

APPENDIX E

REPORT ON CABLE INDUSTRY PRICES

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. Section 623(k) of the Communications Act of 1934 (Act) as amended by the Cable Television Consumer Protection Act of 1992 (Cable Act)¹ and RAY BAUM'S Act of 2018, requires the Commission to publish a statistical report (*Report on Cable Industry Prices*)² on the average rates cable operators charge for basic cable service and other cable programming, and cable equipment to access such programming.³ The statute requires the Commission to compare the rates of operators subject to effective competition to the rates of operators not subject to effective competition under a statutorily defined standard (hereinafter referred to as "effective competition").⁴ In addition, section 110 of the STELA Reauthorization Act of 2014 (STELAR) requires the Commission to report on retransmission consent fees paid by cable operators to broadcast stations or groups.⁵ This *Report on Cable Industry Prices* fulfills the statutory directives and presents our findings as of January 1, 2020.⁶

¹ Section 623(k), adopted as section 3(k) of the Cable Act, Pub. L. No. 102-385, 106 Stat. 1460, codified at 47 U.S.C. § 543(k).

² RAY BAUM'S Act of 2018, Pub. L. No. 115-141, 132 Stat. 1087 § 402(e) (amending 47 U.S.C. § 543(k)) (RAY BAUM's Act of 2018).

³ A "cable operator" (or operator) refers to an entity that operates a wireline system and is a multichannel video programming distributor (MVPD) that makes available for purchase, by subscribers or customers, multiple channels of video programming. 47 U.S.C. § 522(5). "Service tier" (or service) refers to a cable service for which a separate rate applies. *Id.* § 522(l7). With regard to the statutory provision for regulation of rates, operators must provide a separately available "basic cable service" (or basic service) to which customers must subscribe before accessing any other tier of service. *Id.* § 543(b)(7). Other "cable programming service" means any video programming other than programming offered with the basic service or programming offered on a per channel or per program basis. *Id.* § 543(l)(2). Section II further defines cable operators and services including other cable programming for the purpose of the *Report on Cable Industry Prices*.

⁴ Commission findings of effective competition are generally made in reference to a cable community identified by a cable community unit identifier (CUID). The Commission assigns a unique CUID to each community served by an operator. If two unaffiliated cable operators serve an overlapping area, the Commission assigns two CUIDs. 47 CFR § 76.1801. As discussed in section II.A, the Commission recently changed its process and presumption for determining effective competition. In 2015, the Commission adopted a rebuttable presumption that cable operators in all cable communities are subject to effective competition. *Amendment to the Commission's Rules Concerning Effective Competition, Implementation of Section 111 of the STELA Reauthorization Act*, MB Docket No. 15-53, Report and Order, 30 FCC Rcd 6574 (2015) (*Cable Effective Competition Report and Order*). As a result of this change, operators in nearly all communities became subject to effective competition. In addition, in October 2019, the Commission found, for the first time, that a cable operator was subject to effective competition from a local exchange carrier (LEC)-affiliated online video distributor (OVD) under the LEC effective competition test. *Petition for Determination of Effective Competition in 32 Massachusetts Communities and Kauai, HI (HI0011)*, MB Docket No. 18-283, Memorandum Opinion and Order, 34 FCC Rcd 10229 (2019) (*Charter Effective Competition Order*), appeal pending in *Massachusetts Department of Telecommunications and Cable v. FCC*, No. 19-2282 (1st Cir.). Rates of an operator subject to effective competition are not subject to regulation by a local franchising authority (LFA). 47 U.S.C. § 543(a)(2); 47 CFR § 76.905(a). An LFA may elect to regulate the rate of basic service of an operator not subject to effective competition. *Id.*

⁵ Pub. L. No. 113-200, 128 Stat. 2059 (2014) enacted December 4, 2014 (H.R. 5728, 113th Cong.). Specifically, STELAR instructs the Commission to include in its now biennial *Report on Cable Industry Prices* "the aggregate average total amount paid by cable systems in compensation under section 325 [of the Communications Act of 1934, as amended,]" and to report such information "in a manner substantially similar to the way other comparable information is published" in the report. 47 U.S.C. § 543(k)(2).

⁶ Consistent with past practice, the current survey collects data as of January 1 of the survey year and the previous year.

2. Commission staff surveyed a stratified random sample of cable communities nationwide to collect data on the cable rates (prices) in effect in communities as of January 1, 2020.⁷ In the *Report on Cable Industry Prices*, we refer to the communities in which the operator is subject to effective competition as the “effective competition group” and to communities in which the operator is not subject to effective competition as the “noncompetitive group.” Our sample includes communities from both groups. We collected data on monthly prices to purchase basic service, expanded basic service, the next most popular service, and cable equipment, as well as other information, as described in greater detail below.⁸ The *Report on Cable Industry Prices* presents the average annual changes in prices and other information by cable service tier.

3. *Average price over all communities.* Cable prices increased over the 12 months ending January 1, 2020, at a relatively high rate compared to the average annual increases over the past five years. The monthly price for cable subscribers who take only basic service grew by 10.7%, to \$34.79, over the year ending January 1, 2020. Over the five years ending January 1, 2020, basic prices rose by an average of 7.9% per year. Prices for expanded basic service increased by 7.1%, to \$86.70, over the year ending January 1, 2020. This compares to an average annual increase of 4.7% over the last five years. To account for growth in the number of channels offered with cable services, we also report price per channel (service and equipment lease price divided by number of channels). Over the year ending January 1, 2020, price per channel for basic and expanded basic service grew by 8.8% and 7.0% to 55 cents and 39 cents per channel respectively. Over the past five years, price per channel for expanded basic service declined on average by 0.1% annually. In comparison to cable prices, the rate of general inflation measured by the Consumer Price Index (all items) rose by 2.5% over the 12 months ending January 1, 2020, and at an average annual rate of 2.0% over the last five years.⁹

4. *Average price in the communities with a finding of effective competition compared to average price in communities without a finding.* On January 1, 2020, the average price of basic service was 37.8% higher in effective competition communities than in the noncompetitive communities. The average monthly price of basic service was \$25.30 in noncompetitive communities and \$34.88 in effective competition communities. For basic service, price per channel for the noncompetitive group was 24 cents on average. For the effective competition group, price per channel was 55 cents per channel on average. While the average price of expanded basic service was 3.5% lower in effective competition communities (\$86.68) than in noncompetitive communities (\$89.85), the average price per channel for expanded basic service was higher in effective competition communities (39 cents per channel) than in noncompetitive communities (31 cents per channel). These price differences likely reflect a complicated mix of factors, with operators providing different service offerings in response to competition and regulation. In noncompetitive communities, the local franchising authority may regulate the price of basic service and equipment. In addition, since the reversal of the effective competition presumption, the number of communities in the noncompetitive group has been significantly reduced in comparison to the effective competition group.¹⁰ More than 99% of cable communities are now subject to effective competition.¹¹

⁷ See Attach. 16: Survey Methodology for a detailed description of the sampling and stratification methodology.

⁸ The prices collected exclude state and local taxes as well as franchise fees.

⁹ U.S. Bureau of Labor Statistics (BLS), *Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCNS]*, <https://fred.stlouisfed.org/series/CPIAUCNS> (last visited Oct. 27, 2020).

¹⁰ See *supra* n.4, *infra* para. 11.

¹¹ See *infra* Fig. 1 for the number of cable communities subject to effective competition.

5. *Broadcast retransmission consent compensation fees.* From 2018 to 2019,¹² total retransmission consent fees paid by cable systems to television broadcast stations increased, on average, by 11.2%. Annual fees paid per subscriber increased, on average, by 17.8%, rising from \$109.70 to \$129.27 over the same period. Average monthly retransmission consent fees per subscriber per broadcast station increased by 20.5%, increasing from \$1.07 to \$1.29 from 2018 to 2019. Over the period 2013-2019, the compound average annual increase in fees per subscriber was 32.3%.

6. *Comparison of DBS to cable programming services.* Direct broadcast satellite (DBS) providers DIRECTV and DISH offer multichannel video services similar to the services offered by cable operators. Accordingly, we compared DBS services to the most popular cable offering as part of the *Report on Cable Industry Prices*, though not explicitly required by the statute. We looked at the DBS services which appeared most comparable to expanded basic cable service: DIRECTV's Choice and DISH's America's Top 120 Plus (AT120+). We summarize findings in this section and Attachment 15 reports detailed statistics.¹³

7. As of January 2020, the average monthly price for cable's expanded basic service was \$86.70, less than the price of DIRECTV's Choice service (\$123.52) and less than the price of DISH's AT120+ service (\$90.44).¹⁴ Each cable and DBS service offered a core package of national channels along with local broadcast channels and regional sports networks depending on service location.¹⁵ From 2019 to 2020, the average monthly price for cable's expanded basic service increased by \$5.72, an annual increase of 7.1%. In comparison, Choice service increased by \$6.75 (annual increase of 5.5%) and America's Top 120+ increased by \$5.45 (annual increase of 7.3%). Cable's expanded basic service had an average price per channel of 39 cents. This was lower than the average price per channel for both Choice service (55 cents per channel) and AT120+ service (53 cents per channel).

8. DIRECTV's Choice service offered 225 channels and DISH's AT120+ service offered 171 channels, compared to 257 channels offered with cable's expanded basic service. Though generally comparable, there were differences in the types of channels carried by cable operators and DBS providers. On average, cable operators carried 43 local broadcast channels, while DIRECTV and DISH each carried 21 local broadcast channels. The difference mostly results from cable operators carrying relatively more broadcast multicast channels. Cable operators carried 3 regional sports networks, on average, with expanded basic service, while DIRECTV's Choice service had 3.9 regional sports networks and DISH's AT120+ had 0.6 regional sports networks, on average.¹⁶

¹² The data for retransmission consent fees are collected somewhat differently than the rest of the data in the *Report on Cable Industry Prices*. Retransmission consent fee data are collected for complete years, whereas all other data are collected as of a certain date (January 1) of the survey year and previous year. As a result, the retransmission consent fee data are for the *complete years* 2018 and 2019 (the latest two years for which annual retransmission consent data were available at the time of the 2020 survey), whereas the other data in the survey, by contrast, are snapshots as of January 1, 2019 or January 1, 2020.

¹³ We sampled DBS services in 40 communities separately from our cable survey, based on publicly available information. Attach. 15 reports detailed statistics and data sources regarding this DBS survey sample.

¹⁴ The average cable service price reflects prices charged by cable operators who bundle equipment and cable service and those who do not. DBS service prices include equipment.

¹⁵ Besides the core price of service, prices include local broadcast and regional sports network fees if these channels were billed as separate items.

¹⁶ For the purposes of this *Report on Cable Industry Prices*, a regional sports network is a network that carries a substantial number of live games from at least one nearby professional sports team that is a member of the National Football League, Major League Baseball, National Basketball Association, or National Hockey League. See *infra* Fig. 8 for regional sports networks carried by cable operators by service tier.

II. OVERVIEW OF THE SURVEY

9. The basis of information and analysis in the *Report on Cable Industry Prices* is the Commission's 2020 survey of cable industry prices. The Commission directed cable operators serving a randomly selected sample of cable communities nationwide to respond to a survey questionnaire requesting prices and other information on cable service. As noted, we selected communities that were subject to effective competition, as well as communities that were not subject to effective competition. Information was collected as of January 1, 2019 and January 1, 2020.¹⁷ We used the information collected to estimate average values and annual changes, and to make comparisons across groups and subgroups of cable communities.

10. In section II.A, we discuss effective competition communities and the process for establishing effective competition. In section II.B, we provide an overview of the survey methodology, described in more detail in Attachment 16: Survey Methodology. In section II.C, we provide definitions of specific cable services. In section II.D, we review the survey's accuracy and reliability.

A. Effective Competition Communities

11. In 2015, the Commission adopted a rebuttable presumption that cable operators are subject to the type of effective competition known as competing provider effective competition, which is verified through the "50/15" test.¹⁸ In the 2015 proceeding, the Commission concluded that the ubiquitous nature of DBS services made it appropriate to presume that competing provider effective competition is present in all communities, unless a showing is made to the contrary to rebut this presumption. In a community where competing provider effective competition does not exist, the local franchising authority (LFA) must certify the lack of effective competition by showing that the 50/15 test is not met before the LFA can regulate the price of basic service and equipment. The certification is valid unless and until the Media Bureau issues a decision denying the certification request. Only LFAs with a valid certification may regulate basic cable rates. Few LFAs have filed certifications to date. In addition, in October 2019, the Commission found, for the first time, that a cable operator was subject to effective competition from a local exchange carrier (LEC)-affiliated online video distributor (OVD) under the LEC effective competition test.¹⁹ As a result of these changes, operators have now been found subject to effective competition, and basic cable rates are unregulated, in nearly all communities in the country. Thus far, only in Massachusetts and Hawaii have LFAs successfully certified the lack of effective competition. As a result, only these LFAs may exercise regulatory oversight over the price for basic service and equipment. The 86 certified communities in these states fail to meet the 50/15 test because less than 15% of households in these communities subscribe to DBS service.²⁰

¹⁷ *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 Service, and Equipment*, MM Docket No. 92-266, Order, 35 FCC Red 2871 (2020).

