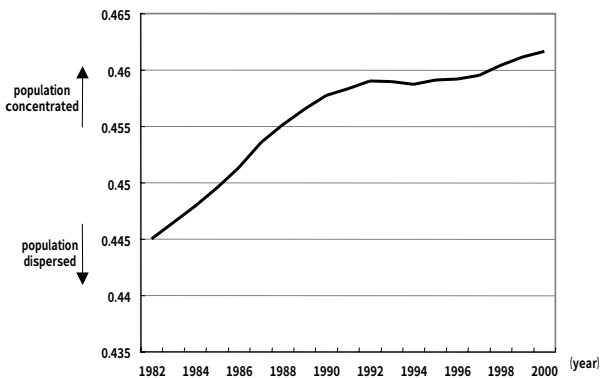
Gini coefficient of population distribution.

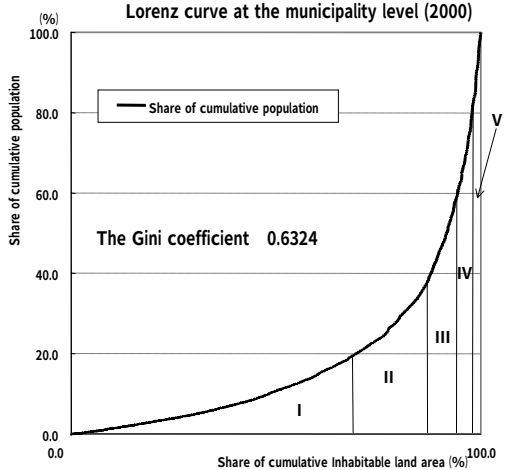
Although population distribution remained stable throughout the first half of the 1990s, nationwide population distribution at the prefecture level represented by the Gini coefficient has recently been in a trend toward increased concentration. At the municipality level, it can be seen that 20 percent of population is concentrated on 2 percent of inhabitable land area.

Gini coefficient of population distribution per prefecture



Note:
1. The Gini coefficient (G) is calculated from population per prefecture and inhabitable land area using the following formula:
   $G = 1 - \Sigma ai(pi+pi-1)/10000$
   ai: the percentage of the total inhabitable land area of a prefecture for the i-th prefecture, where i is an ordinal number representing that prefecture's position as counted from the prefecture with the lowest population density.
   pi: the percentage of population accumulated to the i-th prefecture from the prefecture with the lowest population density.
2. Inhabitable land area refers to the sum of land used for agriculture, residences, and roads.
3. The Gini coefficient is a statistical measure of concentration, where values approaching 1 represent a higher concentration and values approaching 0 represent a more equal distribution.

Lorenz curve at the municipality level (2000)

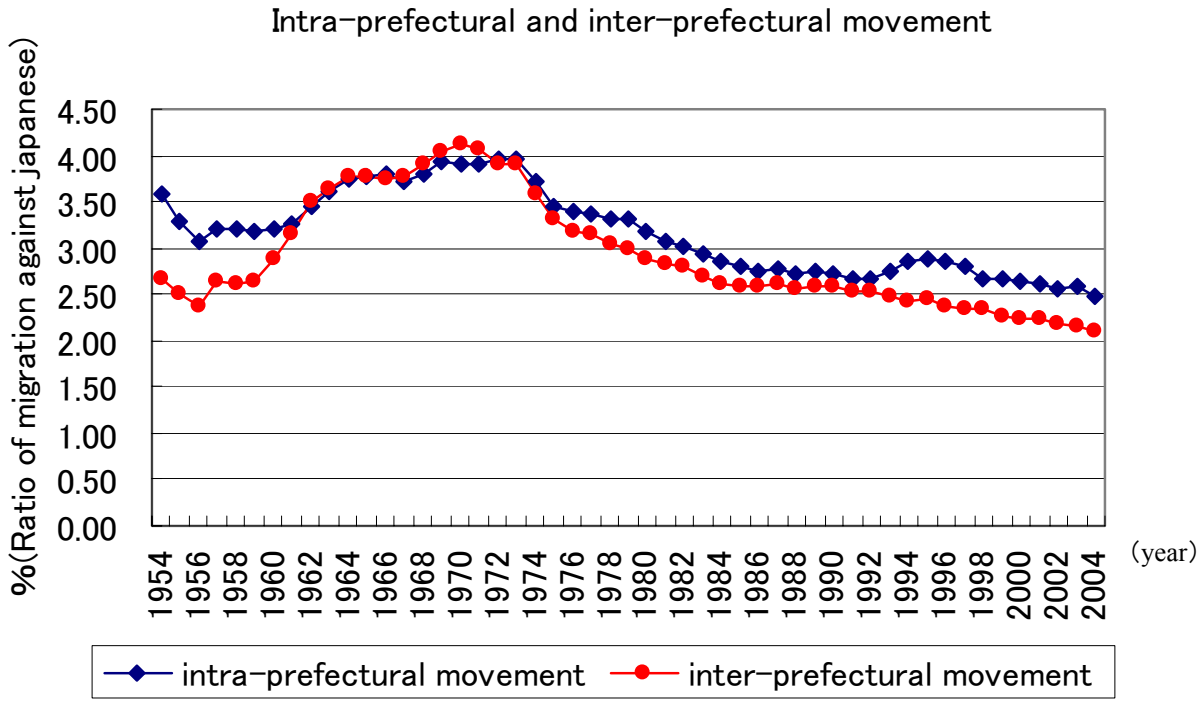


GROUP	I	II	III	IV	V
Inhabitable land area (%)	67	18	9	4	2
population (%)	20	20	20	20	20
population distribution (pop./Km²)	316	1170	2371	4979	10064

Note:
1. The Gini coefficient (G) is calculated from population and inhabitable land area per municipality.
2. Inhabitable land area was calculated by subtracting the area of land occupied by forests, wetlands, and major lakes from the total land area of Japan, exclusive of the Northern Territories and Takejima. Specifically, the term forest refers to both woodlands and non-wooded areas comprising grasslands. The term wetlands and major lakes refers to natural wetlands and lakes greater than 1 square kilometer in area.

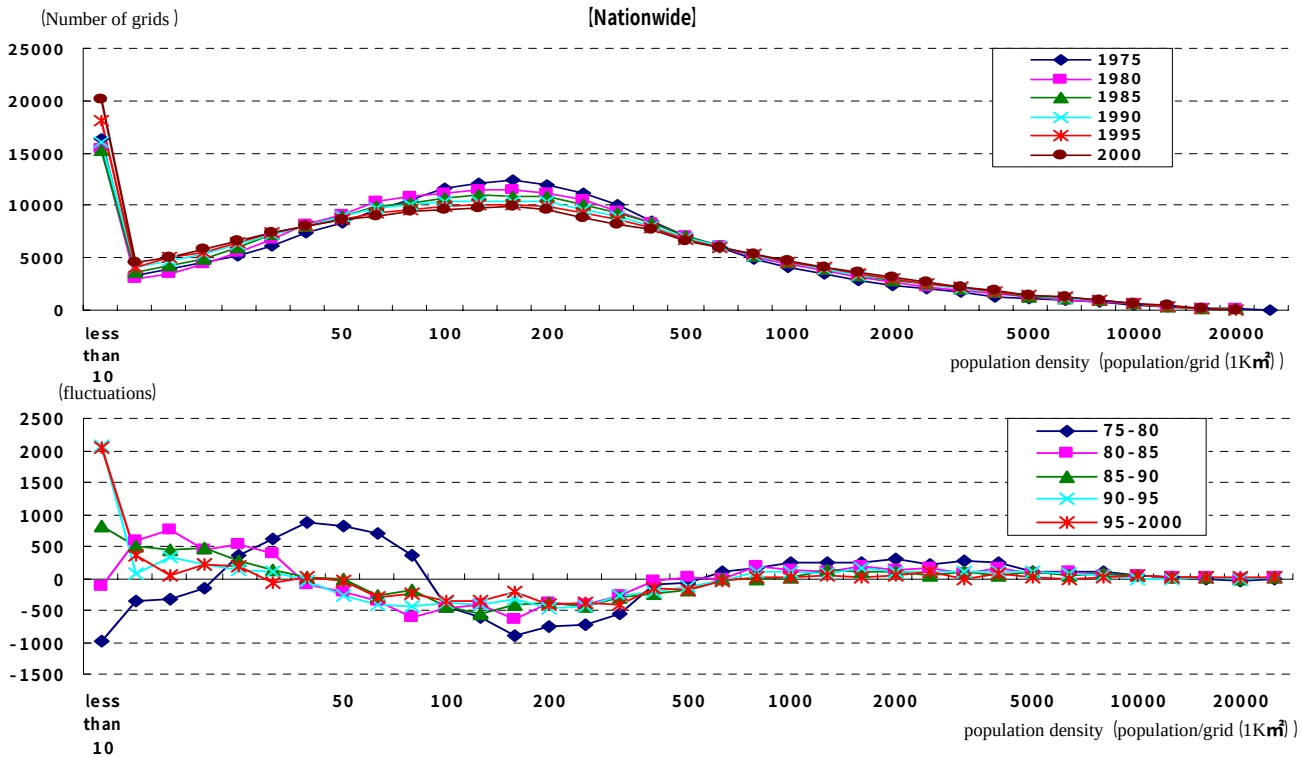
Ratio of migration within and between prefectures.

