



# THE FREE STATE FOUNDATION

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### **The Research is Clear: The U.S. Invests More in Broadband Than Europe**

by

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#### **Introduction**

On February 19, 2015, in advance of the Federal Communications Commission's (FCC) impending [Open Internet decision](#), Free Press submitted a [Notice of Ex Parte](#) to the agency claiming that studies which lead to the conclusion that United States Internet Service Providers (ISPs) are investing in broadband infrastructure to a greater extent than European ISPs are "completely bogus."

In support of its claim, Free Press refers to FCC [Commissioner Ajit Pai's statement](#) on the [Open Internet order](#) when it was circulated for the Commissioners back in early February as well as to a February 2015 Internet Innovation Alliance report by Fred Campbell entitled "[Impact of 'Title II' Regulation on Communications Investment: A Comparison Between the United States and the European Union](#)." Free Press claims that Commissioner Pai's statement and Fred Campbell's report are "misleading with statistics."

However, Free Press did not cite a paper written by Roslyn Layton and myself entitled "[Innovation, Investment, and Competition in Broadband and the Impact on America's Digital Economy](#)," nor did it refer to Free State Foundation Board of Academic Advisor member Christopher Yoo's paper entitled "[U.S. vs. European Broadband Deployment: What Do the Data](#)

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[Say?](#)” While I do not propose to defend the accuracy of every study that has been performed on this topic, the research is pretty clear: The United States is investing in broadband infrastructure at a significantly higher rate than Europe.<sup>1</sup>

Throughout this paper, data from previous pieces of academic literature will be used to show that U.S. broadband infrastructure investment trumps that of Europe:

- The U.S. invested more in broadband than Europe: as a percentage of global investment in 2013 (23% to 19%), on per capita terms in 2013 (\$236 to \$122), and per household in 2012 (\$522 to \$264).
- Since 2000, American ISPs have invested a yearly average of 26.3 percent of revenue into broadband infrastructure, while European ISPs have invested a yearly average of just 16.9 percent of revenue. Strong intermodal competition between broadband providers and technologies has encouraged \$1.3 trillion in investment since 2000.
- Americans have enjoyed dynamic investment because the U.S. broadband market has scaled pricing, which incentivizes American ISPs to fulfill the demands of their consumers. (See the graph on page 4.)
- The consistency of strong investment from American ISPs has led to a greater amount of broadband availability and adoption in the United States than in Europe. (See the chart on page 6.)

And throughout its [Notice of Ex Parte](#), Free Press continuously compared fixed broadband data between the United States and Europe because it fails to see mobile broadband as a substitute for fixed. Yet in a [blog post](#), Free Press stated that mobile broadband providers should still be subjected to Title II reclassification because they act as gatekeepers. Clearly, mobile broadband providers cannot act as a complement to fixed broadband providers, while also acting as a gatekeeper for consumers. Had Free Press considered mobile broadband in its deployment metrics, there would be no debate. Mobile broadband in America is significantly superior to that of Europe.

### **Broadband Infrastructure Investment in the United States Trumps that of Europe**

The U.S. holds approximately 4 percent of the world’s population, but has enjoyed roughly one-quarter of the world’s broadband infrastructure investment for the past decade. On the other hand, the European Union (E.U.) – with approximately 7 percent of the world’s population – has dropped from roughly one-third of the world’s broadband infrastructure investment a decade ago to roughly one-fifth today.<sup>2</sup>