¹⁸ See generally *Cable Effective Competition Report and Order*. The 50/15 test requires that at least two unaffiliated MVPDs offer comparable programming each of which offers its service to at least 50% of households in the market, and the percent of households taking service from MVPDs, other than the largest MVPD, exceeds 15%. Effective competition can also be found by one of the following three tests: (1) fewer than 30% of households subscribe to the operator's programming service (low penetration test); (2) a franchising authority operates as an MVPD in that franchise area and offers programming to at least 50% of households (municipal test); or (3) a local exchange carrier (LEC) or its affiliate (or an MVPD using the facilities of a LEC or affiliate) offers service by means other than DBS in the franchise area of an unaffiliated operator that is offering comparable programming (LEC test). 47 U.S.C. § 543(l)(1).

¹⁹ See generally *Charter Effective Competition Order*.

²⁰ These communities serve 0.9% of cable subscribers. See *infra* Fig. 1.

B. Overview of Survey Methodology

12. We selected the sample of effective competition communities from five subgroups.²¹ The first two subgroups are composed of the communities in which the Commission has made a finding of effective competition because a second wireline MVPD serves the same area as an incumbent cable operator.²² The first subgroup is made up of *incumbent* cable system operators that were the providers of MVPD service in an area prior to a rival MVPD's arrival. The second subgroup is made up of the *rival* MVPDs in these communities. The basis of findings of effective competition for the incumbent subgroup is either (a) the 50/15 test, resulting from the presence of at least two MVPDs, or (b) the local exchange carrier (LEC) test resulting from the presence of at least two MVPDs, one of which is a LEC or an entity affiliated with or using the LEC's facilities.²³

13. The remaining effective competition communities were selected from three subgroups based on system size.²⁴ We define small systems as cable systems serving 10,000 or fewer subscribers, midsize systems as cable systems serving between 10,000 and 75,000 subscribers, and large systems as cable systems serving more than 75,000 subscribers.²⁵ We did not divide the noncompetitive group into subgroups. The noncompetitive group is a sample of 40 communities drawn from the population of 86 noncompetitive communities.

C. Programming Services

14. We next define the programming services referenced in the *Report on Cable Industry Prices*. Service prices reflect the non-promotional rates and exclude taxes and fees as well as fees subscribers may incur to lease cable equipment unless the customer received equipment along with programming without incurring a separate lease charge. We collected information on basic service and other cable programming services not offered on a per channel or per program basis, as well as cable equipment. The other programming services about which the survey collected information are expanded basic service and the next most popular service.

15. *Basic service*. The Cable Act requires operators to offer a separately available basic cable service to which customers must subscribe before purchasing any other service.²⁶ A basic service tier includes local broadcast stations entitled to carriage under the Cable Act; public, educational, and

²¹ These subgroups are designed to achieve desirable levels of statistical precision, and, thus, are not necessarily selected proportionately from the universe of communities belonging to each subgroup. See *infra* Fig. 1, *infra* Attach. 16: Survey Methodology for a more complete description.

²² The Commission made these findings of effective competition before it adopted a rebuttable presumption of effective competition.

²³ The incumbent subgroup includes operators in communities also served by AT&T U-verse. The Commission considers AT&T U-verse to be a competing MVPD for the purpose of assessing effective competition. However, AT&T U-verse systems do not have CUIDs, which are assigned to each registered cable operator for each individual community an operator serves. Therefore, AT&T U-verse communities are not part of the database from which the survey samples are drawn. The rival subgroup includes telephone companies that have CUIDs, and these range from large national systems like Verizon FiOS, to small municipal telecommunications systems.

²⁴ Usually, many cable communities belong to one cable system. In 2020, there were about 4,000 cable systems and almost 35,000 cable communities.

²⁵ Subscriber counts were assigned to cable communities and then, using physical system identifiers (PSIDs) to identify cable systems, aggregated to cable systems. Subscriber estimates come from S&P Global. S&P Global, *MediaCensus, Operator Subscribers by Geography 2019 Q3* (last accessed Feb. 7, 2020). *Infra* Attach. 16: Survey Methodology explains how subscribers were assigned to cable communities.

²⁶ See *supra* n.3.

governmental access channels that a local franchising authority requires; and other channels the operator chooses to add.²⁷

16. *Expanded basic service.* Expanded basic service includes basic service channels in addition to the next most highly subscribed tier of channels, generally the tier that includes the most popular national cable networks.

17. *Next most popular service.* The next most popular service is the most highly subscribed service after expanded basic service. It generally consists of the channels offered with expanded basic service plus at least seven additional video channels. These additional channels could offer all types of content, for example, general entertainment, sports, and Spanish-language programming.

18. *Equipment lease charge.* Subscribers may incur a separate monthly charge to lease cable equipment such as a cable signal converter box and remote-control unit, cable card, or other equipment necessary to access programming. We collect data on such charges to the extent that respondents charge a separate monthly fee to lease such equipment. Specifically, we asked the survey respondents to report the price of the most commonly leased equipment at each service level (basic service, expanded basic service, and the next most popular service) unless the equipment was included at no extra charge or was not necessary to view all of the channels offered with the service.

19. *Price per channel.* Price per channel equals the price of the service divided by the number of channels the service offers. If equipment is necessary to view all channels in the service's channel lineup and is not included in the service price, the charge to lease equipment is added to the price component of price per channel. Price per channel is a proxy for quality adjusted price and declines as the number of channels increases, all else equal.

D. Survey Accuracy and Reliability

20. The data and analysis presented in this *Report on Cable Industry Prices* are consistent with the Commission's information quality guidelines.²⁸ Consistent with prior reports, we took steps to ensure the accuracy and reliability of the survey data. We provided the questionnaires to respondents to complete and submit on the Commission's website. Many survey questions have built-in checks for reasonableness, which prompted the respondents to recheck seemingly unreasonable or inconsistent responses. After receiving the submitted surveys, we examined responses using a computer program designed to identify apparent inaccuracies. If a response lay outside of its expected range or was inconsistent with the answers to other questions, the program flagged that response for further review. We then asked the cable operator to review the response and make any necessary corrections. Attachment 16: Survey Methodology contains more detail on our data validation process.

III. SURVEY RESULTS

21. The figures in this section report results from the survey of cable operators in communities nationwide. Results are presented for the full sample and are further broken down into noncompetitive and effective competition groups, as well as effective competition subgroups. All averages reported are weighted averages where the weight given to a community depends on the number of cable subscribers in the community relative to the number of cable subscribers in the other communities within the sampling group or subgroup.

22. Figure 1 summarizes the universe of cable communities and the 2020 survey sample. There are 86 noncompetitive communities and 34,666 effective competition communities in the universe

²⁷ 47 U.S.C. § 543(b)(7); 534-35.

²⁸ *Implementation of Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility and Integrity of Information Pursuant to Section 515 of Public Law No. 105-554*, FCC-02-277, Information Quality Guidelines, 17 FCC Rcd 19890 (2002); *FCC Updates Information Quality Guidelines in Accordance with Data Quality Act*, DA 19-709, Public Notice, 34 FCC Rcd 6376 (OEA, OMB 2019).

of registered cable communities, and nearly all subscribers (99.1%) receive service in an effective competition community. There are five effective competition subgroups. The incumbent subgroup is made up of 745 communities and accounts for 7.5% of subscribers nationwide. The rival subgroup contains 548 communities and serves 3.7% of subscribers. All other effective competition communities are in one of the three subgroups stratified by system size. The large systems subgroup has 10,581 communities and serves 56.4% of subscribers. The midsize systems subgroup has 8,958 communities and serves 24.2% of subscribers. Finally, the small systems subgroup has 13,834 communities and serves 7.3% of subscribers. We sampled 501 communities from the universe of 34,752 communities. Of those, we sampled 40 of the 86 noncompetitive group communities and 461 effective competition communities.

Fig. 1
Sample Universe and Survey Sample

Sampling Groups and Subgroups	Number of Cable Communities	Percentage of National Subscribers	Survey Sample Size	Number of Survey Responses
Full Sample	34,752	100%	501	491
Sampling Groups				
Noncompetitive group	86	0.90%	40	40
Effective competition group	34,666	99.10%	461	451
Effective Competition Subgroups				
Large Systems: More than 75,000 subscribers	10,581	56.40%	154	152
Midsize Systems: 10,001 – 75,000 subscribers	8,958	24.21%	115	114
Small Systems: 10,000 and fewer subscribers	13,834	7.34%	112	105
Incumbents	745	7.48%	40	40
Rivals	548	3.67%	40	40

Sources: Cable Community Registration, FCC Form 322; Annual Cable Operator Report, FCC Form 325; and S&P Global, *MediaCensus, Operator Subscribers by Geography 2019 Q3* (last accessed Feb. 7, 2020).

A. Cable Programming Services

23. Figure 2 reports the average monthly prices of basic, expanded basic, and the next most popular services on January 1, 2020. In the full sample, average monthly prices for basic, expanded basic, and the next most popular services were \$34.79, \$86.70, and \$101.12, respectively. Figure 2 also reports the percentage change in price from January 1, 2019 to January 1, 2020. In the full sample, the average monthly price for each service tier increased by a statistically significant amount.²⁹ The average monthly price for basic service increased by 10.7% (\$3.37), while the average monthly price for expanded

²⁹ Throughout this *Report on Cable Industry Prices*, we determine statistical significance using a 5% significance level. A difference that is statistically significant at the 5% significance level is unlikely to be due to random sampling error. Instead, the difference is likely to reflect a true difference between survey groups.

basic service increased by 7.1% (\$5.72), and the average monthly price for the next most popular service increased by 6.2% (\$5.93). Increases in the price for cable services may be a result of increases in the cost of programming faced by cable operators.³⁰ Although the *Report on Cable Industry Prices* does not collect information on the cost of carrying cable networks, we find a significant increase in the cost of carrying broadcast stations under retransmission consent.³¹

Fig. 2
Monthly Price of Cable Programming Services
January 1, 2020

Cable Service	Full Sample	Non-Comp. Group	Effective Comp. Group	Effective Competition Subgroups				
				Overbuild Communities		System Size		
				Incumbent	Rival	Small	Midsize	Large
Basic	\$34.79	\$25.30	\$34.88	\$31.70	\$28.43	\$34.60	\$35.34	\$35.56
Annual change	10.7%*	20.1%*	10.7%*	15.2%*	4.3%	5.2%	11.7%*	10.7%*
Expanded basic	\$86.70	\$89.85	\$86.68	\$79.46	\$81.73	\$83.32	\$87.48	\$88.04
Annual change	7.1%*	5.7%*	7.1%*	5.8%	2.6%	7.4%*	8.5%*	6.9%*
Next most popular	\$101.12	\$107.67	\$101.06	\$94.01	\$89.15	\$96.01	\$103.31	\$102.38
Annual change	6.2%*	4.7%*	6.2%*	5.0%	2.6%	7.0%*	7.4%*	6.0%*

Source: Attach. 1. * Indicates annual change is statistically significant at the 5% significance level. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

24. Figure 3 reports the average price per channel by service tier on January 1, 2020. Price per channel is calculated as the sum of the monthly service and equipment prices (if equipment is necessary to view all channels) divided by the number of channels offered. Average price per channel in the full sample is highest for the basic service tier (55 cents), lower for the expanded basic tier (39 cents), and lowest for the next most popular service tier (34 cents). For the full sample of basic and expanded basic service, the increase in average price per channel from January 1, 2019 to January 1, 2020 was statistically significant.

³⁰ Lillian Rizzo and Drew FitzGerald, *Cord-Cutting Accelerated in 2019, Raising Pressure on Cable Providers*, Wall Street Journal (Feb. 20, 2020), <https://www.wsj.com/articles/cord-cutting-accelerates-raising-pressure-on-cable-providers-11582149209>.

³¹ We find that retransmission consent fees paid per subscriber increased by 17.8% from 2018 to 2019. See *infra* section III.D.

