

Researcher examines disparities in worldwide access to Internet bandwidth

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Work co-authored by a University of Kansas researcher examines how just a few nations and regions control the majority of the world's Internet connectivity.

Hyunjin Seo, assistant professor of strategic communications at KU, and Stuart Thorson of Syracuse University analyzed TeleGeography's annual survey of [Internet traffic](#) and capacity by nation, region and continent for a period of 10 years. Their paper has been accepted for presentation at the 2013 International Communication Association conference in London in June. Their findings indicate that not only will people in some parts of the world not be as readily able to log on to the Internet, but entire regions and continents are at a severe disadvantage in many sociopolitical aspects. The research advances Seo and colleagues' previous study on Internet connectivity and political movements in Arab spring countries. That study was published last year in the *Journal of Communication*.

"We wanted to get a broader look at international connectivity, so we looked at [bandwidth](#) at country, continent and regional levels," Seo said. "The widening gap has implications for the political, social and economic development of the countries and regions that are behind. We expect the gap will continue to widen."

The findings should prove especially valuable to international policy makers and those who study how to address the digital divide. Seo and Thorson also developed a set of computational models to test heavy-

tailed distribution, a pattern in which countries with extremely large portions of the total bandwidth occur far more often than would be the case if bandwidth were normally distributed.

The researchers found that countries and continents that started the time period of study with higher bandwidth, such as the United States, Great Britain and Europe, stayed at the top of the list, largely because they had the advantage of starting with a large amount of resources. However, their preliminary findings did not show that changes in the economic performance of those nations and regions predicted bandwidth and connectivity growth.

Seo said she hopes to address the question of economic power and expanding connectivity in future research.

The heavy-tailed distribution growth pattern was consistent throughout the 10-year period studied. The researchers analyzed the data for each country, region and continent for each individual year and found that, in each, a large chunk of the world's bandwidth and connectivity was controlled by very few nations and regions. Each country analyzed also showed that certain regions of a nation had higher levels of bandwidth, while the majority had much smaller amounts.

"We saw heavy-tailed distribution at all three levels throughout," Seo said. "We think it's an important update to the literature in that we've shown that it happened over 10 years. The gap continued to widen."

Seo likens the connection disparity to the popular social media platform Twitter. Millions of people use Twitter every day, just as millions of people have some level of Internet access. However, a very small percentage of users have followers numbering in the millions, while the vast majority has a few thousand or less. Those with millions of followers can be more effective at spreading their message through sheer

numbers. By the same token, regions of the world such as Africa, the least-connected in terms of Internet, are at a relative disadvantage in terms of commerce, social and political exchanges and numerous other areas.

While equalizing [Internet connectivity](#) throughout the world is extremely complex, Seo said she hopes international diplomats and policy makers will be able to use their empirical data showing patterns of growth to help address the problem of international digital divide.

"Because of the importance of the Internet for so many aspects of society we need to watch these growth patterns," Seo said. "This is the way the world connects and exchanges ideas now. By being able to predict future growth, we hope this research can help address the growing disparities."

More information: [www.news.ku.edu/2012/01/24/jou ... -arab-spring-nations](http://www.news.ku.edu/2012/01/24/jou...-arab-spring-nations)

Provided by University of Kansas

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