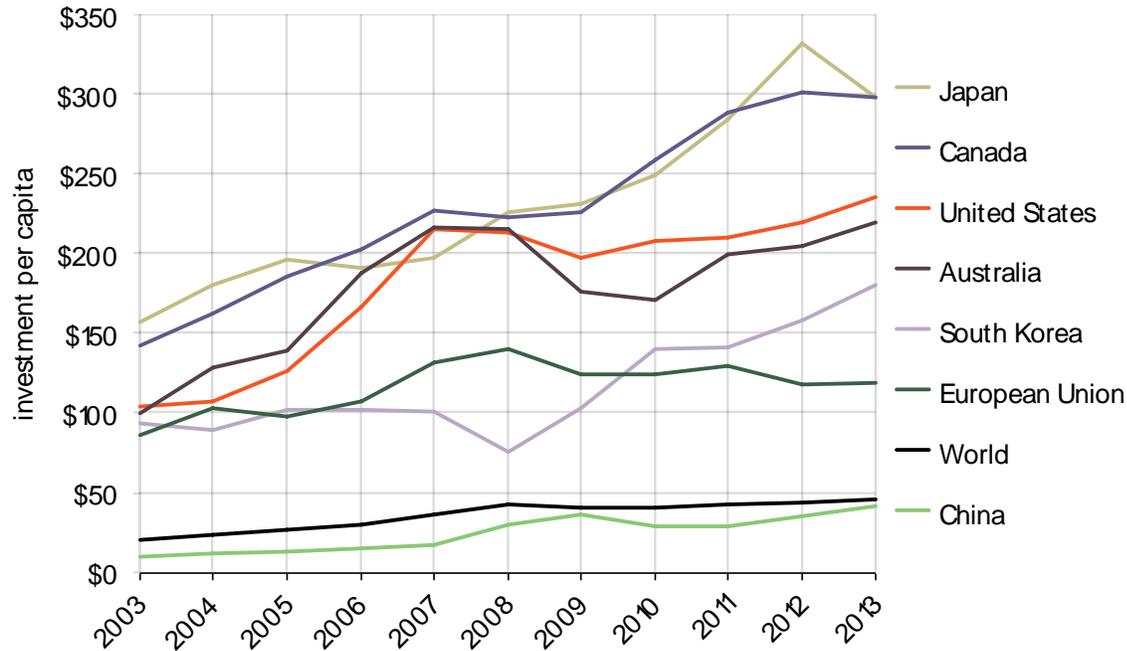
Below is a graph of per capita investment in broadband infrastructure of some of the world leaders. As you can see, the U.S. is significantly ahead of the E.U.

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<sup>1</sup> For the purposes of this paper, Europe will refer to the 28 countries in the European Union.

<sup>2</sup> Roslyn Layton and Michael Horney, *Innovation, Investment, and Competition in Broadband and the Impact on America’s Digital Economy*, Working Paper (Arlington, VA: Mercatus Center at George Mason University, August 2014), <http://mercatus.org/sites/default/files/Layton-Competitionin-Broadband.pdf>.

## Broadband Infrastructure



Source: Roslyn Layton and Michael Horney, *Innovation, Investment, and Competition in Broadband and the Impact on America's Digital Economy*, Working Paper (Arlington, VA: Mercatus Center at George Mason University, August 2014), <http://mercatus.org/sites/default/files/Layton-Competitionin-Broadband.pdf>

If it seems more appropriate to put investment in terms of households, the U.S. still dominates. According to Christopher Yoo's paper, per household investment in broadband in 2012 was \$562 in the United States compared to \$244 in Europe.