Fig. 3
Price per Channel
January 1, 2020

Cable Service	Full Sample	Non-Competitive Group	Effective Competition Group	Effective Competition Subgroups				
				Overbuild Communities		System Size		
				Incumbent	Rival	Small	Midsize	Large
Basic	\$0.55	\$0.24	\$0.55	\$0.36	\$0.65	\$0.90	\$0.63	\$0.49
Annual change	8.8%*	13.3%*	8.8%*	10.3%	1.3%	4.3%	9.9%	9.6%
Expanded basic	\$0.39	\$0.31	\$0.39	\$0.37	\$0.37	\$0.60	\$0.43	\$0.35
Annual change	7.0%*	4.6%*	7.0%*	4.2%	0.3%	6.3%	8.4%*	7.2%*
Next most popular	\$0.34	\$0.24	\$0.34	\$0.38	\$0.31	\$0.50	\$0.37	\$0.31
Annual change	6.1%	4.6%*	6.1%	5.7%	0.3%	4.5%	7.6%	5.9%

Source: Attach. 5. * Indicates annual change is statistically significant at 5% significance level. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

25. Figure 4 uses the results presented in Figures 2 and 3 to report the percentage difference in average price between the effective competition group and its subgroups and the noncompetitive group for each service tier. The average price of basic service in the effective competition group is 37.8% higher than the average price of basic service in the noncompetitive group. All effective competition subgroups have a higher average basic service price than the noncompetitive group, and the difference is statistically significant for all subgroups. For the expanded basic and next most popular service tiers, the average prices are 3.5% and 6.1% lower for the effective competition group compared to the noncompetitive group and the price differences are statistically significant. Figure 4 also reports the percentage difference between the effective competition subgroups and the noncompetitive group in price per channel for expanded basic service. The average price per channel for expanded basic service is 26.3% higher for the effective competition group compared to the noncompetitive group, and the price difference is statistically significant. These price differences likely reflect a complicated mix of factors. Unlike the basic service tier, the expanded basic and next most popular service tiers are not subject to rate regulation. In addition, cable operators in each group may offer different services in response to differences in competition and regulation.

Fig. 4
Percentage Difference in Average Price
Effective Competition Group and Subgroups compared to Noncompetitive Group
January 1, 2020

Cable Service	Effective Competition Group	Effective Competition Subgroups				
		Overbuild Communities		System Size		
		Incumbent	Rival	Small	Midsize	Large
Basic	37.8%*	25.3%*	12.4%*	36.7%*	39.7%*	40.6%*
Expanded basic	-3.5%*	-11.6%*	-9.0%*	-7.3%*	-2.6%*	-2.0%*
Next most popular	-6.1%*	-12.7%*	-17.2%*	-10.8%*	-4.0%*	-4.9%*
Expanded Basic Price per Channel	26.3%*	19.6%*	19.3%*	93.0%*	39.1%*	14.0%*

Source: Attach. 2 and 6. A positive value indicates the average price is higher for the effective competition group or subgroup than the noncompetitive group. * Indicates price difference is statistically significant at the 5% significance level. *See infra* Attach. 2 and 6 also for comparisons between all subgroups. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

26. Figure 5 reports a historical series of basic service prices; expanded basic service prices, channels, and price per channel; and the next most popular service and equipment price. Figure 5 also reports the compound average annual change in prices and channels over the last five and ten years. The price of basic service grew annually by 7.9% over the five-year period and by 6.9% over the ten-year period. The price of expanded basic cable service grew annually by 4.7% over the five-year period and by 4.8% over the ten-year period. The average number of channels offered by cable operators with expanded basic service grew annually by 5.7% over the five-year period and by 7.4% over the ten-year period. Average price per channel for expanded basic service declined by 0.1% annually over the five-year period and by 2.1% annually over the ten-year period. The price of the next most popular service and lease of equipment if not included in the programming price increased by 4.2% over the five-year period and by 4.1% over the ten-year period.

27. Figure 5 also reports the Consumer Price Index (CPI) for all items, published by the Bureau of Labor Statistics (BLS), which serves as a measure of general price inflation and a basis for comparison.³² The CPI (all items) grew at an average annual rate of 2.0% over the last five years and by 1.8% annually over the last ten years. In addition, Figure 5 reports a BLS price index for Cable and Satellite Television and Radio Services (CSR Index).³³ The CSR Index grew annually by 3.3% and 2.9% over the last five and ten years, respectively. Because this index covers a different mix of services and is

³² U.S. BLS, *Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCNS]*, <https://fred.stlouisfed.org/series/CPIAUCNS> (last visited Oct. 27, 2020).

³³ U.S. BLS, *Consumer Price Index for All Urban Consumers: Cable and Satellite Television Service in U.S. City Average [CUUR0000SERA02]*, <https://fred.stlouisfed.org/series/CUUR0000SERA02> (last visited Oct. 27, 2020). This index is a sub-component of the overall CPI.

adjusted for changes in the number of programming channels, the CSR Index is not directly comparable to changes in cable programming prices in this *Report on Cable Industry Prices*.³⁴

Fig. 5
Historical Price Series
2010–2020

Year	Basic Service Price	Expanded Basic Service			Next Most Popular Service and Equipment	CPI	
		Price	Channels	Price per Channel		All Items	CSR Index
2010	\$17.93	\$54.44	117.0	\$0.560	\$71.39	144.5	191.9
2011	\$19.33	\$57.46	124.2	\$0.569	\$75.37	146.9	192
2012	\$20.55	\$61.63	149.9	\$0.505	\$78.91	151.2	199.8
2013	\$22.63	\$64.41	159.6	\$0.484	\$81.64	153.6	206.5
2014	\$22.78	\$66.61	167.3	\$0.496	\$84.65	156	212
2015	\$23.79	\$69.03	181.3	\$0.456	\$86.83	155.8	216.4
2016	\$25.40	\$71.37	181.0	\$0.469	\$90.42	158	220.1
2017	\$25.06	\$75.21	195.1	\$0.487	\$95.13	161.9	231.7
2018	\$28.42	\$77.24	241.1	\$0.373	\$96.48	165.3	241
2019	\$31.42	\$80.98	256.1	\$0.365	\$100.34	167.9	245.9
2020	\$34.79	\$86.70	256.7	\$0.390	\$106.68	172.1	254.4
Compound Average Annual Rate of Change							
5-year average	7.9%	4.7%	5.7%	-0.1%	4.2%	2.0%	3.3%
10-year average	6.9%	4.8%	7.4%	-2.1%	4.1%	1.8%	2.9%

Source: Attach. 7. Attach. 7 shows the series back to 1995. Rates of change for channels and price per channel are based on the indices shown in Attach. 7 and cannot be calculated from this figure.

B. Cable Programming Channels

28. Figure 6 shows the average number of video channels offered as of January 1, 2020, and the annual percentage change in the number of channels. The number of channels offered under each service tier includes the channels offered under each lower tier. Also, the channel figures given here include video channels in both standard and high definition format but exclude audio-only channels. In the full sample, an average of 95 channels were offered with the basic service tier, while the expanded basic and next most popular tiers offered 257 and 363 channels, respectively, on average. A total of 564 video channels were offered by cable operators on average. This total includes pay and pay-per-view channels and other programming tiers not included in the *Report on Cable Industry Prices*.

³⁴ The U.S. BLS bases the CSR Index on a survey of items on consumers' monthly cable bills, including premium services and installation costs, which are not included in the monthly service price. When an item shows a significant change in price, BLS makes a quality adjustment and may change the observed price depending on the change in the quality of the product or service in question. In the case of cable service, BLS generally perceives additional channels as an improvement in quality and adjusts the observed price downward. U.S. BLS, *How BLS Measures Price Change in the Consumer Price Index for Cable and Satellite Television and Radio*, <https://www.bls.gov/cpi/factsheets/cable-and-satellite-television-and-radio.htm> (last visited Oct. 27, 2020).

Fig. 6
Number of Channels
January 1, 2020

Cable Service	Full Sample	Non-Comp. Group	Effective Comp. Group	Effective Competition Subgroups				
				Overbuild Communities		System Size		
				Incumbent	Rival	Small	Midsize	Large
Basic	95.0	114.8	94.8	119.8	68.9	57.6	77.5	105.2
Annual change	0.8%	5.2%	0.8%	3.6%	2.6%	1.6%	-0.6%	0.8%
Expanded basic	256.7	301.7	256.3	251.0	267.8	175.2	227.9	278.6
Annual change	0.3%	1.6%	0.2%	2.4%	3.3%	0.5%	-0.4%	0.1%
Next most popular	362.6	462.4	361.7	334.7	352.3	236.7	328.7	394.0
Annual change	-0.6%	0.5%	-0.6%	1.0%	3.2%	1.5%	-1.1%	-0.9%
All Channels	564.1	634.1	563.5	597.3	653.5	367.7	494.4	607.0
Annual Change	-1.1%	5.0%*	-1.2%	0.5%	-2.6%	0.0%	-1.7%	-1.1%

Source: Attach. 8. * Indicates annual change is statistically significant at 5% significance level. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

29. Figure 7 reports the average number of channels in each category available with basic service. The categories are broadcast; public, educational, and governmental (PEG) access; local commercial leased access; non-premium regional sports networks (RSNs); and other non-premium channels. About half of the channels offered with basic service are broadcast channels. It is important to note that a broadcast channel is an individual channel—standard definition, high definition, or multicast—and not a broadcast television station. For example, if the primary signal of a broadcast television station is carried by a cable system in both standard and high definition on separate channels, this would count as two channels. In addition, any multicast subchannels carried count as additional channels.

Fig. 7
Channel Composition of Basic Cable Service
January 1, 2020

Channel Category	Full Sample	Non-Comp. Group	Effective Comp. Group	Effective Competition Subgroups				
				Overbuild Communities		System Size		
				Incumbent	Rival	Small	Mid-size	Large
Broadcast	42.6	43.1	42.6	49.3	54.0	29.7	33.5	46.4
PEG channels	4.0	3.2	4.0	4.2	7.0	2.0	3.2	4.4
Leased access	1.8	2.9	1.8	1.5	0.6	0.4	1.3	2.3
RSNs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other channels	46.6	65.6	46.4	64.8	7.4	25.5	39.5	52.1
Total	95.0	114.8	94.8	119.8	68.9	57.6	77.5	105.2

Source: 2020 survey. See *infra* Attach. 10 for comparisons of channel composition between subgroups. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

30. Figure 8 reports the average number of regional sports networks included with each service tier. The survey defines regional sports networks as networks that carry a substantial number of live games from at least one nearby professional sports team that is a member of the National Football League, Major League Baseball, National Basketball Association, or National Hockey League. Pay-per-view channels are not considered regional sports networks. The average number of regional sports networks offered with basic, expanded basic, and the next most popular service tiers are 0, 3.0, and 3.1 regional sports networks, respectively.

Fig. 8
Regional Sports Networks
January 1, 2020

Cable Service	Full Sample	Non-Comp. Group	Effective Comp. Group	Effective Competition Subgroups				
				Overbuild Communities		System Size		
				Incumbent	Rival	Small	Mid-size	Large
Basic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Expanded basic	3.0	2.1	3.0	3.8	8.0	2.5	2.6	2.8
Next most popular	3.1	2.1	3.1	3.8	8.1	3.2	2.8	2.8

Source: 2020 survey. *See infra* Attach. 11 for comparisons of regional sports network carriage between subgroups. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

C. Cable Equipment

31. Figure 9 reports the average equipment lease fee for each service tier.³⁵ Specifically, this is the monthly fee to lease the equipment most commonly leased by subscribers of each service tier. This equipment may be a converter box or other equipment necessary to view all channels offered with the service tier. The equipment lease fees reported represent the fee to lease a single piece of equipment, not the total amount paid for all equipment leased by a household.

³⁵ Some operators do not charge an additional fee for equipment. Instead these operators bundle cable service and equipment. The average equipment lease fees reported in Fig. 9 are the average fees for operators who did not bundle cable service and equipment and priced cable service and equipment separately.

Fig. 9
Equipment Lease Fee
January 1, 2020

Cable Service	Full Sample	Non-Comp. Group	Effective Comp. Group	Effective Competition Subgroups				
				Second Cable Operator Overbuild		System Size		
				Incumbent	Rival	Small	Mid-size	Large
Basic	\$6.69	\$2.04	\$6.74	\$6.37	\$11.05	\$6.51	\$6.01	\$6.71
Annual change	22.7%*	5.6%	22.7%*	15.2%	0.5%	5.2%	18.9%*	28.7%*
Expanded basic	\$7.92	\$3.21	\$7.99	\$8.04	\$11.60	\$8.28	\$6.72	\$8.10
Annual change	9.4%*	22.9%*	9.3%*	10.8%	0.5%	2.3%	11.5%	10.4%
Next most popular	\$8.17	\$3.21	\$8.24	\$8.67	\$11.56	\$8.24	\$7.31	\$8.22
Annual change	8.4%*	22.9%*	8.3%*	9.4%	0.5%	2.4%	8.2%	10.2%

Source: Attach. 12. * Indicates annual change is statistically significant at 5% significance level. *See infra* Attach. 13 for comparisons between subgroups. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

D. Broadcast Retransmission Consent

32. Section 110 of STELAR requires the Commission to report on retransmission consent fees paid by cable operators to broadcast stations.³⁶ Therefore, the survey asked operators to report total retransmission consent fees paid to broadcasters and the number of subscribers covered by retransmission consent payments in 2018 and 2019. The instructions requested that respondents exclude copyright fees. In addition, operators reported the number of broadcast stations carried pursuant to retransmission consent agreements.