Trends in intra-inter- and inter-prefectural population movement show that although intra-prefectural movement has remained stable since the late 1980s, inter-prefectural movement demonstrates a long-term downward tendency.



Number of grids by population density (nationwide, total and changes, 1975-2000).

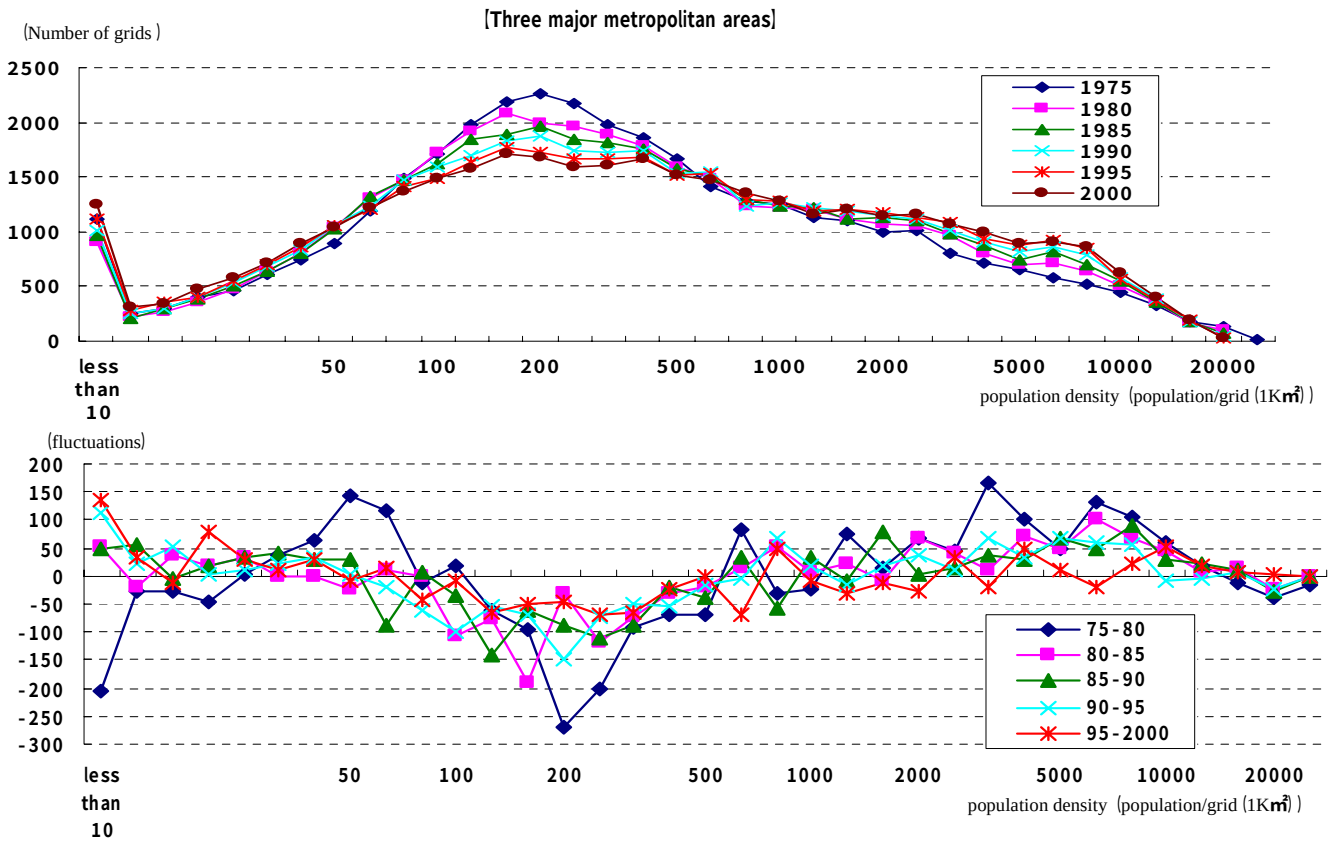
A look at changes in Japan's population density over the past 25 years, based on one kilometer square grids indicators, shows that whereas the number of grids with a population between 50 and 500 has been gradually decreasing, the number of grids with populations of over 500 or less than 50 has continued to increase.



Note:
1. Because different methods were employed in the creation of grid data for different census years, 193,013 grids counted during the object periods were analyzed and smoothing was performed between adjacent grids to make it possible to compare data for successive years.
2. The horizontal axis of each graph shows population per grid in real numbers based upon a common logarithmic scale accurate to one decimal place.

Number of grids by population density (three major metropolitan areas, total and changes, 1975-2000).

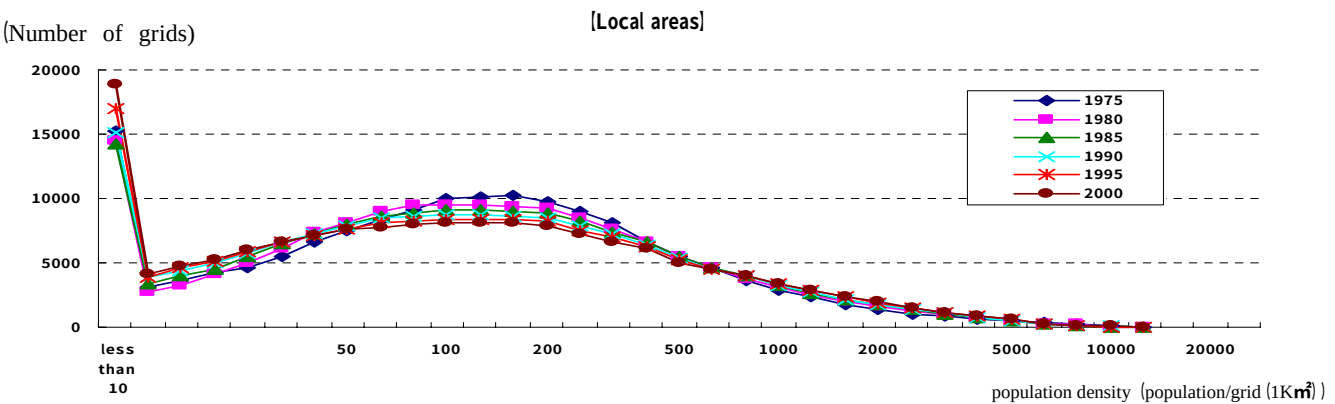
In Japan's three major urban economic spheres, although the number of grids with a population of between 50 and 500 has decreased, the number of grids with populations of over 500 has increased markedly.

