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FCC Report Indicates a Competitive Communications Marketplace: Future Reports Should Make Cross-Platform Substitution Findings

by

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Introduction and Summary

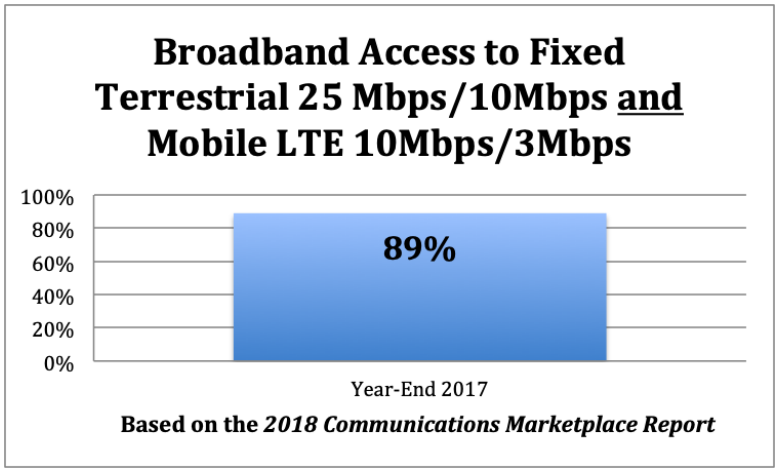
On December 26, 2018, the FCC released its initial *Communications Marketplace Report*. The report is the first to include data for video, mobile, satellite, and other services – including broadband services. A multiplicity of data points in the report reveal the innovative and competitive state of the communications market. The report also contains useful descriptions of intermodal competition within specific service sectors, along with insights about consumer choices among different technology platforms. However, the report comes up short by not offering any findings regarding the substitutability of cross-platform services such as wireless and wireline broadband.

To be sure, the FCC deserves credit for assembling this first consolidated report. However, the Commission should do more. The FCC's 2020 *Communications Marketplace Report*, as well as its 2019 *Broadband Deployment Progress Report* now pending a vote before the Commissioners, should offer findings about the substitutability or potential substitutability of different technology and service platforms, including wireless and wireline broadband Internet access services. And competition analyses contained in future *Marketplace* and *Broadband Deployment* reports should include the effects of cross-platform rivalries on pricing and consumer welfare.

In terms of the communications market's innovative and competitive conditions, report data indicates that at year-end 2017, about 92% of the U.S. population lived in census blocks with LTE coverage by at least four facilities-based mobile service providers. From first-half 2016 through first-half 2018, median LTE download speed rose from 12.8 Mbps to 19.5 Mbps, up 52%. Also, the report cited strong indicators of declining mobile prices in 2017. For instance, the Annual Wireless Telephone Services Consumer Price Index (CPI) decreased 11%. And average revenue per MB decreased approximately 10% to 29%.

For video services, the report found that at the end of 2017 all or nearly all U.S. consumers have access to three competing multi-channel video programming distributors (MVPDs). Some consumers had access to four. Furthermore, MVPDs lost subscribers to competing broadcast TV and – especially – to online video distributor (OVD) services. Whereas MVPDs lost 3.6 million video subscribers in 2017, a drop to 94 million, 16.6 million TV households (13.9%) relied exclusively on over-the-air (OTA) TV broadcast signals, up from 15.7 million TV households (13.2%) in 2017. Top three OVDs Amazon Prime, Netflix, and Hulu exceeded 125 million subscriptions in 2017, up from about 103 million in 2016. And "Virtual MVPDs" such as SlingTV and DIRECTV NOW climbed from 2.2 million subscribers to 4.8 million.

Additionally, fixed broadband deployment and speeds increased. As of December 2017, fixed terrestrial service of 10 Mbps/1 Mbps was deployed to 97.3% of all Americans, up from 95.8% in 2016, and fixed terrestrial 50 Mbps/5 Mbps service was deployed to 92.3% of the population, up from 90.3% in 2016.
Consumers also gained access to both fixed and mobile broadband in 2017. About 306 million Americans, or 94% of the population, were covered by *both* 25 Mbps/3 Mbps fixed terrestrial service and mobile LTE with a minimum advertised speed of 5 Mbps/1 Mbps, up from 91.7% in 2016. Plus "nearly all areas in the country have access to satellite broadband as an alternative" at both the 10 Mbps/1 Mbps and 25 Mbps/3 Mbps levels.



