

# How Broadband Boosts Household Income

A new study sponsored by Ericsson confirms that broadband access positively affects household income – but only if the broadband exceeds a minimum speed threshold.

**B**oth broadband access and broadband speed positively affect household incomes, according to a new analysis by network equipment vendor Ericsson. The study, conducted with Chalmers University of Technology in Gothenburg, Sweden, and consultant Arthur D. Little, continues earlier work by these three partners on the impact of broadband. The earlier research concerned broadband's effects on the gross domestic product of entire countries; the new study, "Socioeconomic Effects of Broadband Speed: a Microeconomic Investigation," examines the effects on individual households.

Interestingly, household benefits don't increase smoothly along with broadband speed. Instead, they rise in steps, and a minimum speed level is required to make any difference at all. This minimum level is itself likely to rise over time, the researchers found.

- In Organization for Economic Cooperation and Development (OECD) countries – the most developed economies – the threshold level for broadband to have an impact is 2 Mbps; gaining 4 Mbps of broadband increases household income by \$2,100 per year.
- In the less developed economies of Brazil, India and China, the threshold level is 0.5 Mbps, which increases household income by \$800 per year.

## THE IMPACT OF BROADBAND ON INCOME

By comparing certain countries with varying economic characteristics, the new study asks whether having access to broadband is enough to make an impact or whether faster broadband is the way to significantly increase income. The study analyzed data from eight OECD

countries (U.K., France, Germany, Italy, Spain, Sweden, Japan and the U.S.) as well as from Brazil, India and China (BIC), investigating the similarities and differences between them. It measured the impact of broadband speed on household income by analyzing whether leveraging the benefits of faster broadband can improve competitiveness in the labor market.

Survey data from Ericsson ConsumerLab was the most important source for the study. The Web-based survey conducted in 2010 had 22,000 respondents. The researchers used statistical regression analysis to investigate the impact of broadband speed on household income. They also accounted for other relevant factors that might affect household income levels, such as education, skills and socioeconomic variables.

Figure 1 shows the countries studied in relation to their household income and broadband speed. The U.S., Japan, the U.K. and Sweden all have high levels of household income and high broadband speeds. Brazil, India and China, together with Mexico and South Africa, are at the bottom left of the figure, indicating lower broadband speeds and lower income levels.

This observation suggests that higher broadband speeds contribute to higher income levels – but it could equally well indicate that countries with higher income levels can afford better broadband, so the researchers had to conduct further analysis to rule out that possibility.

This study supports previous research that found the most advanced countries gain the greatest total benefit from broadband and that they can quickly move toward highly innovative markets and improve labor productivity. The ability of the most advanced countries to leverage higher broadband speeds is enabled

by a richer service offering related to both work and private life and a higher level of technology maturity among enterprises and public institutions.

As shown in Figure 2, the researchers found that the minimum effective speed is at least 2 Mbps for OECD countries, and the greatest expected increase in income occurs when households go from having no broadband to 4 Mbps, gaining around \$2,100 per household per year, or \$182 per month.

For the non-OECD countries, the threshold level seems to be at or below 0.5 Mbps. An additional annual household income of around \$800, or \$70 per month, is expected to be gained by introducing a 0.5 Mbps broadband connection in these countries.

The income levels have been adjusted by comparing sample income with actual pretax income. The adjustment factor for OECD is 0.78 and 0.58 for BIC.

### WHY BROADBAND SPEED INCREASES INCOME

Households benefit from increased broadband speed in several ways. Access to advanced services, such as videoconferencing, boosts personal productivity and allows more flexible work arrangements through teleworking and telecommuting. In addition, as previous studies have shown, broadband helps people become more informed, better educated and enriched – which may also add to their incomes.

As overall broadband penetration increases, households without broadband or with slow broadband at home will find staying competitive in the labor market more difficult. In effect, they need faster broadband just to maintain their place in the economy. This labor market competition effect could explain why broadband thresholds seem to be progressing to ever higher levels.