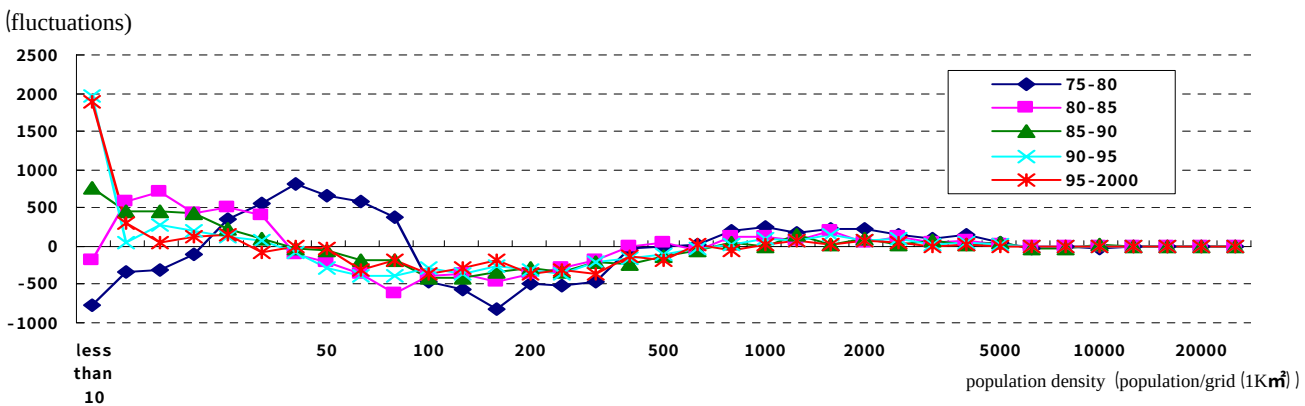


Note:
The term three major urban economic spheres refers to the Tokyo urban economic sphere (Saitama Prefecture, Chiba Prefecture, Tokyo Metropolis, and Kanagawa Prefecture), the Nagoya urban economic sphere (Gifu Prefecture, Aichi Prefecture, and Mie Prefecture), and the Kansai urban economic sphere (Kyoto Prefecture, Osaka Prefecture, Hyogo Prefecture, and Nara Prefecture).

Number of grids by population density (Local areas, total and changes, 1975-2000)

In the rural economic sphere, whilst the number of grids with a population of between 50 and 500 has decreased, the number of grids with populations of less than 50 has increased markedly.

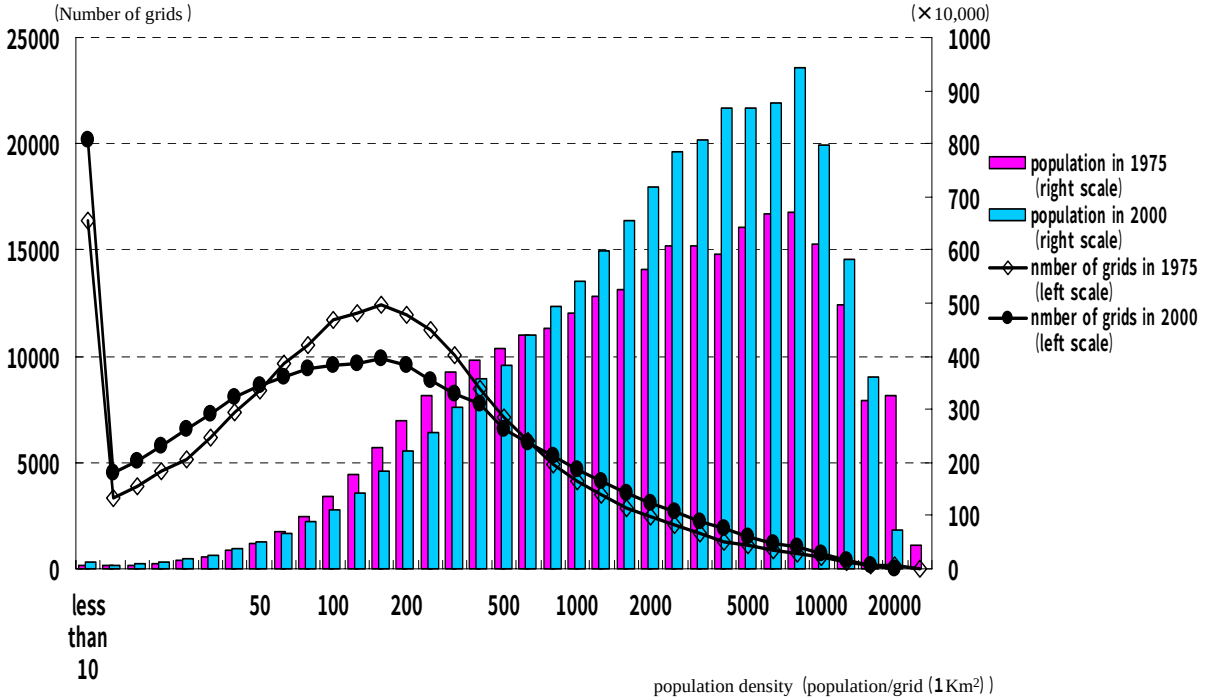




Note:
The term rural economic sphere refers to any prefecture outside the three metropolitan areas.

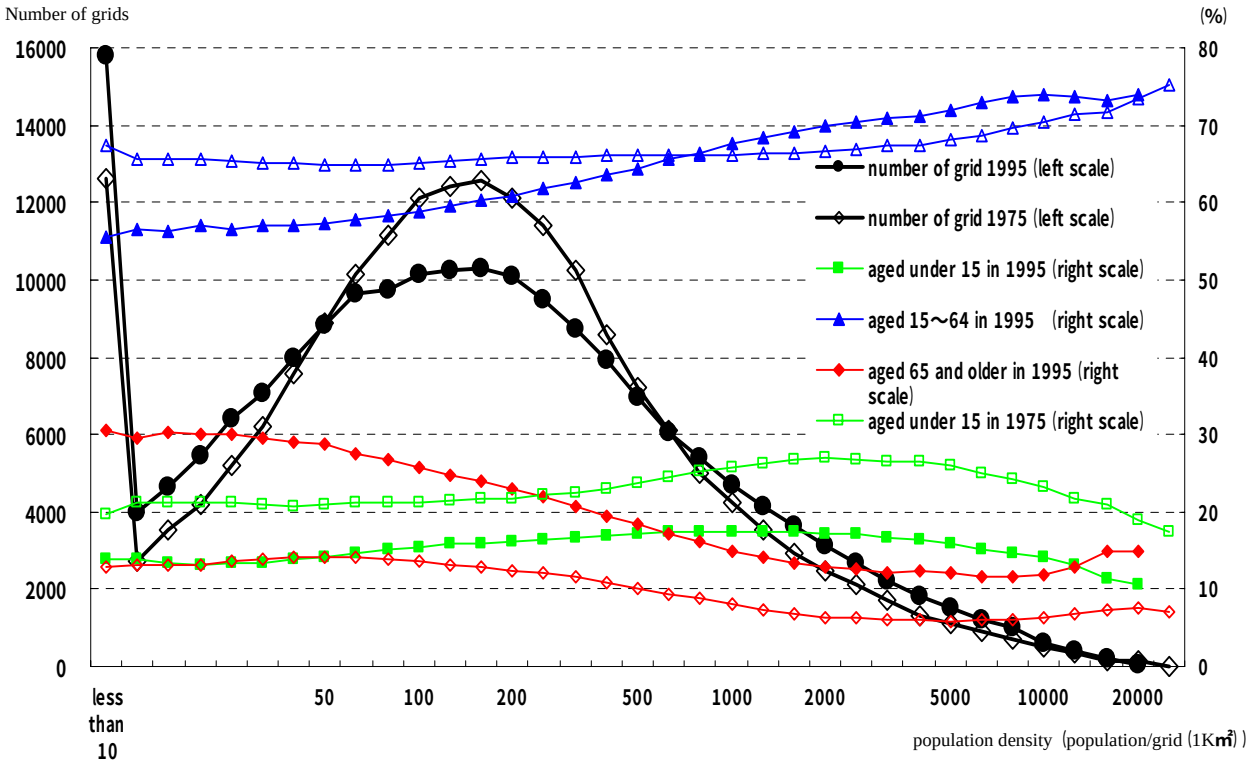
Number of grids by population density and population (1975・2000).