The RAY BAUM's Act of 2018 relieved the FCC of responsibility to annually prepare separate reports on competition in markets for wireless, video, broadband, satellite, and other services. Instead, the Act requires the FCC to biennially prepare a single combined report that "shall consider… the effect of intermodal competition." A key benefit of this change in reporting is to facilitate analyses that better capture increasing cross-platform rivalries in communications services enabled by IP-based network technologies.

The report did provide some insights regarding intermodal competition for video services. For instance, it recognized: "The trend for MVPDs… is downward, while the trend for virtual MVPDs, OVDs offering VOD content, and over-the-air broadcast service is upward." However, the report declined make any findings as to whether video services such as MVPD services and OVD services – or OTA broadcast TV in combination with OVD services – are substitutes, potential substitutes, or even potential partial substitutes. Some finding regarding substitutability seems to follow from report data examining so-called "cord-cutting" of MVPD services, significant upticks in OVD services, and renewed consumer interest in OTA broadcast TV.

Observations regarding intermodal competition for voice services were also included in the report. For example, "fixed retail switched-access lines declined over the past three years at a compound annual growth rate of 11%, while interconnected VoIP subscriptions increased a compound annual growth rate of 8%" with the latter outnumbering the former 64 million to 55 million in June 2017. And Centers for Disease Control and Prevention (CDC) survey data indicates 54% of U.S. households were wireless-only as of December 2017. Yet the report made no substitution findings regarding voice services.

The report did cite some data evidence of the substitutability of wireless and wireline broadband Internet access services, such as Pew's January 2018 report that one in five American adults are "smartphone-only" Internet users and the U.S. Census Bureau's survey finding that, as of 2017, 11% of U.S. households subscribed to a cellular data plan with no other type of Internet subscription. However, the report made "no finding with respect to whether fixed and mobile broadband services are competitive substitutes." Instead, it invoked the Commission's *2018 Broadband Deployment Report* finding that "there are 'salient differences between the two technologies' and that mobile services are not 'currently full substitutes for fixed services.'"

It is clear that services provided through different technologies can serve as substitutes. As Professor Michael E. Porter explained in the 2004 edition of his book, *Competitive Advantage,* identification of substitute services involves ascertaining services that perform the same or similar functions. Porter contrasted "the simplest form of substitution," in which "one product substitutes for another in performing the same function in the same buyer value activity" with "the more complex forms of substitution," in which "a substitute performs a different range of functions than an industry's product and/or affects buyer activities in a different way."

Both wireless and wireline services offer broadband Internet access, even though they rely on different network architectures, particularly over the last mile to consumers. "In identifying substitutes," Porter wrote, "it is necessary to include products that can perform functions in addition to those of an industry's product, as well as products that can perform any significant function among those the industry's product can perform." Importantly, wireless services can perform the same significant function – broadband Internet access – as wireline services. By emphasizing what it calls "salient differences" between wireless and wireline broadband services, the Commission mistakenly stresses technological differences over functional similarities. Moreover, report data regarding smartphone-only Internet users indicates some consumers do, in fact, regard wireless broadband services as substitutes for wireline.

Deployment of 5G networks will substantially increase the availability and effects of wireless

substitutability for wireline. According to Accenture Strategy, 5G networks promise average speeds about ten times LTE networks, with peak speeds exceeding LTE perhaps 100 times. Commissioner Brendan Carr recognized 5G's implications for wireless substitutability in his statement accompanying the report: "[T]he many platforms we regulate are now locked in competition with each other. This only will increase with 5G." Consider also AT&T CEO and Chairman Randall Stephenson's statement to media and investors in January: "Over time, three- to five-year time horizon, unequivocally, 5G will serve as a fixed broadband replacement product… I am very convinced that that will be the case."

Indeed, wireless/wireline substitution will become increasingly apparent as providers roll out 5G offerings. AT&T's 5G deployment is in its early stages. Additionally, reports describe Verizon's 5G Home offering, launched in October 2018, as a replacement for residential high-speed broadband services. And if approved by the FCC and Department of Justice, the T-Mobile/Sprint merger will provide an accelerated path to a nationwide 5G network that will provide stiff competition to AT&T and Verizon.

