

Trends in Lifeline Reform: A Look at the Evidence, Not the Politics

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Introduction

According to the latest Census data on computer and Internet use, 85.7% of Americans have fixed-line broadband service in the home.¹ But during the COVID pandemic, it is the 14.3% of broadband “have nots” getting all the attention. Congress is now contemplating spending as much as \$100 billion on programs to bridge this “Digital Divide,” adding to several existing billion-dollar-plus federal programs addressing broadband adoption and network expansion—including the Federal Communications Commission’s Lifeline and Rural Digital Opportunity Fund Programs (and its predecessors).²

The Lifeline Program provides monthly subsidies to low-income Americans for communications services including broadband.³ Almost all participants use the subsidy for mobile broadband because several wireless resellers target eligible consumers with very-low cost and even free bundles of mobile services. Enrollment in the program skyrocketed after 2008 when these targeted mobile services appeared. It turns out, unfortunately, that many—if not most—of the program’s growth was based on fraudulent accounts invented by unscrupulous providers.

The first salvo of reforms to tackle waste, fraud, and abuse was launched by the Obama Administration in 2012, and Lifeline enrollment has declined steadily ever since. Problems remain.⁴ A study by the Government Accountability Office (“GAO”) in 2017 was

unable to confirm the eligibility of a whopping 36% of Lifeline accounts.⁵ Just last year, the FCC began an investigation of Sprint for receiving Lifeline subsidies for 885,000 bogus accounts.⁶

For persons familiar with the developments in the Lifeline Program, the sizable and continued reductions in enrollment are unsurprising, if not welcome. Lifeline had become filthy. But where the informed see progress, partisans see opportunity.

For persons familiar with the developments in the Lifeline Program, the sizable and continued reductions in enrollment are unsurprising, if not welcome. But where the informed see progress, partisans see opportunity. These are pandemic conditions, after all, and Lifeline aims to increase broadband adoption. Its decline, some advocates may say, must be rooted in the ill-will and/or incompetence of the political party in power. In fact, this narrative is already in play. A former senior advisor to the Obama Administration’s FCC Chairman Tom Wheeler, for instance, blames current FCC Chairman Ajit Pai for a 40% decline in Lifeline enrollment since President Trump’s election.⁷ In fact, the decline is only 25%.⁸

While partisan blame-shifting and facts make strange bedfellows, in this PERSPECTIVE I present

an empirical analysis of the rise and fall of Lifeline enrollment. The data clearly reveal what is already known and reported: “major carriers were required to shed a significant number of Lifeline subscribers after stricter policies were implemented by the FCC in 2012.”⁹ My statistical analysis of the data confirms that the reductions in Lifeline subscriptions since 2016 follow the same trend established between 2012 and 2016. Moreover, the first major order on Lifeline by the Trump Administration’s FCC was in November-2019.¹⁰ If blame is to be assigned for reduced enrollment in the Lifeline Program, then blame falls in the lap of the Obama Administration, though taking blame for curbing waste, fraud and abuse is no disgrace.

Lifeline Program Data

Data on participation in the FCC’s Lifeline Program is obtained from the Federal-State Joint Board Monitoring Report.¹¹ Annual data on Lifeline line counts is available from 1987 through 2018, and a half-year of data is available for 2019. I use annual data for years 1987 through 2019, estimating the remainder of 2019 by extrapolation.¹² Available data on expenditures spans 1988 through 2019.