33. Figure 10 presents information on retransmission consent compensation. Average annual retransmission consent fees per subscriber increased by 17.8%, rising from \$109.70 to \$129.27, from 2018 to 2019. The average number of broadcast stations carried per cable system pursuant to retransmission consent agreements barely changed between 2018 and 2019: about ten broadcast stations were carried per cable system each year.³⁷ Average monthly retransmission consent fees paid by cable systems to broadcast stations per subscriber per station increased from \$1.07 to \$1.29 from 2018 to 2019. In the sample, total retransmission consent fees were \$4.6 billion for 2018 and \$5.5 billion for 2019. Operators in the sample reported fees covering about 44.6 million subscribers in 2018 and 45.4 million subscribers in 2019.

³⁶ *See supra* n.5.

³⁷ The number of broadcast stations carried pursuant to retransmission consent is different from the number of broadcast channels reported in Fig. 7 for two reasons. First, a broadcast station may multicast several programming channels and second, some broadcast stations are carried pursuant to must-carry rules. Under must-carry rules, cable operators are generally required to carry commercial stations, qualified low power stations, and qualified noncommercial educational stations within the local market. 47 U.S.C. §§ 534, 535; 47 CFR § 76.56. Commercial broadcast television stations, however, may opt out of mandatory cable carriage by electing retransmission consent. 47 U.S.C. § 325(b); 47 CFR § 76.64.

Fig. 10
Retransmission Consent Fees and Subscribers

	2018	2019	Annual Change
Average Annual Retransmission Consent Fees Paid per Cable System	\$65,307,059	\$72,599,839	11.2%
Average Number of Subscribers Pursuant to Retransmission Consent per Cable System ³⁸	642,230	612,858	-4.6%
Average Annual Retransmission Consent Fees Paid per Subscriber	\$109.70	\$129.27	17.8%*
Average Number of Stations Carried Pursuant to Retransmission Consent per Cable System	9.84	9.80	-0.3%
Average Monthly Retransmission Consent Fees Paid per Subscriber per Station	\$1.07	\$1.29	20.5%*
Total Retransmission Consent Fees Reported in Sample	\$4,629,725,116	\$5,517,134,986	19.2%
Total Subscribers under Retransmission Consent Reported in Sample	44,592,825	45,415,815	1.8%

Source: 2020 survey. * Indicates annual change is statistically significant at the 5% significance level. Note: No test of statistical significance is applied to total retransmission consent fees or total subscribers under retransmission consent because, in the sample, total retransmission consent fees and total subscribers are known quantities. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

34. To track changes in retransmission consent fees over time, Figure 11 provides the average annual retransmission consent fees per subscriber reported in the five surveys that have collected retransmission consent data. Over the 2013-2019 period, the compound average annual rate of increase for retransmission consent fees per subscriber was 32.3%. In 2019, fees per subscriber were more than five times their 2013 value. Growth in retransmission consent fees, however, has slowed over the period. The annual change from 2018 to 2019 was 17.8% while the annual change from 2013 to 2014 was 77.4%.

³⁸ In this figure, cable system is not strictly defined. Retransmission consent fees and subscriber counts per cable system were reported at various system levels ranging from an individual cable community to a broad geographic region encompassing multiple markets. Respondents may vary this level of aggregation from year to year, and thus the fees paid per cable system cannot be directly compared across surveys.

Fig. 11
Change in Retransmission Consent Fees
2013 – 2019

Year	Annual Retransmission Consent Fees per Subscriber	Annual Change
2013	\$24.06	---
2014	\$42.67	77.4%
2015	\$55.82	30.8%
2016	\$73.71	32.0%
2017	\$94.93	28.8%
2018	\$109.70	15.6%
2019	\$129.27	17.8%
	Compound Average Annual Rate of Change	
2013 – 2019	32.3%	

Source: 2015, 2016, 2017, 2018, and 2020 surveys.³⁹

35. Figure 12 reports information on retransmission consent fees by both system and operator size. We report retransmission consent fees paid by system size to be consistent with earlier figures that report averages by system size. We also report retransmission consent fees by operator size because small cable operators may have less negotiating leverage with broadcast station groups compared to large cable operators.⁴⁰ For a broadcast station, a deal struck with a large cable operator generates a larger total retransmission consent payment and delivers a larger audience and therefore more advertising revenue than a deal struck with a small cable operator. Because a broadcast station stands to benefit more from reaching a deal with a large cable operator than from reaching a deal with a small cable operator, the large operator has more leverage in negotiations with the broadcast station than the small cable operator. As before, a small system has 10,000 or fewer subscribers; a midsize system has 10,001 to 75,000 subscribers; and a large system has more than 75,000 subscribers.⁴¹ The noncompetitive, incumbent, and rival subgroup communities were added to these system size subgroups. A small operator is defined as an operator serving fewer than 500,000 subscribers nationwide and a large operator is defined as an operator serving at least 500,000 subscribers.⁴²

36. Figure 12 shows that retransmission consent fees are higher for small systems. On average, small systems paid \$167.36 annually per subscriber in 2019, while midsize and large systems

³⁹ The 2013, 2014, and 2015 values reported come from the 2015, 2016, and 2017 surveys, respectively. The 2016 and 2017 values come from the 2018 survey and the 2018 and 2019 values come from the 2020 survey.

⁴⁰ See *Implementation of Section 1003 of the Television Viewer Protection Act of 2019*, MB Docket No. 20-31, Report and Order, 35 FCC Rcd 4961 (2020) (*Implementation of Section 1003 of 2019 TVPA*). This order sets rules which allow small MVPDs to negotiate collectively as a “qualified MVPD buying group” for retransmission consent with large broadcast station groups. See also *ACA Connects—America’s Communications Association Ex Parte* (filed June 30, 2020) (*ACA Connects Ex Parte*).

⁴¹ See *supra* para. 13.

⁴² A threshold of 500,000 nationwide subscribers was chosen to be consistent with the upper limit set on the size of an MVPD allowed to participate in a “qualified MVPD buying group.” *Implementation of Section 1003 of 2019 TVPA*, 35 FCC Rcd at 4962, para. 3.

paid \$138.30 and \$121.87, respectively. The differences in fees paid per subscriber between all subgroups are statistically significant. We also find that small systems carry fewer stations pursuant to retransmission consent than large systems.⁴³ When retransmission consent fees are calculated per subscriber per station, fees are again highest for small systems. Midsize systems carry about two fewer stations under retransmission consent than large systems, and also have higher fees than large systems when retransmission consent fees are calculated per subscriber per station.

37. Figure 12 also shows that retransmission consent fees are higher for small operators.⁴⁴ On average, small operators paid \$178.13 per subscriber annually, while large operators paid \$124.67 per subscriber annually. Small operators also carried fewer stations under retransmission consent and had higher fees per subscriber per station. The differences in fees per subscriber, stations carried, and fees per subscriber per station between small and large operators were statistically significant.

Fig. 12
Retransmission Consent Fees by System and Operator Size (2019)

	System Size			Operator Size	
	Small	Midsize	Large	Small	Large
Average Annual Fees paid per Subscriber	\$167.36	\$138.30	\$121.87	\$178.13	\$124.67
Annual Change	18.7%*	18.7%*	17.3%*	17.9%*	17.8%*
Average Number of Stations Carried under Retransmission Consent	7.88	8.26	10.60	7.93	9.99
Annual Change	-2.1%	-1.0%	0.1%	-0.9%	-0.2%
Average Monthly Fees paid per Subscriber per Station	\$2.10	\$1.69	\$1.05	\$2.28	\$1.20
Annual Change	20.7%*	22.8%*	19.1%*	18.9%	20.8%*

Source: 2020 survey. * Indicates annual change is statistically significant at 5% significance level. *See infra* Attach. 14 for comparisons between subgroups. Averages reported are weighted averages where responses are weighted by the number of cable subscribers in the community.

IV. CONCLUSION

38. Cable service prices increased over the period covered by this *Report on Cable Industry Prices*. Basic service prices grew by 10.7%, while prices for expanded basic service increased by 7.1% over the 12 months ending January 1, 2020. These price increases are larger than the 2.5% increase in general inflation as measured by the CPI (All Items) for the same one-year period. Over the last five years, basic service prices, on average, increased by 7.9% annually and expanded basic service prices increased by 4.7% annually, while the average annual increase in inflation was 2% over the same period. Price per channel for expanded basic service, however, decreased, on average, by 0.1% annually over the last five years. Basic service prices were about 40% higher in effective competition communities than in noncompetitive communities (where basic service rates may be regulated by local franchising

⁴³ This finding does not necessarily imply that systems of different sizes in the same market carry different numbers of stations pursuant to retransmission consent. Instead, it is likely that small cable systems are located in smaller markets with fewer stations, and therefore, on average, carry fewer stations pursuant to retransmission consent.

⁴⁴ *See* ACA Connects *Ex Parte* at 1 (arguing that retransmission consent fees paid by small operators are larger than fees paid by large operators).

authorities), while expanded basic service prices were slightly lower in effective competition communities. Expanded basic price per channel, however, was about 25% higher in effective competition communities.

39. Average annual retransmission consent fees paid by cable systems to television broadcast stations per subscriber increased from \$109.70 to \$129.27 over the same period. During the 2013-2019 period, the average annual increase in fees per subscriber was 32.3%. Small operators paid about 43% more in retransmission consent fees per subscriber than large operators in 2019.

40. DBS providers offer programming services similar to those offered by cable operators. Accordingly, this *Report on Cable Industry Prices* compared expanded basic service to the DBS services found to be the most comparable. As of January 1, 2020, the average price of expanded basic (\$86.70) was less than both the average price for DIRECTV's Choice package (\$123.52) and DISH's AT120+ (\$90.44). Cable operators, on average, offered 257 channels with expanded basic service, while the comparable services of DIRECTV and DISH offered 225 and 171 channels respectively. Expanded basic cable service had, on average, a lower price per channel (39 cents per channel) than DIRECTV's service (55 cents per channel) and DISH's service (53 cents per channel).

Attachment 1
Average Price of Programming
by Subgroup and Programming Service

Sample Group	Subgroup	Service	Year	n	Sample Mean	Standard Error	Annual Change
Full sample	---	Basic service	2020	491	\$34.79	0.365	10.7%*
			2019	488	\$31.42	0.332	
		Expanded basic	2020	491	\$86.70	0.508	7.1%*
			2019	488	\$80.98	0.477	
		Next most popular	2020	480	\$101.12	0.676	6.2%*
			2019	478	\$95.19	0.658	
Non-competitive Group	---	Basic service	2020	40	\$25.30	0.351	20.1%*
			2019	40	\$21.06	0.386	
		Expanded basic	2020	40	\$89.85	0.390	5.7%*
			2019	40	\$85.01	0.388	
		Next most popular	2020	40	\$107.67	0.524	4.7%*
			2019	40	\$102.82	0.523	
Effective Competition Group	---	Basic service	2020	451	\$34.88	0.368	10.7%*
			2019	448	\$31.52	0.335	
		Expanded basic	2020	451	\$86.68	0.513	7.1%*
			2019	448	\$80.95	0.482	
		Next most popular	2020	440	\$101.06	0.683	6.2%*
			2019	438	\$95.12	0.664	
	Overbuilt Communities incumbents	Basic service	2020	40	\$31.70	0.987	15.2%*
			2019	40	\$27.52	1.118	
		Expanded basic	2020	40	\$79.46	2.904	5.8%
			2019	40	\$75.13	2.390	
		Next most popular	2020	40	\$94.01	2.816	5.0%
			2019	40	\$89.50	2.314	
	Overbuilt Communities rivals	Basic service	2020	40	\$28.43	1.501	4.3%
			2019	40	\$27.24	1.006	
		Expanded basic	2020	40	\$81.73	2.994	2.6%
			2019	40	\$79.66	2.088	
		Next most popular	2020	40	\$89.15	3.889	2.6%
			2019	40	\$86.85	2.952	
	Small Systems	Basic service	2020	105	\$34.60	1.147	5.2%
			2019	103	\$32.89	1.056	
		Expanded basic	2020	105	\$83.32	1.549	7.4%*
			2019	103	\$77.55	1.325	
		Next most popular	2020	94	\$96.01	2.280	7.0%*
			2019	93	\$89.75	2.103	
	Midsize Systems	Basic service	2020	114	\$35.34	0.630	11.7%*
			2019	113	\$31.63	0.603	
		Expanded basic	2020	114	\$87.48	1.053	8.5%*
			2019	113	\$80.65	0.919	
		Next most popular	2020	114	\$103.31	1.168	7.4%*
			2019	113	\$96.19	1.109	
Large Systems	Basic service	2020	152	\$35.56	0.533	10.7%*	
		2019	152	\$32.13	0.473		
	Expanded basic	2020	152	\$88.04	0.579	6.9%*	
		2019	152	\$82.35	0.616		
	Next most popular	2020	152	\$102.38	0.909	6.0%*	
		2019	152	\$96.55	0.937		

Source: 2020 survey. * Indicates annual change is statistically significant at the 5% significance level. Price does not include equipment, unless the operator bundles the programming service and equipment in a single price.