In view of the competitive data trends, the next *Broadband Deployment* report and the pending *Communications Marketplace Report* should include findings for the substitutability of cross-platform services and include analyses of their effects on prices and output.

Data Points in the Report Reflect the Communications Market's Competitiveness

The following data points contained in the *Communications Marketplace Report* reflect innovative and competitive state of the marketplace for advanced communications services:

- **4G LTE Competition and Choice.** Some 92% of the U.S. population lived in census blocks with LTE coverage by at least four facilities-based mobile service providers. Industry-wide churn rate was nearly 16%, which "can indicate that consumers are not only willing but are also able to switch easily between service providers."

- **Additional Mobile Broadband Competition.** Mobile virtual network operators (MVNOs) also served millions of consumers, with TracFone Wireless serving 23 million. MVNO entrant Xfinity Mobile had about 380,000 subscribers, and Charter launched its service in 2018. (Xfinity Mobile had 1.2 million subs at year-end 2018.)

- **Increased Mobile Broadband Speeds.** From first-half 2016 through first-half 2018, median LTE download speed rose from 12.8 Mbps to 19.5 Mbps, up 52%.

- **Increased Mobile Data Consumption.** Average monthly data usage per smartphone user rose to 5.1 GB, up from 31% from year-end 2016. Smartphone and tablet ownership rose to 77% and 53%, up from 51% and 31% in 2012.

- **Strong Indicators of Declining Mobile Prices.** Annual Wireless Telephone Services Consumer Price Index (CPI) decreased 11% while overall CPI increased 2%. Average Revenue Per User (ARPU) "fell sharply during 2017 from $41.50 to $38.66, a decline of approximately 7%." Notably: "[T]he removal of overage charges, the move toward unlimited

data plans, and Equipment Installment Plans (EIPs) have all contributed to the reported decline in ARPU." Also, by FCC estimates, average revenue per MB decreased approximately 10% to 29% in 2017.

- **Continued Wireless Infrastructure Deployment.** Cell sites in commercial use increased from 308,334 in at year-end 2016 to 323,448 at year-end 2017. Further: "Mobile service providers increasingly have started to deploy small cells and DAS sites to fill local coverage gaps, to densify networks and increase local capacity, or to prepare for deploying their 5G networks." Estimates for small cell deployment for year-end 2018 range from 80,000 to 400,000.

- **MVPD Competition.** All or nearly all U.S. consumers had access to three competing multi-channel video programming distributors (MVPDs). Some consumers had access to four. Based on subscribers, cable's MVPD market share was 55.2%, direct broadcast satellite's (DBS) share was 33.5% and "telco" MVPDs' was 11.3%.

- **Competition from Broadcast TV.** MVPDs lost 3.6 million video subscribers in 2017, a drop to 94 million. But over-the-air TV is on the rise: "In 2018, 16.6 million TV households (13.9%) relied exclusively on over-the-air broadcast signals, up from 15.7 million TV households (13.2%) in 2017," from and 13.3 million (11%) in 2016.

- **Competition from OVDs.** Online video distributors (OVDs) offering content via broadband continue to gain subscribers: Amazon Prime increased from 43.6 million in 2016 to 55.4 million in 2017; Netflix climbed from 47.9 million to 52.8 million, and Hulu increased from 11.7 million to 17.0 million. Subscriptions to those three OVDs exceeded 125 million, compared to 94 million MVPD subscriptions. Consumers also subscribe numerous niche OVD services. Further, so-called "Virtual MVPDs" or OVDs offered by MVPDs via broadband connections – such as SlingTV and DIRECTV NOW – climbed from 2.2 million subscribers to 4.8 million.

- **VoIP Continues to Overtake Switched Access.** As of June 2017: "[T]here are 55 million end-user switched access lines, including 22.5 million residential lines, and 64 million interconnected VoIP subscriptions, including 40 million residential subscriptions." For residential fixed voice, that's a 36%/64% split for switched access and interconnected VoIP. Of that 64 million figure, 7.8 million were independent over-the-top (OTT) VoIP subscriptions; the remainder was for fixed VoIP.

