable system size.[13] A sample of CUIDs not stratified by system

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[10] The overbuild subcategory is disaggregated into wireline overbuild and DBS overbuild subcategories because the characteristics of each subgroup are somewhat different. While there are twice as many CUIDs where the competitor is a DBS provider than a wireline overbuilder, these operators tend to have fewer subscribers than wireline overbuild operators. Had we not sampled the DBS and wireline overbuilds separately, a disproportionate weight would have been given to the DBS overbuild component relative to the number of customers served.

[11] This number was derived from a standard formula used to determine sample size. *See* Mandel, B.J., *Statistics For Management*, 1984 at 258 ("Mandel").

[12] Source: FCC Form 325. It should be noted that a cable system might contain more than one CUID. Because we stratified by system size, it was necessary to have a system subscriber count for each CUID in our universe from which we selected our sample. Thus, we eliminated 1,340 CUIDs for which we did not have system subscriber counts from a group of 32,346 noncompetitive CUIDs, leaving 31,006 CUIDs from which to select our sample of noncompetitive CUIDs.

[13] These size strata thresholds do not reflect the statutory definition of a small cable system, company or operator. The Code of Federal Regulations defines a small system as "a cable television system that serves 15,000 or fewer subscribers." A small cable company is defined as "a cable television operator that serves a total of 400,000 or fewer subscribers over one or more cable systems." A small cable operator is defined as "an operator that, directly or through an affiliate, serves in the aggregate fewer than one percent of all subscribers in the United States and is

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size would have placed a disproportionately greater emphasis on smaller systems relative to the number of subscribers the smaller systems serve.[14] CUIDs with 50,000 or more subscribers comprised the very-large stratum. CUIDs with less than 50,000 subscribers belonging to systems exceeding 50,000 subscribers comprised the large stratum. The medium-sized stratum consisted of CUIDs in systems ranging from 10,000 through 49,999 subscribers. CUIDs in systems with at least 1,000 subscribers and less than 10,000 subscribers were placed in the small group. The very-small stratum was comprised of CUIDs in systems with less than 1,000 subscribers.

15. We selected a total of 460 noncompetitive CUIDs to receive our questionnaire.[15] Selections included all 109 CUIDs in the very-large stratum because of the large number of subscribers these CUIDs serve. The proportion of subscribers nationwide primarily determined the selections among the remaining four stratum. We increased the number of selections in the very-small stratum, however, from 17 CUIDs (on the basis of proportion of subscribers) to 35 CUIDs. This was necessary for statistical precision given the historically high variance in rates among CUIDs in this stratum. The remaining CUIDs were divided and randomly selected from the small, medium, and large subgroups. Sixty-seven small CUIDs, 137 medium CUIDs, and 112 large CUIDs were selected.

16. Of the 812 survey questionnaires mailed to cable operators from both groups, respondents returned 762 completed questionnaires to the Commission in time to be included in the analysis. Of these, 721 met minimum necessary data requirements.[16] The remaining 41 lacked sufficient information to be included in the analysis. As of July 1, 2000, operators serving the 721 CUIDs included in the analysis served a total of 13.9 million subscribers, or 20.5% of the 67.7 million-cable subscribers nationwide.[17]

17. Competitive cable operators submitted 318 usable questionnaires. These 318 respondents served approximately 2.6 million subscribers, or 3.8% of all cable subscribers. Of these, 248 respondents report facing direct competition in their geographic area, with 67 meeting the overbuild test (including both DBS and wireline overbuilds) and 181 meeting the LEC test. Of the remaining respondents in the competitive group, 57 served fewer than 30% of the households in their service area (thereby meeting the low penetration test) and 13 CUIDs are served by the municipality in their service area (thereby meeting the municipal test).

18. Noncompetitive cable operators submitted the remaining 403 usable responses. These respondents provide service to 11.3 million subscribers, or approximately 16.7% of all cable subscribers. See Attachment A for further statistical information about the sample.

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not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed $250,000,000." *See* 47 CFR § 76.901. *See also Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992: Rate Regulation,* Sixth Report and Order and Eleventh Order on Reconsideration, 10 FCC Rcd 7393 (1995) ("*Small System Order"*).

[14] *See* Footnote 23 for the rationale of using system versus CUID size.

[15] *See* Footnote 11, *supra.*

[16] In order to be included in the statistical analysis, respondents must have provided the average monthly charge and number of channels offered as of July 1998, 1999, and 2000. See Attachment A1 for specific response rates and observations.

[17] Total cable subscribers are as of June 30, 2000. *See Paul Kagan Associates, Inc., Cable Industry 10-Year Projections, Cable TV Investors, June 19, 2000.*

B.   Variables

19.   We focused our analysis on six variables, and calculated an average for each variable by competitive status as well as size. The variables are: (1) average monthly rate for BST and CPST programming services; (2) average monthly charge for equipment; (3) average monthly rate for programming services and equipment; (4) average number of channels; (5) average monthly rate per channel; and (6) average monthly rate per satellite channel. We describe each variable below.

Average Monthly Rate for Programming Services (BST and CPST). This variable is the monthly rate paid by subscribers for the BST[18] and the most highly subscribed CPST.[19] It excludes premium, a la carte, and pay-per-view services, and digital tiers. Additional CPSTs beyond the most highly subscribed are also excluded.

Average Monthly Charge for Equipment. This variable is the average monthly charge paid by subscribers for a converter (either addressable or non-addressable) and remote control unit. It equals the monthly charge for a remote plus the monthly rate for the type of converter purchased by the largest number of subscribers.[20]

Average Monthly Rate (for BST, CPST, and Equipment). This variable equals the sum of the monthly programming service and equipment charges. It represents the rate that a typical subscriber pays for BST, CPST service, and equipment.

Average Number of Channels (BST and CPST). This variable is the average number of channels a typical subscriber receives on the BST and most highly subscribed CPST. As with the monthly rate, this variable excludes channels devoted to premium, a la carte, and pay-per-view services, digital tiers, and additional CPSTs. We also report the average number of satellite channels, which is a subset of all channels and does not include local broadcast, PEG, or other local origination channels or services.

Average Monthly Rate Per Channel (BST and CPST). This variable is the programming services rate divided by the average number of channels offered. [21]

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[18] The BST in our Survey is defined as the package of channels (or tier) that includes signals from local television broadcast stations (such as affiliates of the major networks, independent stations, and noncommercial stations), public, educational, and governmental ("PEG") channels, and some satellite channels.

[19] The CPST is defined as any package or tier of channels other than BST or programming offered separately as pay-per-channel programming or pay-per-program services. Some operators offer more than one CPST and in such cases we use only data from the CPST with the greatest number of subscribers. Thus, we refer to the CPST in our analysis as "most highly subscribed CPST." *See note* 3.

[20] We do not report separate figures for a converter and a remote since a large proportion of cable operators do not distinguish customers by their rental of a particular type of converter or remote.

[21] The value of cable services can be measured in various ways. Some analysts have suggested that the average number of channels (or satellite channels) received by subscribers, along with their respective per channel rates, are an appropriate measure of value. Alternatively, it has been suggested that an increase in the number of channels (satellite or otherwise) may not be similarly valued by all subscribers, or that as more channels are added, the additional channels have a declining marginal value. Because of the difficulty of obtaining consumer valuation data, our survey did not specifically seek information on how consumers value individual channels within the BST and CPST packages they receive, or how they would value these packages if given the option of receiving fewer channels or different channels than those offered. We report on the average monthly rate per channel as well as the average monthly rate per satellite channel in order to facilitate rate comparisons across all categories of operators and over time.

Average Monthly Rate Per Satellite Channel (BST and CPST). This variable is the programming services rate divided by the average number of BST and CPST satellite channels.

20.   In addition to these variables, we sought information on the availability of digital tiers and non-video services such as Internet access and telephony. We also sought information on charges for installation, reconnection, and tier changes, as well as on the distribution of channels among the major categories of programming (*e.g.,* news, sports).

C.   Calculation of Price Averages

21.   As discussed above, we used a stratified sampling methodology to gain more precise estimates of average prices.[22] The competitive group was stratified according to the test by which effective competition was determined, and the noncompetitive group was stratified according to the number of subscribers in the system to which the CUID belonged.[23] Price averages were calculated using the following three steps.

22.   First, we divided the Surveys from competitive CUIDs into five strata by type of competition including LEC, wireline overbuild, DBS overbuild, low penetration, and municipal. Surveys from noncompetitive CUIDs were divided into five strata by system size. The first size strata (very large) includes CUIDs serving 50,000 or more subscribers. The second strata includes CUIDs serving less than 50,000 belonging to systems that serve more than 50,000 subscribers (large). The remaining three strata include CUIDs belonging to systems serving at least 10,000 but less than 50,000 subscribers (medium-sized), at least 1,000 but less than 10,000 subscribers (small), and less than 1,000 subscribers (very small). Second, we calculated a price average for each of the six primary variables in each stratum.

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[22] For a general explanation of stratified sampling methodology, see William G. Cochran*, Sampling Techniques, Third Edition*, at 87-113. The use of statistics as an analytical tool is a way of estimating the unknown characteristics of a population by examining a random sample selected from the population. Nevertheless, the average monthly rate for our sample probably will not exactly match the average monthly rate for the entire population, even though our sample is representative of the entire population of cable CUIDs. Rather, the average monthly rate for the population of over 30,000 CUIDs will fall within a range of values calculated from the sample. According to statistical theory, the average monthly rate for the population of 30,000 CUIDs is bounded by the sample's reported average plus or minus 1.96 multiplied by the standard error of the mean (average). This will give us a "95.5% confidence level." (A 95.5% confidence level means that if multiple samples are drawn from the population, the estimated statistic [*e.g*., a mean or average] will lie within the interval for 95.5% of the samples, and outside the interval for 4.5% of the samples.) Using this method, we can estimate the average monthly rate for the population of 30,000 CUIDs. If, for example, our sample's reported average monthly rate is $25.00 and the standard error is $0.50, we estimate that the average monthly rate lies between $24.02 and $25.98 with a 95.5% confidence level. We arrive at the low end of the range, $24.02, by subtracting 1.96 times $0.50 (the standard error) from $25.00, and we arrive at $25.98, the high end of the range, by adding 1.96 times $0.50 to $25.00. In this report, the standard error for each estimated average is reported in Attachment B. *See also*, Kmenta, J., *Elements of Econometrics*, at pages 70-153 ("Kmenta") and Mandel at pages 238-267, for a further explanation of sampling methodology.