Attachment 2
Differences between Subgroups: Average Price of Programming
January 1, 2020

Service	Subgroup 1	Average Price 1	Subgroup 2	Average Price 2	Is Difference Statistically Significant?
Basic	Large Systems	\$35.56	Midsize	\$35.34	No
			Small	\$34.60	No
			Incumbent	\$31.70	Yes
			Rival	\$28.43	Yes
			Noncompetitive	\$25.30	Yes
	Midsize Systems	\$35.34	Small	\$34.60	No
			Incumbent	\$31.70	Yes
			Rival	\$28.43	Yes
			Noncompetitive	\$25.30	Yes
	Small Systems	\$34.60	Incumbent	\$31.70	No
			Rival	\$28.43	Yes
			Noncompetitive	\$25.30	Yes
	Incumbent	\$31.70	Rival	\$28.43	No
			Noncompetitive	\$25.30	Yes
	Rival	\$28.43	Noncompetitive	\$25.30	Yes
	Expanded Basic	Large Systems	\$88.04	Midsize	\$87.48
Small				\$83.32	Yes
Incumbent				\$79.46	Yes
Rival				\$81.73	Yes
Noncompetitive				\$89.85	Yes
Midsize Systems		\$87.48	Small	\$83.32	Yes
			Incumbent	\$79.46	Yes
			Rival	\$81.73	No
			Noncompetitive	\$89.85	Yes
Small Systems		\$83.32	Incumbent	\$79.46	No
			Rival	\$81.73	No
			Noncompetitive	\$89.85	Yes
Incumbent		\$79.46	Rival	\$81.73	No
			Noncompetitive	\$89.85	Yes
Rival		\$81.73	Noncompetitive	\$89.85	Yes
Next Most Popular		Large Systems	\$102.38	Midsize	\$103.31
	Small			\$96.01	Yes
	Incumbent			\$94.01	Yes
	Rival			\$89.15	Yes
	Noncompetitive			\$107.67	Yes
	Midsize Systems	\$103.31	Small	\$96.01	Yes
			Incumbent	\$94.01	Yes
			Rival	\$89.15	Yes
			Noncompetitive	\$107.67	Yes
	Small Systems	\$96.01	Incumbent	\$94.01	No
			Rival	\$89.15	No
			Noncompetitive	\$107.67	Yes
	Incumbent	\$94.01	Rival	\$89.15	No
			Noncompetitive	\$107.67	Yes
	Rival	\$89.15	Noncompetitive	\$107.67	Yes

Source: 2020 survey.

Attachment 3
Average Price of Cable Programming and Equipment (Total Price)
by Subgroup and Programming Service

Sample Group	Subgroup	Service	Year	n	Sample Mean	Standard Error	Annual Change	
Full sample	---	Basic service	2020	491	\$40.38	0.377	12.0%*	
			2019	488	\$36.05	0.357		
		Expanded basic	2020	491	\$91.91	0.468	7.2%*	
			2019	488	\$85.76	0.437		
		Next most popular	2020	480	\$106.68	0.579	6.3%*	
			2019	478	\$100.34	0.549		
Non-competitive Group	---	Basic service	2020	40	\$27.34	0.389	18.9%*	
			2019	40	\$22.99	0.447		
		Expanded basic	2020	40	\$93.06	0.280	6.2%*	
			2019	40	\$87.63	0.273		
		Next most popular	2020	40	\$110.88	0.414	5.2%*	
			2019	40	\$105.44	0.409		
Effective Competition Group	---	Basic service	2020	451	\$40.50	0.379	12.0%*	
			2019	448	\$36.17	0.360		
		Expanded basic	2020	451	\$91.90	0.472	7.2%*	
			2019	448	\$85.75	0.441		
		Next most popular	2020	440	\$106.64	0.584	6.3%*	
			2019	438	\$100.29	0.554		
	Overbuilt Communities incumbents	---	Basic service	2020	40	\$35.87	1.347	15.6%*
				2019	40	\$31.02	1.425	
			Expanded basic	2020	40	\$87.32	2.529	6.4%
				2019	40	\$82.05	2.037	
			Next most popular	2020	40	\$102.47	2.517	5.6%
				2019	40	\$97.06	2.051	
	Overbuilt Communities rivals	---	Basic service	2020	40	\$39.23	1.095	3.3%
				2019	40	\$37.98	0.672	
			Expanded basic	2020	40	\$93.06	2.828	2.3%
				2019	40	\$90.93	2.004	
			Next most popular	2020	40	\$100.71	3.718	2.4%
				2019	40	\$98.36	2.810	
	Small Systems	---	Basic service	2020	105	\$37.69	1.221	5.2%
				2019	103	\$35.83	1.094	
			Expanded basic	2020	105	\$88.13	1.590	7.1%*
				2019	103	\$82.26	1.335	
			Next most popular	2020	94	\$102.14	2.265	6.3%
				2019	93	\$96.07	2.108	
	Midsize Systems	---	Basic service	2020	114	\$39.24	0.775	11.6%*
				2019	113	\$35.16	0.696	
			Expanded basic	2020	114	\$91.55	1.123	8.5%*
				2019	113	\$84.38	0.884	
			Next most popular	2020	114	\$108.05	1.173	7.4%*
				2019	113	\$100.62	1.043	
Large Systems	---	Basic service	2020	152	\$42.10	0.507	13.2%*	
			2019	152	\$37.21	0.491		
		Expanded basic	2020	152	\$93.06	0.495	7.1%*	
			2019	152	\$86.91	0.563		
		Next most popular	2020	152	\$107.48	0.720	6.2%*	
			2019	152	\$101.18	0.742		

Source: 2020 survey. * Indicates annual change is statistically significant at the 5% significance level.
Equipment price added to programming price if equipment is necessary to receive all channels.

Attachment 4

Differences between Subgroups: Average Price of Cable Programming and Equipment
January 1, 2020

Service	Subgroup 1	Total Price 1	Subgroup 2	Total Price 2	Is Difference Statistically Significant?
Basic	Large Systems	\$42.10	Midsize	\$39.24	Yes
			Small	\$37.69	Yes
			Incumbent	\$35.87	Yes
			Rival	\$39.23	Yes
			Noncompetitive	\$27.34	Yes
	Midsize Systems	\$39.24	Small	\$37.69	No
			Incumbent	\$35.87	Yes
			Rival	\$39.23	No
			Noncompetitive	\$27.34	Yes
	Small Systems	\$37.69	Incumbent	\$35.87	No
			Rival	\$39.23	No
			Noncompetitive	\$27.34	Yes
	Incumbent	\$35.87	Rival	\$39.23	No
Noncompetitive			\$27.34	Yes	
Rival	\$39.23	Noncompetitive	\$27.34	Yes	
Expanded Basic	Large Systems	\$93.06	Midsize	\$91.55	No
			Small	\$88.13	Yes
			Incumbent	\$87.32	Yes
			Rival	\$93.06	No
			Noncompetitive	\$93.06	No
	Midsize Systems	\$91.55	Small	\$88.13	No
			Incumbent	\$87.32	No
			Rival	\$93.06	No
			Noncompetitive	\$93.06	No
	Small Systems	\$88.13	Incumbent	\$87.32	No
			Rival	\$93.06	No
			Noncompetitive	\$93.06	Yes
	Incumbent	\$87.32	Rival	\$93.06	No
Noncompetitive			\$93.06	Yes	
Rival	\$93.06	Noncompetitive	\$93.06	No	
Next Most Popular	Large Systems	\$107.48	Midsize	\$108.05	No
			Small	\$102.14	Yes
			Incumbent	\$102.47	No
			Rival	\$100.71	No
			Noncompetitive	\$110.88	Yes
	Midsize Systems	\$108.05	Small	\$102.14	Yes
			Incumbent	\$102.47	Yes
			Rival	\$100.71	No
			Noncompetitive	\$110.88	Yes
	Small Systems	\$102.14	Incumbent	\$102.47	No
			Rival	\$100.71	No
			Noncompetitive	\$110.88	Yes
	Incumbent	\$102.47	Rival	\$100.71	No
Noncompetitive			\$110.88	Yes	
Rival	\$100.71	Noncompetitive	\$110.88	Yes	

Source: 2020 survey.

Attachment 5
Average Price per Channel
by Subgroup and Programming Service

Sample Group	Subgroup	Service	Year	n	Sample Mean	Standard Error	Annual Change		
Full sample	---	Basic service	2020	491	\$0.55	0.015	8.8%*		
			2019	488	\$0.50	0.015			
		Expanded basic	2020	491	\$0.39	0.006	7.0%*		
			2019	488	\$0.36	0.005			
		Next most popular	2020	478	\$0.34	0.010	6.1%		
			2019	476	\$0.32	0.010			
Non-competitive Group	---	Basic service	2020	40	\$0.24	0.006	13.3%*		
			2019	40	\$0.21	0.006			
		Expanded basic	2020	40	\$0.31	0.003	4.6%*		
			2019	40	\$0.30	0.002			
		Next most popular	2020	40	\$0.24	0.001	4.6%*		
			2019	40	\$0.23	0.001			
Effective Competition Group	---	Basic service	2020	451	\$0.55	0.016	8.8%*		
			2019	448	\$0.51	0.015			
		Expanded basic	2020	451	\$0.39	0.006	7.0%*		
			2019	448	\$0.37	0.005			
		Next most popular	2020	438	\$0.34	0.010	6.1%		
			2019	436	\$0.32	0.010			
	Overbuilt Communities incumbents	---	Basic service	2020	40	\$0.36	0.035	10.3%	
				2019	40	\$0.33	0.034		
			Expanded basic	2020	40	\$0.37	0.021	4.2%	
				2019	40	\$0.36	0.019		
			Next most popular	2020	40	\$0.38	0.042	5.7%	
				2019	40	\$0.36	0.041		
	Overbuilt Communities rivals	---	Basic service	2020	40	\$0.65	0.056	1.3%	
				2019	40	\$0.64	0.051		
			Expanded basic	2020	40	\$0.37	0.026	0.3%	
				2019	40	\$0.37	0.022		
			Next most popular	2020	40	\$0.31	0.024	0.3%	
				2019	40	\$0.30	0.020		
	Small Systems	---	Basic service	2020	105	\$0.90	0.070	4.3%	
				2019	103	\$0.86	0.061		
			Expanded basic	2020	105	\$0.60	0.030	6.3%	
				2019	103	\$0.56	0.028		
			Next most popular	2020	92	\$0.50	0.026	4.5%	
				2019	91	\$0.48	0.025		
		Midsize Systems	---	Basic service	2020	114	\$0.63	0.031	9.9%
					2019	113	\$0.57	0.030	
				Expanded basic	2020	114	\$0.43	0.012	8.4%*
					2019	113	\$0.40	0.011	
				Next most popular	2020	114	\$0.37	0.016	7.6%
					2019	113	\$0.34	0.015	
	Large Systems	---	Basic service	2020	152	\$0.49	0.021	9.6%	
				2019	152	\$0.45	0.020		
			Expanded basic	2020	152	\$0.35	0.007	7.2%*	
				2019	152	\$0.33	0.006		
			Next most popular	2020	152	\$0.31	0.014	5.9%	
				2019	152	\$0.29	0.014		

Source: 2020 survey. * Indicates annual change is statistically significant at the 5% significance level. Price per channel is equal to sum of the programming price and the price of equipment divided by the number of channels the service offers. Annual percentage changes are based on unrounded values of price per channel and cannot be calculated from the numbers in this attachment.

