

'Economy of scale laws' hold up well against observed data, study finds

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Several mathematical relationships between scale and cost of technological production have been proposed—Moore's Law, and Wright's Law before that—but each suggests a slightly different economy of scale.

"These hypotheses haven't really been tested against data before," says SFI External Professor Jessika Trancik, an assistant professor of [engineering systems](#) at MIT. She and her collaborators collected data for 62 technologies, ranging from chemicals production to [energy devices](#) (such as [photovoltaic cells](#)) and information technologies, spanning periods of between 10 and 39 years, and then evaluated each of six such "laws" using hindcasts—use of earlier data to predict later costs—against the observed data.

They found that production does indeed grow exponentially for a wide range of products, and that a combination of an exponential decrease in cost and an exponential increase in production renders the performances of Wright's Law and Moore's Law virtually indistinguishable.

Estimating the potential costs of climate-change mitigation technologies is one of the main applications the researchers envisage for their findings. The results seem to imply that stimulating growth through public policies might accelerate the realization of efficiencies of scale.

More information: Read their [paper](#) in *PLoS One* (February 28, 2013).

Read the [article](#) in *Nature* (March 5, 2013).

Provided by Santa Fe Institute

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