

The 15% Club

In a recent [book](#) physicist Geoffrey West has shown that there are both economies of scale (in infrastructure) and increasing returns to scale (in human creativity) from the process of urbanisation.

In his words: *"Cities are ... the cause of the good life. They are the centres of wealth creation, creativity, innovation, and invention. They're the exciting places. They are these magnets that suck people in."*

Economies of scale

West and his colleagues at the Santa Fe Institute have identified two noteworthy statistical regularities.

First, *"every infrastructural quantity...from total length of roadways, to the provision of sewers, to the number of buses needed... is scaled in the same way."*

That is to say, the bigger the city, the fewer the things that are needed per head of population.

And the economy of scale has a fairly consistent exponent of around 0.85. This means that, when a city's population increases by 100%, it needs to increase the number of things per capita by only 85%.

Returns to scale

Secondly, and more surprisingly, is the socioeconomic impact – things like wages and the number of jobs, educational institutions, cafes, restaurants, shops and services etc. are upwardly scaled.

Instead of being an exponent less than one, indicating economies of scale, the exponent is bigger than one, indicating increasing returns to scale.

That says that systematically, the bigger the city, the more wages you can expect, the more educational institutions in principle, the more cultural events, the more jobs are produced and so forth.

In short, bigger places are more innovative.

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According to West's work this seems to apply to nearly all places undergoing urbanization and more remarkably, all to the same degree.

There was a universal exponent which turned out to be approximately 1.15, which says something like the following:

If you double the size of a city, from say 300,000 people to 600,000 as in the Gold Coast's case over the last 20 years, you get a 15% increase in productivity, jobs and wages (per capita) **plus** you get orderly 15% saving in length of roads and other general infrastructure needed.

People even walk disproportionately faster in big urban places than in small ones. There is a wider range of possible jobs to do. This is largely to do with bigger networks.

And this is why we are seeing population growth, not only in Australia, but elsewhere in the world, concentrate in a select few areas. Cities are becoming bigger. Big cities are becoming mega ones. This trend is expected to escalate.

Until next time,



Michael Matusik

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