Attachment 6
Differences between Subgroups: Average Price per Channel
January 1, 2020

Service	Subgroup 1	Price per Channel 1	Subgroup 2	Price per Channel 2	Is Difference Statistically Significant?
Basic	Large Systems	\$0.49	Midsize	\$0.63	Yes
			Small	\$0.90	Yes
			Incumbent	\$0.36	Yes
			Rival	\$0.65	Yes
			Noncompetitive	\$0.24	Yes
	Midsize Systems	\$0.63	Small	\$0.90	Yes
			Incumbent	\$0.36	Yes
			Rival	\$0.65	No
			Noncompetitive	\$0.24	Yes
	Small Systems	\$0.90	Incumbent	\$0.36	Yes
			Rival	\$0.65	Yes
			Noncompetitive	\$0.24	Yes
	Incumbent	\$0.36	Rival	\$0.65	Yes
			Noncompetitive	\$0.24	Yes
	Rival	\$0.65	Noncompetitive	\$0.24	Yes
	Expanded Basic	Large Systems	\$0.35	Midsize	\$0.43
Small				\$0.60	Yes
Incumbent				\$0.37	No
Rival				\$0.37	No
Noncompetitive				\$0.31	Yes
Midsize Systems		\$0.43	Small	\$0.60	Yes
			Incumbent	\$0.37	Yes
			Rival	\$0.37	Yes
			Noncompetitive	\$0.31	Yes
Small Systems		\$0.60	Incumbent	\$0.37	Yes
			Rival	\$0.37	Yes
			Noncompetitive	\$0.31	Yes
Incumbent		\$0.37	Rival	\$0.37	No
			Noncompetitive	\$0.31	Yes
Rival		\$0.37	Noncompetitive	\$0.31	Yes
Next Most Popular		Large Systems	\$0.31	Midsize	\$0.37
	Small			\$0.50	Yes
	Incumbent			\$0.38	No
	Rival			\$0.31	No
	Noncompetitive			\$0.24	Yes
	Midsize Systems	\$0.37	Small	\$0.50	Yes
			Incumbent	\$0.38	No
			Rival	\$0.31	Yes
			Noncompetitive	\$0.24	Yes
	Small Systems	\$0.50	Incumbent	\$0.38	Yes
			Rival	\$0.31	Yes
			Noncompetitive	\$0.24	Yes
	Incumbent	\$0.38	Rival	\$0.31	No
			Noncompetitive	\$0.24	Yes
	Rival	\$0.31	Noncompetitive	\$0.24	Yes

Source: 2020 survey.

**Attachment 7
Historical Price Series
1995-2020**

Year	Basic Service Price	Expanded Basic Service					Next Most Popular Service and Equipment	CPI	
		Price	Channels		Price per Channel			All Items	Cable
			No.	Index	Dollars	Index			
Jul. 1995	---	\$22.35	44.0	100.0	\$0.600	100.0	---	100.0	100.0
Jul. 1996	---	\$24.28	47.0	106.8	\$0.610	101.7	---	103.0	106.9
Jul. 1997	---	\$26.31	49.4	112.3	\$0.630	105.0	---	105.2	114.9
Jul. 1998	\$12.06	\$27.88	50.1	113.9	\$0.650	108.3	\$38.58	107.0	122.6
Jul. 1999	\$12.58	\$28.94	51.1	116.1	\$0.650	108.3	\$38.43	109.3	127
Jul. 2000	\$12.84	\$31.22	54.8	124.5	\$0.660	110.0	\$39.64	113.3	132.9
Jul. 2001	\$12.84	\$33.75	59.4	135.0	\$0.600	100.0	\$45.33	116.4	139.1
Jul. 2002	\$14.45	\$36.47	62.7	142.5	\$0.660	110.0	\$46.59	118.1	147.8
Jan. 2003	\$13.45	\$38.95	67.5	153.4	\$0.650	108.3	\$49.03	121.2	157.1
Jan. 2004	\$13.80	\$41.04	70.3	159.8	\$0.660	110.0	\$51.76	123.5	163.1
Jan. 2005	\$14.30	\$43.04	70.5	160.2	\$0.620	103.3	\$56.03	127.2	169.6
Jan. 2006	\$14.59	\$45.26	71.0	161.4	\$0.650	108.3	\$59.09	132.2	174.4
Jan. 2007	\$15.33	\$47.27	72.6	165.0	\$0.670	111.7	\$60.27	135.0	179.0
Jan. 2008	\$16.11	\$49.65	72.8	165.5	\$0.680	113.3	\$63.66	140.8	183.9
Jan. 2009	\$17.65	\$52.37	78.2	177.7	\$0.710	118.3	\$67.92	140.8	186.5
Jan. 2010	\$17.93	\$54.44	117.0	204.7	\$0.560	110.3	\$71.39	144.5	191.9
Jan. 2011	\$19.33	\$57.46	124.2	217.3	\$0.569	112.0	\$75.37	146.9	192.0
Jan. 2012	\$20.55	\$61.63	149.9	262.2	\$0.505	99.4	\$78.91	151.2	199.8
Jan. 2013	\$22.63	\$64.41	159.6	279.2	\$0.484	95.3	\$81.64	153.6	206.5
Jan. 2014	\$22.78	\$66.61	167.3	292.6	\$0.496	97.6	\$84.65	156.0	212.0
Jan. 2015	\$23.79	\$69.03	181.3	317.1	\$0.456	89.3	\$86.83	155.8	216.4
Jan. 2016	\$25.40	\$71.37	181.0	316.5	\$0.469	91.8	\$90.42	158.0	220.1
Jan. 2017	\$25.06	\$75.21	195.1	341.3	\$0.487	95.4	\$95.13	161.9	231.7
Jan. 2018	\$28.42	\$77.24	241.1	392.1	\$0.373	85.2	\$96.48	165.3	241.0
Jan. 2019	\$31.42	\$80.98	256.1	416.5	\$0.365	83.2	\$100.34	167.9	245.9
Jan. 2020	\$34.79	\$86.70	256.7	417.5	\$0.390	89.0	\$106.68	172.1	254.4
Compound Average Annual Rate of Change									
5-year average	7.9%	4.7%	---	5.6%	---	-0.1%	4.2%	2.0%	3.3%
10-year average	6.9%	4.8%	---	7.4%	---	-2.1%	4.1%	1.8%	2.9%
1995-2020	---	5.6%	---	5.9%	---	-0.5%	---	2.2%	3.8%

Sources: 1995-2020 survey reports. U.S. BLS, *Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCNS]*, <https://fred.stlouisfed.org/series/CPIAUCNS> (last visited Oct. 27, 2020); U.S. BLS, *Consumer Price Index for All Urban Consumers: Cable and Satellite Television Service in U.S. City Average [CUUR0000SERA02]*, <https://fred.stlouisfed.org/series/CUUR0000SERA02> (last visited Oct. 27, 2020). We re-based these CPI series to July 1995=100 for the purpose of this *Report on Cable Industry Prices*. This attachment is described in Attach. 16: Survey Methodology.

**Attachment 8
Average Number of Channels
by Sample and Programming Service**

Sample Group	Subgroup	Service	Year	n	Sample Mean	Standard Error	Annual Change
Full sample	---	Basic service	2020	491	95.0	2.341	0.8%
			2019	488	94.2	2.392	
		Expanded basic	2020	491	256.7	3.348	0.3%
			2019	488	256.1	3.503	
		Next most popular	2020	480	362.6	5.864	-0.6%
			2019	478	364.9	6.299	
Non-competitive Group	---	Basic service	2020	40	114.8	2.407	5.2%
			2019	40	109.1	1.968	
		Expanded basic	2020	40	301.7	2.638	1.6%
			2019	40	296.9	2.428	
		Next most popular	2020	40	462.4	3.483	0.5%
			2019	40	460.2	3.620	
Effective Competition Group	---	Basic service	2020	451	94.8	2.363	0.8%
			2019	448	94.0	2.415	
		Expanded basic	2020	451	256.3	3.380	0.2%
			2019	448	255.7	3.537	
		Next most popular	2020	440	361.7	5.920	-0.6%
			2019	438	364.0	6.359	
	Overbuilt Communities incumbents	Basic service	2020	40	119.8	6.313	3.6%
			2019	40	115.6	6.278	
		Expanded basic	2020	40	251.0	9.160	2.4%
			2019	40	245.1	8.888	
		Next most popular	2020	40	334.7	16.789	1.0%
			2019	40	331.4	16.009	
	Overbuilt Communities rivals	Basic service	2020	40	68.9	4.831	2.6%
			2019	40	67.2	4.683	
		Expanded basic	2020	40	267.8	7.865	3.3%
			2019	40	259.4	7.497	
		Next most popular	2020	40	352.3	9.202	3.2%
			2019	40	341.5	8.855	
	Small Systems	Basic service	2020	105	57.6	3.092	1.6%
			2019	103	56.7	3.064	
		Expanded basic	2020	105	175.2	6.495	0.5%
			2019	103	174.3	6.554	
		Next most popular	2020	94	236.7	9.675	1.5%
			2019	93	233.3	9.808	
Midsize Systems	Basic service	2020	114	77.5	3.304	-0.6%	
		2019	113	78.0	3.470		
	Expanded basic	2020	114	227.9	5.594	-0.4%	
		2019	113	228.7	5.912		
	Next most popular	2020	114	328.7	9.244	-1.1%	
		2019	113	332.3	10.045		
Large Systems	Basic service	2020	152	105.2	3.640	0.8%	
		2019	152	104.3	3.721		
	Expanded basic	2020	152	278.6	4.914	0.1%	
		2019	152	278.3	5.179		
	Next most popular	2020	152	394.0	8.868	-0.9%	
		2019	152	397.7	9.586		

Source: 2020 survey. * Indicates annual change is statistically significant at the 5% significance level.

Attachment 9
Differences between Subgroups: Average Number of Channels
January 1, 2020

Service	Subgroup 1	Number of Channels 1	Subgroup 2	Number of Channels 2	Is Difference Statistically Significant?
Basic	Large Systems	105.2	Midsize	77.5	Yes
			Small	57.6	Yes
			Incumbent	119.8	Yes
			Rival	68.9	Yes
			Noncompetitive	114.8	Yes
	Midsize Systems	77.5	Small	57.6	Yes
			Incumbent	119.8	Yes
			Rival	68.9	No
			Noncompetitive	114.8	Yes
	Small Systems	57.6	Incumbent	119.8	Yes
			Rival	68.9	No
			Noncompetitive	114.8	Yes
	Incumbent	119.8	Rival	68.9	Yes
			Noncompetitive	114.8	No
	Rival	68.9	Noncompetitive	114.8	Yes
	Expanded Basic	Large Systems	278.6	Midsize	227.9
Small				175.2	Yes
Incumbent				251.0	Yes
Rival				267.8	No
Noncompetitive				301.7	Yes
Midsize Systems		227.9	Small	175.2	Yes
			Incumbent	251.0	Yes
			Rival	267.8	Yes
			Noncompetitive	301.7	Yes
Small Systems		175.2	Incumbent	251.0	Yes
			Rival	267.8	Yes
			Noncompetitive	301.7	Yes
Incumbent		251.0	Rival	267.8	No
			Noncompetitive	301.7	Yes
Rival		267.8	Noncompetitive	301.7	Yes
Next Most Popular		Large Systems	394.0	Midsize	328.7
	Small			236.7	Yes
	Incumbent			334.7	Yes
	Rival			352.3	Yes
	Noncompetitive			462.4	Yes
	Midsize Systems	328.7	Small	236.7	Yes
			Incumbent	334.7	No
			Rival	352.3	No
			Noncompetitive	462.4	Yes
	Small Systems	236.7	Incumbent	334.7	Yes
			Rival	352.3	Yes
			Noncompetitive	462.4	Yes
	Incumbent	334.7	Rival	352.3	No
			Noncompetitive	462.4	Yes
	Rival	352.3	Noncompetitive	462.4	Yes
	All Channels	Large Systems	607.0	Midsize	494.4
Small				367.7	Yes
Incumbent				597.3	No
Rival				653.5	Yes
Noncompetitive				634.1	Yes
Midsize Systems		494.4	Small	367.7	Yes
			Incumbent	597.3	Yes
			Rival	653.5	Yes
			Noncompetitive	634.1	Yes
Small Systems		367.7	Incumbent	597.3	Yes
			Rival	653.5	Yes
			Noncompetitive	634.1	Yes
Incumbent		597.3	Rival	653.5	Yes
			Noncompetitive	634.1	Yes
Rival		653.5	Noncompetitive	634.1	No

Source: 2020 survey.

