

DISCONNECTED: THE STATE OF RURAL BROADBAND

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I. INTRODUCTION

Over the past decade, the rural population in the United States has been increasingly getting smaller.¹ The decreasing population has created a large technological gap in broadband internet because, currently, it is both too expensive for consumers and not profitable enough for companies to provide high quality services to many rural areas.² Broadband internet is a term that relates to the speed of the internet, requiring 25 megabits per second (mbps) for downloads and three mbps for uploads.³ Currently, 39% of United States farmers lack connection to

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1. See David Swenson, *Most of America’s rural areas are doomed to decline*, THE CONVERSATION (May 7, 2019, 1:46 PM), <https://theconversation.com/most-of-americas-rural-areas-are-doomed-to-decline-115343> [<https://perma.cc/KFF4-G222>].

2. *High-Speed internet shortage a big concern in rural Nebraska*, ASSOCIATED PRESS (Nov. 10, 2019), <https://nebraska.tv/news/local/high-speed-internet-shortage-a-big-concern-in-rural-nebraska> [<https://perma.cc/8QVE-ZWM8>].

3. *2018 Broadband Deployment Report*, FCC (Feb. 2, 2018), <https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2018-broadband-deployment-report> [<https://perma.cc/QB84-GDCH>].

broadband internet, compared to only 4% of people who live in urban cities.⁴ Furthermore, 29% of farmers have no access to any internet connection.⁵

This internet divide has occurred as a result of the geographical distances and low population density in farming communities, creating immense barriers to broadband implementation.⁶ The lack of broadband connection in rural America hinders farm production and the families that live on those farms.⁷ Access to broadband is important for farmers to follow current market trends, comply with regulations, and communicate with buyers or potential new clients around the world.⁸ If farmers are unable to connect to high speed internet, they cannot use many of the latest farming techniques that require broadband connection for precision agriculture equipment and data collection and analytics.⁹

Precision agriculture uses GPS guidance, computer applications, advanced soil samplings, and software to manage farms to help make better decisions during farming operations.¹⁰ Many of these devices and sensors used to gather this data require a Wi-Fi connection to connect with a computer or phone on the farm; so if farmers lack a connection to broadband, the internet is too slow to be effective.¹¹ This technology makes it easier for the farmer because it gathers information for the farmer to learn how to optimize their farming operation.¹² Yet, many farmers cannot harness this technology because their farm does not have access to broadband internet to use Wi-Fi, which would enable the monitoring devices to collect data more effectively.¹³ The United States Department of Agriculture

4. *Rural Broadband*, FARM BUREAU (Sept. 22, 2020, 10:50 AM), <https://www.fb.org/issues/infrastructure/broadband/> [https://perma.cc/2WPX-8KKG].

5. *Id.*

6. Amie Alexander, Note, *Utility Law-All Hands on Deck: Bringing Broadband Home to Rural Arkansas*, 40 U. ARK. LITTLE ROCK L. REV. 401, 403 (2018).

7. *Rural Broadband*, *supra* note 4.

8. *Id.*

9. *See id.*

10. Remi Schmaltz, *What is Precision Agriculture?*, AG FUNDER NEWS (April 24, 2017), <https://agfundernews.com/what-is-precision-agriculture.html> [https://perma.cc/D96L-92BC].

11. *See Farm of the Future*, CHARTER COMMUNICATIONS (Sep. 8, 2020, 11:08 AM), https://policy.charter.com/charters-farm-of-the-future/?utm_source=politico&utm_medium=display&utm_campaign=charter_newsletter_pers_uasion_morningag_politico_na_display_na [https://perma.cc/S9Q7-UBYR].

12. *What is Smart Farming?*, SMART AKIS (Sept. 8, 2020, 1:27 PM), <https://www.smart-akis.com/index.php/network/what-is-smart-farming/> [https://perma.cc/55NW-T5SY].

13. *See Rural Broadband*, *supra* note 4.

(USDA) has estimated that farmers could unlock a \$47 to \$65 billion annual gross benefit through broadband connectivity.¹⁴

The deficient internet connection is both harming farming operations and hurting the families that live on farms. Students living in rural communities without broadband internet do not have the same opportunities as their fellow peers living in urban areas.¹⁵ Children growing up on farms will have to compete in a twenty-first century economy with twentieth century tools.¹⁶ The Federal Communications Commission (FCC) chairman, Michael Powell, went as far as to say, “I don’t think you can be an active participant in society or the economy without being able to access [internet].”¹⁷

The lack of broadband internet is also troublesome for families’ ability to access health care.¹⁸ With broadband connection, people living in farming communities could access clinical services online, gain knowledge on how to improve their health, and access their health records.¹⁹ Although, some farming communities do not think internet connection is a solution to the problem and would prefer face-to-face interactions.²⁰ This, however, is very implausible, as

14. Thomas Friestad, *Microsoft to push Iowa’s rural broadband*, GLOBE GAZETTE (Feb. 18, 2020), https://globegazette.com/news/microsoft-to-push-iowa-s-rural-broadband/article_83d15b29-0e99-5f2d-9e4c-66000c8a5ba7.html [<https://perma.cc/8MAK-8EK3>].

15. Allen Pratt, *The digital divide leaves rural students behind, innovation can change that*, THE HILL (Sept. 3, 2019, 7:00 PM), <https://thehill.com/blogs/congress-blog/technology/459809-the-digital-divide-leaves-rural-students-behind-innovation-can> [<https://perma.cc/S36T-FLM3>].

16. *Id.*

17. *4 Ways to Bring Broadband to Rural Communities*, MEDIUM (Aug. 8, 2019), <https://medium.com/@NCTAitv/4-ways-to-bring-broadband-to-rural-communities-38af9b4be338> [<https://perma.cc/R56C-GVRK>].

18. THE NETWORK FOR PUB. HEALTH, STATE LAWS AND POLICIES AFFECTING BROADBAND ACCESS IN EIGHT NORTHERN REGION STATES 1 (Oct. 8, 2020, 5:03 PM), <https://www.networkforphl.org/wp-content/uploads/2020/01/Fact-Sheet-State-Laws-and-Policies-Affecting-Broadband-Access-in-Eight-Northern-Region-States.pdf> [<https://perma.cc/LU7P-2MXG>] [hereinafter STATE LAWS AND POLICIES AFFECTING BROADBAND ACCESS].