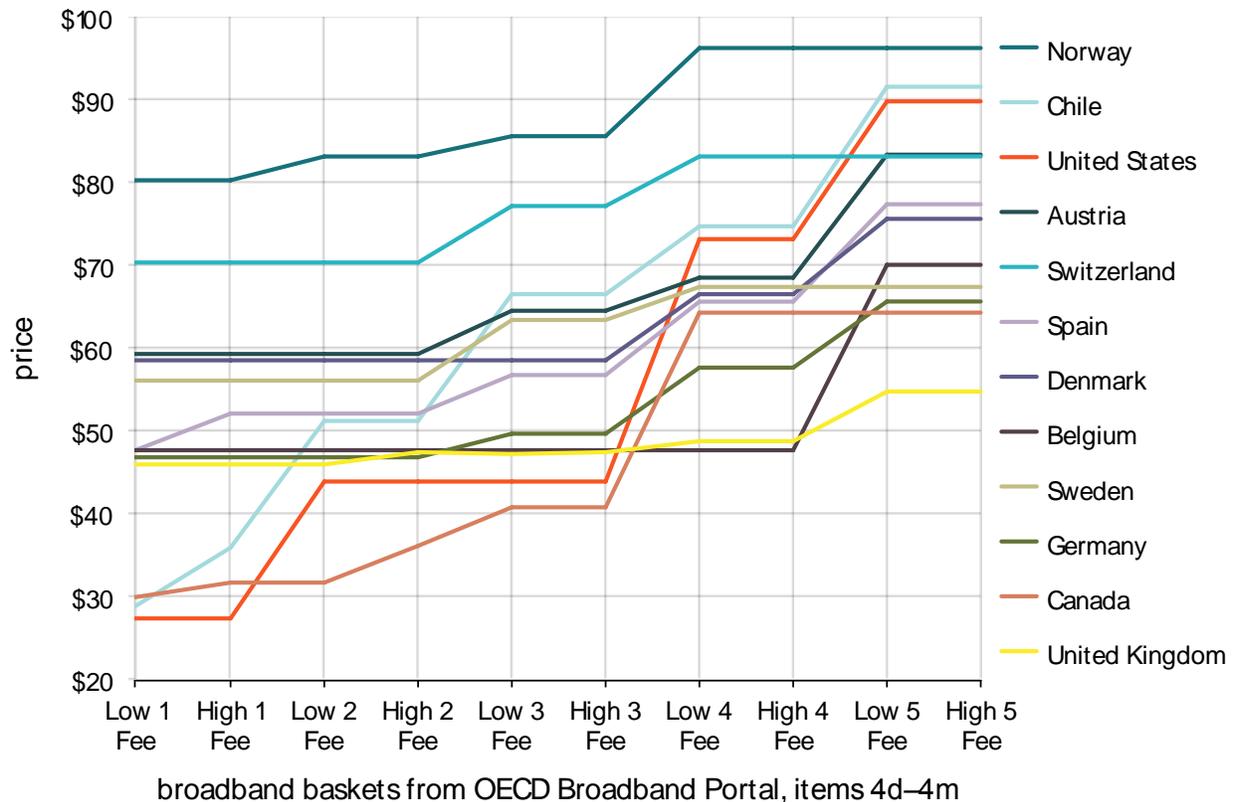
### Dynamic Investment Is the Result of Market Pricing

Free Press admits that the U.S. has significantly higher per capita investment than the E.U. But it also claims that American prices are twice as high as European prices, and therefore per capita investment and prices "cancel out." Even if it were true that prices in the U.S. are twice as high as prices in Europe, it does not mean Europe is investing more than the U.S. If Free Press wanted to claim that the markets are proportionate, that would be one thing. But to say that the "E.U. investment is remarkably similar to U.S investment" is simply not true.

As Roslyn Layton and I pointed out in our paper, pricing data between European countries and the U.S. are often misleading. Many claim, as Free Press does, that Americans are paying more per month than Europeans for broadband service. A snapshot of cross-country prices might lead to this assumption. But typical price comparisons rarely include taxes or mandatory media licensing fees that many countries require. In the United States, broadcasting is funded through advertisements but in two-thirds of European countries broadcasting is funded by video and

broadband subscribers through mandatory media licensing fees used to support government websites and television channels. Many countries like to provide local language content and websites as opposed to broadcasting American or British content. These countries are able to support such local content by requiring these media licensing fees to be paid by broadband subscribers.

