

Appendix S4: Definition of urban and rural

Information regarding the location of residence was only available at the prefecture level; therefore, we defined urban and rural based on Densely Inhabited Districts (DID). DID are the urban areas that are designated based on statistical data and meet the following criteria:

- A district containing basic unit blocks, etc. with a population density of $\geq 4,000$ per square kilometer; such districts are adjacent to each other in a municipality.
- A district consisting of the above adjacent basic unit blocks, etc. with a population of $\geq 5,000$ at the time of the Population Census of Japan.

<http://www.stat.go.jp/english/data/chiri/did/1-1.htm>

In 2010, the most recent year available, the national average percentage of the DID population was 67.3% according the Statistics Japan. We used the national average as the basis for urban areas.

Urban: Proportion of the DID population was higher than the national average (67.3%) in 2010 (*blue* area on a map). Tokyo (98.2%), Osaka (95.8%), Kanagawa (94.2%), Kyoto (83.0%), Saitama (79.6%), Aichi (76.8%), Hyogo (76.6%), Hokkaido (74.0%), Chiba (72.9%), and Fukuoka (70.9%) were considered urban areas.

Rural: Proportion of the DID population was lower than the national average in 2010 (*white* area on a map).

This map was created by MANDARA ver. 9.40 (<http://ktgis.net/mandara/>).