19. *Id.*

20. Jeremy Fugleberg, *Farmers want face-to-face talks, not hotlines, about mental health*, BILLINGS GAZETTE (Dec. 6, 2019), https://billingsgazette.com/lifestyles/health-med-fit/farmers-want-face-to-face-talks-not-hotlines-about-mental/article_91ad5577-239f-557a-b02b-da1fe52fe116.html [<https://perma.cc/8LH3-8TUN>].

there is a substantial lack of infrastructure and many younger people are moving to urban areas.²¹

In addition, there is a mental health issue in rural America that has been exacerbated by the inability of many to get access to mental health programs because they do not have internet.²² Rural areas do not have the resources necessary for onsite facilities that specialize in mental health, so getting help online is sometimes the only option.²³ Furthermore, there is a stigma around mental health in farming communities, which, for some, means the only way for them to get the help they need is through the use of online support.²⁴

These are just a few of the many problems caused by a lack of broadband connection. This issue has caused a part of this country to be left behind. There are several reasons why this is the case, which include a lack of economic feasibility for companies, bad implementation of government policy, and state laws that stagnate growth of internet connection.²⁵ A solution for this is to get rid of prohibitive state laws that make it more difficult for small co-ops to enter the market.²⁶ Using direct federal money to fund these co-ops is a localized approach to solving the issue. This approach would conflict with the current way funds are distributed, which is funding big internet companies to expand their operations.²⁷

21. See Jem Spectar, *Want to close America's rural-urban divide? Digital infrastructure is the key*, WASH. POST (Feb. 20, 2019, 1:09 PM), <https://www.washingtonpost.com/opinions/2019/02/20/want-close-americas-rural-urban-divide-digital-infrastructure-is-key/> [<https://perma.cc/2XXS-J8A8>].

22. *Barriers to Telehealth in Rural Areas*, RURAL HEALTH INFO. HUB (Oct. 22, 2020, 11:03 AM), <https://www.ruralhealthinfo.org/toolkits/telehealth/1/barriers> [<https://perma.cc/W5DV-KAFD>].

23. Kathleen M. Griffiths & Helen Christensen, *Internet-based mental health programs: A powerful tool in the rural medical kit*, 15 THE AUSTRALIAN J. OF RURAL HEALTH 81, 2 (2007).

24. *Id.* at 3.

25. See generally State Laws and Policies Affecting Broadband Access, *supra* note 18.

26. See *Ernst Fights to Provide Greater Broadband Access to Iowa's Rural Communities*, JONI ERNST U.S. SEN. FOR IOWA (May 15, 2019), <https://www.ernst.senate.gov/public/index.cfm/2019/5/ernst-fights-to-provide-greater-broadband-access-to-iowa-s-rural-communities> [<https://perma.cc/ST96-L8GK>] [hereinafter *Ernst Fights to Provide Greater Broadband Access*].

27. See Elizabeth Warren, *Here's how we get broadband Internet to rural America*, WASH. POST (Aug. 27, 2019, 12:06 PM), https://www.washingtonpost.com/opinions/elizabeth-warren-heres-how-we-get-broadband-internet-to-rural-america/2019/08/27/ad63c4e-c5c8-11e9-9986-1fb3e4397be4_story.html [<https://perma.cc/HG9B-ZL49>].

Giving small farming communities access to modern broadband technology is feasible through cohesive state and federal action.²⁸

II. BACKGROUND

A. Current Federal Funding Strategy to Fix the Problem

The United States government has implemented some strategies in combating the rural broadband issue. For example, the 2018 Farm Bill increased funding to the Rural Broadband Access Loan and Loan Guarantee Program from \$25 million to \$350 million a year.²⁹ The program funds construction and acquisition of facilities needed to provide broadband service to rural communities.³⁰ The Farm Bill also raised the standard of acceptable internet speed for broadband to 25/3 mbps.³¹ In addition to the Farm Bill, the federal government devoted funding through the Consolidated Appropriations Act of 2018 to enhance agricultural technologies by bolstering rural broadband connectivity.³² One of the channels the federal government uses to distribute these funds is the Universal Service Fund (USF).³³ The USF was created for the purpose of subsidizing telephone services in high-cost areas, but has also been helping people gain access to affordable internet in all regions of the country.³⁴

The two funds distributed through the USF, the Connect America Fund and the E-rate Program, specifically work to help connectivity.³⁵ The Connect America Fund supports service providers of broadband to underserved areas and funds projects that extend broadband networks to hard-to-reach rural communities.³⁶ An example of one of Connect America Fund's projects is working with a space satellite operator, Viasat, to lower prices and raise data capabilities to provide

28. *See id.*

29. CONG. RSCH. SERV., THE 2018 FARM BILL (P.L. 115-334): SUMMARY AND SIDE-BY-SIDE COMPARISON 23 (Feb. 22, 2019), <https://crsreports.congress.gov/product/pdf/R/R45525> [<https://perma.cc/TWH9-2VCA>].

30. *Funding Agency*, BROADBANDUSA (Sep. 22, 2020, 2:01 PM), <https://broadbandusa.ntia.doc.gov/funding-guide/usda-rural-development-rural-broadband-access-loan-and-loan-guarantee-program#contententarea> [<https://perma.cc/9FJR-92XF>].

31. CONG. RSCH. SERV., *supra* note 29, at 23.

32. *See Broadband*, USDA (Sept. 8, 2020, 10:54 AM), <https://www.usda.gov/broadband> [<https://perma.cc/L4D6-8LSP>].

33. *Rural Broadband*, *supra* note 4.

34. *See Universal Service Fund*, FCC (Sept. 8, 2020, 1:26 PM), <https://www.fcc.gov/general/universal-service-fund> [<https://perma.cc/TSN7-CPUV>].

35. *Rural Broadband*, *supra* note 4.

36. *Id.*

internet to rural areas.³⁷ The E-rate program helps reduce the internet connection price rates for schools that lack the infrastructure for internet connectivity.³⁸ Recently, the FCC has considered allowing families with home Wi-Fi to apply for the E-rate program so children will have internet access at home.³⁹

In the beginning of 2019, the White House built upon the USF programs with the American Broadband Initiative (ABI).⁴⁰ The ABI was created for the purpose to streamline the broadband connectivity federal funding, encourage private companies to expand their infrastructure to rural areas, and improve fund targeting.⁴¹ This new program plans on doing this by making it easier for companies to get federal funding and apply for federal building permits to expand their networks.⁴² To help aid private industries even more, ABI plans to improve the implementation of new infrastructure through updated mapping techniques.⁴³ The new map will be developed by pulling federal land and asset data from multiple agencies into a single map.⁴⁴

The FCC has also recently formed a task force dedicated to delivering connectivity to American agricultural producers because of the extreme benefits that come along with having broadband internet on farms.⁴⁵ The new task force will be focused on providing connection to farms in a rapid way to be more competitive in the global food production market.⁴⁶

37. MARK WIGFIELD, FCC NEWS, FCC AUTHORIZES NEARLY \$89.2 MILLION IN FUNDING FOR RURAL BROADBAND (Dec. 16, 2019), <https://docs.fcc.gov/public/attachments/DOC-361387A1.pdf> [<https://perma.cc/7SYQ-TSZE>].