[23] We use system size rather than CUID size to determine the size strata because system size provides a more representative classification methodology. For instance, a system with more than 50,000 subscribers in total may be made up of several CUIDs, including individual community units with very few subscribers. In that case, the CUID would behave like a large system because its monthly rate, number of channels offered, channel capacity, etc., would be dictated by the system, not the community unit level. Therefore, it is more appropriate to group such a CUID in the large system stratum rather than the small system stratum.

23.   Third, an overall average for each primary variable was calculated individually for the competitive and noncompetitive groups. For each group and primary variable, the average equaled the sum of the weighted averages of the strata. The weight given to the average of each stratum was the proportion of subscribers in that stratum relative to the group, displayed in Attachment 1.[24] Of the subscribers in the universe of competitive CUIDs, we estimate that 58.5% were served by the LEC subgroup, 22.1% by the wireline overbuild subgroup, 4.6% by the DBS overbuild subgroup, 13.8% by the low-penetration subgroup, and 1.1% by operators in the municipal subgroup. For the noncompetitive group, we estimated that 17.8% of subscribers in our universe were served by the very-large subgroup, 27.8% by the large subgroup, 34.3% by the medium-sized subgroup, 16.6% by the small subgroup, and 3.5% were served by the very-small subgroup. These percentages became the weights used to calculate the overall averages for the competitive and noncompetitive groups.[25]

IV.   SURVEY RESULTS

A.   Comparison of Competitive and Noncompetitive Groups

24.   Table 1 shows the average monthly rates for the competitive and noncompetitive groups, and the differential between these two groups, as of July 1, 1998, 1999, and 2000.[26] Over the three years shown, average monthly rates (the rate charged for BST, the most highly subscribed CPST, a remote, and a converter) have increased for both groups and the differential between them widened between 1998 and 1999 and remained constant between 1999 and 2000. The difference in monthly rates between competitive and noncompetitive operators was 4.5% in July 1998, widened to 5.3% in July 1999, and remained at 5.3% in July 2000. These differentials are statistically significant, as denoted by the asterisks in Table 1.[27] See Attachments B-1, B-2, B-3 and B-5 for more detailed information on the differentials between the competitive and noncompetitive groups.

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[24] The subscriber counts used to stratify the noncompetitive CUIDs and to compute the weights are for 1994, which is the latest year that system and subscriber counts are available for every CUID in the universe. Since it is likely that the percentage growth in subscribers has been fairly evenly distributed across all communities, the 1994 weights serve as a reasonable approximation of year 2000 weights.

[25] There are several methods available for calculating subscriber weighted averages. In addition to the method we have adopted, there is also a "ratio method." The ratio method uses a double weighting process. First, results are weighted by the number of subscribers in each CUID, and next weighted by the proportion of subscribers selected in each stratum to the universe of subscribers for that stratum. We compared averages calculated using the ratio method with the method we ultimately adopted and found that the results were similar for both methods. For further information on various methods of calculating subscriber weighted averages, see William E. Deming, *Some Theory of Sampling,* at 135-211.

[26] The prices reported in this document have not been adjusted for inflation and therefore are in nominal dollars.

[27] For this and all subsequent tables we measure statistical significance at the 95.5% level using a z test. We apply the z test to determine whether a change over time, or the difference between the estimated means for two groups, is significant. *See* Kmenta, at 136-137, for an explanation of the z test. *See* Attachments B-1, C-1, and D-1, D-2 for standard errors for the averages.

Table 1. Comparison of Average Monthly Rates, Competitive and Noncompetitive Groups				
Date	**Competitive**	**Noncompetitive**	**Difference**	**% Difference**
7/1/00	$32.40	$34.11	$1.71	5.3%*
7/1/99	$30.63	$32.25	$1.62	5.3%*
7/1/98	$29.32	$30.65	$1.33	4.5%*

*An asterisk denotes a statistically significant difference between the competitive and noncompetitive groups at a 95.5% level of confidence.

25. Operators in the competitive group belong to one of five subcategories -- wireline overbuild, DBS overbuild, low penetration, municipal or LEC -- under the Commission's effective competition standard. Table 2 reports the average rate for each competitive subcategory compared with the average for the noncompetitive group. Attachment B-5 provides a more detailed comparison of these competitive subcategories as well as the differentials in average monthly rates between each competitive subcategory and the noncompetitive group along with number of channels and per channel rates over time.

Table 2. Comparison of Averages for Competitive Subcategories with Noncompetitive Group†						
Date	**Wireline Overbuild**	**DBS Overbuild**	**LEC**	**Low Penetration**	**Municipal**	**Noncompetitive**
			Average Monthly Charges			
7/1/00	$33.74	$33.23	$32.21	$31.56	$22.56	$34.11
7/1/99	$31.49	$32.90	$30.40	$30.17	$21.54	$32.25
7/1/98	$29.76	$31.40	$29.96	$28.88	$20.58	$30.65
			Number of Channels			
7/1/00	56.5	38.6	66.3	45.9	50.3	54.8
7/1/99	53.2	35.1	64.5	43.5	48.9	52.0
7/1/98	51.0	31.9	62.9	42.5	46.8	49.8
			Charge Per Channel			
7/1/00	$0.62	$0.96	$0.49	$0.74	$0.46	$0.66
7/1/99	$0.62	$1.02	$0.48	$0.74	$0.46	$0.65
7/1/98	$0.61	$1.07	$0.48	$0.73	$0.47	$0.65

†See Attachment B-5 for averages, standard errors, the percentage differentials, and the test for statistical significance. Although both wireline and DBS overbuilds are a part of the overbuild subcategory, for comparison purposes we calculated their averages separately.

26. Table 2 shows that average monthly rates vary significantly among the competitive subcategories, from $22.56 to $33.74 as of July 1, 2000. The average monthly charge for every subcategory of the competitive group, however, is lower than the average monthly rate of $34.11 for the noncompetitive group. The Table also provides the average number of channels and the average monthly charge per channel for each subcategory of the competitive group and for the noncompetitive group.

27. We recognize that rates charged by individual cable operators are affected by a number of factors in addition to competitive status. [28] Size is one such factor. In order to determine the extent to

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[28] The Commission, in its *Benchmark Order*, identified a number of variables as factors influencing subscriber rates. These included competitive status, system size, average household income in the area served and whether or not the

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which size influences rates, we calculated the average monthly rate by system size in both the competitive and noncompetitive groups. Tables 3 and 4 present the results of these calculations.

28.   The tables show that rates increased across the size categories from small, to medium, to large for both the competitive and noncompetitive groups. When compared with the noncompetitive group, the competitive group has consistently lower rates in all categories. Attachment B-2 contains additional information on competitive and noncompetitive differentials by size. Attachment B-3 also provides detailed information on the number of channels and per channel rates by size category.

Table 3. Average Monthly Rates, Competitive Group by Size Category†

Size Category	7/1/98 (a)	7/1/99 (b)	% Change (a to b)	7/l/00 (c)	% Change (b to c)
Large	$30.01	$31.46	4.8%*	$33.47	6.4%*
Medium	$30.21	$31.44	4.1%*	$33.31	5.9%*
Small	$26.31	$27.30	3.8%	$28.35	3.8%

†The large category includes the large and very large subgroups as described in Section III, including CUIDs with 50,000 or more subscribers (very large), and with less than 50,000 but belonging to systems with 50,000 or more subscribers (large). The medium category includes CUIDs in systems with at least 10,000 but less than 50,000 system subscribers. The small category includes CUIDs belonging to systems with at least 1,000 but less than 10,000 system subscribers (small) and those with less than 1,000 system subscribers (very small).
*An asterisk denotes a statistically significant change over time at a 95.5% level of confidence.

Table 4. Average Monthly Rates, Noncompetitive Group by Size Category

Size Category	7/1/98 (a)	7/1/99 (b)	% Change (a to b)	7/1/00 (c)	% Change (b to c)
Large	$31.61	$33.30	5.3%*	$35.16	5.6%*
Medium	$30.67	$32.40	5.6%*	$34.48	6.4%*
Small	$28.43	$29.60	4.1%*	$31.10	5.1%*

*An asterisk denotes a statistically significant change over time at a 95.5% level of confidence.