- **Fixed Broadband Deployment and Speed Increases.** As of December 2017, fixed terrestrial service of 10 Mbps/1 Mbps was deployed to 97.3% of all Americans, up from 95.8% in 2016, and fixed terrestrial 50 Mbps/5 Mbps service was deployed to 92.3% of the population, up from 90.3% in 2016. From 2016 to 2017, the deployment of 100 Mbps/10 Mbps increased from 75.7% to over 89.3% of the population, and the deployment of 250 Mbps/25 Mbps increased from 43.7% to 63% of the population.

- **More Consumers Have Access to Both Fixed and Mobile Broadband.** About 306 million Americans, or 94% of the population, were covered by both 25 Mbps/3 Mbps fixed terrestrial

service and mobile LTE with a minimum advertised speed of 5 Mbps/1 Mbps, up from 91.7% in 2016. In rural areas, 75.3% were covered by both services, compared to 98.5% in urban areas, up from 67.1% and 97.7%, respectively, in 2016. Also, on Tribal lands, 67.7% of Americans had coverage for both fixed terrestrial services and mobile LTE, up from 62.4% in 2016.

- **Satellite Broadband Offers Additional Choices.** "[N]early all areas in the country have access to satellite broadband as an alternative for fixed terrestrial broadband service at both the 10 Mbps/1 Mbps and 25 Mbps/3 Mbps levels, but not yet at the higher speeds." Satellite providers plan to offer higher speeds within a few years.

- **Estimates Indicate Increased Investment.** "Based on UBS data, wireless service providers made capital investments of $28.5 billion in 2017, an increase of approximately 2.3% from the $27.9 billion invested in 2016." Also: "[A]ccording to USTelecom, in 2017 broadband providers invested approximately $76.3 billion dollars in network infrastructure, an increase of $1.5 billion over 2016 levels." (USTelecom reports capital spending for the six largest broadband providers increased by $2.3 billion, or 3.6%, in 2018).

Congress Requires the FCC to Report on the Effects of Intermodal Competition

The RAY BAUM's Act of 2018 relieved the FCC of responsibility to annually prepare separate reports on competition in markets for wireless, video, broadband, satellite, and other services. Instead, the Act requires the FCC to biennially prepare a single combined report. (The Commission will still provide stand-alone reports on the progress of broadband deployment during off years.)

One of the Act's "Special Requirements" was that, in making its report assessment of competition in the communications marketplace:

> [T]he Commission shall consider all forms of competition, including the effect of intermodal competition, facilities-based competition, and competition from new and emergent communications services, including the provision of content and communications using the Internet.

Indeed, a key benefit of this change in reporting is to facilitate FCC reports that better capture increasing cross-platform rivalry in communications services enabled by IP-based network technologies. As FSF President Randolph May explained in 2013 testimony before the House Subcommittee on Communications and Technology:

> [T]he requirement to produce a consolidated report should steer the Commission away from its pronounced tendency to view the separate technology-based services as confined to their own "smokestacks" and non-competitive with each other. In today's competitive digital services environment characterized by convergence, adhering to the "smokestack" view inherently neglects marketplace realities.

Report Offers Evidence of Intermodal Competition for Video and Voice Services, But Attempts No Findings on Substitutability

The report did provide some insights regarding intermodal competition for video services:

- "Consumer views on the competitive nature or substitutability of video programming providers depends on factors such as available content, prices, the number of advertisements, the ability to watch content on different devices in different locations, user interfaces, and the need for and cost of broadband access at sufficient speeds for video delivery. Whether consumers view video services as substitutes or supplements depends on the relative values they assign to these and other features."

- "Consumers frequently subscribe to multiple OVDs (Netflix, HBO, Hulu), but typically to only one MVPD (cable, DBS, or telco). Some consumers supplement OTA television viewing with one or more OVDs."

- "[F]rom the perspective of linear programming, most consumers view MVPDs as good substitutes because they can replace one MVPD with another, without losing popular channels, provided the household has access to a competing MVPD."

- "Virtual MVPDs offering similar packages of cable and broadcast channels may see themselves as potential substitutes to traditional cable, telco, or satellite delivered MVPDs, and thus may view competition as winner-take-all with most consumers subscribing to only one provider. On the other hand, no two virtual MVPDs offer exactly the same channels, and consumers with strong preferences for specific channels may not view all virtual MVPDs as good substitutes for one another."