38. *Universal Service Fund*, *supra* note 34.

39. Shawna De La Rosa, *Only one-third of rural California households have home internet access*, EDUC. DIVE (Dec. 10, 2019), <https://www.educationdive.com/news/only-one-third-of-rural-california-households-have-home-internet-access/568770/> [<https://perma.cc/7543-CZ8L>].

40. David Redl, *American Broadband Initiative to Expand Connectivity for all Americans*, NAT'L TELECOMMS. AND INFO. ADMIN. (Feb. 13, 2019), <https://www.ntia.doc.gov/blog/2019/american-broadband-initiative-expand-connectivity-all-americans> [<https://perma.cc/Z29J-L4UX>].

41. Kris Holt, *US government lays out strategy to speed up rural broadband deployment*, ENGADGET (Feb. 13, 2019), <https://www.engadget.com/2019-02-13-american-broadband-initiative-rural-internet-us-government.html> [<https://perma.cc/GT4W-3KVY>].

42. *See* Redl, *supra* note 40.

43. *Id.*

44. *Id.*

45. *See Broadband*, *supra* note 32.

46. *See id.*

B. State-Level Efforts in Funding Rural Broadband

In addition to federal backing, states have taken it upon themselves to try to solve the issue of rural broadband connectivity.⁴⁷ States like Iowa, Washington, Missouri, and North Carolina have similar programs where they set aside funding for expanding rural broadband access.⁴⁸ Iowa and Washington recently invested millions to fund construction on new infrastructure for broadband connection.⁴⁹ Iowa's project will cover 760 square miles—connecting over 7,200 homes, schools, and farms to high-speed internet that previously did not have access.⁵⁰ Washington created a \$21.5 million construction budget to build infrastructure for rural broadband.⁵¹ However, the estimates to expand access to every person in rural Washington would cost \$1 billion, so this funding is just a drop in the bucket for how large the problem is.⁵²

States like Missouri and North Carolina have devoted funds to subsidizing private industry operations to help promote the expansion of their connected networks.⁵³ Additionally, the state funding allows for more accurate and localized mapping of broadband connection in rural areas.⁵⁴ Both states have created offices devoted to modernizing broadband mapping and working with

47. Jessica Denson, *Update: List of States Funding Rural Broadband gets Even Longer*, CONNECTED NATION (May 14, 2019), <https://connectednation.org/blog/2019/05/14/update-list-of-states-funding-rural-broadband-gets-even-longer> [<https://perma.cc/W9P5-4XGK>].

48. See *id.*; Gov. Reynolds announces broadband grant information now available, OFF. OF THE GOVERNOR OF IOWA KIM REYNOLDS (Dec. 21, 2018, 11:30 AM), <https://governor.iowa.gov/2018/12/gov-reynolds-announces-broadband-grant-information-now-available> [<https://perma.cc/68K3-PWX7>].

49. Denson, *supra* note 47; Gov. Reynolds announces broadband grant information now available, *supra* note 48.

50. *Western Iowa Networks to Receive Portion of \$1.3 in Grants for One of Seven Iowa Rural Broadband Projects*, CBC (May 9, 2019, 10:36 AM), <https://www.1380kcim.com/2019/05/09/western-iowa-networks-to-receive-portion-of-1-3-in-grants-for-one-of-seven-iowa-rural-broadband-projects/> [<https://perma.cc/JF8R-8Y6P>].

51. Alex Brown, *State Funding in Washington for Rural Broadband a 'Start,' County Leaders Say*, DAILY CHRONICLE (May 10, 2019), <https://connectednation.org/blog/2019/05/14/state-funding-in-washington-for-rural-broadband-a-start-county-leaders-say/> [<https://perma.cc/G7A6-CHWA>].

52. *Id.*; Denson, *supra* note 47.

53. Denson, *supra* note 47.

54. Jeffrey Sural, *The problem (and the solution) with mapping broadband in North Carolina*, WRAL TECHWIRE (Feb. 1, 2019), <https://www.wraltechwire.com/2019/02/01/the-problem-and-the-solution-with-mapping-broadband-in-north-carolina/> [<https://perma.cc/2NFY-88J2>].

telecommunications companies in deploying access to rural communities.⁵⁵ Many of the current state maps are inaccurate and have inflated numbers of connections.⁵⁶ The maps are used to identify where there are areas within the state that have inadequate internet connection. This inaccuracy has led to difficulty diagnosing the problem, which has made it harder to fix because states have not been able to allocate resources effectively.⁵⁷

III. ROADBLOCKS HINDERING RURAL BROADBAND CONNECTION

A. State-Level Sabotage

Many of the funds used to help grow rural development have went to large internet providers to help subsidize internet infrastructure to farmers, an otherwise non-profitable endeavor.⁵⁸ The reason for this is many states have prohibitive laws that do not allow co-ops or municipalities to establish nonprofit internet networks.⁵⁹ Many of these laws were created to help stabilize the telecommunications market several decades ago.⁶⁰ Almost every state has laws like these, including states with large farming populations, like Iowa and Minnesota.⁶¹

A Minnesota law prohibits local cooperatives that provide internet service from competing with private entities that do the same.⁶² This leads to a circumstance where rural communities are disincentivized from providing broadband service for themselves because legal complications would arise if a private company ever developed in their area.

Similarly, Iowa has a law making it difficult for small communities to create their own internet co-op.⁶³ Iowa's law prohibits municipal utility providers from

55. Jessica Denson, *supra* note 47; see Eric Bohl, *Rural Broadband Closer to Becoming Reality in Missouri*, CONNECTED NATION (May 14, 2019), <https://connectednation.org/blog/2019/05/14/rural-broadband-closer-to-becoming-reality-in-missouri/> [https://perma.cc/4U46-DWCL].

56. Sural, *supra* note 54.

57. Denson, *supra* note 47.

58. See generally CONG. RSCH. SERV., DEMAND FOR BROADBAND IN RURAL AREAS: IMPLICATIONS FOR UNIVERSAL ACCESS (Dec. 9, 2019), fas.org/sgp/crs/misc/R46108.pdf [https://perma.cc/D96Z-HCNN].