The graph below shows that when media licensing fees are included, the U.S. has one of the least expensive entry-level broadband baskets, thus helping low-income individuals adopt Internet access. And like most markets in the United States, broadband prices increase with quantity and quality of service, which incentivizes ISPs to invest in vibrant networks. (Christopher Yoo’s paper shows very similar results in terms of prices.) Many European countries, on the other hand, do not have prices which correlate with quantity and quality of service. This provides little incentive for consumers to buy lower level packages and subsequently for ISPs to dynamically invest in network upgrades and expansion. (See Norway, Switzerland, and the UK in the graph.)



Source: Roslyn Layton and Michael Horney, *Innovation, Investment, and Competition in Broadband and the Impact on America’s Digital Economy*, Working Paper (Arlington, VA: Mercatus Center at George Mason University, August 2014), <http://mercatus.org/sites/default/files/Layton-Competitionin-Broadband.pdf>

Note:

Low 1: 2 GB / 10 hours/month, 0.25 Mbps and above; High 1: 6 GB / 30 hours/month, 0.25 Mbps and above; Low 2: 6 GB / 15 hours/month, 2.5 Mbps and above; High 2: 18 GB / 45 hours/month, 2.5 Mbps and above; Low 3: 11 GB / 20 hours/month, 15 Mbps and above; High 3: 33 GB / 60 hours/month, 15 Mbps and above; Low 4: 14 GB / 25 hours/month, 30 Mbps and above; High 4: 42 GB / 75 hours/month, 30 Mbps and above; Low 5: 18 GB / 30 hours/month, 45 Mbps and above; High 5: 54 GB / 90 hours/month, 45 Mbps and above.

It is this type of scaled market pricing that leads to the dynamic investment that we see in the U.S. – more than \$1.3 trillion since 1996, according to [USTelecom](#). Since Free Press did not provide its price data, I cannot say for sure that its source did not include taxes and fees in the broadband prices. But the conclusion that Americans are paying twice as much as Europeans leads me to believe these charges were not included.

Throughout its report, Free Press criticized Commissioner Pai for not comparing apples to apples. Yet, Free Press is guilty of the same thing. How can one make an argument on prices and investment without talking about quantity demand? Free Press did not analyze data consumption between the two regions.

As Roslyn Layton and I stated in our paper, the U.S. is second in the world in data consumption per capita and rapidly approaching South Korea for first place. The average American may be paying more for a monthly broadband subscription than the average European, but the average American also demands and consumes significantly more data. Ultimately, the variance in prices across different broadband packages averages out to be about the same across the U.S. and Europe.

All else equal, the mere fact that Americans use more data means they should pay more for broadband. Thus, American ISPs should subsequently invest more than European ISPs because networks are likely to need upgrading more often as network capacities will not be able to carry the increasing amount of data that Americans are using.<sup>3</sup>

### **Intermodal Competition Helps Drive Investment in the U.S.**

Free Press claims that because the American broadband market is not competitive, Americans pay much more for service. This is obviously not the case when you calculate the taxes and fees that Europeans pay for their service. Free Press then claims that the only reason the U.S. invests more is because Americans pay more, and therefore American ISPs can afford to invest. But Free Press has everything backwards. European ISPs do not invest at the same rate that American ISPs are investing simply because the European market is less competitive. Competition between companies and technologies, such as copper, cable, fiber, mobile, and satellite, encourages additional investment.<sup>4</sup>

Free Press also claims that since the U.S. market is less competitive, American ISPs are investing a smaller percentage of revenues than European ISPs. Since 2000, American ISPs have invested a yearly average of 26.3 percent of revenue into broadband infrastructure, while European ISPs have invested a yearly average of just 16.9 percent of revenue. The two figures were almost

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<sup>3</sup> Cisco projects mobile traffic alone to increase seven-fold from 2014 to 2019. See this FSF blog: <http://freestatefoundation.blogspot.com/2015/02/new-cisco-report-projects-huge.html>

<sup>4</sup> Layton and Horney, *Innovation, Investment, and Competition in Broadband and the Impact on America's Digital Economy*.