A look at the relationship between population density and population shows that while the population with a population density of between 50 and 600 or those with a population density of over 20,000 is decreasing, the population with a population density of between 800 and 16,000 is increasing.



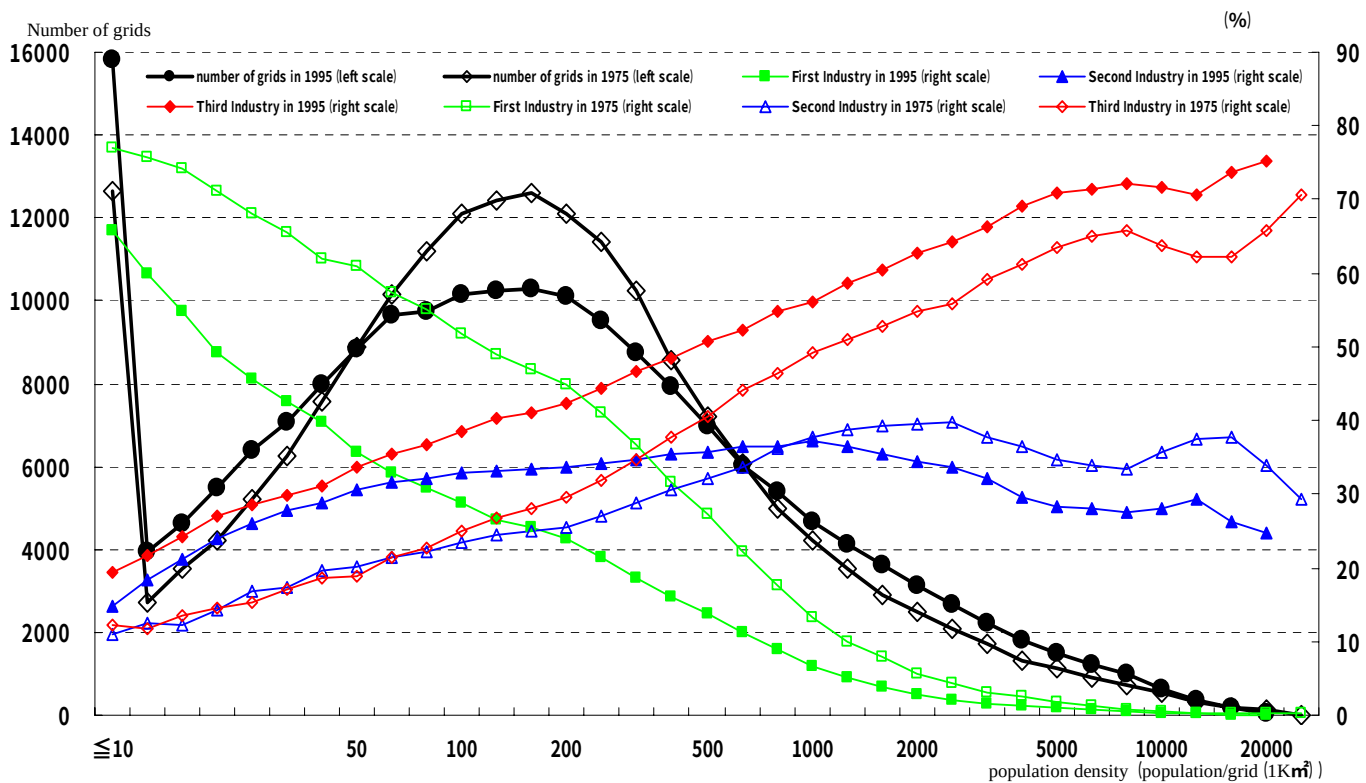
Number of grids by population density and population share by age (1975/1995).

A look at the relationship between population density and age of population shows that densely populated areas have a high percentage of persons between the ages of 15 and 64, while sparsely populated areas have a high percentage of persons aged 65 and older. Furthermore, this trend appears to be strengthening. There is also a trend for the percentage of people aged 65 and older to increase in grids with a population density of 16,000 to 20,000.



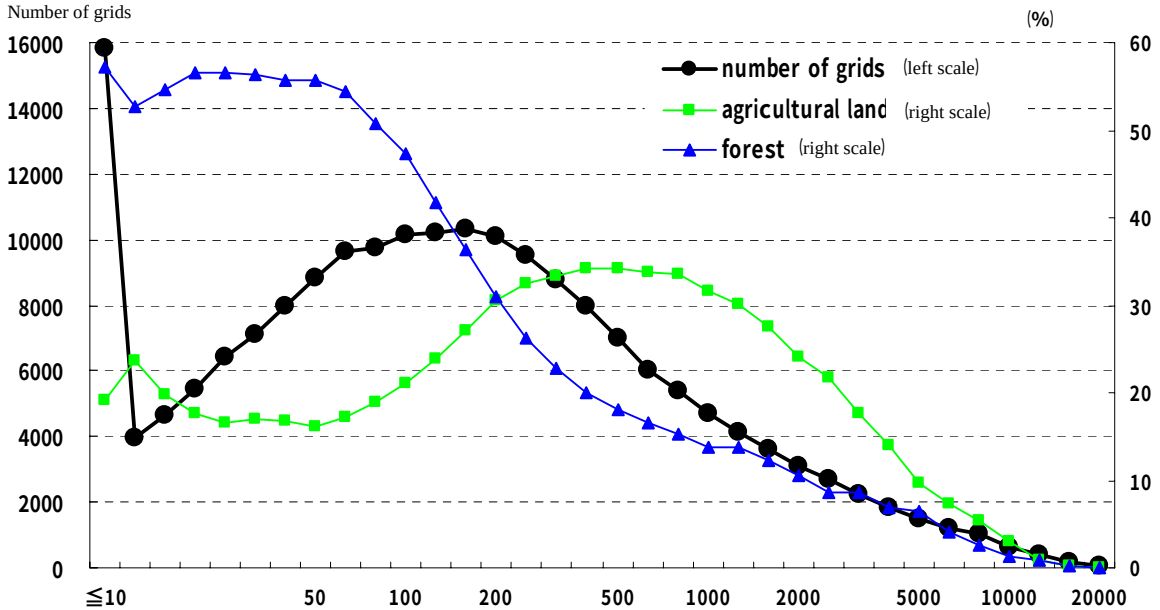
Number of grids by population density and share of employed persons by industry (1975/1995).

A look at the relationship between population density and employment sector shows that densely populated areas have a high percentage of people employed in tertiary industries, while sparsely populated areas have a high percentage of people employed in primary industries. Furthermore, this trend appears to be strengthening. In contrast, the percentage of people employed in secondary industries is evenly spread for both densely and sparsely populated areas.