59. See Kendra Chamberlain, *Municipal Broadband Is Roadblocked Or Outlawed In 25 States*, BROADBANDNOW (Apr. 18, 2019), <https://broadbandnow.com/report/municipal-broadband-roadblock-2019/> [https://perma.cc/8H68-SQSQ].

60. See generally *id.*

61. See STATE LAWS AND POLICIES AFFECTING BROADBAND ACCESS, *supra* note 18.

62. MINN. STAT. § 429.021(19)(ii) (2020).

63. See STATE LAWS AND POLICIES AFFECTING BROADBAND ACCESS, *supra* note 18, at 5.

using general funds to support internet-providing operations.⁶⁴ Further, they are not allowed to fund their telecommunication system with revenue generated from a town service, such as electric, gas, water, or garbage.⁶⁵ A law like this prohibits small towns from getting an internet service off the ground. This hurts farmers because there is current technology available that can provide broadband internet wirelessly for miles.⁶⁶ Small communities could create broadband networks to connect farmers to high-speed internet, but Iowa's law blocks that opportunity.⁶⁷

There are several southern states that also have prohibitive laws on internet co-ops.⁶⁸ In Mississippi, for example, a large majority of the state relies on electric nonprofit cooperatives to provide electricity for rural areas.⁶⁹ However, these co-ops cannot easily access the internet market because of a Mississippi law that prevents its co-ops from tapping into federal money distributed for broadband internet.⁷⁰ This makes providing internet in rural Mississippi more expensive and very difficult to start-up, despite many of the co-ops already having a strong foothold in communities.⁷¹

States like Georgia and Tennessee have similar laws to Iowa and Minnesota that create difficulties for starting and investing in local co-ops.⁷² Although state and federal funds have attempted to solve broadband connection problems for farmers, the issue will not be completely solved until laws like these are off the books.

64. IOWA CODE § 388.10(1)(a)(1) (2020).

65. *Id.* at (1)(a)(4).

66. See *TV White Space – Breakthrough Technology*, CARLSON WIRELESS TECHNOLOGIES (Sept. 8, 2020, 1:25 PM), <https://www.carlsonwireless.com/tv-white-space/> [<https://perma.cc/J5RL-PYUR>].

67. See generally IOWA CODE § 388.10

68. See April Simpson, *State Laws Slow Down High-Speed Internet for Rural America*, PEW (Jan. 11, 2019), <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/01/11/state-laws-slow-down-high-speed-internet-for-rural-america> [<https://perma.cc/GCW4-AZKD>].

69. *Id.*

70. *Id.*

71. *Id.*

72. See Kristi E. Swartz, *Southeast electric co-ops look to branch into broadband*, E&E NEWS (Jan. 2, 2019), https://www.eenews.net/stories/1060110707?mc_cid=31cc77f439&mc_eid=4465bbea1e [<https://perma.cc/BAC6-GBUJ>]; see also Debra C. Jeter et al., *Democracy and Dysfunction: Rural Electric Cooperatives and the Surprising Persistence of the Separation of Ownership and Control*, 70 ALA. L. REV. 361, 446 (2018).

Many of these laws seem only to exist to hurt small companies and that is exactly what they are supposed to do. Large internet companies have deliberately advocated to persuade state legislatures to make these laws to restrict competition and keep prices high.⁷³ The purpose of these laws was to help stabilize the telecommunications industry, which is a very expensive business endeavor because of the infrastructural investment needed.⁷⁴ Due to these laws, many of the federal funds go to large internet providers because they are the only ones capable of providing internet in rural areas.⁷⁵ This allows internet service providers to charge high prices and completely ignore certain regions that are too difficult to provide for.⁷⁶ This current system explains the slow growth of broadband connection in rural areas and high prices for farmers that are lucky enough to have the internet.

B. Federal Government's Attempt to Combat State Regulations

In 2018, a bill was introduced to prohibit states from having regulations that prevent municipalities from expanding broadband infrastructure.⁷⁷ The bill, The Community Broadband Act of 2018, came about after a controversial Maine bill sought to prevent communities from building infrastructure by imposing funding and legal obligations upon them.⁷⁸ Similarly, obligations that are imposed on the states mentioned above make it difficult to get community co-ops and municipal internet providers off the ground.⁷⁹

The federal government has also introduced the strategy of loosening regulation requirements to help smaller co-ops and internet providers working in rural areas.⁸⁰ One of the most difficult things to manage while operating an internet company is complying with all the regulations.⁸¹ The Access to Capital Creates Economic Strength and Supports Rural America Act (ACCESS) is one way the federal government has tried to make it easier on smaller internet providers.⁸² This would allow rural telecommunications providers to submit streamlined financial reports to the Securities and Exchange Commission (SEC). The regulatory costs

73. See Warren, *supra* note 27.

74. Chamberlain, *supra* note 59.

75. See Warren, *supra* note 27.

76. See *id.*

77. Chamberlain, *supra* note 59.

78. *Id.*

79. STATE LAWS AND POLICIES AFFECTING BROADBAND ACCESS, *supra* note 18; see Simpson, *supra* note 68.

80. See *Ernst Fights to Provide Greater Broadband Access*, *supra* note 26.

81. See *id.*

82. *Id.*

associated with complying with the previous regulations could put small co-ops out of business.⁸³ This will save small companies money by not having to jump through all the hoops that were never intended for them in the first place.⁸⁴

IV. POLITICAL BARRIERS FOR RURAL BROADBAND FUNDING

A. Concerns Over Federal Debt

In addition to issues of determining which policies are the best path forward for improving rural broadband, another large barrier is funding. On both sides of the political aisle, people are concerned about federal debt (granted it only seems to be a big concern when the political party is not in control of the spending).⁸⁵ With the national debt skyrocketing, rural broadband may not be the most pragmatic problem to solve at this time, considering the migration patterns of American citizens who continue to move from rural areas to urban cities.⁸⁶ Many argue funding should go towards fighting poverty in cities where it would be affecting more people.⁸⁷ However, as stated above, improving rural broadband is not for the purpose of providing Netflix to people in rural areas; it is an important issue due to the great benefits farmers would have with access to a faster internet connection.⁸⁸ These benefits would help the agricultural market, the environment, and food prices.⁸⁹

83. *Id.*

84. *Id.*

85. See Tom Sedoric & Casey Snyder, *Taking debt seriously*, NH BUS. REV. (Jan. 17, 2020), <https://www.nhbr.com/taking-debt-seriously/> [https://perma.cc/R6M9-R244]; see also Fred Lucas, *National debt disappears as 2020 campaign issue – but it keeps growing*, FOX NEWS (Dec. 25, 2019), <https://www.foxnews.com/politics/national-debt-disappears-as-2020-campaign-issue> [https://perma.cc/Q2B9-KJ2E]; Matt Welch, *Did We Just Hear Three Democratic Candidates Talk About Reducing Deficit and Debt?*, REASON (Jan. 14, 2020), <https://reason.com/2020/01/14/did-we-just-hear-three-democratic-candidates-talk-about-reducing-deficit-and-debt/> [https://perma.cc/9GJD-86J3].