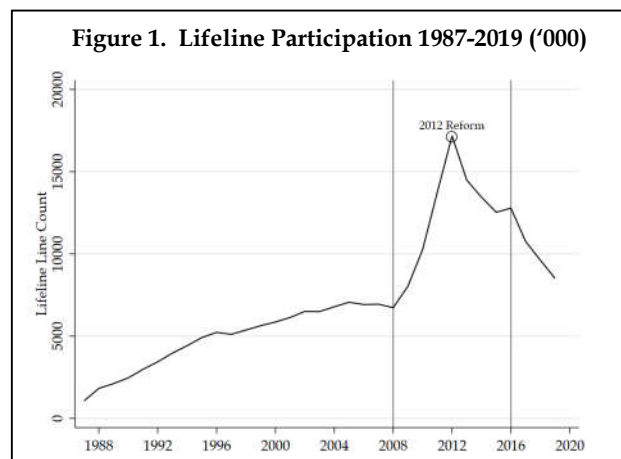
Lifeline Participation

Figure 1 illustrates the trend in Lifeline participation for years 1987 through 2019, with election years 2008 and 2016 indicated. The figure says it all. Before 2008, participation rose at a steady annual growth rate of about 7%. Between 2008 and 2012, after wireless resellers were made broadly eligible for Lifeline subsidies and the impacts of the Great Recession of 2008 moved through the economy, participation rose sharply with an annual growth rate of 24%.¹³ Much, if not most, of this surge in the program was rooted in waste, fraud and abuse, so the FCC implemented new policies in 2012 to address such concerns.¹⁴ The purge of bogus line counts began. Between 2012 and 2016, participation declined steadily at a 7% annual rate, with a

reduction of 4.4 million Lifeline accounts. Lifeline expenditures fell 30% over this same period.

*My statistical analysis of the data confirms that the reductions in Lifeline subscribers since 2016 are on the same trend established between 2012 and 2016. *** If blame is to be assigned for reduced enrollment in the Lifeline Program, then blame falls in the lap of the Obama Administration, though taking blame for curbing waste, fraud and abuse is no disgrace.*

The 2012 reforms remain largely in place today. Though much of the fraud and abuse has been addressed, just last year Sprint was accused of improperly receiving Lifeline subsidies for nearly one million bogus subscribers.¹⁵ From visual inspection of Figure 1, it appears (if not confirmed) that the effects of the ablation of the Lifeline program beginning in 2012 has merely continued, on trend, through 2019.



To determine if the trend has changed in 2016, I fit a spline function to the data with cut points at years 2008, 2012 and 2016.¹⁶ This spline function

allows for a direct test for a change after 2016 in the downward slope of Lifeline subscriptions initiated by the 2012 reforms. The regression equation is,

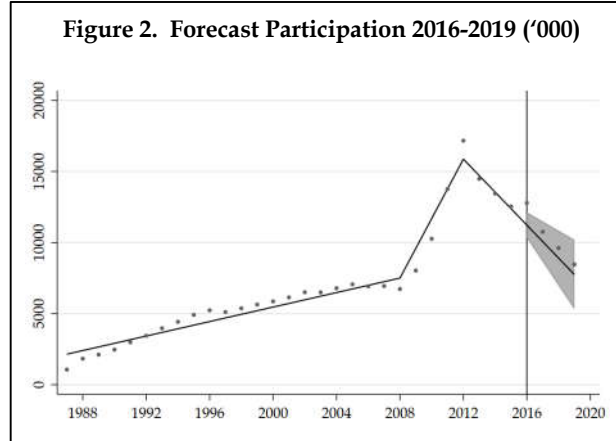
$$y_t = \beta_0 + \beta_1 t + \beta_2 (t - 2008) \cdot D2008 + \beta_3 (t - 2012) \cdot D2012 + \beta_4 (t - 2016) \cdot D2016 + \varepsilon_t \quad (1)$$

where y_t is Lifeline participants, t is the year, and $D2008$, $D2012$, and $D2016$ are dummy variables for the respective intervals.¹⁷ The slopes of the subscriptions trend during the four periods are: β_1 between years 1987-2008; $\beta_1 + \beta_2$ between years 2008-2012; $\beta_1 + \beta_2 + \beta_3$ between years 2012-2016; and $\beta_1 + \beta_2 + \beta_3 + \beta_4$ between years 2016-2019. These slopes measure the annual change in subscriptions (in thousands). The difference in slopes between 2012-2016 and after is just β_4 , so a hypothesis test on β_4 is a direct test for a change in the slope during the Trump Administration. Since the data is time series, Newey-West t-statistics (with two lags) are used for hypothesis testing, which are robust to heteroskedasticity and autocorrelation.¹⁸

	Estimate	t-Stat
β_1	256.16***	7.26
β_2	1,782.4***	9.27
β_3	-2,937.4***	-8.04
β_4	-312.31	-0.89
Obs.	33	
F-Stat	271.05***	

Sig. Levels: * 10%, ** 5%, *** 1%.