Number of grids by population density and land utilization (share of agricultural land and forest, 1995).

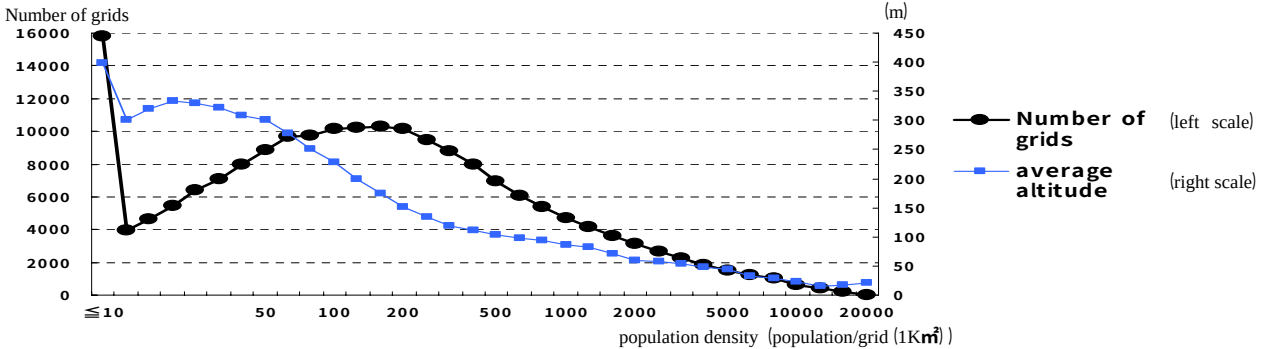
A look at the relationship between population density and percentage of land area for agricultural use or that covered by woodlands shows that grids with a population density of less than 50 have a high percentage of woodlands, while grids with a population of around 500 have the highest percentage of land for agricultural use.

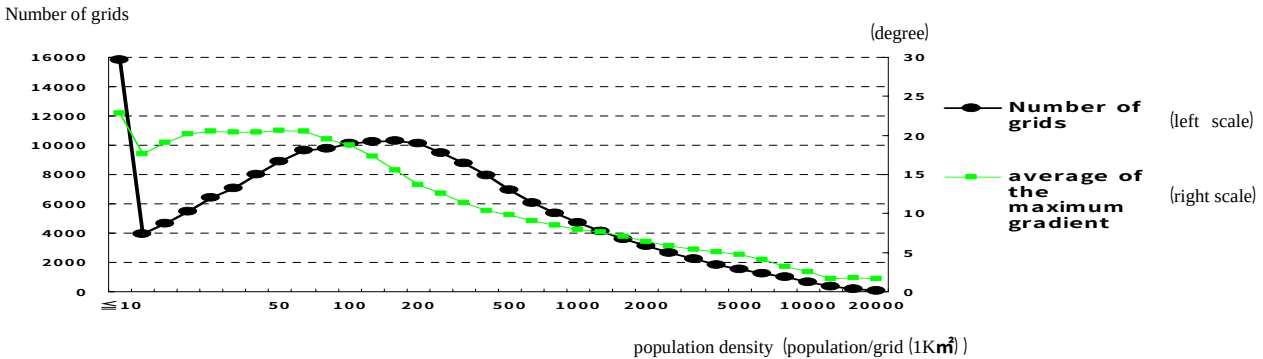


Note:
Figures for land area for agricultural use or occupied by woodlands are for 1991.

Number of grids by population density and geographical features (average altitude and average of the maximum gradient, 1995).

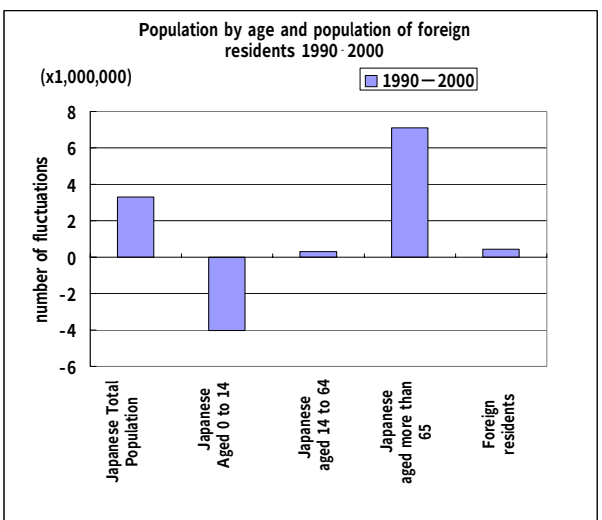
A look at the relationship between population density and average elevation or average slope shows that areas with a high elevation or high maximum slope tend to have a sparse population density.





Increase in the number of foreign residents and their distribution by areas.

Although foreign residents have not made a large contribution to overall population increase, in some regions the number of the increase in foreign residents has been comparable to the decrease in Japanese residents, thereby countering an overall population decline.

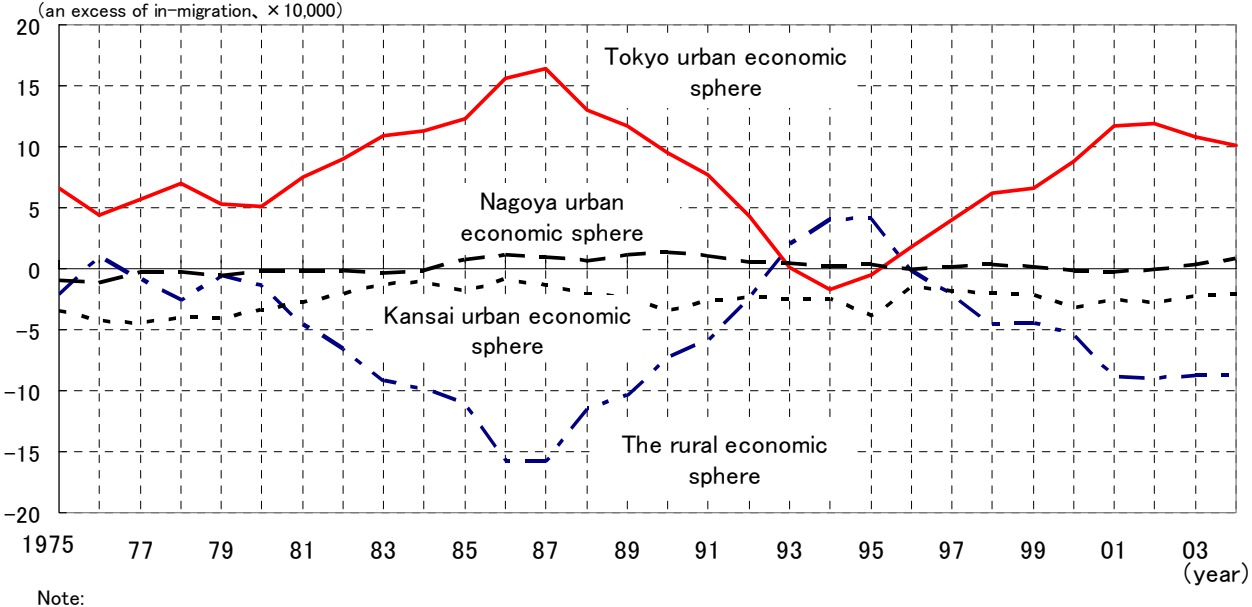


Comparison by municipality of percentage of foreign residents and Japanese aged 0 to 14 years

