Defining and Measuring Metropolitan Regions in Japan

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Ministry of Land, Infrastructure and Transport (MLIT)
Migration between Three Metropolitan Areas and Non-Metropolitan Areas

Three metro areas:
Tokyo Area, Osaka Area and Nagoya Area

Non-metro areas: Other than the 3 major city areas

Tokyo Area: Saitama, Chiba, Tokyo and Kanagawa
Osaka Area: Kyoto, Osaka, Hyogo and Nara
Nagoya Area: Gifu, Aichi and Mie
Rate of net migration to Tokyo metropolitan area

Source: Jumin-kihon-daicho jinko souran by soumu-syo

Population + Japan Railways

0 50km

0 ~ 2909 323
2909 ~ 4656 323
4656 ~ 6204 323
6204 ~ 8026 323
8026 ~ 10592 323
10592 ~ 13889 323
13889 ~ 20194 323
20194 ~ 33683 322
33683 ~ 69567 322
69567 ~ 8130408 322
Disordered Development (Nerima Ward, Tokyo)
Japanese Administration System

- National Government

- Prefecture Government: 47

- City/Ward/Town/Village Government: 1,817
  - Ordinance Designated City: 15
An Example of City that includes urban and forest area
## City’s Population (10/1/2005)

### Largest 10

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sakai</td>
<td>830,966</td>
</tr>
<tr>
<td>Hamamatsu</td>
<td>804,032</td>
</tr>
<tr>
<td>Niigata</td>
<td>785,134</td>
</tr>
<tr>
<td>Okayama</td>
<td>674,746</td>
</tr>
<tr>
<td>Kumamoto</td>
<td>669,603</td>
</tr>
<tr>
<td>Sagamihara</td>
<td>628,698</td>
</tr>
<tr>
<td>Kagoshima</td>
<td>604,367</td>
</tr>
<tr>
<td>Funabashi</td>
<td>569,835</td>
</tr>
<tr>
<td>Hachioji</td>
<td>560,012</td>
</tr>
<tr>
<td>Matsuyama</td>
<td>514,937</td>
</tr>
</tbody>
</table>

### Smallest 10

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utashinai</td>
<td>5,221</td>
</tr>
<tr>
<td>Yamada</td>
<td>11,034</td>
</tr>
<tr>
<td>Mikasa</td>
<td>11,927</td>
</tr>
<tr>
<td>Yubari</td>
<td>13,001</td>
</tr>
<tr>
<td>Akabira</td>
<td>14,401</td>
</tr>
<tr>
<td>Nikko</td>
<td>16,379</td>
</tr>
<tr>
<td>Ushibuka</td>
<td>16,609</td>
</tr>
<tr>
<td>Tosashimizu</td>
<td>17,281</td>
</tr>
<tr>
<td>Muroto</td>
<td>17,490</td>
</tr>
<tr>
<td>Mine</td>
<td>17,754</td>
</tr>
</tbody>
</table>

* Not including ordinance designated cities

National Census 2005
# City’s Area (10/1/2005)

## Largest 10

<table>
<thead>
<tr>
<th>City</th>
<th>area [km²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Takayama</td>
<td>2,177.67</td>
</tr>
<tr>
<td>2 Hamamatsu</td>
<td>1,511.17</td>
</tr>
<tr>
<td>3 Tsuruoka</td>
<td>1,311.49</td>
</tr>
<tr>
<td>4 Shobara</td>
<td>1,246.60</td>
</tr>
<tr>
<td>5 Toyama</td>
<td>1,241.85</td>
</tr>
<tr>
<td>6 Iwaki</td>
<td>1,231.34</td>
</tr>
<tr>
<td>7 Yurihonjo</td>
<td>1,209.04</td>
</tr>
<tr>
<td>8 Kitaakita</td>
<td>1,152.57</td>
</tr>
<tr>
<td>9 Ichinoseki</td>
<td>1,133.10</td>
</tr>
<tr>
<td>10 Shibetsu</td>
<td>1,119.29</td>
</tr>
</tbody>
</table>

## Smallest 10

<table>
<thead>
<tr>
<th>City</th>
<th>area [km²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Warabi</td>
<td>5.10</td>
</tr>
<tr>
<td>2 Hatogaya</td>
<td>6.22</td>
</tr>
<tr>
<td>3 Komae</td>
<td>6.39</td>
</tr>
<tr>
<td>4 Muko</td>
<td>7.67</td>
</tr>
<tr>
<td>5 Kunitachi</td>
<td>8.15</td>
</tr>
<tr>
<td>6 Fujiidera</td>
<td>8.89</td>
</tr>
<tr>
<td>7 Shiki</td>
<td>9.06</td>
</tr>
<tr>
<td>8 Hamura</td>
<td>9.91</td>
</tr>
<tr>
<td>9 Kiyose</td>
<td>10.19</td>
</tr>
<tr>
<td>10 Fussa</td>
<td>10.24</td>
</tr>
</tbody>
</table>