Results are summarized in Table 1. There are 33 yearly observations; the F-Statistic of the regression is significant at better than the 1% level. While the coefficients β_1 , β_2 , and β_3 are all statistically different from zero (at the 1% level or better), the null hypothesis that coefficient β_4 equals zero is not rejected. Thus, the rate of Lifeline subscription declines after 2016 is a mere continuance of the decline initiated in 2012.



As an alternative approach, I estimate the regression equation,

$$y_t = \beta_0 + \beta_1 t + \beta_2 (t - 2008) \cdot D2008 + \beta_3 (t - 2012) \cdot D2012 + \varepsilon_t \quad (2)$$

and exclude data beginning in 2016.¹⁹ The estimates from Equation (2) are then used to forecast participation in years 2016 through 2019. The estimates, forecasts, and 90% forecast confidence interval are illustrated in Figure 2. This figure shows that the forecasted continuation of the trend in Lifeline subscriptions established during the Obama Administration is unchanged during the Trump Administration.

Lifeline Expenditures

Lifeline expenditures are highly correlated with connections, so the trends in the data are comparable to Figure 1. There are some differences, however, since the payments per line have changed over time. To see if Lifeline expenditures changed after 2016, I estimate Equation (1) using expenditures as the dependent variable.

Table 2. Equation (1), Spending

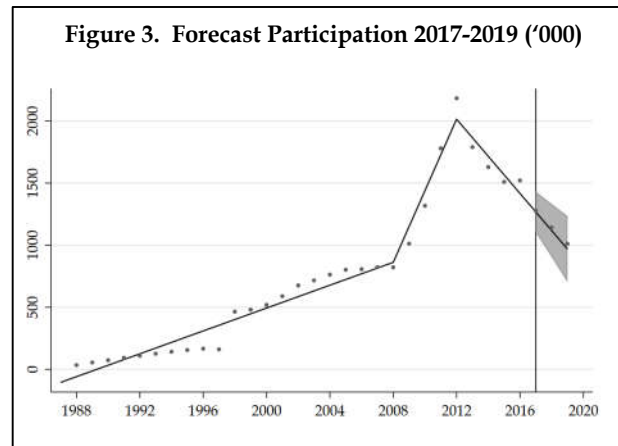
	Estimate	t-Stat
β_1	46.04	12.01
β_2	242.35	10.19
β_3	-438.26	-9.77
β_4	14.14	0.30
Constant	-91,620	-11.95
Obs.	32	
F-Stat	271.62	

Table 2 shows the β_4 coefficient is not statistically different from zero. Again, there is no empirical basis for a change in the rationalization of the Lifeline Program after 2016.

Even the visual inspection of the data shows, partisan spin aside, that the decline in the Lifeline Program beginning with the Obama Administration in 2012 has continued, on trend, through 2019 with the Trump Administration. As more fraud is exposed, including the detection of nearly one million fraudulent accounts in 2019, Lifeline subscriptions will continue to fall.

Choosing a Transition Date

In the preceding analysis, I have treated year 2016 as the transition between administrations. Shifting to 2017 does not alter materially the results on participation. For lines, the β_4 coefficient is estimated to be -306.3 with a t-statistic of -0.96. For expenditures, the β_4 coefficient is estimated to be 17.21 with a t-statistic of 0.41. Figure 3 illustrates the forecast of subscriptions.



Thus, there is no change in the trend of either subscriptions or expenditures before and after the change in Administrations. As for Lifeline, it appears to be business as usual based on the 2012 Lifeline reforms, which is unsurprising since those reforms remain largely intact and unchanged.

Conclusion

In this PERSPECTIVE, I use data on enrollment in and spending on the FCC’s Lifeline Program to study the trends in both since the introduction of major reforms in 2012 to address waste, fraud, and abuse. Even the visual inspection of the data shows, partisan spin aside, that the decline in the Lifeline Program beginning with the Obama Administration in 2012 has continued, on trend, through 2019 with the Trump Administration. As more fraud is exposed, including the detection of nearly one million fraudulent accounts in 2019, Lifeline subscriptions will continue to fall.