	Pref.	Ward, City, Town	foreign ratio to occupy to the a population of total number in 2000 (%)	population of total number in 2000 (人)	population of increase and decrease rate (1990-2000)	Foreign contribution degree (1990-2000)	Japanese (less than 15 years old) contribution degree (1990-2000)
1	Gunma	Oizumi	11.878	41,403	5.53	9.89	△ 4.74
2	Shizuoka	Ogasa	7.731	15,508	11.54	7.98	△ 3.09
3	Nagano	Minowa	6.438	25,661	13.29	6.58	△ 3.19
4	Shiga	Achikawa	6.402	10,966	21.47	6.81	0.94
5	Tokyo	Shinjyuku	5.746	286,726	△ 3.39	1.90	△ 3.41
6	Gifu	Minokamo	5.697	50,063	16.39	5.84	△ 0.36
7	Shizuoka	Daitou	5.695	21,791	8.11	4.19	△ 4.11
8	Tokyo	Minato	5.455	159,398	0.57	1.14	△ 2.81
9	Shizuoka	Kosei	4.834	43,711	1.52	3.28	△ 3.61
10	Tokyo	Arakawa	4.637	180,468	△ 2.35	1.10	△ 2.27
11	Gifu	Sakashuku	4.552	8,853	1.50	2.56	△ 5.57
12	Tochigi	Mouka	4.385	64,648	4.70	2.57	△ 5.65
13	Toyama	Toga Village	4.340	1,083	△ 4.75	1.14	△ 1.41
14	Shizuoka	Ryuyou	4.322	19,738	9.70	3.98	△ 3.85
15	Gunma	Isezaki	4.312	125,751	8.46	3.53	△ 2.37
16	Nagano	Iijima	4.305	10,895	0.87	3.66	△ 3.38
17	Nagano	Miyota	4.280	13,412	12.75	3.66	△ 2.64
18	Shiga	Ishibe	4.120	12,378	13.66	2.20	△ 2.90
19	Yamanashi	Tatomi	4.037	16,694	17.98	4.05	△ 2.26
20	Mie	Ueno	3.935	61,493	2.08	2.93	△ 2.79
21	Osaka	Tadaika	3.781	17,509	△ 0.32	△ 1.09	△ 2.23
22	Nagano	Akeshina	3.756	9,771	△ 2.37	3.57	△ 4.19
23	Aichi	Kosakai	3.739	21,664	3.76	0.59	△ 3.09
24	Osaka	Osaka	3.721	2,598,774	△ 0.95	△ 0.27	△ 2.27
25	Shiga	Nagahama	3.599	60,104	8.32	3.52	△ 1.89
26	Tokyo	Toshima	3.478	249,017	△ 4.91	0.23	△ 3.14
27	Ibaraki	Ishishita	3.450	24,230	10.12	3.59	△ 2.45
28	Nagano	Ina	3.428	62,284	3.70	3.04	△ 2.52
29	Fukui	Takefu	3.427	73,792	5.14	3.12	△ 2.86
30	Osaka	HigashiOsaka	3.399	515,094	△ 0.62	△ 0.44	△ 2.27
		Nationwide	1.033	126,925,843	2.68	0.34	△ 3.26

Net migration to the each area.

A look at migration to the rural and three major urban economic spheres shows that the trend of migration toward the Tokyo urban economic sphere that began in the early 1980s peaked in 1987, declined for several years, and finally bottomed out during 1994 and 1995, when there briefly occurred net migration away from greater Tokyo. The trend for migration toward Tokyo soon returned, however, and has continued to increase. These trends are mirrored by trends for migration from and toward the rural economic sphere during that same time.

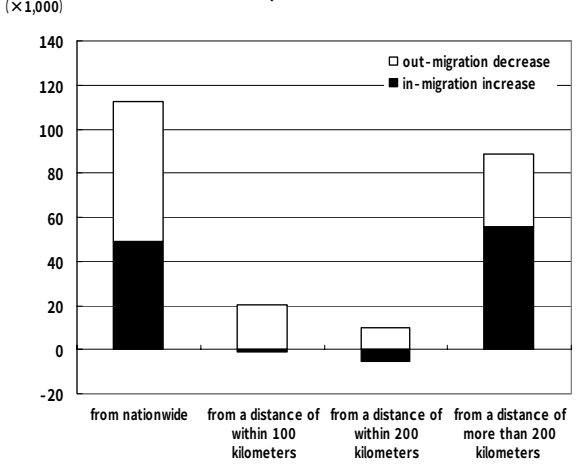


Note:
Economic spheres used in the above graph are defined as follows:
Tokyo urban economic sphere: Saitama Prefecture, Chiba Prefecture, Tokyo Metropolis, and Kanagawa Prefecture
Nagoya urban economic sphere : Gifu Prefecture, Aichi Prefecture, and Mie Prefecture
Kansai urban economic sphere : Kyoto Prefecture, Osaka Prefecture, Hyogo Prefecture, and Nara Prefecture
the three metropolitan areas are the Tokyo, Nagoya, and Kansai urban economic spheres. The rural economic sphere comprises all areas not included in the three metropolitan areas.

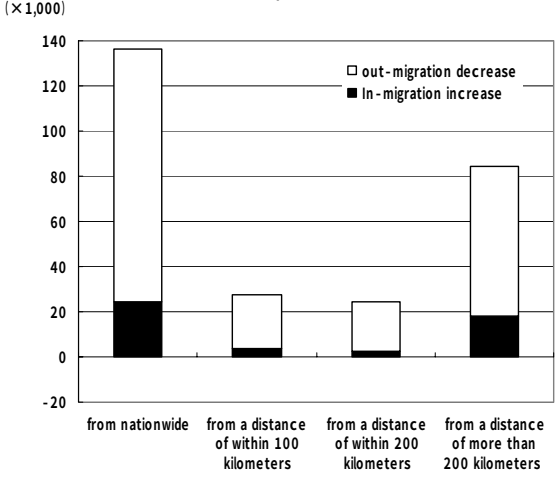
Migration to Tokyo metropolitan area (by distance)

A comparison of the contributing factors to population concentration in the Tokyo urban economic sphere during the 1980s and 1990s, paying particular attention to distance traveled and direction of migration, shows that during the 1980s, 60 percent or more of the migration toward the Tokyo urban economic sphere from a distance of more than 200 kilometers was due to an increase in people coming to the Tokyo urban economic sphere whereas in the 1990s, 75 percent of migration toward the Tokyo urban economic sphere from a distance of more than 200 kilometers was due to a decrease in people leaving the Tokyo urban economic sphere. The concentration of population in the Tokyo urban economic sphere that occurred in the 1980s can be attributed to an increased influx of newcomers whereas the increase during the 1990s can be attributed to a decreased efflux of current residents.

Increase in migration to the Tokyo urban economic sphere from 1980 to 1987 per distance traveled



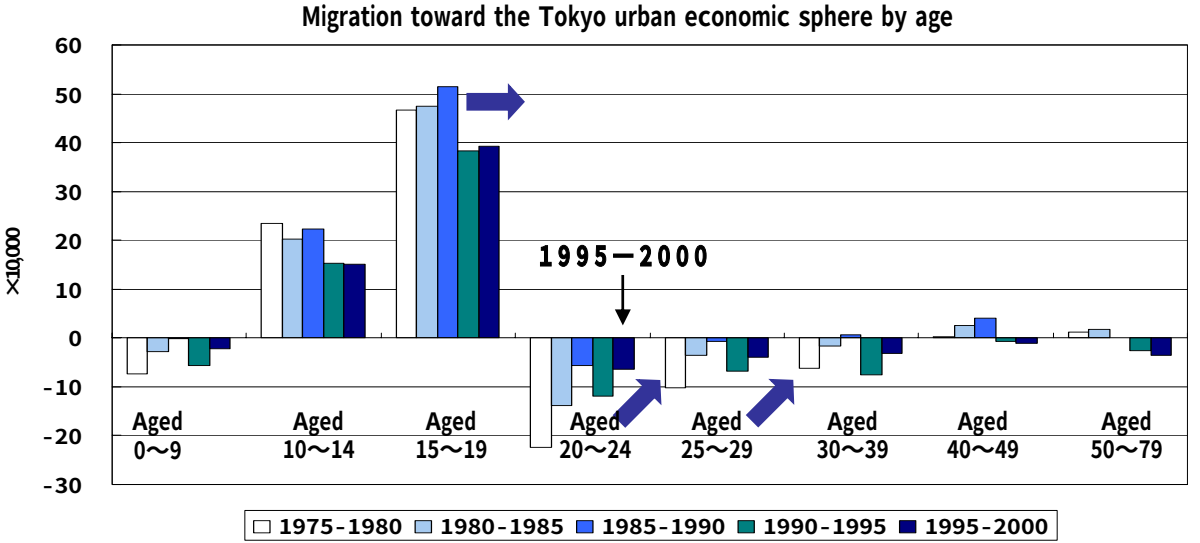
Increase in migration to the Tokyo urban economic sphere from 1994 to 2002 per distance traveled