29.   We further analyzed average monthly rates using a regression equation, the results of

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(continued from previous page)

operator was affiliated with more than one system, i.e., a multiple system operator ("MSO"). System size was represented by two variables: total number of channels and number of system subscribers. In addition, five "product mix" variables were also identified. These were: (1) the proportion of channels that are not local broadcast channels, (2) the ratio of additional outlets to the number of subscribers, (3) the proportion of total system subscribers to CPST subscribers, (4) the ratio of tier subscription changes to the number of subscribers, and (5) the ratio of remotes rented to the number of subscribers. We applied all of these factors (except the ratio of additional outlets to the number of subscribers factor) to 2000 Price Survey data to determine if the factors have any effect on average monthly rates for 1999 and 2000. We used regression analysis to show the effects of these factors on rates. The estimated regression coefficients are shown in Attachment B-4. These regression coefficients show that total number of channels and MSO affiliation were factors that had a significant effect on monthly rates for both 1999 and 2000. For example, holding all other variables constant, we found that MSO-affiliated operators, on average, had rates that were approximately 15% higher than operators unaffiliated with an MSO. We also found that the product mix variables mentioned above -- local channels, CPST subscribers, tier changes, and remotes -- had no significant influence on rates during 1999 and 2000. In addition, we found that one of the variables representing system size, i.e., number of system subscribers, had no significant influence on rates during the same time period. The full effect of size was captured by the variable measuring the reciprocal of the average number of channels.

which are shown in Attachment B-4.[29] We found that, for 2000, competitive operators that meet the LEC test had rates that were 9.4% lower than the noncompetitive group. For the same year, the regression coefficients for the wireline overbuild and the low penetration subcategories were not significantly different from zero, which indicates that that these subcategories charged rates that were statistically indistinguishable from the rates charged by operators in the noncompetitive group. We also found systems owned by a municipality had rates that were 20.0% lower than rates charged by the noncompetitive group. Our results also show that cable operators facing effective competition from DBS providers (the DBS overbuild subgroup) had rates that were 8.2% higher than the rates charged by the noncompetitive group. The competitive response by this subgroup, which is made up almost entirely of small operators, may not be representative of the response to DBS competition generally.[30] Anecdotal evidence shows that the response by large cable operators to increased DBS competition often includes the offering of new services such as digital tiers and Internet access rather than by lowering monthly charges.[31]

30.   Table 5 disaggregates the average monthly rate for the competitive group into three components -- BST, CPST, and equipment. It also shows the average monthly rate per channel and per satellite channel. Between July 1, 1999 and July 1, 2000, the average rates for programming services and equipment rose by 5.8%. The charge for basic service increased by 6.1% while the charge for CPST service increased by 5.9%. The monthly charge for equipment, which represents a relatively small portion of the overall monthly rate, rose by 3.9%. The number of BST and CPST channels offered by the competitive group increased overall by 4.0% from 57.6 channels on July 1, 1999 to 59.9 channels on July 1, 2000. The average rate per channel, however, remained at $0.57 over this time period. The average rate per satellite channel declined by a small amount, 1.3%, during the year ending July 1, 2000.[32]

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[29] The results from the regression equation show competitive differences when the average number of channels, MSO affiliation, and consumer income are held constant. We estimated separate regression equations for 1999 and 2000, the years for which we had complete sets of information.

[30] A total of 15 operators were part of our DBS overbuild subgroup. Of those 15 operators, 14 were from state of Vermont. Of those 14 Vermont operators, 10 belonged to small system size category.

[31] *See Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming,* CS Docket No. 00-132, Seventh Annual Report ("*2000 Competition Report*"), FCC 01-1 (rel. Jan 8, 2001) at 92-93.

[32] The average rate per channel is calculated for each respondent and then weighted and averaged. Therefore, a direct division between the average number of channels and the average monthly rate shown in the tables will not yield the average monthly rate per channel (or per satellite channel) that is shown in the tables.

Table 5. Averages for Competitive Group

	7/1/99	7/1/00	Change	% Change
Monthly Charge				
Basic Service Tier (BST)	$11.34	$12.03	$0.69	6.1%
Cable Programming Service Tier (CPST)	$16.44	$17.41	$0.97	5.9%
Programming Services (BST & CPST)	$27.78	$29.44	$1.66	6.0%*
Equipment (Converter & Remote)	$ 2.85	$ 2.96	$0.11	3.9%
Total: Program & Equipment Charge	$30.63	$32.40	$1.77	5.8%*
Number of Channels				
Channels (Broadcast & Satellite)	57.6	59.9	2.3	4.0%*
Charge per Channel	$0.57	$0.57	$0.0	0.0%
Channels (Satellite Only)	42.2	44.4	2.2	5.2%*
Charge per Satellite Channel	$0.80	$0.79	-$0.01	-1.3%

*An asterisk denotes a statistically significant change over time at a 95.5% level of confidence. See Attachment B-1 for standard errors for the reported averages.

31.   Table 6 reports similar information for the noncompetitive group. The average monthly rate for programming services and equipment increased by 5.8% from July 1, 1999 to July 1, 2000 (the same rate of increase as the competitive group). The BST charge rose 2.3%, while the CPST rate rose by 8.3%. The average monthly charge for equipment rose by 5.8%. Subscribers received 52.0 channels, on average, on July 1, 1999, and 54.8 channels, on average, as of July 1, 2000, which represents an increase of 5.4%. Despite the growth in channels, the per channel rate rose between 1999 and 2000 from 65 to 66 cents. The average rate per satellite channel, however, declined slightly from 92 cents per channel on July 1, 1999 to 91 cents per channel on July 1, 2000.

Table 6. Averages for Noncompetitive Group

Monthly Charge	7/1/99	7/1/00	Change	% Change
Basic Service Tier (BST)	$12.55	$12.84	$0.29	2.3%
Cable Programming Service Tier (CPST)	$16.97	$18.38	$1.41	8.3%*
Programming Services (BST & CPST)	$29.52	$31.22	$1.70	5.8%*
Equipment (Converter & Remote)	$2.73	$2.89	$0.16	5.9%
Total: Program & Equipment Charge	$32.25	$34.11	$1.86	5.8%*
Number of Channels				
Channels: (Broadcast & Satellite)	52.0	54.8	2.8	5.4%*
Charge per Channel	$0.65	$0.66	$0.01	1.5%
Channels: (Satellite Only)	37.9	40.5	2.6	6.9%*
Charge per Satellite Channel	$0.92	$0.91	-$0.01	-1.1%

*An asterisk denotes a statistically significant change over time at a 95.5% level of confidence. See Attachment B-1 for standard errors for the reported averages.

32.   The Bureau of Labor Statistics ("BLS") publishes a Consumer Price Index ("CPI") for cable services (the "cable CPI"). The cable CPI increased by 4.7% over the 12 months ending in July 2000. The cable CPI, however, measures the prices charged for a slightly different mix of services than the Survey and makes adjustments for channels added.[33]

B.   Charges for Other Services

33.   Table 7 provides a comparison of average charges for other cable services that are not included in the average monthly rate for the competitive and noncompetitive groups. These services include installation, reconnection, and tier changes. For the most part, prices increased although at a slower pace than monthly charges for programming and equipment. These charges are difficult to interpret, however, since they are subject to frequent promotions, which may result in deep discounts at certain times and steep increases at other times.

Table 7. Charges for Other Services †

	Competitive Group			Noncompetitive Group		
	7/1/99	**7/1/00**	**Change**	**7/1/99**	**7/1/00**	**Change**
Installation	$26.44	$27.65	4.6%	$37.16	$37.76	1.6%
Reconnection	$21.16	$21.76	2.8%	$23.39	$24.01	2.7%
Tier Change	$6.13	$6.40	4.4%	$8.49	$8.76	3.2%

†The average of operators that reported having a non-zero charge. See Attachment B-6 for standard errors of the reported averages.

C.   Operators' Explanation for Changes in Rates

34.   The Survey asked respondents to explain any changes in their rates between July 1, 1999, and July 1, 2000, by attributing those changes to increased costs or other factors. For those respondents who raised rates, Table 8 shows the percentage by which each factor contributed to the overall price increase. Both the competitive and noncompetitive groups attributed much of their rate increases to higher programming costs. For the 12 months ending July 1, 2000, the competitive group attributed 44.1% and the noncompetitive group attributed 41.4% of their higher rates to programming cost increases.

35.   For the competitive and noncompetitive groups, system upgrades were the next specific cost factor cited as contributing most to rate increases (9.0% and 12.4%, respectively). For the competitive and noncompetitive groups, respectively, this was followed in importance by increased equipment costs (6.8% and 10.8%), inflation (5.6% and 9.7%), and increased channel addition costs (3.4% and 4.8%). In addition, the competitive group attributed 21.5% of its rate increases to unspecified costs, while the noncompetitive group attributed 7.5% to this factor. Finally, respondents reported that 9.6% of the rate changes made by the competitive group, and 13.4% of the rate changes made by the noncompetitive group, were not identified with specific cost changes.

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[33] The cable CPI includes premium channels and pay-per-view services as well as installation charges. The Survey averages do not include those charges, which may explain differences between the rates of increase reported by the BLS and our Survey.

Table 8. Explanation for Changes in Rates

	Competitive Group		Noncompetitive Group	
	7/1/99	**7/1/00**	**7/1/99**	**7/1/00**
Programming Costs†	48.9%	44.1%	49.4%	41.4%
System Upgrades††	13.7%	9.0%	10.6%	12.4%
Equipment Costs	11.4%	6.8%	6.9%	10.8%
Inflation	7.6%	5.6%	9.4%	9.7%
Channel Additions‡	4.6%	3.4%	4.4%	4.8%
Franchise Fees	0.8%	0.0%	0.6%	0.0%
Unspecified Costs	3.1%	21.5%	5.0%	7.5%
Changes Not Based on Costs	9.9%	9.6%	13.7%	13.4%

†Increases in costs on existing programming, including copyright fees. ††Includes upgrades pursuant to a social contract or local franchise agreement. ‡Includes the cost of programming for newly added channels. For more detailed information, see Attachment B-7.

V.   OTHER FINDINGS

A.   Distribution of Programming by Major Categories

36.   Table 9 shows a breakdown of the average number of satellite channels by major category -- children's, news, sports, and general entertainment -- for the competitive and noncompetitive groups. This table shows that increases were relatively uniform across all programming categories. Attachment C-1 provides additional information on the number of channels offered in each category.

Table 9. Average Number of Satellite Channels by Type of Programming

	Competitive Group		Noncompetitive Group	
	7/1/99	**7/1/00**	**7/1/99**	**7/1/00**
Children's	3.8	4.1	3.2	3.7
News	6.4	6.7	5.9	6.3
Sports	4.3	4.8	3.6	4.0
General Entertainment	29.5	31.7	26.9	29.1
Total Satellite Channels†	44.0	47.3	39.6	43.1

†Satellite channels reported here include all CPST channels, not just those carried on the most highly-subscribed CPST, as well as any satellite channels carried on BST. See Attachment C-1 for other results.