With more expansive broadband subsidies on the table, it is critical that the FCC continue its efforts to better administer the Lifeline Program. Despite its flaws, Lifeline may be the mechanism for allocating increased broadband subsidies for low-income Americans. If the Digital Divide is to be bridged, then it is vital to respect what funding is available and distribute it wisely and effectively.

NOTES:

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- 1 Data available at: <https://www.ntia.gov/data/digital-nation-data-explorer#sel=wiredHighSpeedAtHome&disp=map>.
- 2 *House Democrats Release Text of H.R. 2, A Transformational Infrastructure Bill to Create Jobs and Rebuild America*, Press Release (Jun 22, 2020) (available at: <https://energycommerce.house.gov/newsroom/press-releases/house-democrats-release-text-of-hr-2-a-transformational-infrastructure-bill>) (“Delivers affordable high-speed broadband Internet access to all parts of the country by investing \$100 billion to promote competition for broadband internet infrastructure in unserved and underserved communities, prioritizing those with persistent poverty.”).
- 3 For some background on the Lifeline Program, see, e.g., G.S. Ford, *A Fresh Look at the Lifeline Program*, PHOENIX CENTER POLICY PAPER No. 55 (July 2019) (available at: <https://www.phoenix-center.org/pcpp/PCPP55Final.pdf>).
- 4 J. Dyton, *Report: Sprint Has Over Counted Subsidized Customers Since 2013*, CONNECTEDREMAG (December 5, 2019) (“In 2013, many providers lost Lifeline subscribers after an FCC rule change required them to certify the subscribers were eligible for the program. Before consumers could do so on their own.”) (available at: <https://connectedremag.com/das-in-building-wireless/report-sprint-has-over-counted-subsidized-customers-since-2013>). B. Fletcher, *FCC to Combat Lifeline Fraud with New Program*, FIERCEWIRELESS (August 19, 2019) (available at: <https://www.fiercewireless.com/regulatory/fcc-to-combat-lifeline-fraud-new-program-rules>); M. Snider, *FCC’s Lifeline Program has ‘Massive Fraud,’ Watchdog Says*, USA TODAY (June 29, 2017) (available at: <https://www.usatoday.com/story/tech/news/2017/06/29/fccs-lifeline-program-has-massive-fraud/439161001>).
- 5 *Additional Action Needed to Address Significant Risks in FCC’s Lifeline Program*, Government Accountability Office GAO-17-538 (May 2017) (available at: <https://www.gao.gov/assets/690/684974.pdf>).
- 6 K. Hill, *FCC Investigating Sprint for Massive Lifeline Program Mismanagement*, RCRWIRELESS (September 25, 2019) (available at: <https://www.rcrwireless.com/20190925/carriers/fcc-investigating-sprint-for-massive-lifeline-program-fraud>).
- 7 G. Sohn, *During the Pandemic, the FCC Must Provide Internet for All*, WIRED (April 28, 2020) (available at: <https://www.wired.com/story/opinion-during-covid-19-the-fcc-needs-to-provide-internet-for-all>); G. Sohn, *Defending the Indefensible: Chairman Pai’s Lifeline Reversal Will Widen the Digital Divide*, Benton Institute for Broadband & Society (February 9, 2017) (available at: https://www.benton.org/blog/Defending-the-Indefensible?utm_campaign=Newsletters&utm_source=sendgrid&utm_medium=email); J. Bennett and A. Wong, *Under Trump, Millions of Low-Income People Lose Access to Cellphones*, USA TODAY (November 5, 2019) (<https://www.usatoday.com/story/news/investigations/2019/11/05/under-trump-millions-poor-lose-cellphone-service/2482112001>).
- 8 Between January-2017 and June-2019, the number of lifeline subscriptions fell from 11,344,129 to 8,519,172, or 25% [= 8519172/11344129 - 1].
- 9 UNIVERSAL SERVICE MONITORING REPORT, CC Docket No. 96-45 (2019) (available at: <https://docs.fcc.gov/public/attachments/DOC-362272A1.pdf>) at Tables 2.1, 2.2 and 2.6 (17,166,000 in 2012 to 12,784,000 in 2016); B. Fletcher, *FCC Slams Sprint for Falsely Collecting Millions in Lifeline Funds*, FIERCEWIRELESS (September 24, 2019) (available at: <https://www.fiercewireless.com/regulatory/sprint-falsely-collected-tens-millions-funds-for-nearly-1m-inactive-lifeline-subscribers>).
- 10 *In the Matter of Bridging the Digital Divide for Low-Income Consumers; Lifeline and Link Up Reform and Modernization; Telecommunications Carriers Eligible for Universal Service Support*, FIFTH REPORT AND ORDER, MEMORANDUM OPINION AND ORDER AND ORDER ON RECONSIDERATION, AND FURTHER NOTICE OF PROPOSED RULEMAKING, FCC 19-111, __ FCC Rcd. __ (rel. November 14, 2019) (available at: <https://docs.fcc.gov/public/attachments/FCC-19-111A1.pdf>).
- 11 UNIVERSAL SERVICE MONITORING REPORT, *supra* n. 9.
- 12 The FCC’s reported annual figure is an average of monthly figures. For the second quarter of 2019, the monthly decay rate is 0.9927 from month-to-month. Application of this factor through December-2019 produces a near identical annual estimate as does a simple linear extrapolation using data beginning in January-2018. My estimate for 2019 is 8,507,000 lines. For the first six-months of 2019, the average is 8,708,733, so the difference is minimal.

