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University of Florida Study Shows Only Winners from Network Neutrality Regulation to be Content Providers, Consumers Lose

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This month, three professors at the University of Florida's Warrington College of Business Administration released a new paper on the effects of network neutrality regulation using a stylized game-theoretic model (the "Florida Study").[1] This analytical investigation of network neutrality is certainly a welcome addition to the debate, which has primarily been driven by emotion. But the conclusions of the Florida Study have been grossly misconstrued by network neutrality proponents, who have seized upon them in claiming that the study shows that the "Internet with Net Neutrality is unequivocally better for consumers."[2]

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Even a casual read of the Florida Study shows that those claims are entirely false. In fact, the Florida Study clearly shows that *under no circumstances will consumer welfare be improved by network neutrality regulation*. In fact, the Florida Study suggests that the only "winners" from network neutrality regulation will be the Internet content providers—with broadband service providers and consumers being worse off (or, in some cases, unaffected). Policymakers should therefore not be misled as to what the Florida Study actually says and should pay heed to the warnings that lie beneath the patina of overzealous advocacy.

A Summary of the Florida Study

The Florida Study provides a theoretical model that assesses the welfare impacts if a hypothetical monopoly broadband service provider charges two hypothetical content providers a per packet price for prioritization, compared to a scenario in which regulation prohibits those transactions.[3] This setup is consistent with a common characterization of "network neutrality," where content providers have access to an Internet "fast lane" at a price.

In the model, consumers have a preference for one of the content providers, but also have a preference for faster content delivery. Thus, if one of the content providers receives priority service and the other does not, then the model assumes that some consumers will switch from their preferred un-prioritized provider to the prioritized one.[4] Most of the results from the model are driven by this movement of customers in response to prioritization.[5]

The Florida Study formally models the decisions of content providers to purchase prioritization, revealing the conditions under which the content providers buy it and the terms under which service is sold. Once the equilibrium outcomes are determined, the authors analyze the welfare effects.

A focus on welfare effects of regulation are perhaps the most important aspect of economic analysis for policymakers.[6] The goal of economic regulation is generally accepted as the maximization of economic welfare, which is the sum of well-being of consumers (consumer welfare) and producer profits (or producer surplus).

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A widely held position, both theoretically and in practice, is that consumer welfare should be given a higher weight than producer profits.[7] But, regardless of personal preference as to the premium policymakers should place upon consumer welfare, it seems reasonable to argue that public policy, to the greatest extent possible, should seek to expand social welfare with a particular eye on the effects policies have on consumers. Surely, regulation should not simply be a tool by which to transfer profits from one firm to another, and policymakers should strongly resist the temptation to participate in rent-seeking behavior, particularly when it harms consumers.[8]

The Florida Study Shows that Network Neutrality Cannot Improve Consumer Welfare, but Could Reduce It

To the credit of the authors, the welfare effects of network neutrality regulation in their model are clearly stated and demonstrated.[9] And the findings of the Florida Study present an unquestionably bleak picture for network neutrality regulation.

First, the study reveals, quite plainly, that the only clear "winners" from imposing network neutrality regulation are Internet content firms like Google and Amazon.com. Network neutrality consistently reduces the profits of broadband service providers by transferring it to content providers. More significantly, the theoretical analysis shows that *under no circumstances will consumer welfare be improved by network neutrality regulation*. Put simply, these conclusions suggest that regulators and legislators have been snookered into a debate about little more than profit transfers among corporations.[10]

Perhaps the most interesting and significant result of the Florida Study is the welfare implications of the case in which only one content provider buys prioritized service. This case is precisely the "discrimination" scenario that Network Neutrality advocates appear to fear most.

Importantly, the Florida Study demonstrates that it is this very scenario—in which network neutrality regulation eliminates such "discrimination"—in which network neutrality regulation unambiguously reduces consumer and social welfare. In other words, the study's theoretical model shows that permitting broadband service providers to prioritize some (but not all) traffic would unambiguously advance consumer and social welfare.[11] This conclusion indicates that the central tenet of most network neutrality advocacy flunks both a consumer and social welfare test. This finding seems to be very bad news for network neutrality proponents.

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More generally, across all of the scenarios considered, *network neutrality regulation never increases social welfare, but may very well decrease it*.[12] The analysis shows that at best, network neutrality regulation has no effect on consumer welfare and simply transfers profits from one layer of the industry to another; at its worst, network neutrality regulation actually harms consumers and reduces social welfare.

Incentives to Invest in Broadband Infrastructure

Network neutrality regulation proponents are hailing the Florida Study as showing that network neutrality rules will give "Internet service providers *more incentive* to expand their services and upgrade their infrastructure."[13] This rhetoric is based upon the Florida Study's observation that under network neutrality regulation, "the incentive for the broadband service provider to expand [capacity] under net neutrality is unambiguously higher than under the no net neutrality regime." However, there is a serious problem with interpreting these findings on investment incentives in a positive light given the potentially detrimental impact such investment would have on *consumers*.[14]

If investment harms consumers, then noting that the incentive to invest is lower in the absence of network neutrality regulation is hardly an argument in favor such intervention.

To examine the impact of network neutrality regulation on network investment, the Florida Study considers the incentive to invest and the welfare implications of three cases, one with network neutrality regulation and two without regulation. In two of the three cases considered, including the one with network neutrality regulation, consumers are unaffected by the investments in capacity. Indeed, the study shows that with network neutrality regulation, *neither consumers nor content providers reap any benefits from network capacity expansion*; the only beneficiary of such investments is the broadband provider, which earns higher profits.[15]

In the remaining case (NNN, Case A), *consumers are actually harmed by investments in capacity*. Moreover, the Florida Study shows that *with* network neutrality regulation, the only companies that benefit and are never harmed by network capacity expansion are Internet content companies. Again, the Florida Study suggests that the network neutrality debate is about profit transfers among companies, with consumers receiving nothing or getting harmed in the fallout.