* Not including ordinance designated cities

National Census 2005
Metropolitan Area in Spatial Plans

Blue: Tokyo Metropolitan Area
Orange: Nagoya Metropolitan Area
Green: Osaka Metropolitan Area

Sendai
Sapporo
Fukuoka
Hiroshima

200 km
Built Urban Area and Neighboring Development Area

- **Built urban area**: the area where over-concentration of industries and population should be prevented.

- **Neighboring development area**: 1) the area near the built urban area, where planned development should be achieved to prevent disordered urbanization (in Tokyo and Osaka metropolitan area), 2) the area where the degree of industrial development is advanced, economic development is expected, and planned infrastructure development should be achieved to actualize urban function fully depending on the level of development there (in Nagoya metropolitan area).

- Built urban area and neighboring development area are designated from comprehensive standpoints based on the factors such as population, population density, traffic condition etc.
Built Urban Area and Neighboring Development Area

Nagoya area

Osaka area

Tokyo area

Red: Built Urban Area
Orange: Neighboring Development Area
Tokyo Metropolitan Area:

Built Urban Area and Neighboring Development Area

Red: Built Urban Area
Orange: Neighboring Development Area
Densely Inhabited District (DID)

- Statistics bureau subdivided each administrative city into many sub-areas and set the unit for research, called **basic unit area**. Basic unit area is generally set at residential block and stable.

- DID is basically the area where i) **basic unit areas** which have generally more than 4,000/km² of population density abut, and ii) those area has more than 5,000 of population in total.
DID in *Kanagawa* Prefecture (2005)

Source: National Census

Orange: Prefecture Boundary (2005)
Blue: City Boundary (2005)
Red: DID
Major Metropolitan Area and Metropolitan Area

- Major metropolitan area and metropolitan area consist of central city and the surrounding cities.

- “Central city” of major metropolitan area means Tokyo 23 wards and ordinance designated cities. If the multiple central cities are close to each other, those are combined to one.

- “Central city” of metropolitan area means city that has a population of more than 0.5 million and not included in the major metropolitan areas.

- “Surrounding city” means cities where proportions of (the commuters over the age of 15 to central city) to (population of the city) is more than 1.5% and it abuts central city.
Tokyo Major Metropolitan Area (2000)
Functional Urban Region (FUR)

- Urban regions consist of central city and the surrounding cities.

- "Central city" of urban region means the city that has a population of more than 0.1 million and where a proportion of daytime population to nighttime population is more than 1.

- "Surrounding city" means cities where proportion of (the commuters to central city) to (all commuters) is more than 5% or the commuters to central city are more than 500.

- If multiple central cities coexist within 20km, then they are combined into one urban region.
Functional Urban Region (2000)

Number of area: 85
Population of the area: 112.57 million
(88.9% of Total Population)
Area: 16,699km2
(44.8% of National Territory)
Background of Defining FUR

Population scale has relationship with
a: population density
b: % of the agricultural sector employment to total employment
c: % of service sector employment to total employment
d: sales amount per retail shop

Coverage of commuters in the area
Urban Employment Area

- Urban employment area consists of central city and the surrounding cities. Urban employment area is classified into metropolitan employment area and micropolitan employment area.

- Metropolitan employment area has central city, DID population of which is more than 50,000. Micropolitan employment area has central city, DID population of which is more than 10,000 and less than 50,000.

- “Central city” satisfies either of two following conditions. 1) DID population is more than 10,000 and it is not surrounding cities of other central city. 2) it is a surrounding city but (a) proportion of workers in the city to workers living in the city is more than 1 and (b) DID population is more than one third of the central city or more than 100,000.

- The first rank “Surrounding city” is that commuting rate to central city is more than 10%. When commuting rate for other specific surrounding city is more than 10% and there is no stronger destination, then the city is regarded as second rank “surrounding city.”
Urban Employment Areas
(Metropolitan employment areas) in 1995
Example of Grid Statistics: Spatial Digital Information

Land Use: Tokyo metropolitan area (1997)
Change of land use

Kouriyama area

Tsukuba area
Our Recommendation

Database
- Clarify the definition of area setting
- Register the sub set of data
- Open to the member governments and academics
- Possible to process the registered data easily and freely
Thank you very much!