NOTES CONTINUED:

¹³ *In the Matter of TracFone Wireless, Inc.’s Petition for Forbearance from 47 U.S.C. § 214(e)(1)(A) and 47 C.F.R. § 54.201(i); Federal-State Joint Board on Universal Service*, DA 05-441, ORDER, 20 FCC Rcd. 3677 (rel. February 17, 2005) (available at: <https://docs.fcc.gov/public/attachments/DA-05-441A1.pdf>); *In the Matter of Federal-State Joint Board on Universal Service, TracFone Wireless, Inc. Petition for Designation as an Eligible Telecommunications Carrier in the State of New York, et al.*, FCC 08-100, ORDER, 23 FCC Rcd. 6206 (rel. April 11, 2008) (available at: <https://docs.fcc.gov/public/attachments/FCC-08-100A1.pdf>). For an analysis of the effects of economic downturns on Lifeline subscriptions, see T.R. Beard, G.S. Ford and M. Stern, *Private Solutions to Broadband Adoption: An Economic Analysis*, 36 FEDERAL COMMUNICATIONS LAW JOURNAL 1-23 (2017) (available at: <http://www.fclj.org/wp-content/uploads/2017/04/69.1.1-T.-Randolph-Beard-et-al.pdf>).

¹⁴ See, e.g., *In the Matter of Lifeline and Link Up Reform and Modernization Telecommunications Carriers Eligible for Universal Service Support Connect America Fund*, FCC 16-38, THIRD REPORT AND ORDER, FURTHER REPORT AND ORDER, AND ORDER ON RECONSIDERATION, 31 FCC Rcd. 3962 (rel. April 27, 2016) (hereinafter “*Lifeline Modernization Order*”) at ¶¶ 71, 23 (available at: https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-38A1.pdf).

¹⁵ *FCC Investigating Sprint*, supra n. 6.

¹⁶ R.S. Pindyck and D.L. Rubinfeld, *ECONOMETRIC MODELS & ECONOMIC FORECASTS* (1991) at pp. 118-9.

¹⁷ Box-Cox regression rejects the natural log transformation, but not the linear specification, of the dependent variable, as would be expected from visual inspection of Figure 1. See, e.g., R. Davidson and J. G. MacKinnon. *ESTIMATION AND INFERENCE IN ECONOMETRICS* (1993).

¹⁸ Lag length is chosen by $T^{1/4}$. See, e.g., W.H. Greene, *ECONOMETRIC ANALYSIS* (2003) at p. 200.

¹⁹ This alternative approach is used since the β_4 coefficient is estimated using only four observations. The bootstrapped t-statistic on β_4 estimated by Equation (1) is 0.556.