86. See generally *Shrinking population in more than a third of rural U.S. counties*, SCIENCE DAILY: UNIV. OF N.H. (Feb. 6, 2019), <https://www.sciencedaily.com/releases/2019/02/190206115611.htm> [https://perma.cc/BB2S-QM27].

87. Eduardo Porter, *The Hard Truths of Trying to ‘Save’ the Rural Economy*, N.Y. TIMES (Dec. 14, 2018), <https://www.nytimes.com/interactive/2018/12/14/opinion/rural-america-trump-decline.html> [https://perma.cc/MZ4F-EFJU].

88. See USDA, A CASE FOR RURAL BROADBAND 43 (April 2019), <https://www.usda.gov/sites/default/files/documents/case-for-rural-broadband.pdf> [https://perma.cc/3449-VS6Y].

89. See *id.*

One of the criticisms about implementing an extensive infrastructure plan for rural broadband is it would increase the national debt even more.⁹⁰ National debt gets mentioned frequently when people disagree with a certain policy.⁹¹ For example, increasing the national debt is one of the main concerns mentioned with expanding the space program and why the United States does not have the capability to do so.⁹² This is a logical criticism of any program because one of the ways to decrease debt is to cut spending.⁹³

National debt is the result of a deficit in the federal government's budget.⁹⁴ A deficit occurs when tax revenues are less than the government is spending.⁹⁵ In order to bridge the gap between tax revenue and spending, the United States government issues treasury bonds.⁹⁶ A treasury bond is a form of investment property in which banks and foreign countries buy.⁹⁷ By doing this, the federal government receives hard cash and the purchasers of the bonds become its creditors.⁹⁸ Over the years, the continuation of deficit spending and issuing bonds has created a large national debt.⁹⁹

90. *How to Reduce the Ballooning U.S. Debt – With Bipartisan Support*, WARTON: UNIV. OF PA. (Jun. 4, 2019), <https://knowledge.wharton.upenn.edu/article/how-to-reduce-the-national-debt-with-bipartisan-support/> [<https://perma.cc/95UR-22VY>] [hereinafter *How to Reduce the Ballooning U.S. Debt*].

91. See Andrew Soergel, *Powell Calls for 'More Sustainable Federal Budget' to Support Economy*, U.S. NEWS (Feb. 11, 2020, 4:22 PM), <https://www.usnews.com/news/national-news/articles/2020-02-11/powell-calls-for-more-sustainable-federal-budget-to-support-economy> [<https://perma.cc/NN9R-V657>]; see also Sahil Kapur, *Pete Buttigieg calls for deficit reduction, swiping at Bernie Sanders*, NBC NEWS (Feb. 9, 2020, 6:29 PM), <https://www.nbcnews.com/politics/2020-election/pete-buttigieg-calls-deficit-reduction-swiping-bernie-sanders-n1133206> [<https://perma.cc/HK4Z-7UEC>].

92. Casey Dreier, *Our Debt to NASA - Fighting the Pernicious Myth of NASA as Unnecessary*, THE PLANETARY SOC'Y (Sept. 10, 2013), <https://www.planetary.org/blogs/casey-dreier/2013/20130910-how-the-myth-of-nasa-as-unnecessary-spreads.html> [<https://perma.cc/JJJ7-NM7R>].

93. *How to Reduce the Ballooning U.S. Debt*, *supra* note 90.

94. *Borrowing and the Federal Debt*, NAT'L PRIORITIES PROJECT (Sept. 8, 2020, 10:53 AM), <https://www.nationalpriorities.org/budget-basics/federal-budget-101/borrowing-and-federal-debt/> [<https://perma.cc/LX4J-6F63>].

95. *Id.*

96. *US debt: how big is it and who owns it?*, THE GUARDIAN (Sept. 8, 2020, 1:27 PM), <https://www.theguardian.com/news/datablog/2011/jul/15/us-debt-how-big-who-owns> [<https://perma.cc/CDR6-NHMB>].

97. *Borrowing and the Federal Debt*, *supra* note 94.

98. *The National Debt Explained*, INVESTOPEDIA (Sept. 2, 2020), <https://www.investopedia.com/updates/usa-national-debt/> [<https://perma.cc/3WB3-EMZT>].

99. See *id.*

Two major concerns some economists have about the high national debt are: (1) it increases the risk of a fiscal crisis; and (2) it makes it harder for the government to pay for entitlement programs.¹⁰⁰ The first concern is analogous to what happened in Greece recently.¹⁰¹ There, investors lost confidence in the country's bond market, which caused bonds to lose their value and created a scenario where Greece could no longer finance itself.¹⁰²

The second concern is if the United States is forced to increasingly spend money by paying off interest from borrowed money, it will have less and less to spend on programs.¹⁰³ Federal programs, such as Social Security and Medicaid, are the most expensive to fund.¹⁰⁴ Social Security is a popular program in the United States with an almost 80% approval rating of the tax.¹⁰⁵ Economists worry these popular programs are at risk if the national debt increases and the country is forced to divert more funds to interest payments and less to pre-existing programs.¹⁰⁶

A large-scale broadband infrastructure plan, with an estimated \$85 billion price tag, will likely face opposition from people concerned about the deficit.¹⁰⁷ However, many economists disagree on the importance of the national debt, so the argument that a rural broadband infrastructure plan would harm the country by increasing its debt is not an issue in some economists' eyes.¹⁰⁸ Due to the United States' strong economy, the concern that the United States will default on their

100. *Why Should We Worry About the National Debt?*, COMM. FOR A RESPONSIBLE FED. BUDGET (Apr. 16, 2019), <http://www.crfb.org/papers/why-should-we-worry-about-national-debt> [<https://perma.cc/VY9B-9EVZ>].

101. Kimberly Amadeo, *Greek Debt Crisis Explained*, THE BALANCE (May 18, 2020), <https://www.thebalance.com/what-is-the-greece-debt-crisis-3305525> [<https://perma.cc/8NSJ-JJ9T>].

102. *Id.*

103. *Why Should We Worry About the National Debt?*, *supra* note 100.