Note:
The less than 100 kilometers category refers to Ibaraki Prefecture, Tochigi Prefecture, Gunma Prefecture, and Yamanashi Prefecture. The less than 200 kilometers category refers to Fukushima Prefecture, Niigata Prefecture, Nagano Prefecture, and Shizuoka Prefecture.

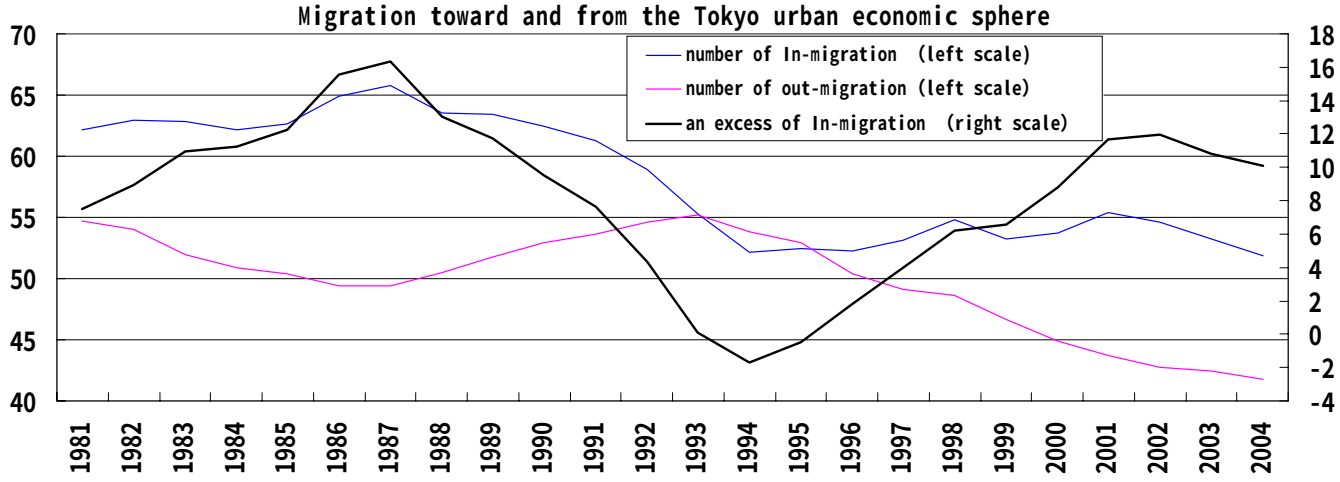
Migration to Tokyo metropolitan area. (by age).

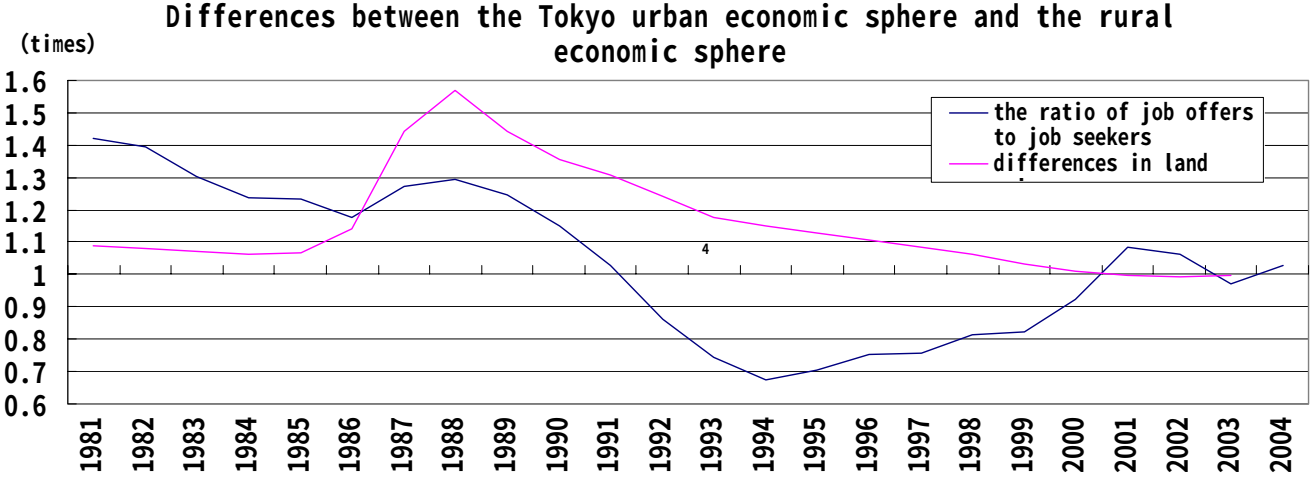
A look at migration toward the Tokyo urban economic sphere categorized by age group shows net growth in the number of teenagers coming to Tokyo to enter college but a net loss in college graduates in their 20s. Comparing the early 1990s with the late 1990s in this respect, we see that migration toward Tokyo by teenagers has remained stable while migration away from Tokyo by young people in their 20s has decreased, indicating that one of the causes of further population concentration in the Tokyo urban economic sphere in the late 1990s was a decreased efflux of current residents.



Relations between net migration to Tokyo metropolitan area and economic and social variables.

A look at migration toward the Tokyo urban economic sphere and its relationship with factors that can be considered to influence migration, such as differences in land values and the employment market during the 1990s, shows that relative improvements in the employment market as well as relative decline of land prices appear to have encouraged migration toward the Tokyo urban economic sphere.



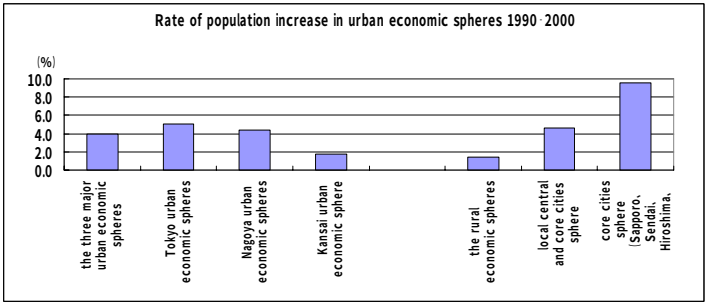


Note:
The term difference in the employment market as used here is defined as the ratio of job offers to job seekers in the Tokyo urban economic sphere (Saitama Prefecture, Chiba Prefecture, Tokyo Metropolis, and Kanagawa Prefecture) divided by the ratio of job offers to job seekers in areas other than the Tokyo urban economic sphere. The term difference in land prices is defined as the standard value of residential property in the Tokyo urban economic sphere divided by the standard value of residential property nationwide, including the Tokyo urban economic sphere. (Standard land value refers to an index of changes in property values calculated annually using a value of 1 for the year 1970.)

