Economic and Business Dimensions
What Gets Measured Gets Done
Stop focusing on irrelevant broadband metrics.

U.S. BROADBAND IS terrible” has become a familiar meme. An article in *Scientific American* last year fretted, “our creaky Internet makes it harder for U.S. entrepreneurs to compete in world markets.” Given the growing importance of broadband Internet connections to our work, civil society, and entertainment, a poor broadband infrastructure would indeed be cause for concern.

As it turns out, however, much of this concern is misplaced. It arises from a combination of the focusing on the wrong metrics, a misguided interpretation of consumer preferences, and a popular obsession with rankings. These misperceptions translate into misdirected, if well-intentioned, public policies that waste scarce resources.

Even worse, we do face real problems and issues with respect to broadband—a significant income-based digital divide, for example, and inefficient use of spectrum—but our singular focus on almost meaningless metrics and rankings distracts from more important issues.

Adoption and Speed
The most commonly compared broadband metrics are adoption and speed. Conventional wisdom holds that both are too low in the U.S. While it is impossible to know what the right levels are, more careful analysis suggests that neither is a problem.

Adoption. Twice a year the Organization for Economic Cooperation and Development (OECD) reports that the U.S. ranks right around the middle of all OECD countries in the number of wired broadband connections per capita. That ranking, however, is increasingly meaningless in rich countries for the simple reason that multiple people in a household share each wired connection and average household sizes differ across countries. Countries with relatively large households, like the U.S. and Japan, are doomed to low per capita rankings. Consider that if every household in every OECD country had a wired broadband connection the U.S. would rank 17th or 18th on a per capita basis due to household size alone.

Moreover, broadband is available in the U.S. almost everywhere. Accord-
Ving pushed out not pull in the video faster than it is being pushed out, measured speeds are remarkably similar across rich countries.

Conventional wisdom holds that faster broadband speeds are always better, but is faster more useful? That 80% of them do not even bother to remember or check their own speed. A recent FCC survey found that 80% of U.S. broadband users did not know the speeds of their home broadband connections, yet 50% of users reported being “very satisfied” and 41% reporting being “somewhat satisfied” with their speed. In a detailed study of residential broadband demand in the U.S., Rosston, Savage, and Waldman found that consumers were willing to pay about $80 per month for a reliable, “fast” connection, but were willing to pay only an additional $3 per month for a “very fast” connection.

To be sure, demand for speed will continue to change over time, as it has since the Bell 103 modem first communicated at a blazing 300bps, and someday we might consider today’s speeds similarly absurdly slow, but no evidence suggests speeds are holding back innovation today. The typical purchased and available speeds in nearly every OECD country already exceed the bandwidth required for commonly used applications.

**What Should We Measure?**

Comparing performance across countries can be valuable, but we should focus on the right things.

**Wireless Inputs and Outputs.** A few years ago broadband implicitly meant wired connections. Within wired broadband, even as late as 2009 many industry observers thought the future of broadband exclusively meant fiber. Cable’s DOCSIS 3.0 technology improved the capacity of cable broadband to such an extent that some analysts believe hybrid-fiber coaxial connections will allow the cable industry to dominate the wired market in much of the U.S.

Perhaps even that prediction is changing. The iPhone, iPad, Android operating system, and related app stores have made wireless an increasingly important part of the broadband ecosystem. Soaring wireless broad-
Perhaps lack of speed is not a barrier to viable new applications while other aspects of quality are.

band use has implications for the direction of broadband innovation, competition, and adoption.

If the trend toward wireless use and mobility continues—and there is no guarantee it will, given the rapid succession of changes in what we think is important—then issues like spectrum policy should move to the forefront of all broadband policy issues. But we have little detailed cross-country information spectrum policy.

Business Use. Popular broadband metrics contain another misleading feature: they focus on residential broadband. Yet, residential broadband connections are unlikely to have large effects on net economic activity (see Wallsten[1]). Residential connections are used primarily for personal communication, shopping, and consuming news and entertainment. Much of business-to-consumer e-commerce, for example, reflects a shift in economic activity from “brick and mortar” to online retail rather than new economic activity. These activities largely represent transfers of economic activity rather than net new economic activity.

How digital communications technologies change business production processes, however, is more likely to determine whether these new technologies will have transformative economic effects. The direct economic effects of business use dwarf residential use. According to the U.S. Census, while business-to-consumer revenues reached almost $300 billion in 2009, they were an order of magnitude less than business-to-business revenues of about $3.1 trillion.

To be sure, productivity benefits may ultimately flow from residential broadband. Telecommuting, for example, could reduce resources society consumes, such as those used for physically commuting. That is only beginning to happen.

In short, how business incorporates digital communications technologies will have a much bigger effect on our standard of living over the next 20 years than will whether we reach 70% household broadband penetration in six months or a year.

Quality of Service Beyond Speed. Speed is but one element of broadband quality. Other factors like jitter, latency, and lack of fluctuations in quality also matter, but we know almost nothing about how consumers value other attributes of quality. Perhaps lack of speed is not a barrier to viable new applications while other aspects of quality are.

Conclusion
Focusing on the wrong metrics will do more harm than good. If we care about broadband adoption then we should stop focusing on availability. It is a much smaller problem. If we are worried about broadband quality, then we should focus on the aspects of quality businesses and consumers truly value, not merely speed. If we are worried about how broadband affects entrepreneurship and economic growth, then we should focus on barriers businesses face in integrating connectivity into their production processes. If we believe wireless connectivity is increasingly important, then we should focus on developing metrics for wireless and spectrum.

References
2. Rosston, G. L. and Wallsten, S. The path to universal broadband: Why we should grant low-income subsidies and use experiments and auctions to determine the specifics. The Economists’ Voice 8, 1 (Apr. 2011).
4. Why broadband service in the U.S. is so awful and one step that could change it. Scientific American (Oct. 2010).

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