Attachment 10
Differences between Subgroups: Channel Composition
January 1, 2020

Channel Type	Subgroup 1	Number of Channels 1	Subgroup 2	Number of Channels 2	Is Difference Statistically Significant?
Broadcast	Large Systems	46.4	Midsize	33.5	Yes
			Small	29.7	Yes
			Incumbent	49.3	No
			Rival	54.0	Yes
			Noncompetitive	43.1	Yes
	Midsize Systems	33.5	Small	29.7	Yes
			Incumbent	49.3	Yes
			Rival	54.0	Yes
			Noncompetitive	43.1	Yes
	Small Systems	29.7	Incumbent	49.3	Yes
			Rival	54.0	Yes
			Noncompetitive	43.1	Yes
	Incumbent	49.3	Rival	54.0	No
Noncompetitive			43.1	Yes	
Rival	54.0	Noncompetitive	43.1	Yes	
PEG	Large Systems	4.4	Midsize	3.2	Yes
			Small	2.0	Yes
			Incumbent	4.2	No
			Rival	7.0	No
			Noncompetitive	3.2	Yes
	Midsize Systems	3.2	Small	2.0	Yes
			Incumbent	4.2	No
			Rival	7.0	No
			Noncompetitive	3.2	No
	Small Systems	2.0	Incumbent	4.2	Yes
			Rival	7.0	No
			Noncompetitive	3.2	Yes
	Incumbent	4.2	Rival	7.0	No
Noncompetitive			3.2	Yes	
Rival	7.0	Noncompetitive	3.2	No	
Leased Access	Large Systems	2.3	Midsize	1.3	Yes
			Small	0.4	Yes
			Incumbent	1.5	Yes
			Rival	0.6	Yes
			Noncompetitive	2.9	Yes
	Midsize Systems	1.3	Small	0.4	Yes
			Incumbent	1.5	No
			Rival	0.6	Yes
			Noncompetitive	2.9	Yes
	Small Systems	0.4	Incumbent	1.5	Yes
			Rival	0.6	No
			Noncompetitive	2.9	Yes
	Incumbent	1.5	Rival	0.6	Yes
Noncompetitive			2.9	Yes	
Rival	0.6	Noncompetitive	2.9	Yes	
Regional Sports Networks	Large Systems	0.0	Midsize	0.0	No
			Small	0.0	No
			Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Midsize Systems	0.0	Small	0.0	No
			Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Small Systems	0.0	Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Incumbent	0.0	Rival	0.0	No
Noncompetitive			0.0	No	
Rival	0.0	Noncompetitive	0.0	No	

Source: 2020 survey.

Attachment 11
Differences between Subgroups: Regional Sports Networks (RSNs)
January 1, 2020

Service	Subgroup 1	Number of RSNs 1	Subgroup 2	Number of RSNs 2	Is Difference Statistically Significant?
Basic	Large Systems	0.0	Midsized	0.0	No
			Small	0.0	No
			Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Midsized Systems	0.0	Small	0.0	No
			Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Small Systems	0.0	Incumbent	0.0	No
			Rival	0.0	No
			Noncompetitive	0.0	No
	Incumbent	0.0	Rival	0.0	No
			Noncompetitive	0.0	No
	Rival	0.0	Noncompetitive	0.0	No
Expanded Basic	Large Systems	2.8	Midsized	2.6	No
			Small	2.5	No
			Incumbent	3.8	Yes
			Rival	8.0	Yes
			Noncompetitive	2.1	Yes
	Midsized Systems	2.6	Small	2.5	No
			Incumbent	3.8	Yes
			Rival	8.0	Yes
			Noncompetitive	2.1	Yes
	Small Systems	2.5	Incumbent	3.8	Yes
			Rival	8.0	Yes
			Noncompetitive	2.1	No
	Incumbent	3.8	Rival	8.0	Yes
			Noncompetitive	2.1	Yes
	Rival	8.0	Noncompetitive	2.1	Yes
Next Most Popular	Large Systems	2.8	Midsized	2.9	No
			Small	3.2	No
			Incumbent	3.8	Yes
			Rival	8.1	Yes
			Noncompetitive	2.1	Yes
	Midsized Systems	2.9	Small	3.2	No
			Incumbent	3.8	Yes
			Rival	8.1	Yes
			Noncompetitive	2.1	Yes
	Small Systems	3.2	Incumbent	3.8	No
			Rival	8.1	Yes
			Noncompetitive	2.1	Yes
	Incumbent	3.8	Rival	8.1	Yes
			Noncompetitive	2.1	Yes
	Rival	8.1	Noncompetitive	2.1	Yes

Source: 2020 survey.

Attachment 12
Average Equipment Lease Fee
by Subgroup and Programming Service

Sample Group	Subgroup	Service	Year	n	Sample Mean	Standard Error	Annual Change	
Full sample	---	Basic service	2020	376	\$6.69	0.190	22.7%*	
			2019	379	\$5.45	0.240		
		Expanded basic	2020	342	\$7.92	0.208	9.4%*	
			2019	341	\$7.25	0.239		
		Next most popular	2020	357	\$8.17	0.194	8.4%*	
			2019	359	\$7.54	0.228		
Non-competitive Group	---	Basic service	2020	40	\$2.04	0.139	5.6%	
			2019	40	\$1.93	0.130		
		Expanded basic	2020	40	\$3.21	0.112	22.9%*	
			2019	40	\$2.61	0.114		
		Next most popular	2020	40	\$3.21	0.112	22.9%*	
			2019	40	\$2.61	0.114		
Effective Competition Group	---	Basic service	2020	336	\$6.74	0.192	22.7%*	
			2019	339	\$5.49	0.243		
		Expanded basic	2020	302	\$7.99	0.211	9.3%*	
			2019	301	\$7.31	0.242		
		Next most popular	2020	317	\$8.24	0.196	8.3%*	
			2019	319	\$7.61	0.231		
	Overbuilt Communities incumbents	---	Basic service	2020	25	\$6.37	0.601	15.2%
				2019	24	\$5.53	0.669	
			Expanded basic	2020	39	\$8.04	0.491	10.8%
				2019	38	\$7.26	0.501	
			Next most popular	2020	39	\$8.67	0.397	9.4%
				2019	38	\$7.92	0.427	
	Overbuilt Communities rivals	---	Basic service	2020	39	\$11.05	0.530	0.5%
				2019	39	\$10.99	0.544	
			Expanded basic	2020	39	\$11.60	0.334	0.5%
				2019	39	\$11.54	0.356	
			Next most popular	2020	40	\$11.56	0.328	0.5%
				2019	40	\$11.50	0.350	
	Small Systems	---	Basic service	2020	50	\$6.51	0.509	5.2%
				2019	49	\$6.18	0.526	
			Expanded basic	2020	61	\$8.28	0.586	2.3%
				2019	60	\$8.10	0.586	
			Next most popular	2020	70	\$8.24	0.461	2.4%
				2019	73	\$8.05	0.456	
	Midsize Systems	---	Basic service	2020	74	\$6.01	0.252	18.9%*
				2019	79	\$5.06	0.307	
			Expanded basic	2020	69	\$6.72	0.270	11.5%
				2019	70	\$6.03	0.297	
			Next most popular	2020	74	\$7.31	0.237	8.2%
				2019	74	\$6.76	0.295	
	Large Systems	---	Basic service	2020	148	\$6.71	0.267	28.7%*
				2019	148	\$5.22	0.343	
			Expanded basic	2020	94	\$8.10	0.342	10.4%
				2019	94	\$7.34	0.402	
			Next most popular	2020	94	\$8.22	0.333	10.2%
				2019	94	\$7.46	0.397	

Source: 2020 survey. * Indicates the annual change is statistically significant at the 5% significance level. Equipment refers to a set-top converter box or other digital gateway. The average equipment lease fees reported are the average fees for operators who priced cable service and equipment separately. Because features vary, differences in price may reflect quality differences.

Attachment 13
Differences between Subgroups: Average Equipment Lease Fee
January 1, 2020

Service	Subgroup 1	Lease Fee 1	Subgroup 2	Lease Fee 2	Is Difference Statistically Significant?
Basic	Large Systems	\$6.71	Midsize	\$6.01	No
			Small	\$6.51	No
			Incumbent	\$6.37	No
			Rival	\$11.05	Yes
			Noncompetitive	\$2.04	Yes
	Midsize Systems	\$6.01	Small	\$6.51	No
			Incumbent	\$6.37	No
			Rival	\$11.05	Yes
	Small Systems	\$6.51	Noncompetitive	\$2.04	Yes
			Incumbent	\$6.37	No
	Incumbent	\$6.37	Rival	\$11.05	Yes
			Noncompetitive	\$2.04	Yes
	Rival	\$11.05	Noncompetitive	\$2.04	Yes
Expanded Basic	Large Systems	\$8.10	Midsize	\$6.72	Yes
			Small	\$8.28	No
			Incumbent	\$8.04	No
			Rival	\$11.60	Yes
			Noncompetitive	\$3.21	Yes
	Midsize Systems	\$6.72	Small	\$8.28	Yes
			Incumbent	\$8.04	Yes
			Rival	\$11.60	Yes
	Small Systems	\$8.28	Noncompetitive	\$3.21	Yes
			Incumbent	\$8.04	No
	Incumbent	\$8.04	Rival	\$11.60	Yes
			Noncompetitive	\$3.21	Yes
	Rival	\$11.60	Noncompetitive	\$3.21	Yes
Next Most Popular	Large Systems	\$8.22	Midsize	\$7.31	Yes
			Small	\$8.24	No
			Incumbent	\$8.67	No
			Rival	\$11.56	Yes
			Noncompetitive	\$3.21	Yes
	Midsize Systems	\$7.31	Small	\$8.24	No
			Incumbent	\$8.67	Yes
			Rival	\$11.56	Yes
	Small Systems	\$8.24	Noncompetitive	\$3.21	Yes
			Incumbent	\$8.67	No
	Incumbent	\$8.67	Rival	\$11.56	Yes
			Noncompetitive	\$3.21	Yes
	Rival	\$11.56	Noncompetitive	\$3.21	Yes

Source: 2020 survey.

Attachment 14

Differences between System and Operator Size Groups: Retransmission Consent
2019

System Size Group 1	Fees per Subscriber 1	System Size Group 2	Fees per Subscriber 2	Is Difference Statistically Significant?
Small Systems	\$167.36	Midsize Systems	\$138.30	Yes
		Large Systems	\$121.87	Yes
Midsize Systems	\$138.30	Large Systems	\$121.87	Yes
System Size Group 1	Number of Stations 1	System Size Group 2	Number of Stations 2	Is Difference Statistically Significant?
Small Systems	7.88	Midsize Systems	8.26	No
		Large Systems	10.60	Yes
Midsize Systems	8.26	Large Systems	10.60	Yes
System Size Group 1	Fees per Subscriber per Station 1	System Size Group 2	Fees per Subscriber per Station 2	Is Difference Statistically Significant?
Small Systems	\$2.10	Midsize Systems	\$1.69	Yes
		Large Systems	\$1.05	Yes
Midsize Systems	\$1.69	Large Systems	\$1.05	Yes
Operator Size Group 1	Fees per Subscriber 1	Operator Size Group 2	Fees per Subscriber 2	Is Difference Statistically Significant?
Small Operators	\$178.12	Large Operators	\$124.67	Yes
Operator Size Group 1	Number of Stations 1	Operator Size Group 2	Number of Stations 2	Is Difference Statistically Significant?
Small Operators	7.93	Large Operators	9.99	Yes
Operator Size Group 1	Fees per Subscriber per Station 1	Operator Size Group 2	Fees per Subscriber per Station 2	Is Difference Statistically Significant?
Small Operators	\$2.28	Large Operators	\$1.20	Yes

Source: 2020 survey.

Attachment 15
Average Difference Between Cable and DBS Services
January 2020

Price of Monthly Service, Number of Channels and Average Price per Channel	Expanded Basic Cable Service	DBS Service Most Comparable to Expanded Basic Cable Service	
		DIRECTV Choice Package	DISH America's Top 120 Plus Package
Monthly price for service	\$86.70	\$123.52	\$90.44
No. of sample observations	491	40	40
Standard error of the mean	0.508	0.450	0.118
Difference in means t-statistic		54.243 *	7.170 *
Total no. of video channels	256.5	225.2	171.2
No. of sample observations	491	40	40
Standard error of the mean	3.348	1.422	1.1562
Independent samples t-statistic		-8.667 *	-24.146 *
Average price per channel	0.390	0.549	0.529
No. of sample observations	491	40	40
Standard error of the mean	0.006	0.004	0.004
Independent samples t-statistic		21.942 *	19.989 *

* The difference in the cable and DBS average is statistically significant at 5% significance level.

Sources: This figure is discussed in section I.A. Cable data are from Attach. 1, 5 and 8, and Figures 6 and 8. AT&T, *DIRECTV*, <https://www.att.com/directv/> (last visited Oct. 27, 2020); Dish, *The Only TV Provider That's Tuned In To You*, <https://www.dish.com/> (last visited Oct. 27, 2020). DIRECTV and DISH prices became effective on January 19, 2020 and January 14, 2020 respectively.