104. Amadeo, *supra* note 101.

105. *Public Opinions on Social Security*, NAT'L ACAD. OF SOC. INS. (Sept. 8, 2020, 1:05 PM), <https://www.nasi.org/learn/social-security/public-opinions-social-security> [<https://perma.cc/3MHG-S3MR>].

106. *Why Should We Worry About the National Debt?*, *supra* note 100.

107. See Shirin Ghaffary, *America has a terrible digital divide. Elizabeth Warren has a plan for that too*, VOX (Aug. 7, 2019, 8:30 AM), <https://www.vox.com/recode/2019/8/7/20757705/elizabeth-warren-broadband-digital-divide-broadband-access> [<https://perma.cc/LAP6-BAR3>].

108. See Narayana Kocherlakota, *The Federal Debt Is Nothing to Lose Sleep Over*, YAHOO! FINANCE (Jan. 16, 2020), <https://finance.yahoo.com/news/federal-debt-nothing-lose-sleep-113044132.html> [<https://perma.cc/UA8X-WGJB>]; see also *The National Debt Explained*, *supra* note 98.

debts does not seem tangible to these economists.¹⁰⁹ Unlike Greece, the United States' debt is still manageable when one considers its Gross Domestic Product (GDP) and its own government revenue.¹¹⁰ It is unclear how much debt is too much, but the United States' debt is currently manageable.¹¹¹ Therefore, national debt should not be the sole reason for opposing a large infrastructure plan for rural broadband.¹¹²

V. SOLVING THE ISSUE

A. Private Companies and Modern Technology

Modern technology solutions have begun to solve the issue of providing internet to difficult to reach places. Some examples of these new technologies are TV Whitespace and improvements to fixed wireless connection.¹¹³ The internet is a channel used by people to transfer and store data.¹¹⁴ The storage and transfer of this data creates a network supported by internet service providers that supply what is called a backbone to the network.¹¹⁵ The internet backbone is the physical network that carries internet traffic between different computer systems.¹¹⁶

Smaller internet providers negotiate with large providers, like AT&T, to use these connections to provide internet to customers by using the large provider's

109. Michael Foster, *Federal Debt Is Reaching \$20 Trillion & That's Not A Bad Thing*, FORBES (Nov. 8, 2017, 9:24 AM), <https://www.forbes.com/sites/michaelfoster/2017/11/08/federal-debt-is-reaching-20-trillion-and-i-dont-care/#6c77017932ba> [https://perma.cc/V643-TJB3].

110. *See id.*

111. *Id.*

112. *See* William D. Lastrapes, *Why the \$22 trillion national debt doesn't matter – here's what you should worry about instead*, SALON (Feb. 19, 2019, 9:00 AM), https://www.salon.com/2019/02/19/why-the-22-trillion-national-debt-doesnt-matter-heres-what-you-should-worry-about-instead_partner/ [https://perma.cc/7ZLC-H2A6].

113. *TV White Space – Breakthrough Technology*, *supra* note 66; *4 Ways to Bring Broadband to Rural Communities*, *supra* note 17.

114. Jonathan Strickland, *Who owns the Internet?*, HOWSTUFFWORKS (Sept. 8, 2020, 12:38 PM), <https://computer.howstuffworks.com/internet/basics/who-owns-internet1.htm> [https://perma.cc/TKJ3-EDQQ].

115. *Internet Backbone*, TECHOPEDIA (Nov. 14, 2012), <https://www.techopedia.com/definition/20115/internet-backbone> [https://perma.cc/VJ9V-ZNMQ].

116. Strickland, *supra* note 114; Timothy B. Lee, *The internet, explained*, VOX (May 14, 2015, 12:38 PM), <https://www.vox.com/2014/6/16/18076282/the-internet> [https://perma.cc/2LJF-SZRA].

existing cable line infrastructure.¹¹⁷ This has allowed many cable providers in cities to transition into internet companies as well.¹¹⁸ However, the most difficult issue for these new internet providers is what to do when there is no existing infrastructure to a particular household. This problem is known as the “last mile problem”—the distance between the end consumer and the pre-existing internet infrastructure.¹¹⁹

The last mile problem has been the main culprit behind the lagging connection expansion of rural broadband networks. Unlike cities where the lack of infrastructure is about a mile, farms are usually much further than a mile from any internet infrastructure.¹²⁰ However, TV White Space is a relatively new technology that is solving the last mile issue.¹²¹ TV White Space technology uses the unused TV channels, between active ones, that travel on unused frequency spectrums.¹²² Microsoft and several telecommunications companies have started to use these unused frequencies to provide and expand broadband internet access to rural areas.¹²³ One of the main reasons it is so difficult for farms to access broadband internet is because it is not economically feasible to extend fiber optic cables to homes that are miles apart from each other to establish a sustainable clientele for internet providers.¹²⁴ Fiber optic cable is the current industry standard that internet providers use to connect homes to the internet because of its ability to transfer large amounts of data quickly.¹²⁵ Many internet providers still use older methods like copper wiring to transfer data; however, this is not as effective and is slowly being phased out.¹²⁶

117. Strickland, *supra* note 114.

118. *Id.*

119. See *Reaching the Last Mile: Hearing on Rural Broadband Examines Solution to Closing the Digital Divide*, NCTA (July 17, 2018), <https://www.ncta.com/whats-new/reaching-the-last-mile-hearing-on-rural-broadband-examines-solutions-closing-the-digital-divide> [<https://perma.cc/2M62-7N8R>].

120. See Associated Press, *High-speed internet shortage a big concern in rural Nebraska*, NTV ABC (Nov. 10, 2019), <https://nebraska.tv/news/local/high-speed-internet-shortage-a-big-concern-in-rural-nebraska> [<https://perma.cc/8QVE-ZWM8>].

121. See *TV White Space – Breakthrough Technology*, *supra* note 66.

122. *Id.*

123. Friestad, *supra* note 14.

124. Lyndsey Gilpin, *White Space, the next internet disruption: 10 things to know*, TECHREPUBLIC (Sept. 8, 2020, 12:59 PM), <https://www.techrepublic.com/article/white-space-the-next-internet-disruption-10-things-to-know/> [<https://perma.cc/R67T-2XLC>].

125. Catherine McNally, *How Does Fiber-Optic Internet Work?*, REVIEWS.ORG (Sept. 8, 2020, 10:58 AM), <https://www.reviews.org/internet-service/how-does-fiber-optic-internet-work/> [<https://perma.cc/KW8K-V63Q>].