B.   Annual System Revenues

37.   The Survey sought information on annual system-wide revenues from five major sources: (a) programming (BST, CPST, premium and pay-per-view), (b) leases and sales of equipment (converters, remote controls, etc.), (c) non-video services (Internet and telephony), (d) advertising, and (e) other fees (commissions, launch fees and leased access). [34] All of the operators reported receiving the bulk of revenues from programming services. Table 10 shows, however, that revenue from non-video sources increased as a percent of total revenue from 1.5% to 3.5% between 1999 and 2000. This may be

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[34] Revenues were calculated by summing across systems. Of 436 systems, 373 reported data suitable for the purpose of calculating Table 10.

attributed to the growing importance of these services and the increasing number of operators offering Internet and telephony services. Of the cable operators surveyed, 52% reported receiving revenue from non-video subscriber services during the 12-month period ending July 2000, an increase from the 32% who reported receiving such revenue during the 12-month period ending July 1999. Revenue from advertising also increased as a percent of total revenue between July 1, 1999 and July 1, 2000.

Table 10. Percent of Annual System Revenues from Various Sources

Revenue Source	7/1/99	7/1/00
Programming	86.8%	84.2%
Equipment	5.5%	5.4%
Non-Video Services	1.5%	3.5%
Advertising	5.6%	6.3%
Other Fees	0.6%	0.6%

C.   System Capacity and Non-Video Services

38.   As of July 1, 2000, 55.5% of operators in our sample reported a capacity of 550 MHz or more, the vast majority of which report a capacity of 750 MHz. A total of 46.6% of operators reported offering Internet access service, and 6.5% offered cable telephony service.

Table 11. System Capacity and Non-Video Services

Operators Reporting a Capacity of:	Total	Competitive	Noncompetitive
Up to 330 MHz	10.7%	9.1%	11.9%
Between 331 MHz and 550 MHz	33.8%	24.5%	41.2%
Above 550 MHz	55.5%	66.4%	46.9%
Operators Offering:			
Internet Access	46.6%	48.1%	45.4%
Cable Telephony	6.5%	7.9%	5.5%

D.   Clustering

39.   We sought to gather information on and analyze the effects of clustering. For the past several years, cable operators have engaged in a strategy of buying and/or swapping cable systems of various sizes with the objective of creating clusters of contiguous, commonly-owned and operated, cable systems. Some of these clusters may consist of large regional groupings involving a million or more subscribers while others may be made up of a handful of small operators serving a few thousand or less subscribers. It is believed that clustering can create greater economies of scale and scope and that it may enable operators to offer a wider variety of services, including, for example, Internet access and other broadband services, at lower prices to consumers.

40.   Analysts report that since 1999, MSOs sought to create larger clusters to better enable cable operators to provide local telephone and Internet services.[35] A total of 710 operators provided cluster information. The Survey found that, of those 710 operators, 493, or 69%, are part of clusters. Of those 493 clustered operators, only 35 operators, or 7%, offer cable telephony, and 237 operators, or 48%,

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[35] *See Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming,* CS Docket No. 99-230, Sixth Annual Report ("1999 *Competition Report*"),15 FCC Rcd 978 at ¶ 161-165.

offer Internet access service to their subscribers. Similarly, 217 operators of the 710, or 31% do not belong to a cluster. Of those 217 non-clustered operators, 93, or 43% offer Internet access service and 12, or 6% offer cable telephony to their subscribers.

41.　　　We also sought to determine whether clustering had a measurable effect on monthly rates. Table 12 shows a comparison of rates charged by clustered and non-clustered operators. While clustered operators charge more, on average, than non-clustered operators, they also offer more channels. On a per channel basis, monthly rates for these two groups are similar.

Table 12. Averages as of July 1, 2000 for Clustered and Non-clustered Operators		
	Clustered	**Non-clustered**
Monthly Charge	$33.79	$31.73
Number of Channels	57.8	54.2
Monthly Charge per Channel	$0.63	$0.62

42.　　　We further analyzed the effects of clustering on monthly rates using a regression equation similar to the Benchmark equation. We found that operators that were part of a cluster had, on average, higher monthly rates than operators that were not part of a cluster. See Attachment D-1 for results of this analysis.

43.　　　Our finding of a positive relationship between clustering and monthly rates shown in Table 12 and reflected in the discussion in Attachment D-1 may be due to a variety of reasons. For example, we note that clustering could involve either a series of systems that are being operated, in effect, as a single system or a series of systems that are not integrated but are commonly owned in communities that are simply in close proximity. Both types of clusters meet our definition and the data collected by our Survey did not distinguish between these two categories.[36] This definitional dichotomy may have influenced our findings since non-integrated systems should not be expected to produce economic efficiencies. In addition, for those systems that are integrated, it may take several years for the full benefits of clustering to be realized as operators go through a process of consolidation and rationalization of disparate systems. Also, higher costs may be incurred in the early stages of this process. Our regression equation does not take into account the difference between integrated and non-integrated systems, cost factors or the timing of consolidation because that information was not available to us. Therefore, those factors are not represented in the equation.

E.　Digital Services

44.　　　As of July 1, 2000, the Survey shows that 154 (48%) competitive operators provide digital service, while 235 (58%) noncompetitive operators offer such service.[37] Both competitive and noncompetitive operators offered on average 1.9 digital tiers. Competitive operators charged $7.46 monthly, at $0.28 per channel, for digital service while noncompetitive operators charged $8.42 monthly at $0.34 per channel. These averages represent a continuation of enormous growth in the number of operators offering digital services.

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[36] We defined "cluster" in the Survey as systems that are situated in close proximity to another commonly owned or managed cable system(s).

[37] Services on digital tiers are separate from BST and CPST. Digital tier information was not included in the calculation of the average monthly rates that serve as the focus of this report.

Table 13. Digital Tiers, Competitive and Noncompetitive Groups

	Competitive		Noncompetitive	
	7/1/99	7/1/00	7/1/99	7/1/00
Number of Operators Offering Digital Service	56	154	138	234
Percent of Sample	17.6%	48.4%	34.2%	58.1%
Average Number of Digital Tiers	1.6	1.9	1.2	1.9
Number of Channels Offered†	37.8	39.0	35.9	39.9
Average Monthly Charge†	$8.82	$7.46	$9.05	$8.42
Average Price Per Channel†	$0.36	$0.28	$0.41	$0.34

†Results are reported for the most highly subscribed digital tier.

F.   Commercial Leased Access

45.   Of the surveyed cable operators, 82% reported at least one channel available for lease under the Commission's leased access rules. [38] Of those with channels for lease, 57% reported leases at an average of 1.8 channels per operator. About one-half of those channels were leased part-time and the other half on a full-time basis. In over 95% of the cases, purchasers of leased access paid less than one cent per subscriber per hour of leased access programming.

G.   Lifeline Basic Service

46.   The Survey asked operators if they offered a tier of service that excluded satellite channels and carried only signals from local television broadcast stations and PEG channels. This tier is frequently called "lifeline" or "limited basic." In our 2000 Survey, 19 (3%) operators reported that they offered lifeline basic service at an average monthly rate of $9.29 for an average of 14.4 channels.

H.   Elasticity of Demand for Cable Services

47.   We also analyzed demand for cable services by creating a demand equation model. A detailed discussion of the econometrics used in this analysis can be found in Attachment D-2. The equation presupposes that changes in demand for cable services are a function of: (a) average monthly rate for programming services and equipment; (b) median household income; (c) number of households passed; (d) ratio of non-urban population to total population; (e) average number of satellite channels offered; and (f) competitive status.[39] Based on this analysis, we found that demand for cable service was sensitive in varying degrees to changes in all but one variable listed above. Competitive status, non-urban population, and average monthly rate variables are inversely related to the demand for cable services; as these variables increase, the demand for cable service decreases. Conversely, median household income and number of households passed have a direct relationship to demand, i.e., as these variables increase, the demand for cable service increases. However, the number of satellite channels variable had no significant effect on the demand for cable service since the estimated coefficient for this variable was not significantly different from zero.

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[38] Leased access is a channel set aside requirement where cable operators designate channel capacity for commercial use by persons unaffiliated with their system. See 47 CFR § 76.970.

[39] All variables except for competitive status are in the form of natural logs. The variables measuring household income and non-urban population are from Census Bureau data for the specific area served by those cable operators included in this analysis and can be found in Census CD, GeoLytics, Inc.

48.　　　The demand equation also produced price and income elasticities of demand for cable.[40] The estimated price elasticity of cable according to this equation is 1.95, which indicates that the demand for cable services is somewhat price elastic.[41] This means that a one percent increase in the price of cable services, for example, would result in a slightly less than two percent decrease in the demand for those services. Since our measure of cable price elasticity is greater than one, the equation also suggests that cable service has substitutes. The effects of one such substitute, DBS, is discussed below. With regard to income elasticity, we found that the estimated income elasticity of cable services was 0.62. This suggests that the demand for cable service is not very sensitive to changes in household income. Results from the estimated demand equation are shown in Attachment D-2.

I.　　　Effects of DBS on the Demand for and Price of Cable Services

49.　　　In this year's Survey, we again sought to investigate the extent to which DBS penetration may have had an effect on the demand for cable services. In the 2000 *Competition Report,* the Commission notes that DBS is cable's largest competitor with approximately thirteen million subscribers as of June 2000.[42] In response to Survey questions, a number of cable operators provided estimates of the number of DBS subscribers in their service areas.

50.　　　Table 14 shows the number of cable and DBS subscribers in the cable operators' service areas expressed as a percentage of TV households in the same areas, as of July 1, 2000. The data are shown by size strata and for both competitive and noncompetitive groups. On average, cable operators responding to our Survey reported that DBS has a 14.7% share of television households in their franchise areas. Noncompetitive operators report that their share of TV households is slightly over 61%, on average, whereas the competitive operators report their share at approximately 45%, as of July 1, 2000.[43] Competitive operators report a significantly lower level of penetration than noncompetitive operators because the competitive group includes a large number of operators with relatively low penetration, i.e., those meeting the low penetration test.

51.　　　The Survey results also indicate that DBS made relatively more progress in acquiring new subscribers in rural areas than in urban areas. For those operators who provided DBS subscribership information, we found that those serving areas having less than 25% urban population had an average DBS penetration (DBS subscribers as a percent of TV households) of approximately 18%. In areas with

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[40] According to a well-established economic theory related to consumer demand, substitutability of a product or service depends upon the level of responsiveness of the quantity demanded to changes in price for that good. The responsiveness of the quantity demanded to changes in price of the good is known as "price elasticity of demand." For example, the price elasticity of demand for cable services would measure the effects of changes in average monthly cable rates on the demand for cable services assuming that all other factors, such as the number of satellite channels offered, were held constant. Income elasticity is defined as the responsiveness of demand for a particular good or service to changes in household income. *See,* for example, C.E. Ferguson and J.P. Gould, *Microeconomic Theory,* Richard D. Irwin, Inc., Fourth Edition, 1975.