- "The trend for MVPDs… is downward, while the trend for virtual MVPDs, OVDs offering VOD content, and over-the-air broadcast service is upward."

- "In general, traditional cable, DBS, and telephone company MVPDs lost subscribers from 2016 and 2017, while virtual MVPDs and large OVDs offering VOD content gained subscribers. S&P Global maintains that the growth of virtual MVPDs 'shares a large part, although not all, of the blame for declining multichannel subscriptions.'"

Additionally, the report included observations regarding intermodal competition for voice services:

- "The relative growth trends between fixed switched access and interconnected VoIP services are illustrative. The number of fixed retail switched-access lines declined over the past three years at a compound annual growth rate of 11%, while interconnected VoIP subscriptions increased a compound annual growth rate of 8%."

- "Although the public switched telephone network used to be the only means to connect, there now exists a multitude of other voice service options for consumers… [T]here are many other types of telecommunications offerings, including apps running solely on data networks that are

nearly indistinguishable to the consumer from the core communications functionality of the public switched telephone network, and nearly indistinguishable to providers and the Commission from other network data traffic. Many of these apps combine the benefits of voice, video, and text communication into one data-based service."

- "According to preliminary data from the Centers for Disease Control and Prevention (CDC), from December 2014 to December 2017, the percentage of U.S. households that were identified as wireless-only (no landline telephone service) increased from approximately 45% to approximately 54%."

However, the report declined or at least neglected to reach any conclusions of its own as to whether video services such as MVPD services and OVD services, or OTA broadcast TV in combination with OVD services are substitutes, potential substitutes, or even potential partial substitutes. Some finding of substitutability seems to follow from report data regarding so-called "cord-cutting" of MVPD services, significant upticks in OVD services, and renewed consumer interest in OTA broadcast TV.

The case for substitutability findings in the voice services market is particularly strong. Yet the report makes no substitution finding of its own concerning the substitutability of switched access services for interconnected VoIP, and other types of telecommunications services it identifies. Recall that the number of interconnected VoIP subscriptions has overtaken switched access lines. Nor does the report contain any finding regarding the substitutability of wireless for wireline voice services, despite the fact that 54% of U.S. households are wireless-only for voice services.

Report Evidence of Intermodal Competition for Broadband Internet Services, But Attempts No Findings on Wireless/Wireline Substitutability

The report separately analyzed fixed and wireless broadband Internet access services. It did cite data evidence of the substitutability of those services:

- As of January 2018, Pew reported that one in five American adults are "smartphone-only" Internet users—they own a smartphone, but do not have traditional fixed home broadband service.

- U.S. Census Bureau's American Community Survey found that as of 2017, 11% percent of total U.S. households subscribed to a cellular data plan with no other type of Internet subscription.

However, the report made "no finding with respect to whether fixed and mobile broadband services are competitive substitutes." Instead, the report invoked the Commission's *2018 Broadband Deployment Report* finding that "there are 'salient differences between the two technologies' and that mobile services are not 'currently full substitutes for fixed services.'"

Yet services provided through different technologies can serve as substitutes. As Professor Michael E. Porter explained his 2008 *Harvard Business Review* article, "The Five Competitive Forces that Shape Strategy": "A substitute performs the same or a similar function as an

industry's product by a different means." Identification of substitute services involves ascertaining services that perform the same or similar functions. Moreover, in the 2004 edition of his book, *Competitive Advantage*, Porter contrasted "the simplest form of substation," in which "one product substitutes for another in performing the same function in the same buyer value activity" with "the more complex forms of substitution," in which "a substitute performs a different range of functions than an industry's product and/or affects buyer activities in a different way." By way of example, Porter compared trucks substituting for trains. Both perform the same transportation function but each differs in the manner of performing that function. In the case of wireless and wireline services, both offer consumers broadband Internet access, even though the services provide access available through different network architectures, and perhaps different only over the last mile to consumers.

Importantly, Porter recognized: "A substitute may also perform a wider or narrower range of functions than an industry's product." On the one hand, Porter compared word processors that substitute or typewriters but which can also do calculations and perform copying functions. And on the other hand, Porter compared a single-purpose waffle-maker with a substitutable multi-purpose toaster oven. Porter's takeaway: "In identifying substitutes, then, it is necessary to include products that can perform functions in addition to those of an industry's product, as well as products that can perform any significant function among those the industry's product can perform." For broadband services, current wireline offerings may include higher-speeds and capacities than wireless, and wireline arguably may include enhanced reliability and security functions. However, wireless offers mobility functions beyond the functions of wireline with Wi-Fi connections. What is more important, is that wireless services can perform the same significant function – broadband Internet access – as wireline services.