exactly the same in 2013, with the U.S. investing at a rate of 15.8 percent and the E.U. at 15.7 percent. However, since 2000, the U.S. generally has invested at a higher percentage of revenues than the E.U.<sup>5</sup>

## Broadband Investment Is Means to an End

Free Press is correct to say “investment is a means to an end.” Free Press claims that even if the U.S. was investing more than Europe, broadband availability, adoption, and prices are the metrics that really matter. Free Press claims that so long as Europeans have access to more choices, are connecting at higher rates, and are paying lower prices than Americans, the dollar figures of investment between the two regions are irrelevant. While poor investment choices from businesses can lead to bad outcomes for consumers and economies as a whole,<sup>6</sup> this is not the case in the broadband marketplace. When looking at data on broadband availability and adoption, the United States dominates Europe.

No matter what data Free Press hand-picks, the availability of broadband in the U.S. is significantly better than in Europe. Americans enjoy much better access to different broadband technologies than do Europeans. See the chart below.

	United States (%)	EU (%)
Availability of broadband with a download speed of 100 Mbps or higher to population	57*	30
Availability of cable broadband to population	88	42
Availability of 4G/LTE to population	94**	26
Availability of FTTH to population	25	12
Percentage of population that subscribes to broadband by DSL	34	74
Percentage of households that subscribe to broadband by cable	36***	17

\* The National Cable Telecommunications Association suggests speeds of 100 Mbps are available to 85 percent of Americans. See “America’s Internet Leadership,” National Cable Telecommunications Association, 2013, <http://www.ncta.com/positions/americas-Internet-leadership>.

\*\* Verizon’s most recent report notes that it reaches 97 percent of America’s population with 4G/LTE networks. See “Overview,” Verizon, News Center: LTE Information Center, accessed June 12, 2014, <http://www.verizonwireless.com/news/LTE/Overview.html>.

\*\*\* This table is based on 49,310,131 cable subscribers at the end of 2013, noted by Leichtman Research (<http://www.leichtmanresearch.com/press/031714release.html>) compared with a total of 138,505,691 households noted by the National Broadband Map.

<sup>5</sup> This data has been calculated from Infonetics Research. The calculation is a weighted average controlling for market share and the annual amount each ISP has invested as a percentage of annual revenue. Data can be requested from author.

<sup>6</sup> Malinvestment can lead to bad economic outcomes. The overbuilding of houses in 2007 and 2008 is a good example. But the data on broadband availability, adoption, and prices show that American ISPs are making consumer-friendly investments.

Source: US data from National Broadband Map; see “Access to Broadband Technology by Speed,” Broadband Statistics Report, July 2013, <http://www.broadbandmap.gov/download/Technology%20by%20Speed.pdf> and <http://www.broadbandmap.gov/summarize/nationwide>. EU data from European Commission; see “Chapter 2: Broadband Markets,” Digital Agenda Scoreboard 2013, working document, December 6, 2013, [http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/DAE%20SCOREBOARD%202013%20-%20202-BROADBAND%20MARKETS%20\\_0.pdf](http://ec.europa.eu/digital-agenda/sites/digital-agenda/files/DAE%20SCOREBOARD%202013%20-%20202-BROADBAND%20MARKETS%20_0.pdf).

Notes: LTE = long-term evolution, FTTH = fiber to the home, DSL = digital subscriber line.

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## **Conclusion**

Free Press may very well believe that Europe is on par with the U.S. in terms of broadband investment, but it failed to cite, and most likely ignored, relevant data and analysis that suggests the opposite. The United States is investing at a much greater rate than Europe because its broadband market has intermodal competition and scale-based pricing.

The FCC’s recent [Open Internet order](#) may well adversely affect the incentives of American ISPs to invest in new broadband infrastructure because the costs to comply with Title II regulations will push competitors out of the market. But, for now, the E.U. still has a lot of catching up to do.

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