[41] A price elasticity estimate of less than one would be referred to as "inelastic." Conversely, an elasticity estimate of more than one is considered "elastic." Other econometric estimates of the price elasticity of demand for cable service range from 1.05 to 3.38. *See*, for example, *Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming*, First Report, 9 FCC Rcd 7442 (1994), Appendix H, at Table H-1.

[42] Nationwide, as of June 2000, 80.19% of all MVPD subscribers received their video programming from a local franchised cable operator while DBS subscribers represented 15.38% of all MVPD subscribers. *See* 2000 *Competition Report* at Table C-1.

[43] It should be noted that there are other ways of measuring cable penetration including the more generally used measure of subscribers as a percent of households passed. That measure is not appropriate for comparison with DBS because DBS "passes" virtually all TV households.

more than 75% urban population, the average DBS penetration was approximately 11%.[44]

TABLE 14. Average Share of TV Households by Size Strata, Cable and DBS, as of July 1, 2000			
Size Strata	**Competitive**	**Noncompetitive**	**DBS†**
Large††	42.5%	59.9%	11.8%
Medium	41.7%	65.0%	17.0%
Small†††	50.9%	60.3%	18.0%
Overall (all sizes) Share	44.7%	61.4%	14.7%

†DBS penetration data was reported by cable operators responding to the Survey. Therefore, size stratification for the DBS data was based on the size strata of the reporting cable operators and does not represent stratification of DBS operators.
††Combined very large and large size strata.
†††Combined small and very small size strata.

52.   The *1999 Competition Report* noted that cost differences, notably installation and equipment costs, between cable and DBS continue to diminish.[45] As a result, some observers assert that many consumers now perceive DBS and cable to be substitutable services.[46] In economic terms, the better the substitute for a particular good or service the greater its price elasticity will tend to be.

53.   In order to measure the effects of DBS on the demand for cable services, we modified our demand equation to include the effects of DBS. We hypothesized a negative coefficient for this variable suggesting that as the number of DBS subscribers increases, the demand for cable services would grow at a slower pace or decrease. As hypothesized, the sign for the DBS coefficient is negative and statistically significant. Our finding suggests that DBS is a substitute for cable services. This result is different from our earlier finding reported in the *1999 Price Survey Report*, which showed DBS exerting only a modest influence on the demand for cable service. One explanation for the increased importance of DBS as a competitor of cable is the passage of the Satellite Home Viewer Improvement Act (SHVIA) in November 1999, which eliminated the prohibition on DBS delivery of local network signals into their local television markets.[47] The two DBS operators have begun offering local signals in many major television markets thus more closely matching services provided by cable operators.[48] The results and a fuller

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[44] The percentage of urban population in cable operators' service areas is from Census CD, GeoLytics, Inc. We used county names which were included in both Census and Survey data to uniquely match and then merge these two data sets.

[45] 1999 *Competition Report*,15 FCC Rcd 978 at ¶ 73.

[46] *Id.* at *¶ 71.*

[47] A Skytrends analysis of 13 designated market areas ("DMAs") where DirecTV and/or EchoStar have introduced local-into-local service which was cited by Satellite Broadcasting and Communications Association found that between June and December 1999, prior to SHVIA, DBS operators added an average of 4,002 new subscribers per month within each DMA. For the post-SHVIA period (January-June 2000), DBS operators added an average of 5,706 new subscribers per month in each of these DMAs, an increase of 43% over the pre-SHVIA period. *See 2000 Competition Report* at *¶ 69.*

[48] As of November 2000, DirecTV offers the local affiliates of ABC, CBS, NBC, and Fox in 38 markets. Similarly, EchoStar transmits local network packages to its subscribers in 34 markets. See *Implementation of the Satellite Home Viewer Improvement Act of 1999: Broadcast Signal Carriage Issues,* CS Docket No. 00-96, Report and Order, FCC 00-417 (rel. Nov. 30, 2000) at Appendices D and E.

discussion of the analysis are shown in Attachment D-2.

VI.   CONCLUSION

54.   We found that both competitive and noncompetitive operators increased their average monthly rates by 5.8% for BST, CPST and equipment during the time period surveyed. We also found that the competitive differential between competitive and noncompetitive operators remained constant at 5.3% between 1999 and 2000.

55.   Both competitive and noncompetitive cable operators point to increased programming costs to explain a significant portion of their rate increases. System upgrades and equipment cost increases are also cited as factors to explain higher rates. Competitive and noncompetitive operators have increased system capacity and, as a result, are now able to offer their subscribers more channels on BST and CPST along with new services such as digital programming tiers, Internet access, and telephony.

56.   On a per channel basis, the average monthly rate for competitive operators remained constant for the year ending July 1, 2000, while for noncompetitive operators the average monthly rate per channel increased by one cent or 1.5% over the same period. The average monthly rates per satellite channel, however, decreased by one cent or about one percent for both the competitive and noncompetitive groups over the period studied.

57.   Cable operators estimate that DBS service continues to capture market share in their service areas with greater inroads being felt by small and rural cable operators than by urban systems. Finally, we found that demand for cable service is somewhat sensitive to changes in cable rates.

58.   This report fulfills the Commission's annual statutory obligation to compare prices charged by competitive cable operators with those of cable operators not facing effective competition for the delivery of basic service, other cable programming services, and equipment.

VII.   ADMINISTRATIVE MATTERS

59.   It is ORDERED that this Report be issued pursuant to authority contained in Section 623(k) of the Communications Act of 1934, as amended, 47 U.S.C. 543(k).

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas
Secretary

ATTACHMENT A

SURVEY SAMPLE, BY GROUP AND STRATA

	CUIDs IN UNIVERSE †	PERCENT OF SUBSCRIBERS††	CUIDs IN SAMPLE	CUIDs RESPONDING	USABLE RESPONSES†††
COMPETITIVE GROUP STRATA					
Local Exchange Carrier	193	58.48%	193	186	181
Wireline Overbuild	61	22.11%	61	53	52
Low Penetration	176	13.77%	67	60	57
Municipal	15	1.07%	15	14	13
DBS Overbuild	130	4.57%	16	15	15
Total	575	100%	352	328	318
NONCOMPETITIVE GROUP STRATA					
Very Large	109	17.75%	109	109	107
Large	3,789	27.82%	112	107	100
Medium	7,285	34.33%	137	128	113
Small	10,837	16.62%	67	62	57
Very Small	8,986	3.48%	35	28	26
Total	31,006	100%	460	434	403
Grand Total	31,581	-----	812	762	721

†Source: FCC Form 325 filings. For the noncompetitive group strata, CUIDs serving 50,000 or more subscribers, in systems serving 50,000 or more subscribers, were placed in the very large category. CUIDs serving less than 50,000 subscribers, in systems serving 50,000 or more subscribers, were placed in the large category. CUIDs in systems serving 10,000 through 49,999 subscribers were placed in the medium-sized category; those serving at least 1,000 and fewer than 10,000 subscribers were placed in the small category; and those serving less than 1,000 subscribers were placed in the very small category. We stratified the competitive group by competitive test, rather than system size. Had the competitive group been stratified by system size, 157 of the usable CUIDs would have belonged to the large or very large category, 72 to the medium category, and 89 to the small or very small category.

††These percentages are the weights that were used in this report to compute the overall averages for each group. Each percentage equals the number of subscribers in that category divided by the total number of subscribers for the group. These subscriber counts are for 1994, the latest year that subscriber counts are available for every CUID in the universe. Since it is likely that the percentage growth in subscribers has been fairly evenly distributed across all communities, the 1994 weights serve as a reasonable approximation of year 2000 weights.

†††Of the 762 CUIDs responding, 721 were usable. Of the 41 unusable responses, we eliminated 30 responses that lacked the requisite 3 years of price data and 11 responses as a result of other incomplete or inconsistent data.

ATTACHMENT B-1

COMPARISON OF COMPETITIVE AND NONCOMPETITIVE GROUPS

	COMPETITIVE	NON-COMPETITIVE	$ DIFFERENCE IN MEANS	% DIFFERENCE BETWEEN MEANS
2000				
BST	$12.03	$12.84	$0.81	6.7%
Standard. Error	0.45	0.56	--	---
CPST	$17.41	$18.38	$0.97	5.6%
Standard. Error	0.70	0.61	--	---
Equipment	$2.96	$2.89	-$0.07	-2.4%
Standard. Error	0.15	0.12	--	---
BST,CPST& Equipment	$32.40	$34.11	$1.71	5.3%*
Standard. Error	0.51	0.38	--	---
Charge per Channel	$0.57	$0.66	$0.09	15.8%*
Standard. Error	0.02	0.01	--	---
Charge per Satellite Channel	$0.79	$0.91	$0.12	15.2%*
Standard. Error	0.03	0.02	--	---
Number of Channels	59.9	54.8	-5.1	-8.5%*
Standard. Error	1.22	0.92	--	---
Number of Satellite Channels	44.4	40.5	-3.9	-16.3%*
Standard. Error	0.98	0.82	---	---
1999				
BST	$11.34	$12.55	$1.21	10.7%
Standard. Error	0.45	0.54	--	---
CPST	$16.44	$16.97	$0.53	3.2%
Standard. Error	0.67	0.58	--	---
Equipment	$2.85	$2.73	-$0.12	-4.2%
Standard. Error	0.14	0.11	--	---
BST,CPST& Equipment	$30.63	32.25	$1.62	5.3%*
Standard. Error	0.44	0.35	--	---
Charge per Channel	$0.57	$0.65	$0.08	14.0%*
Standard. Error	0.02	0.01	--	---
Charge per Satellite Channel	$0.80	$0.92	$0.12	15.0%*
Standard. Error	0.03	0.01	--	---
Number of Channels	57.6	52.0	-5.6	-9.7%*
Standard. Error	1.20	0.90	--	---
Number of Satellite Channels	42.2	37.9	-4.3	-10.2%*
Standard. Error	0.96	0.79	--	---
1998				
BST	---	---	--	---
Standard. Error	---	---	--	---
CPST	---	---	--	---
Standard. Error	---	---	--	---
Equipment	---	---	--	---
Standard. Error	---	---	--	---
BST,CPST& Equipment	$29.32	$30.65	$1.33	4.5%*
Standard. Error	0.41	0.33	--	---
Charge per Channel	$0.57	$0.65	0.08	14.0%*
Standard. Error	0.02	0.01	--	---
Charge per Satellite Channel	---	---	--	---
Standard. Error	---	---	--	---
Number of Channels	55.9	49.8	-6.1	-10.9%*
Standard. Error	1.17	0.94	--	---
Number of Satellite Channels	---	---	--	---
Standard. Error	---	---	--	---

*An asterisk denotes a statistically significant difference between competitive and noncompetitive groups at a 95.5% level of confidence.