126. See *id.*

TV White Space technology can cover up to 10 kilometers and provide internet to homes that have White Space receivers.¹²⁷ It acts similarly to normal Wi-Fi, but on a much larger scale to connect homes to the internet wirelessly.¹²⁸ The ultra-high frequency (UHF) signals have the ability to travel over large expanses of land, no matter the terrain, so it has the ability to provide internet in hard-to-reach farms where standard fiber optic internet connection would be economically infeasible.¹²⁹

Microsoft and other internet companies have begun to partner with internet service providers to target broadband expansion in more than 20 states.¹³⁰ These partnerships have supported small and mid-size internet companies by completing infrastructure projects and advocating for favorable public policy.¹³¹ Microsoft's work is helping to improve awareness of the technology and is speeding up the deployment efforts of TV White Space.¹³² A large implementation of TV White Space stations could be a game changer in rural broadband connectivity that could save money for farmers and the government.

Fixed wireless is another alternative to standard internet connection and has a longer track record than TV White Space.¹³³ It has similar benefits as TV White Space by connecting people to internet in hard-to-reach places where homes are separated by rough terrain and farmland.¹³⁴ Fixed wireless uses pre-existing hard-wired network towers that data can travel through from a fiber backhaul tower.¹³⁵ A backhaul tower is connected physically to an internet service provider's backbone network through fiber cables.¹³⁶

This is similar to the TV White Space technology, where a backhaul tower connects to the Internet backbone and then transmits data from that connection by air through old analog TV stations to a receiver on a house.¹³⁷ The difference between fixed wireless and TV White Space is that a fixed wireless backhaul tower

127. *TV White Space – Breakthrough Technology*, *supra* note 66.

128. Gilpin, *supra* note 124.

129. *TV White Space – Breakthrough Technology*, *supra* note 66.

130. Friestad, *supra* note 14.

131. *Id.*

132. *See id.*

133. *4 Ways to Bring Broadband to Rural Communities*, *supra* note 17.

134. *Id.*

135. *Id.*

136. *Id.*

137. *Terrestrial Fixed Wireless Internet in the United States*, BROADBANDNOW (Sept. 8, 2020, 1:15 PM), <https://broadbandnow.com/Fixed-Wireless> [<https://perma.cc/6GEP-8ASK>].

works like a liaison for pre-existing phone towers to connect to a backbone network.¹³⁸ The data from a backhaul tower then transmits to a home from there, or ping along to different towers to carry the data until it finally reaches a home with a receiver that can connect the home to the fixed wireless network.¹³⁹ It uses this connection to transmit radio waves through pre-existing cell towers that bring the radio signals to an antenna on a farm, which gives the farm access to the internet via a cable carrying the signal from the antenna to a router at the farm.¹⁴⁰ The technology works similarly to cell towers by transmitting data through the air; the only difference is it provides internet, instead of cell phone service.¹⁴¹ Standard household internet speeds for fixed wireless are 50 mbps and business standard speeds can be as high as 500 mbps.¹⁴² Internet speed is crucial when a farm is using extensive amounts of monitoring systems and data gathering devices that could slow down routers without a high bandwidth.¹⁴³

Satellite internet is another option for farmers because of its ability to reach nearly anywhere.¹⁴⁴ However, there are several cons to satellite internet, including prohibitive data caps, a slower connection than both cable and fiber, vulnerability to bad weather, and vulnerable security.¹⁴⁵ Satellite internet has these issues because, unlike most other forms of internet connected directly to the provider's hub and backbone system, satellite is connected 22,200 miles above Earth.¹⁴⁶ Farming operations need both a reliable internet connection that will not cut out

138. Janette Forsythe, *What is a backhaul?*, HIGH SPEED INTERNET.COM (Oct. 15, 2017), <https://www.highspeedinternet.com/resources/what-is-a-backhaul> [<https://perma.cc/3RCR-5ALG>].

139. *4 Ways to Bring Broadband to Rural Communities*, *supra* note 17.

140. Maria LeLaurin, *What is fixed wireless internet — and could it be right for you?*, ALLCONNECT (May 22, 2019), <https://www.allconnect.com/blog/what-is-fixed-wireless> [<https://perma.cc/M934-VVMG>].

141. *4 Ways to Bring Broadband to Rural Communities*, *supra* note 17.

142. *Terrestrial Fixed Wireless Internet in the United States*, *supra* note 137.

143. LeLaurin, *supra* note 140.

144. Trevor Wheelwright, *How Does Satellite Internet Work?*, REVIEWS.ORG (July 19, 2019), <https://www.reviews.org/internet-service/satellite-internet-work/> [<https://perma.cc/NL5X-EY2R>].

145. *Pros And Cons Of Satellite Internet*, BROADBANDNOW (April 26, 2019), <https://broadbandnow.com/guides/satellite-internet-pros-and-cons> [<https://perma.cc/9BFD-4PFV>].

146. Wheelwright, *supra* note 144; Ernie Smith, *We Were Promised Skynet*, TEDIUM (July 17, 2020), <https://tedium.co/2020/07/17/satellite-internet-evolution/> [<https://perma.cc/7FPU-SQJ5>].

when it is raining and a secure connection to protect their data.¹⁴⁷ Therefore, rural co-ops should not rely on satellite to solve these issues because it is not as good as TV White Space or Fixed wireless.¹⁴⁸

These new technologies should be brought to the forefront in future funding decisions, like in the Farm Bill. The federal government has already shown it cares about the issue by devoting millions of dollars to rural broadband.¹⁴⁹ However, this funding has not been enough because the problem has continued with no end in sight. New technology and aggressive policies could solve the problem in the near future..

B. Future of Government Solutions

More people are seeing the potential broadband connectivity has for farming communities, which has caused many communities to call for action on proposed solutions.¹⁵⁰ The current federal government strategy is not large enough in scale to combat the problem, and with every year that is wasted, farmers lose money and their families are harmed. If the federal government wants to solve the problem, they must do something substantial to expedite the deployment of broadband internet. Senator Elizabeth Warren has recognized the disparity in internet connectivity for rural areas and made a plan to attempt to solve the issue.¹⁵¹ Senator Warren's plan is similar to a bill passed during the 1930s that sought to give electricity to every household in the United States.¹⁵²

The Rural Electrification Act in 1936 brought electricity to rural areas that lacked access to grid systems powering cities at the time.¹⁵³ These infrastructure barriers are analogous to the current broadband problem in rural areas, where there was no incentive for electric companies to invest large sums of money to connect small communities to its electrical grid.¹⁵⁴ The Act allowed the federal government

147. Zippy Duvall, *For farmers, broadband is a necessity, not a luxury*, THE HILL (Nov. 1, 2018, 3:40 PM), <https://thehill.com/blogs/congress-blog/technology/414370-for-farmers-broadband-is-a-necessity-not-a-luxury> [<https://perma.cc/3WQ9-4NWF>].