ATTACHMENT 16
SURVEY METHODOLOGY

A. Sampling Procedure

41. For the survey, we sampled communities at random from the list of cable community unit identifiers (CUIDs) the Commission assigns to each cable operator for each community the operator serves.⁴⁵ Selections were made independently from two groups of communities, a noncompetitive group and an effective competition group made up of five subgroups.⁴⁶ For each community in our sample, we asked the cable operator in the community to complete a questionnaire regarding prices charged for video programming service offerings as well as other questions related to the operator's system. The information collected was used to estimate and compare mean prices across the different groups and subgroups of communities. Figure 1 provides additional information on this sample.

42. We divided the effective competition group into subgroups to compare subgroups of interest as well as to achieve desirable levels of statistical precision. Creating subgroups in which prices are less disparate than in the full group increases the efficiency of sampling by reducing sample price variance.⁴⁷ Because there is a positive correlation between cable price and system size, the effective competition communities were subdivided by the size of the cable system serving the community, where size refers to the number of subscribers the system serves. We defined small systems as cable systems serving 10,000 or fewer subscribers, midsize systems as cable systems serving over 10,000 and up to 75,000 subscribers, and large systems as cable systems serving more than 75,000 subscribers.

43. We created two more subgroups within the group of effective competition communities comprised of cable overbuild locales where a finding of effective competition was based on the presence of a second rival cable operator. One subgroup consisted of the incumbent cable operators and the other consisted of the rival operators in these overbuild areas. Operators in the incumbent overbuild subgroup have sometimes cited municipal cable systems as rivals. Municipals cited as such are placed in the rival overbuild subgroup and a number are included in our survey. The other municipal systems, those where the Commission did not make a finding, are within the effective competition group, generally in the small system subgroup.

44. We determined an overall sample size of 501 cable communities was necessary to estimate prices with statistical precision. We calculated a minimum overall survey sample size using a standard sample size formula which we calibrated to estimate sample price averages with 1% margin of error at the 5% significance level.⁴⁸ These sample selections were allocated among the two sampling groups and the subgroups within the effective competition group. The sample allocations were made using the Neylan method and power analysis.⁴⁹ Neylan allocation is an optimal method because it accounts for relative variance between groups and subgroups to which selections are allocated in addition

⁴⁵ 47 CFR § 76.1801. Cable operators must register with the Commission. FCC Form 322, Cable Community Registration, required by 47 CFR § 76.1801; FCC Form 325, Annual Cable Operator Report, required by 47 CFR § 76.403.

⁴⁶ See *supra* section II.A for a description of a recent change in the process to determine effective competition.

⁴⁷ See, e.g., William Gemmell Cochran, *Sampling Techniques* 87-107 (2nd ed. 1977); George Waddel Snedecor and William Gemmell Cochran, *Statistical Methods* 434-59 (7th ed. 1980).

⁴⁸ See, e.g., Cochran at 434-59, *supra* n.47.

⁴⁹ See Jerzy Neylan, *On the Two Different Aspects of the Representative Method: The Method of Stratified Sampling and the Method of Purposive Selection*, 97 *Journal of the Royal Statistical Society* 558-625 (1934); See, e.g., SAS Institute Inc., *Introduction to Power Analysis and Sample Size Analysis* (SAS 14.2 User's Guide. Cary, NC: SAS Institute Inc. 2016).

to relative size of subgroups.⁵⁰ After making the Neylan allocations, if a subgroup's allocation was below the sample size calculated using power analysis, the power analysis sample size was used. Further, we chose 40 observations as the minimum sample size⁵¹ so any subgroup sample size of fewer than 40 observations was adjusted to 40. Finally, we adjusted the sample selections by a non-response factor.⁵² Figure 1 of the *Report on Cable Industry Prices* provides sample sizes, survey responses, and other information regarding sampling groups and subgroups.

45. After finalizing the number of sample observations to select from the noncompetitive group and from the subgroups in the effective competition group, we selected independent samples of communities. We used probability proportional to size (PPS) sampling without replacement.⁵³ A PPS design is efficient for our survey because there is a correlation between the number of subscribers in the community and our key survey study variable, price.⁵⁴ Using the PPS method of sampling, we assigned a selection probability to each community within individual subgroups in direct proportion to its relative number of subscribers. The greater the number of subscribers in a community, relative to others within the same stratum, the higher the likelihood of selection. PPS sampling requires sampling selection probability not exceed one (or 100%). Thus, we took the standard approach and sub-stratified communities whose probability exceeded one into one-unit strata with selection probability equal to one.⁵⁵

46. The PPS sample design requires an estimate of the relative number of subscribers in each community. We estimated subscriber counts using 2019 county-level operator subscriber estimates.⁵⁶ Subscribers to an operator in a county were assigned evenly to all the operator's communities within the county.

⁵⁰ See, e.g., Tommy Wright, *A Simple Method of Exact Optimal Sample Allocation under Stratification with Any Mixed Constraint Patterns*, Center for Statistical Research & Methodology, U.S. Census Bureau, Research Report Series (Statistics #2014-07).

⁵¹ See C. Allan Boneau, *Effects of Violations of Assumptions Underlying the t-Test*, 57 *Psychological Bulletin* 49-64 (1960). We are using 40 selections to further reduce uncertainty. A sample size of 30 is often considered an acceptable minimum.

⁵² The non-response factor reflects the possibility of not receiving a survey response from some cable operators. There are few non-responses to our survey, mainly in the small system stratum, and generally as a result of the cable operator no longer being in operation. Our non-response factor increases the sample allocation by a percentage equal to $[\text{NR}_h / (\text{NR}_h + R_h)]$, where in stratum h , NR_h equals non-responses and R_h equals responses to the previous survey.

⁵³ Samples were generated using Stata 15. StataCorp. 2017. *Stata Statistical Software: Release 15*. College Station, TX: StataCorp LLC.

⁵⁴ See, e.g., Frank Yates and Patrick M. Grundy, *Selection without Replacement from Within Strata with Probability Proportional to Size*, 15 *Journal of the Royal Statistical Society* 253-261 (1953); and B. K. Som, *Practical Sampling Techniques* (2nd ed. 1996).

⁵⁵ We applied the following algorithm to sub-stratify each community (or unit) with selection probability greater than one. For a sampling subgroup, where Z represents the total number of subscribers, z_i is the number of subscribers in unit i , n is the sample size, $\pi_i = n (z_i / Z)$ is the selection probability of unit i , and k is the number of units for which the sampling probability exceeds one, we sub-stratify each unit for which the sampling probability exceeds one, which reduces the sample size in the subgroup to $n-k$. This then requires recalculating sampling probability π_i for each of the remaining communities in the subgroup. We repeat the process until there are no communities left in the subgroup with a sampling probability greater than one.

⁵⁶ Estimates of operator subscribers at the county level come from S&P Global. S&P Global, *MediaCensus, Operator Subscribers by Geography 2019 Q3* (last accessed Feb. 7, 2020).

B. Data Quality Control

47. To improve the quality of the survey data and reduce the burden on operators, survey respondents fill out the survey questionnaire online.⁵⁷ After the samples were drawn, we notified operators serving the selected communities and instructed them to complete the survey questionnaire on the Commission's website. We took steps to ensure the reliability and accuracy of the data collected. Online checks notified respondents in real time of inconsistent responses. In addition, we asked a responsible party within each company to certify the completeness and accuracy of the company's responses. The survey response rate (ratio of completed to requested questionnaires) was 98% or 491 of the 501 communities in the sample. Of the ten non-responses, eight operators no longer provided cable service to the community and two operators had yet to commence service.

48. We systematically examined all responses using algorithms designed to identify potentially inaccurate responses. When a particular response was deemed unreasonable or was inconsistent with responses to other questions, we contacted the operator and asked the operator to verify the answer or make a correction. The percentage of survey responses that require follow-up inquiries varies each year based on factors such as the familiarity of the respondents with the survey, the complexity of the questions, and introduction of new questions to the survey instrument. For the 2020 survey, we contacted approximately 10% of parent operators with follow-up inquiries via email or telephone calls. Each operator replied with a correction or an explanation of the particular response. In the case of missing data, some operators provided these data and others explained that they did not collect that information or were not serving the community at the time.

C. Estimation of Price Averages

49. The *Report on Cable Industry Prices* presents the average (mean) levels of the survey data by cable service level for the full sample, sample groups, and subgroups of cable operators. The figures summarize these findings and the attachments display detailed statistics. After we collected and checked the responses, we estimated the population means and variances from the sample data. We estimated the means and variances of cable prices and the other variables on a subscriber basis rather than a cable community basis. We choose this level of analysis because we are interested in understanding the price paid by the average subscriber rather than the price charged in the average community. The two methods of analysis yield different results when there is a correlation between the size of a community (number of subscribers) and the level of price. To produce per-subscriber means, we use the Horvitz-Thompson ratio estimator.⁵⁸ This estimator weights the price in each of the sampled communities by its number of subscribers. The numerator of the ratio sums the weighted product of price and subscriber count across communities in the sample and is equivalent to total revenues from purchases of the cable service. The denominator of the ratio sums weighted subscriber counts across communities in the sample. The result is an estimate of service revenue per subscriber. For any price (X), the mean price (service revenue per subscriber) equals:

⁵⁷ In our web-based questionnaire, we include features that ease the respondent's filing burden. For example, the questionnaire pre-fills some survey questions based on information already on file with the Commission and asks the respondent to verify the information.

⁵⁸ The Horvitz-Thompson ratio estimator is a well-known, unbiased method of estimation applicable to probability sampling. See Daniel G. Horvitz and Donovan J. Thompson, *A Generalization of Sampling without Replacement from a Finite Universe*, 47 *Journal of the American Statistical Association* 663-685 (1952); W. Scott Overton and Stephen V. Stehman, *The Horvitz-Thompson Theorem as a Unifying Perspective for Probability Sampling: With Examples from Natural Resource Sampling*, 49 *The American Statistician* 261-268 (1995); Cochran at 259; *supra* n. 47.

$$\frac{\sum_{i=1}^N \frac{1}{\pi_i} X_i \cdot Sub_i}{\sum_{i=1}^N \frac{1}{\pi_i} Sub_i}$$

where X_i is the price within an individual community i , Sub_i is the number of subscribers in community i , and π_i is the size weighted probability of selecting community i for the sample.⁵⁹

D. Historical Price Series

50. In 2018, the survey became a biennial survey instead of an annual survey. As a result, the average prices and channel counts reported in Attachment 7 for all years before 2019 come from the annual surveys. Because there was no 2019 survey, Attachment 7 shows the average prices and channel counts reported for 2019 in the 2020 survey. With some exceptions, indices reflect the year to year percentage changes in these averages.

51. The exceptions to the rule above are described here. The 1995-2000 prices and 2000-2001 channels are for the noncompetitive sample group of operators. The 1995 price of expanded basic programming is the price of programming and equipment less an estimate of the equipment portion. In 2003, the survey changed from a July to a January collection date. To account for the change, the 2003 index values reflect the changes in the January 2002 to January 2003 averages reported in the 2003 survey. In 2010, we began collecting data on a more expansive set of channels. To account for this change, the 2010 channel and price per channel index values reflect the changes in the 2009 to 2010 averages reported in the 2010 survey.

E. Survey Accuracy

52. Because the basis of our survey is a sample of communities rather than a 100% census, the average prices in this *Report on Cable Industry Prices* are subject to sampling variance. Expanding the survey to include all communities might increase accuracy but would also increase the cost and burden of collecting the information. The attachments to the *Report on Cable Industry Prices* include estimates of sampling variance or statistical standard error for each average price. Standard errors express the degree of confidence that the true mean falls within a range around a sample mean. Most commonly, standard errors indicate whether price differences are statistically significant (meaning statistically different from zero) at a given significance level. The discussion above refers to within-sample variance. To prevent random variance that may occur across samples when measuring annual percentage change, the survey collected two years of data rather than comparing estimates from two different surveys. The exception is the historical time series table, which reports means collected for that particular survey year for the years before 2019.

53. In addition to the sampling variance discussed above, changes in the composition of sample subgroups affect the estimated means.⁶⁰ The composition of communities making up the subgroups changes every year due to operators starting, ceasing, merging, and transferring operations. Composition of the subgroups changes further as a result of findings of effective competition. Many communities that had been part of the noncompetitive group in the 2017 survey were in the effective competition group in the 2020 survey because of a change in the effective competition determination process. Finally, the change in underlying sampling weights this year also led to a change in the sample composition.

⁵⁹ We conducted the data analysis using Stata 15. StataCorp. 2017. Stata Statistical Software: Release 15. College Station, TX: StataCorp LLC.

⁶⁰ See, e.g., David T. Holt and Chris J. Skinner, *Components of Change in Repeated Surveys*, 57 International Statistical Review 1-18 (1989).