ATTACHMENT B-2

COMPARISON OF COMPETITIVE AND NONCOMPETITIVE GROUPS, BY SIZE CATEGORY
AVERAGE MONTHLY RATES†

SIZE	COMPETITIVE	NONCOMPETITIVE	$ DIFFERENCE BETWEEN MEANS	% DIFFERENCE BETWEEN MEANS
2000				
Very Large	-----	$35.75	-----	-----
Standard Error	-----	0.29		
Other Large	-----	$34.79	-----	-----
Standard Error	-----	0.35		
Overall Large	$33.47	$35.16	$1.69	5.0%*
Standard Error	0.30	0.33		
Medium	$33.31	$34.48	$1.17	3.5%
Standard Error	0.46	0.35		
Small	-----	$32.04	-----	-----
Standard Error	-----	0.46		
Very Small	-----	$26.59	-----	-----
Standard Error	-----	1.03		
Overall Small	$28.35	$31.10	$2.75	9.7%*
Standard Error	0.61	0.56		
1999				
Very Large	-----	$33.66	-----	-----
Standard Error	-----	0.27		
Other Large	-----	$33.07	-----	-----
Standard Error	-----	0.31		
Overall Large	$31.46	$33.30	$1.84	5.8*
Standard Error	0.22	0.29		
Medium	$31.44	$32.40	$0.96	3.1%
Standard Error	0.40	0.34		
Small	-----	$30.47	-----	-----
Standard Error	-----	0.42		
Very Small	-----	$25.46	-----	-----
Standard Error	-----	0.90		
Overall Small	$27.30	$29.60	$2.30	8.4%*
Standard Error	0.61	0.48		
1998				
Very Large	-----	$31.89	-----	-----
Standard Error	-----	0.24		
Other Large	-----	$31.43	-----	-----
Standard Error	-----	0.29		
Overall Large	$30.01	$31.61	$1.60	5.3%*
Standard Error	0.21	0.27		
Medium	$30.21	$30.67	$0.46	1.5%
Standard Error	0.37	0.33		
Small	-----	$29.24	-----	-----
Standard Error	-----	0.39		
Very Small	-----	$24.58	-----	-----
Standard Error	-----	0.91		
Overall Small	$26.31	$28.43	$2.12	8.1%*
Standard Error	0.57	0.48		

†Average monthly rates include BST, CPST, and equipment (i.e., converter and remote control).

*An asterisk denotes a statistically significant difference between competitive and noncompetitive groups at a 95.5% level of confidence.

ATTACHMENT B-3

COMPARISON OF COMPETITIVE AND NONCOMPETITIVE GROUPS, BY SIZE CATEGORY
NUMBER OF CHANNELS OFFERED AND PER CHANNEL RATES

SIZE	Number Of Channels		Per Channel Rates	
	COMPETITIVE	NONCOMPETITIVE	COMPETITIVE	NONCOMPETITIVE
2000				
Very Large	-----	62.9	-----	$0.58
Standard Error	-----	0.80	-----	0.01
Large	-----	60.4	-----	$0.58
Standard Error	-----	0.71	-----	0.01
Overall Large	66.5	61.4	$0.51	$0.58
Standard Error	0.68	0.75	0.01	0.01
Medium	61.3	54.2	$0.56	$0.66
Standard Error	1.21	0.99	0.02	0.01
Small	-----	43.9	-----	$0.76
Standard Error	-----	1.20	-----	0.02
Very Small	-----	26.9	-----	$1.09
Standard Error	-----	1.84	-----	0.08
Overall Small	44.3	41.0	$0.71	$0.82
Standard Error	1.45	1.31	0.03	0.03
1999				
Very Large	-----	60.9	-----	$0.56
Standard Error	-----	0.85	-----	0.01
Large	-----	57.9	-----	$0.58
Standard Error	-----	0.69	-----	0.01
Overall Large	64.1	59.1	$0.50	$0.57
Standard Error	0.76	0.75	0.01	0.01
Medium	59.3	50.6	$0.56	$0.66
Standard Error	1.28	0.94	0.02	0.01
Small	-----	41.2	-----	$0.77
Standard Error	-----	1.04	-----	0.02
Very Small	-----	25.7	-----	$1.09
Standard Error	-----	1.69	-----	0.08
Overall Small	42.2	38.5	$0.72	$0.83
Standard Error	1.40	1.15	0.03	0.03
1998				
Very Large	-----	57.9	-----	$0.56
Standard Error	-----	0.91	-----	0.01
Other Large	-----	56.4	-----	$0.57
Standard Error	-----	0.77	-----	0.01
Overall Large	62.3	57.0	$0.50	$0.57
Standard Error	0.81	0.82	0.01	0.01
Medium	57.5	47.8	$0.55	$0.67
Standard Error	1.27	0.89	0.02	0.01
Small	-----	39.6	-----	$0.77
Standard Error	-----	1.08	-----	0.02
Very Small	-----	24.9	-----	$1.09
Standard Error	-----	1.69	-----	0.08
Overall Small	40.7	37.1	$0.72	$0.83
Standard Error	1.37	1.19	0.03	0.03

ATTACHMENT B-4

REGRESSION RESULTS SHOWING THE EFFECTS OF COMPETITIVE STATUS, MSO AFFILIATION, SYSTEM SIZE, NUMBER OF CHANNELS, AND HOUSEHOLD INCOME ON AVERAGE MONTHLY RATES

VARIABLE	COEFFICIENT
Low Penetration Dummy	-0.0203
	(0.0157)
LEC Dummy	-0.0984
	(0.0112)
Municipal Dummy	-0.3282
	(0.0601)
Overbuild Dummy	-0.0177
	(0.0227)
DBS Dummy	0.0788
	(0.0158)
MSO Dummy	0.1498
	(0.0355)
Reciprocal of Avg. Total Channels	-9.7460
	(0.8760)
Log of Median Household Income	0.0194
	(0.0181)
Intercept	3.3672
	(0.1954)
Adjusted R Square	.45
Number of Observations	718
Impact of LEC Systems	-0.0937
Impact of DBS Systems	0.0820

Dependent variable is log of average monthly rate. Standard error of coefficient is in parenthesis.

ATTACHMENT B-5
COMPARISON OF COMPETITIVE GROUP BY TEST FOR EFFECTIVE COMPETITION
WITH NONCOMPETITIVE GROUP

	WIRELINE OVERBUILD	DBS OVERBUILD	OVERBUILD†	LEC	LOW PENETRATION	MUNICIPAL	NONCOMPETITIVE GROUP
2000							
Monthly Charge	$33.74	$33.23	$33.65	$32.21	$31.56	$22.56	$34.11
Standard Error	0.83	1.22	.91	0.29	0.60	1.55	0.66
% Difference††	1.1%	2.6%	1.4%	5.9%*	8.1%*	51.2%*	--
Number of Channels	56.5	38.6	53.4	66.3	45.9	50.3	54.8
Standard Error	1.79	3.84	2.14	0.61	1.91	3.03	0.92
% Difference††	-3.0%	42.0%*	2.6%	-17.3%*	19.4%*	8.9%	--
Charge per Channel	0.62	0.96	0.68	0.49	0.74	0.46	0.66
Standard Error	0.02	0.07	0.03	0.01	0.03	0.03	0.01
% Difference††	6.5%	-31.3%*	-2.9%	34.7%*	-10.8%*	43.5%*	--
1999							
Monthly Charge	$31.49	$32.90	$31.73	$30.40	$30.17	$21.54	$32.25
Standard Error	0.70	1.22	0.79	0.23	0.60	1.56	0.35
% Difference††	2.4%	-2.0%	1.6%	6.1%*	6.9%*	49.7%*	--
Number of Channels	53.2	35.1	50.1	64.5	43.5	48.9	52.0
Standard Error	1.81	3.16	20.4	0.65	1.77	3.26	0.90
% Difference††	-2.3%	48.1%*	3.8%	-19.4%*	19.5%*	6.3%	--
Charge per Channel	0.62	1.02	0.69	0.48	0.74	0.46	0.65
Standard Error	0.02	0.07	0.03	0.01	0.03	0.03	0.01
% Difference††	4.8%	-36.3%*	-5.8%	35.4%*	-12.2*	41.3%*	--
1998							
Monthly Charge	$29.76	$31.40	$30.04	$29.26	$28.88	$20.58	$30.65
Standard Error	0.62	1.09	0.70	0.21	0.57	1.39	0.33
% Difference††	3.0%	-2.3%	2.0%	4.8%*	6.2%*	48.9%*	--
Number of Channels	51.0	31.9	47.7	62.9	42.5	46.8	49.8
Standard Error	1.64	2.70	1.82	0.69	1.77	3.42	0.94
% Difference††	-2.4%	56.1%*	4.4%	-20.8%*	17.2%*	6.4%	--
Charge per Channel	0.61	1.07	0.69	0.48	0.73	0.47	0.65
Standard Error	0.02	0.07	0.03	0.01	0.03	0.04	0.01
% Difference††	6.6%	-39.3%*	-5.8%	35.4%*	-11.0*	38.3%*	--

†Weighted average of wireline and DBS overbuild using weights shown in Attachment A. Average monthly rates are for BST, CPST, and equipment (i.e., converter and remote control).