148. See Smith, *supra* note 146.

149. Duvall, *supra* note 147.

150. *4 Ways to Bring Broadband to Rural Communities*, *supra* note 17.

151. Marguerite Reardon, *Warren promises \$85 billion program for rural broadband*, CNET (Aug. 7, 2019, 1:09 PM), <https://www.cnet.com/news/warren-promises-85-billion-program-for-rural-broadband/> [<https://perma.cc/69KD-CTBQ>].

152. See *Rural Electrification Act*, NAT'L PARK SERV. (April 14, 2020), <https://www.nps.gov/home/learn/historyculture/ruralelect.htm> [<https://perma.cc/988X-72BB>]; see also Ghaffary, *supra* note 107.

153. *Rural Electrification Act*, *supra* note 152.

154. See *id.*

to make affordable loans to farmers who had banded together to create cooperatives for the purpose of bringing electricity to their areas.¹⁵⁵

Warren's broadband plan for all would similarly grant a large sum of money, estimated to be around \$85 billion, to subsidize the building of broadband networks to rural communities.¹⁵⁶ The plan would include federal laws to protect local municipal broadband networks and nonprofit cooperatives' rights to build their own networks.¹⁵⁷ The plan would also devote the federal funds to those local organizations instead of funding larger internet companies, which have dropped the ball for far too long.¹⁵⁸ Several other candidates have introduced plans to bolster rural broadband infrastructure, but Warren's is the most extensive.¹⁵⁹ Warren's large-scale plan recognizes the issue and gives rural communities the responsibility and power to make changes they need by enacting federal statutes to give municipalities the protection to build their own networks.¹⁶⁰

VI. CONCLUSION

Rural broadband connection to every farmer is a very important issue. With the ability of farms to harness faster internet speeds, they will be more productive and sustainable.¹⁶¹ Smart farm technology is the new frontier of innovation in agriculture, and as the United States fails to mobilize to solve the issue, the country is losing out on immense productivity.¹⁶² In addition to productivity, farms will be more sustainable through the use of data analytics and advanced monitoring systems, which will maximize the use of resources and leave nothing to waste.¹⁶³

Not only will connecting rural America to broadband aid the economy and environment, but it will help fight the decline of rural populations by providing residents with meaningful connections and opportunities outside their local

155. *Id.*

156. Ghaffary, *supra* note 107.

157. *Id.*

158. *Id.*

159. *See id.*

160. Warren, *supra* note 27.

161. *See generally* Laxmi P. Pant & Helen H. Odame, *Broadband for a Sustainable Digital Future of Rural Communities: A Reflexive Interactive Assessment*, 54 J. OF RURAL STUD. 435 (Aug. 2017).

162. *USDA Releases Report on Rural Broadband and Benefits of Next Generation Precision Agriculture*, USDA (Apr. 30, 2019), <https://www.usda.gov/media/press-releases/2019/04/30/usda-releases-report-rural-broadband-and-benefits-next-generation> [<https://perma.cc/H462-N733>]; Chamberlain, *supra* note 59.

163. Chamberlain, *supra* note 59.

communities.¹⁶⁴ Fifty years ago, rural and urban life were not fundamentally different because the communities had shared values.¹⁶⁵ However, due to the exponential growth of technology over that time, the differences between urban and rural life have grown.¹⁶⁶ The modern economy is increasingly creating tech-based jobs, which are mainly centered in cities.¹⁶⁷ With almost all new jobs and most the money being based in cities, a large wealth gap is growing between rural and urban areas.¹⁶⁸ With this shift in technology, America has also become increasingly divided politically and culturally.¹⁶⁹ One cause is there is no longer a shared culture between the rural and urban communities because people live completely different lives.¹⁷⁰ Without high-speed internet in rural areas, people in those communities will continue to be left behind, which will expand a great division in this country.

Due to this great divide, young people in rural America now feel cut off from the world when they do not have access to the internet.¹⁷¹ Parents in rural communities now have to worry if their children are getting the best education available, while schools in urban areas are able to do much more.¹⁷² These are factors contributing to the mass exodus of rural areas.¹⁷³ Farmers are hurt by this

164. See Swenson, *supra* note 1.

165. Joel Kotkin, *America's Identity Crisis*, CITY J. (Aug. 8, 2019), <https://www.city-journal.org/nationalism> [<https://perma.cc/P8MA-L37S>].

166. George Packer, *Decline and fall: how American society unravelled*, THE GUARDIAN (June 19, 2013, 12:47 PM), <https://www.theguardian.com/world/2013/jun/19/decline-fall-american-society-unravelling> [<https://perma.cc/5WMU-SW5N>]; Kotkin, *supra* note 165.

167. Porter, *supra* note 87.

168. *Id.*

169. *Id.*

170. Emily Badger, *How the Rural-Urban Divide Became America's Political Fault Line*, N.Y. TIMES: THEUPSHOT (May 21, 2019), <https://www.nytimes.com/2019/05/21/upshot/america-political-divide-urban-rural.html> [<https://perma.cc/CGV5-9TTA>].

171. Deborah Bach, *How high-speed internet is bringing people 'out of the dark ages' to reshape work and life in rural America*, MICROSOFT (Jan. 8, 2020), <https://news.microsoft.com/features/how-high-speed-internet-is-bringing-people-out-of-the-dark-ages-to-reshape-work-and-life-in-rural-america/> [<https://perma.cc/P89S-R26U>].

172. Dennis Parman, *Lack of Internet Access Holds Rural Communities, Students Back*, CONNECTEDNATION (Sept. 25, 2019), <https://connectednation.org/blog/2019/09/26/lack-of-internet-access-holds-rural-communities-students-back/> [<https://perma.cc/958N-HW4K>].

173. Porter, *supra* note 87; Spectar, *supra* note 21.

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because they have to worry about workforce shortages and who will take over their farm when they can no longer manage its day-to-day operation.¹⁷⁴

Although there are physical, monetary, and statutory barriers to quickly mobilize the implementation of rural broadband across America, it is an important battle for state and federal governments to fight. Rural communities should be advocating for changes to state laws that make it difficult for co-ops to operate. Attorneys can be at the tip of the spear in this effort to change the antiquated state laws making it difficult on farming communities to establish their own alternative networks through lobbying and lawsuits over prohibitive regulations.

174. Duvall, *supra* note 147; Brian Boyce, *2017 Census of Agriculture: An aging farm population but with optimism*, AGDAILY (April 11, 2019), <https://www.agdaily.com/insights/census-of-agriculture-aging-farmers/> [<https://perma.cc/Q8BM-J5HN>].