So, while the Florida Study does conclude that the incentive to invest is higher under network neutrality regulation, the relevance of this finding for policy is revealed only by considering the welfare implications. As for that, the study shows that consumers never gain from capacity investments, yet they can be harmed by such investments in the absence of network neutrality regulation. Obviously, if investment harms consumers, then noting that the incentive to invest is lower in the absence of network neutrality regulation is hardly an argument in favor of such intervention.

Summary

In light of the findings of the Florida Study, the use of the study by network neutrality proponents is, to say the least, puzzling. While they are pushing the Florida Study as vindication of their views, in fact the conclusions seems far more compatible with the positions of those opposing network neutrality. Most importantly, the study shows that network neutrality regulation simply shifts profits from one set of firms to another set of firms in a way that can only reduce social welfare, if it has any impact at all. Consumers, if affected at all, are always worse off if network neutrality regulation is imposed, and this is true whether considering prioritization or capacity investments.

It is startling—or perhaps telling—that proponents of network neutrality regulation are frankly ignoring the negative impact that their proposed regulation would have on consumers. The Florida Study confirms that the only "winners" from network neutrality regulation will be the Internet content layer of the industry—with network providers and consumers worse off. Policymakers therefore should not be misled as to what the Florida study actually says and instead should pay heed to the warnings it offers.

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1 H. Cheng, S. Bandyopadhyay, and H. Guo, *The Debate on Net Neutrality: A Policy Perspective*, Working Paper, Department of Decision and Information Sciences, Warrington College of Business Administration, University of Florida (Mar. 2007) ("Florida Study").

2 *See, e.g.,* Save the Internet, "New Net Neutrality Study Debunks Telco Myths," (Mar. 9, 2007) (available at: http://www.savetheinternet.com/blog/2007/03/09/new-net-neutrality-study-debunks-telco-myths).

3 The particular formulation and derivations of the Florida Study's theoretical analysis are not addressed in detail; the analysis and conclusions found in the study are taken as given. Nor is this discussion a criticism of the Florida Study itself, but rather a summary of its primary findings and its implications for network neutrality regulation.

4 Or, the consumer may prefer content provider Y to G, but prefers a prioritized G to Y.

5 Notably, there is no discrimination in the formal sense in the model, since either of the two content providers is able (but not required) to purchase the prioritized service.

6 Florida Study, *supra* n.1, at 20.

7 For a recent and thought provoking analysis of the issue, see J. Farrell and M. Katz, *The Economics of Welfare Standards in Antitrust*, Unpublished Manuscript, University of California-Berkeley (June 20, 2006)(available at:: http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1061&context=iber/cpc). A similar, welfare-oriented approach has been discussed with regard to antitrust policy. *See, e.g.,* R. H. Lande, *Proving the Obvious: The Antitrust Laws Were Passed to Protect Consumers (not Just to Increase Efficiency),* 50 HASTINGS LAW J. 959, 963-66 (1999); R. H. Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 34 HASTINGS LAW J. 65-151 (1982); R. H. Bork, *Legislative Intent and the Policy of the Sherman Act*, 9 J. OF LAW AND ECON. 7-48 (1966).

8 Rent seeking is a competition for economic rents (profits), rather than an effort by firms to increase profits by offering consumers a better price or product. Importantly, rent seeking is an active process in which real economic resources are expended. Thus, in cases where the Florida Study concludes the welfare effects are zero and all gains are merely transfers, if there is a competition (or fight) over who get the profits, then social welfare declines due the wasteful expenditure of resources. *See* G. Tullock, *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 WESTERN ECONOMIC J. 224-32 (1967); A. Krueger, *The Political Economy of the Rent-Seeking Society*, 64 AMERICAN ECONOMIC REV. 291-303 (1974).

9 *See* Florida Study, *supra* n. 1, at Tables 3 and 5.

10 The Florida Study concludes, "While the monopolist internet service provider gains from the [absence of network neutrality], the content providers are definitely worse off by the arrangement. … It is therefore no wonder why the content providers and the internet service providers have been on the opposite sides of the net neutrality debate." Florida Study, *supra* n. 1, at 20

11 Florida Study, *supra* n. 1, at 21. The study notes in particular that "consumers as a whole do stand to gain" if one content company is able to pay for prioritization while another content company is unable to pay. Social welfare increases in this scenario because consumers of the content company that pays the fee "enjoy reduced congestion" in a way that "more than offsets the loss of welfare" to the consumers of content company that does not pay in addition to the impact on prices and subscription fees overall.

12 Florida Study, *supra* n. 1, at Abstract ("we find that if the principle of net neutrality is abandoned, the broadband service provider definitely stands to gain … The content providers are thus left worse off, mirroring the stances of the two sides of the debate. Depending on the parameter values in our framework, consumer surplus either does not change or is higher.") Consumer welfare is discussed in the aggregate. The study does conclude that the consumer welfare effects are heterogeneous. *See* Florida Study, *supra* n. 1, at 21.

13 Save the Internet, *supra* n. 2.

NOTES CONTINUED:

[14] These results are summarized in Table 5 of the Florida Study.

[15] It is also difficult to get policymakers motivated to encourage investment when the benefits are entirely captured by the investing monopolist.