††Percent difference between competitive subcategories and noncompetitive group.

*An asterisk denotes a statistically significant difference between competitive subcategories and noncompetitive group at a 95.5% level of confidence.

ATTACHMENT B-6

AVERAGE MONTHLY CHARGES FOR OTHER SERVICES†

	COMPETITIVE GROUP		NONCOMPETITIVE GROUP	
	1999	**2000**	**1999**	**2000**
Installation	$26.44	$27.65	$37.16	$37.76
Standard Error	1.66	1.58	1.22	1.24
Observations	299	299	389	389
Reconnection	$21.16	$21.76	$23.39	$24.01
Standard Error	1.03	0.98	0.78	0.78
Observations	237	237	363	363
Tier Change	$6.13	$6.40	$8.49	$8.76
Standard Error	0.95	0.96	0.97	0.99
Observations	281	281	346	346

†Represents the stratum-weighted average for operators who reported a non-zero charge in 1999 and 2000. Data on disconnection charges were also collected, but are not being reported in this table since so few (less than 1%) operators surveyed reported having such a charge.

ATTACHMENT B-7

**OPERATORS' EXPLANATION FOR CHANGES IN MONTHLY RATES
FOR COMPETITIVE AND NONCOMPETITIVE GROUPS**

RATE CHANGES ATTRIBUTED TO:	2000 Competitive	% of Total	NonComp	% of Total	1999 Competitive	% of Total	NonComp	% of Total
Programming	$0.77	43.5%	$0.75	40.3%	$0.63	48.1%	$0.78	48.8%
Standard Error	0.06		0.07		0.07		0.07	
Copyright Fees	$0.01	0.6%	$0.02	1.1%	$0.01	0.8%	$0.01	0.6%
Standard Error	0.02		0.02		0.01		0.01	
Channel Additions	$0.06	3.4%	$0.09	4.8%	$0.06	4.6%	$0.07	4.4%
Standard Error	0.02		0.04		0.03		0.03	
Upgrades	$0.16	9.0%	$0.23	12.4%	$0.18	13.7%	$0.17	10.6%
Standard Error	0.06		0.05		0.04		0.05	
Equipment	$0.12	6.8%	$0.20	10.8%	$0.15	11.4%	$0.11	6.9%
Standard Error	0.02		0.04		0.04		0.02	
Franchise	$0.00	0.0%	$0.00	0.0%	$0.01	0.8%	$0.01	0.6%
Standard Error	0.0		0.00		0		0.00	
Inflation	$0.10	5.6%	$0.18	9.7%	$0.10	7.6%	$0.15	9.4%
Standard Error	0.02		0.02		0.02		0.02	
Unspecified Costs	$0.38	21.5%	$0.14	7.5%	$0.04	3.1%	$0.08	5.0%
Standard Error	0.11		0.05		0.04		0.03	
Non-Cost Increases	$0.17	9.6%	$0.25	13.4%	$0.13	9.9%	$0.22	13.7%
Standard Error	0.04		0.07		0.05		0.05	
$ Change in Rate	$1.77	100%	$1.86	100%	$1.31	100%	$1.60	100%

ATTACHMENT C-1

AVERAGE NUMBER OF CHANNELS DEVOTED TO EACH CATEGORY OF PROGRAMMING

Category of Programming	COMPETITIVE GROUP			NONCOMPETITIVE GROUP		
	1999	2000	% Change	1999	2000	%Change
Total Number of Channels	59.2	63.0	6.4%	53.6	57.3	6.9%
Standard Error	1.20	1.22		0.90	0.94	
Access †	3.1	3.4	9.7%	3.4	3.6	5.9%
Standard Error	0.30	0.31		0.18	0.18	
Broadcast	12.1	12.3	1.7%	10.6	10.6	0.0%
Standard Error	0.40	0.40		0.33	0.33	
Total Satellite Programming††	44.0	47.3	7.5%	39.6	43.1	8.8%
Standard Error	0.96	0.98		0.79	0.82	
Children's Programming	3.8	4.1	7.9%	3.2	3.7	15.6%
News Programming	6.4	6.7	4.7%	5.9	6.3	6.8%
Sports Programming	4.3	4.8	11.6%	3.6	4.0	11.1%
General Entertainment	29.5	31.7	7.5%	26.9	29.1	8.2%
Number of Survey Responses	248	248	---	366	366	---

†Includes public, educational, governmental, and commercial leased access.

††Includes children's, news, sports, and general entertainment satellite programming, excluding premium and pay-per-view channels.

Note: These numbers differ from numbers reported in Tables 5 and 6, and Attachments B-1 and B-3, because the channels in this table encompass all CPST tiers, rather than the most highly subscribed CPST, as well as satellite channels in the BST.

ATTACHMENT C-2

OPERATORS THAT INCREASED ACTIVE ANALOG CHANNELS BETWEEN 1999 AND 2000

	Responses	Competitive Group	Noncompetitive Group
No Increase	383	145	238
Increased Channels: Between 1 and 5	229	141	88
Between 6 and 10	36	7	29
Between 11 and 15	28	5	23
Between 16 and 20	18	10	8
Between 21 and 30	21	9	12
Between 31 and 50	6	1	5
Total Observations	721	318	403

ATTACHMENT D-1

Regression Results Showing The Effects of Clustering, Competitive Status, Median Household Income, and Number of Channels on Average Monthly Rates

VARIABLE	COEFFICIENT	STANDARD ERROR
Low Penetration Dummy	-0.0251	0.0157
LEC Dummy	-0.0992	0.0111
Municipal Dummy	-0.3259	0.0600
Overbuild Dummy	-0.0179	0.0225
DBS Dummy	0.0799	0.0154
MSO Dummy	0.1374	0.0360
Reciprocal of Avg. Total Channels	-9.8906	0.8682
Log of Median Household Income	0.0104	0.0184
Cluster Dummy	0.0236	0.0090
Constant	3.4590	0.1983
Adjusted R Square	.47	
Number of Observations	708	

Notes on Attachment D-1:

This equation is intended to measure the effects of clustering on average monthly rates. The form of the equation is analogous to that of the Benchmark equation shown in Attachment B-4 except that a cluster dummy variable was added to measure the effects of clustering. We assigned a value of one for each operator that was part of a cluster and a value of zero for those operators that were not part of a cluster. The dependent variable (log of average monthly rates) is the same in both equations.

We expected the clustering variable to have a negative coefficient, i.e., an inverse relationship between clustering and average monthly rates. As a positive change is noted in the clustering variable, we would expect to find lower average monthly rates due to increasing economies of scale. When we estimated the equation, we found the opposite effect, the coefficient for the clustering variable was positive. This means that as clustering increased, average monthly rates also increased.

We also tested a regression equation estimating the effects of clustering on monthly rates suggested by AT&T in its comments in response to Notice of Inquiry, CS Docket No. 00-132. In this "revised cluster regression equation," log of franchise subscribers, log of average subscriber taking most popular service (e.g., subscribers taking BST, CPST, remote, and a converter), and Internet service were added to the variables shown in Table D-1. The revised regression equation had the following coefficients: 3.4477 – .1015 LEC - .0180 low penetration - .0297 overbuild - .0653 DBS - .3233 municipal – 9.2487 reciprocal of average total channels + .1362 MSO + .0085 log of median household income + .0151 log of subscribers taking most popular service - .0150 log of franchise subscribers + .0237 cluster + .0146 telephony service + .0266 Internet service. We note that the coefficient for the clustering variable remains fairly constant -- .0237 compared with .0236 in this version of the model.

Since our revised cluster regression equation included subscribers as independent variables, this may have introduced a simultaneous relationship between average monthly rate (the dependent variable) and the subscriber variables. For example, the number of subscribers in a franchise are affected by the average monthly rate charged which in turn is affected by the number of subscribers taking the service. To handle this simultaneity problem, we replaced subscriber variables in the revised regression equation with number of households passed in a franchise area, which generally is not directly affected by average monthly rates. The regression equation using a household passed variable yielded the following relationship: 3.5174 – .0966 LEC - .0243 low penetration - .0297 overbuild - .0666 DBS - .3233 municipal – 8.1319 reciprocal of average total channels + .1404 MSO + .0003 log of median household income – 11.9948 log of reciprocal of franchise household passed + .0214 cluster + .0156 telephony service + .0291 Internet service. The fact that the coefficients from both regression equations are similar indicated that no significant simultaneity exists in our revised regression equation. Since the estimated coefficient for the clustering variable in the revised regression equation was positive and was statistically significant, we conclude that as clustering increases, average monthly rates also increase. A number of studies also found a similar relationship between clustering and rates. *See*, for example, Ford, George and John Jackson, *Horizontal Concentration and Vertical Integration in the Cable Television Industry,* Review of Industrial Organization, 12: 501-518, 1997; Tasneem Chipty, *Horizontal Integration for Bargaining Power: Evidence from the Cable Television Industry,* Journal of Economics & Management Strategy, Volume 4, Number 2, 375-397, Summer 1995.

ATTACHMENT D-2

TWO-STAGE LEAST SQUARES REGRESSION COEFFICIENTS FOR DEMAND EQUATION

Dependent Variable	Independent Variables						
Log of Franchise Subscribers	Constant	Competitive Status	Log of ratio of Non-urban Population	Log of Average Monthly Rate	Log of Median Household Income	Log of Number of Households Passed	Log of Number of Satellite Channels
Coefficient	0.4684	-0.5799	-0.1275	-1.9470	0.6192	1.0042	0.0065
Standard error	(2.0955)	(0.1085)	(0.0538)	(0.7346)	(0.1262)	(0.0157)	(0.2012)

Adjusted R^2 = .94
Number of Observations = 432. The number of observations are based on the number of valid responses that provided complete information for the variables included in the model.