The researchers say that further investigation into the relationship between broadband speed and services used is needed. Simply having a very high-speed connection is not enough; the key to gaining any benefit may be how a household uses its connection. ❖

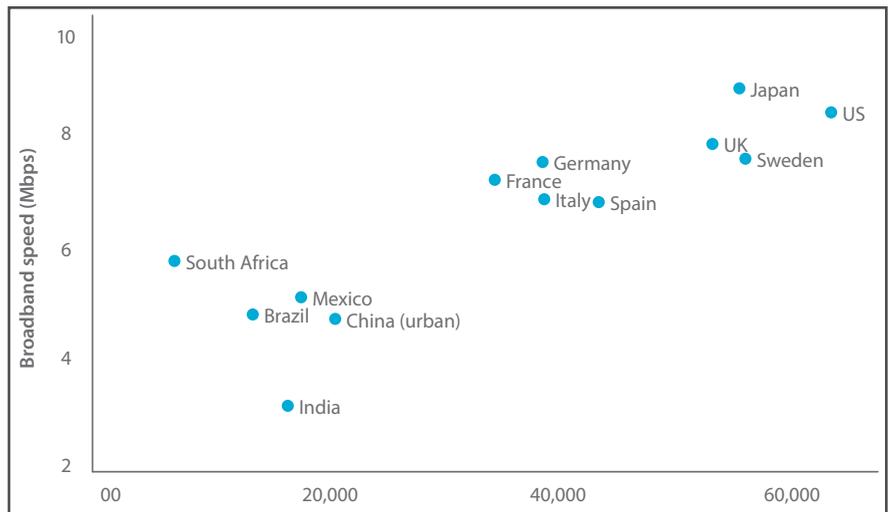


Figure 1: Higher broadband speeds are associated with higher household incomes.

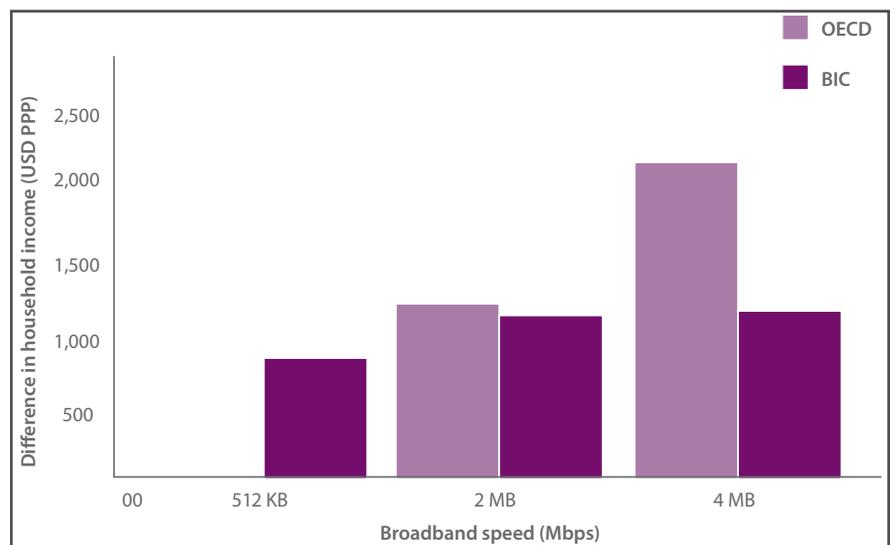


Figure 2: Estimated gains in income based on access to broadband, per speed

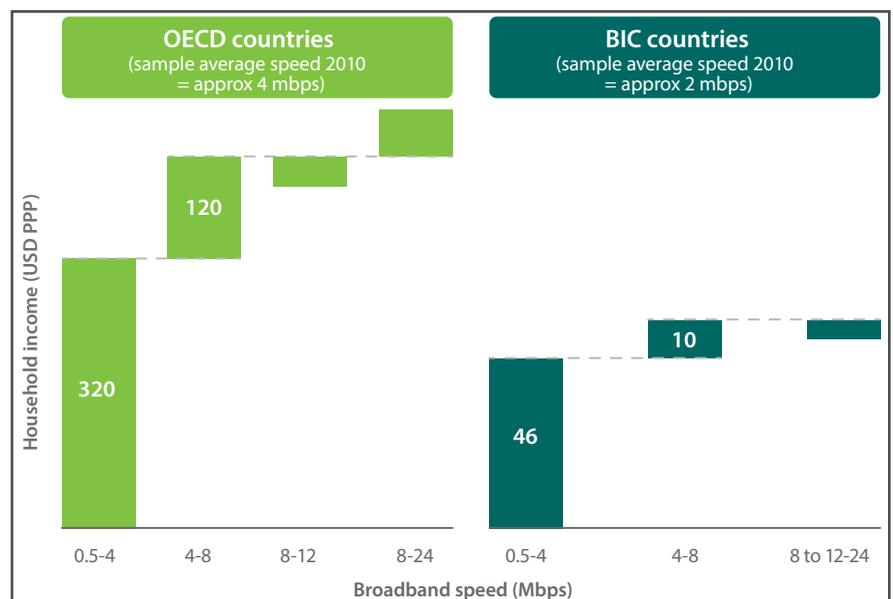


Figure 3: Estimated monthly increases in household incomes due to broadband speed upgrades