Thus, it's short sighted for the Commission to limit its conclusions simply to whether or not wireless and wireline – or other competing technologies and services – are "full substitutes." By emphasizing the "salient differences" between wireless and wireline broadband services, the Commission mistakenly stresses technological differences over functional similarities. Instead, the Commission's should emphasize wireless's continuously improving ability to perform the "significant function" of broadband Internet access. Moreover, report evidence regarding smartphone-only Internet users indicates some consumers do regard wireless broadband services as substitutes for wireline. That evidence offers additional support for substitutability findings and more in-depth analysis in future reports.

Deployment of 5G Will Increase Availability and Effects of Wireless Substitution

Importantly, deployment of 5G mobile broadband networks will substantially increase the viability of wireless substitution for wireline. According to Accenture Strategy's 2017 report, "Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities" 5G networks promise average speeds about ten times LTE networks, with peak speeds exceeding LTE by perhaps 100 times. The capacity of 5G networks will far exceed minimum speed requirements typically needed for most applications. Netflix, for instance, recommends minimum broadband speeds of 25 Mbps for streaming 4K Ultra HD video. Commissioner Brendan Carr recognized 5G's implications for wireless/wireline substitutability in his statement accompanying the report: "the many platforms we regulate are now locked in competition with each other. This only will

increase with 5G." (In his statement, Commissioner Carr spotlighted intermodal competition among voice, video, and broadband services now taking place in the market.) Consider also AT&T CEO and Chairman Randall Stephenson's statement to media and investors in January: "Over time, three-to five-year time horizon, unequivocally, 5G will serve as a fixed broadband replacement product… I am very convicted that that will be the case."

Indeed, wireless/wireline substitution will become increasingly apparent as providers roll out their 5G service offerings. AT&T's deployment of its 5G network is now in its early stages. Additionally, reports describe the potential for Verizon's 5G Home offering, launched in October 2018, to serve as a replacement for residential high-speed broadband Internet access services. And if approved by the FCC and the U.S. Department of Justice, the proposed T-Mobile/Sprint merger will provide an accelerated path to a nationwide 5G to compete with AT&T and Verizon.

Thus, the next *Broadband Deployment* and *Communications Marketplace Reports* should more closely analyze the extent to which competing technologies and services are partial or potential substitutes. The Commission should heed the recommendation made by Commissioner Mike O'Rielly in his statement accompanying the report:

> Reports in future years should recognize increasing competition between mobile and fixed broadband providers, given their substitutability, as well as disparate burdens faced by regulated entities due to competing with non-regulated entities in the same Internet ecosystem.

Conclusion: Future FCC Reports Should Make Cross-Platform Substitution Findings

The Commission deserves credit for assembling this first consolidated report. A multiplicity of data points in the report reveal the innovative and competitive state of the communications market. The report also contains useful descriptions of intermodal competition within specific service sectors, along with insights about consumer choices among different technology platforms. However, the report comes up short by not venturing any findings regarding the substitutability of cross-platform services such as wireless and wireline broadband.

Next time, the Commission should do more. The FCC's 2020 *Communications Marketplace Report* as well as its 2019 *Broadband Deployment Progress Report* should offer findings about the substitutability or potential substitutability of different technology and service platforms, including wireless and wireline broadband Internet access services. And competition analyses contained in future reports should include the effects of cross-platform rivalries on pricing and consumer welfare.

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Further Reading

Comments of the Free State Foundation – Communications Marketplace Report, *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*; GN Docket Nos. 18-231 and 18-238 (September 21, 2018).

Comments of the Free State Foundation – Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, WT Docket No. 18-203 (July 26, 2018).

Seth L. Cooper, "FCC Back on Track Promoting Broadband Deployment to All Americans," *Perspectives from FSF Scholars*, Vol. 13, No. 9 (March 6, 2018).

Comments of the Free State Foundation – Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, MB Docket No. 17-214 (October 10, 2017).