TWO-STAGE LEAST SQUARES REGRESSION COEFFICIENTS FOR DEMAND EQUATION SHOWING THE EFFECT OF DBS ON DEMAND FOR CABLE SERVICES

Dependent Variable:	Independent Variables							
Log of Franchise Subscribers	Constant	Competitive Status	Log of Ratio of Non-urban Population	Log of Average Monthly Rate	Log of Median Household Income	Log of Number of Households Passed	Log of Number of Satellite Channels	Log of Number of DBS Subscribers
Coefficient	-1.1363	-0.6031	-0.0996	-1.4520	0.6148	1.1023	-0.0301	-0.1358
Standard error	(2.0280)	(0.1188)	(0.0538)	(0.7311)	(0.1241)	(0.0603)	(0.2031)	(0.0779)

Adjusted R^2 = .94
Number of Observations = 432
The number of observations are based on the number of valid responses that provided complete information for the variables included in the model.

Notes on Attachment D-2:

Attachment D-2 shows our econometric estimates of the demand for cable services. Estimating a demand equation provides information about the sensitivity of cable subscriptions to the price of service and also permits examination of substitutability between cable and other services. The first table in Attachment D-2 contains our basic demand equation, and the second table augments that with a DBS variable in order to measure the effects of DBS on cable.

Our residual demand equation for cable services uses a set of variables similar to those used in previous academic studies.[49] In our demand equation, the number of cable subscribers is the dependent variable (i.e., the variable <u>determined</u> by the other variables in the equation). This variable is a function of several independent variables (i.e., those that <u>determine</u> the dependent variable). The independent variables selected for this model are: (a) average monthly rate for programming services and equipment; (b) median household income; (c) number of households passed; (d) ratio of non-urban population to total population; (e) average number of satellite channels offered; and (f) competitive status. We selected these independent variables for the following reasons. Economic theory shows that price and consumer income should be selected as independent variables when constructing a demand equation. The number of satellite channels was selected as a quality factor since it represents a proxy for the quality of cable services received by consumers. The remaining variables capture demographic and other factors that influence the demand for cable services. These variables also serve as a proxy to capture the effects of the prices of competing services as well as the prices of all other goods and services which were not included in our study.

In general, the coefficients in our estimated demand function were expected to have a positive or negative influence on the demand for cable service (i.e., signs), as follows. The average monthly rate for programming services and equipment was expected to have a negative sign which would indicate a decreasing demand for cable as the price of cable service rises. The sign for the coefficient of median household income was expected to be positive because we would expect the demand for cable services to increase as consumers' income rises. The number of households passed was expected to have a positive sign; as the number of households passed increases the potential market increases and, as a result, we would expect a larger number of subscribers. The ratio of non-urban population to total population was expected to have a negative sign because there is generally a lower penetration of cable service in rural areas and there may be a greater presence of non-cable video providers (mainly Direct-to-Home satellite providers) in those areas.[50] The average number of satellite channels offered was expected to have a positive sign because we believe that, as more channels are offered, consumers will associate this with a higher quality of service and, as a result, demand more cable service. The competitive status of the cable operator was expected to have a negative sign. We believe that the presence of competitors in the market will take subscribers away from the incumbent operator and thus lead to lower cable demand for the

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[49] The previous studies using similar sets of independent variables include: Rubinovitz, Robert N., "Market Power and Price Increases for Basic Cable Service Since Deregulation," *Rand Journal of Economics*, Vol. 24, No. 1, Spring 1993; Mayo, J.W., and Y. Otsuka, "Demand, Pricing, and Regulation: Evidence from the Cable TV Industry," *Rand Journal of Economics*, Vol. 22, No. 3, Autumn 1991; Chipty, T., "Horizontal Integration for Bargaining Power: Evidence from the Cable Television Industry," *Journal of Economics and Management Strategy*, Vol. 4, No. 2, Summer 1995; *Video Economics*, Bruce M. Owen and Steven Wildman, Harvard University Press, 1992. Residual demand for cable services takes into account the prices and quantities set by other firms selling similar services. Since we don't have information on the prices of competing services, these influences are captured by instrument variables in our model. Price data are available for DBS service, but there is no geographic variation.

[50] See Chipty, T., "Horizontal Integration for Bargaining Power: Evidence from the Cable Television Industry," *Journal of Economics and Management Strategy*, Vol. 4, No. 2, Summer 1995.

incumbent.[51] All the estimated coefficients had the expected signs except for the coefficient for number of satellite channels, and all coefficients were significantly different from zero. The estimated coefficient for average number of satellite channels had a negative sign and it was not statistically significant.

Some of these variables produce simultaneous (or two-way) relationships. For example, as mentioned above, we believe that the demand for cable service is sensitive to changes in average monthly cable rates and to the number of satellite channels offered. At the same time, as demand increases, this may enable cable operators to offer more channels and charge higher rates for their service. To handle this simultaneity problem, we chose a two-stage least squares ("TSLS") procedure, which addresses this problem in estimating the demand equation.[52] The TSLS procedure uses a two-step method to purge the simultaneous relationship among the variables. In the first stage, we derive predicted values for certain variables and then we use those predicted values as independent variables in the second stage.[53] Specifically, in the first stage, we estimated predicted values for average monthly rates and number of satellite channels. Next, in the second stage, we regress our dependent variable (number of cable subscribers) on the predicted values for these variables and on the actual values of the remaining variables (average household income, non-urban population, competitive status, and number of households passed in the service area) to estimate our demand equation for cable service.

The estimated coefficients shown in the first table of Attachment D-2 were derived using this TSLS procedure. The predicted values used in the second stage were estimated in separate "first stage" regressions of the monthly rate and satellite channel variables on a set of instrument variables which served as independent variables in the equations. The set of instrument variables included log of median household income, and a number of demographic and regional variables that affect demand for cable. The demographic variables include log of county population density, log of ratio of non-urban population to total population, log of percent of county families in poverty, log of ratio of county population with a bachelor's degree, log of county population living in owner occupied housing, log of percent of population under the age of 16, and log of percent of population living in condominiums.[54] These demographic variables have been found to be important determinants of cable demand by other researchers in their studies of the cable industry.[55] The regional instrument variables included in the

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[51] The competitive status variable reflects a relationship suggested by the "dominant firm-competitive fringe" model where demand for a product depends upon demand and cost conditions affecting both the dominant and fringe providers of that product. For a further discussion of the dominant firm-competitive fringe model, see Blank, L., D.L.Kaserman, and J.W. Mayo, "Dominant Firm Pricing with Competitive Entry and Regulation: The case of IntraLATA Toll," *Journal of Regulatory Economics*, 14, 1998 at 35-53.

[52] In ideal terms, we would prefer that all the influences captured in a demand equation go in one direction only, i.e., that the influences go from the independent variables to the dependent variable. In this case, the influences go in both directions. In economic terms, this is called "simultaneity." Failure to deal with this problem will result in biased estimations of the demand function.

[53] For a further explanation of this technique, see Intriligator, Michael D., Econometric Models, Techniques, & Applications, Prentice-Hall, 1978 at 368-428.

[54] The natural log of these variables is used to capture departures from purely linear relationships between the variables. Put another way, using logs of the variables assumes a curvilinear relationship instead of a linear one. This is a common procedure and is followed in almost every demand estimation study of the cable industry. Several of these variables may have supply side influences as well as demand influences. These variables, however, were used by previous researchers in their development of demand equations. See, for example, Chipty, T., "Horizontal Integration for Bargaining Power: Evidence from the Cable Television Industry," *Journal of Economics and Management Strategy*, Vol. 4, No. 2, Summer 1995; *Video Economics*, Bruce M. Owen and Steven Wildman, Harvard University Press, 1992.

[55] *See* fn. 49.

model include dummy variables representing the south-Atlantic, mid-Atlantic, and mountain regions. These variables were used to account for regional differences in taste and consumer preferences for cable as well as other services. We also used MSO affiliation and whether or not the cable system was part of a cluster as additional instrument variables.

Since the data used in our model are taken from a stratified sample, econometric theory indicates that the estimates will most likely be heteroskedastic. Hetroskedasticity is a common problem in econometric estimation of models that use data similar to our data. Econometric theory assumes that the differences between the estimated value and the actual value at each data point are independent of one another. With heteroskedastic estimates, by contrast, the differences between the estimated values and actual values vary systematically, e.g., grow larger as one of the variables grows larger. This problem, if it is not corrected, will cause some of the statistical characteristics of the model, such as the standard errors, to be unreliable. To deal with this influence, we used a procedure suggested by Halbert White that corrects for the problems introduced by hetroskedasticity.[56] The estimated standard errors shown in the tables are hetroskedasticity consistent .

As shown in the first table of Attachment D-2, the coefficient for average monthly rates is minus 1.45. This suggests that the demand for cable service is somewhat price elastic (i.e., has a price elasticity of minus 1.45) and suggests that there are substitutes for cable service. In order to investigate the extent to which DBS may be one of those substitutes, we added a DBS variable to our demand model. The coefficients shown in the second table are based on a demand equation identical to the one discussed above with the single exception that a DBS variable was added.[57] Since the price for DBS service does not vary geographically, we used the number of DBS subscribers as the additional independent variable in this model. We hypothesized a negative coefficient for this variable suggesting that as the number of DBS subscribers increases, the demand for cable service decreases.

Since there may be simultaneity between the number of DBS subscribers and the demand for cable services, we used a two-stage least squares procedure for this model similar to that explained above. Also, since the data used in our model are taken from a stratified sample, which tends to introduce heteroskedasticity, we used the procedure suggested by White to deal with this influence. The coefficients estimated from this model are shown in the second table of Attachment D-2.

As hypothesized, the sign for the DBS coefficient is negative and is significantly different from zero. This implies that DBS is a substitute for cable service and it exerts a small (shown by the small magnitude of DBS coefficient) but statistically significant influence on the demand for cable service.

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[56] White, H., "A Heteroskedasticity – Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity", *Econometric*a 48, 1980, at 817-838.

[57] The addition of the DBS variable, like the inclusion of a competitive status variable, can be rationalized by reference to the "dominant firm-competitive fringe" model. See fn. 51.