In three major metropolitan areas and local central and core cities, are the functions as bases of population and function intensifying?

Rates of population growth in the three major metropolitan areas and local central and core cities.

While the rate of population growth of the Tokyo urban economic sphere is increasing the most rapidly of the three metropolitan areas, the population of major and core cities in the rural economic sphere is also increasing rapidly, indicating a trend towards multipolarity.



	population (in2000) (×10000)	1990→2000 (%)
the three major urban economic sphere	6,287	4.0
Tokyo urban economic spheres	3,342	5.1
Nagoya urban economic spheres	1,101	4.3
Kansai urban economic spheres	1,844	1.8
the rural economic spheres	6,406	1.4
Major and core cities in the rural econo	3,081	4.6
core cities in the rural economic spher	772	9.6

Note:

1. Calculations based on Kanemoto and Tokuoka's "Metropolitan Area Definitions in Japan" (2001). For this study, urban areas were considered to be municipalities comprising a densely inhabited district (DID) with a population of 50,000 or more. Metropolitan area definitions are as follows:

Urban Core Municipalities

(1) Municipalities comprising a DID with a population of 50,000 or more
(2) Municipalities that are considered to be a suburban municipality to another municipality are not considered urban core municipalities.
(3) In cases where two municipalities have mutual commuter ratios that exceed the standard value, the municipality with the larger commuter ratio is considered a suburban municipality of the urban core municipality with the smaller commuter ratio.
(4) Suburban municipalities that have an employed permanent resident population ratio greater than 1, and comprise a DID with a population that is either greater than 100,000 or at least one third as large as that of its urban core municipality are considered an integral part of the urban core municipality of that urban area.

With regard to government-designated cities, even if the city overall does not meet the criteria for employed permanent resident population, the city is considered to be an urban core municipality if one or more wards comprising that city meet the above criteria.

Suburban Municipalities

(1) Municipalities with a commuter ratio of 10 percent or higher to an urban core municipality are considered a suburban municipality of the urban core municipality.
(2) In cases where an urban core municipality comprises two or more municipalities, the commuter ratio for all these municipalities is used.
(3) In cases where two or more urban core municipalities have mutual commuter ratios of 10 percent or higher, the municipality having the larger commuter ratio is considered the suburban municipality.
(4) In cases where the commuter ratio to the urban core municipality and to other suburban municipalities is 10 percent or higher, the municipality is considered the suburban municipality of the municipality to which it contributes the most commuters.

2. Major and core cities in the rural economic sphere: Cities that are either the prefectural capital or which have a population of at least 300,000, and which have a day/night population ratio of greater than 1. (Except for the three metropolitan areas)

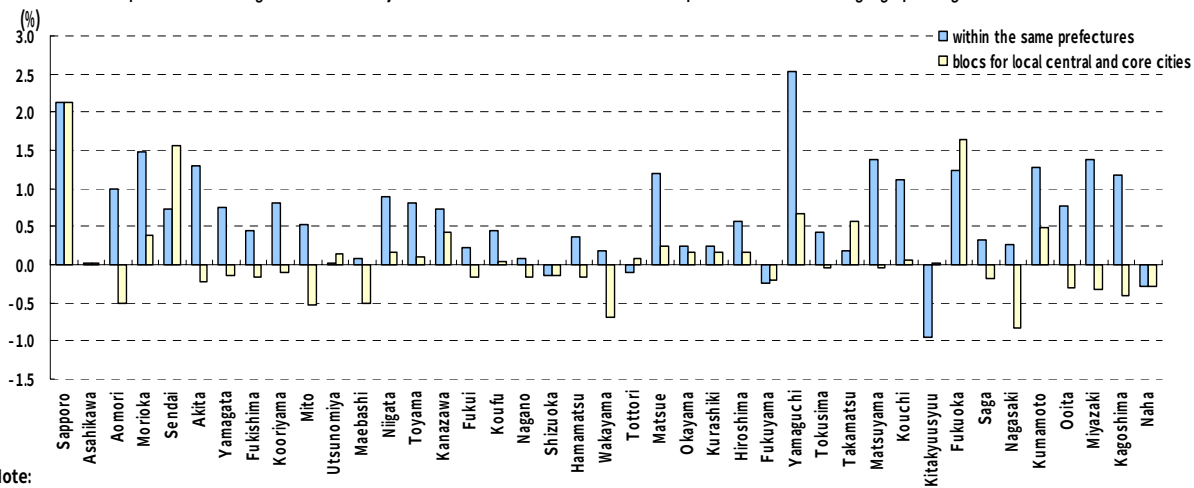
Concentration and dispersion of population and function.

In three major metropolitan areas and local central and core cities, are the functions as bases of population and function intensifying?

Rate of net migration within the same prefectures and blocs for local central and core cities.

A look at intra-prefectural net migration rates for major and core cities in the rural economic sphere shows net migration toward major and core cities as well as within geographic regions.

Intra-prefectural net migration rate for major and core cities in the rural economic sphere as well as within geographic regions 1995-2000



Note:

1. Net migration rate is defined as the number of people who changed residence divided by the population of the urban sphere times 100. Major and core cities in urban economic spheres are shown along the horizontal axis. Net migration within the same geographic region excludes intra-prefectural net migration.
2. The term major and core cities in the rural economic sphere as used in this graph refers to cities that are either the prefectural capital or which have a population of at least 300,000, and which have a day/night population ratio of greater than 1, making them the core city of their urban area.
3. Suburban areas are defined in Kanemoto & Tokuoka's "Metropolitan Area Definitions in Japan" (2001) as follows:

(1) Municipalities with a commuter ratio of 10 percent or higher to an urban core municipality are considered a suburban municipality of the urban core municipality.
(2) In cases where an urban core municipality comprises two or more municipalities, the commuter ratio for all these municipalities is used.
(3) In cases where two or more urban core municipalities have mutual commuter ratios of 10 percent or higher, the municipality having the larger commuter ratio is considered the suburban municipality.
(4) In cases where the commuter ratio to the urban core municipality and to other suburban municipalities is 10 percent or higher, the municipality is considered the suburban municipality of the municipality to which it contributes the most commuters.

Concentration and dispersion of population and function.

In three major metropolitan areas and local central and core cities, are the functions as bases of population and function intensifying?

Share of industrial functions by areas, shown as share of employees and other indicators.

A look at the number of persons employed by various industrial sectors in both the rural and the three metropolitan areas shows a continuing trend for high level international and information businesses to agglomerate in the Tokyo urban economic sphere.

(1) Finance (outstanding loans for domestic lending institutions) (%)

	1955	1965	1975	1985	1995	2003
the three major urban economic spheres	72.2	77.9	76.9	77.0	74.5	71.0
(Tokyo urban economic spheres)	38.7	46.9	49.2	53.4	52.0	49.8
(Kansai urban economic spheres)	24.8	23.4	21.3	18.2	17.0	15.5
(Nagoya urban economic spheres)	8.7	7.7	6.5	5.4	5.5	5.7
the rural economic spheres	27.8	22.1	23.1	23.0	25.5	29.0

Note: 1. Figures given for the month of September for each year shown.
2. Okinawa not included in the years 1955 and 1965.

(2) International (Foreign-owned businesses) (%)

	1965	1975	1985	1995	1999	2004
the three major urban economic spheres	99.0	96.2	96.0	96.0	96.9	93.4
(Tokyo urban economic spheres)	84.5	86.4	87.6	87.5	90.1	85.4
(Kansai urban economic spheres)	13.7	9.3	7.7	7.5	5.9	5.72
(Nagoya urban economic spheres)	0.8	0.5	0.7	0.9	0.9	2.27
the rural economic spheres	1.0	3.8	4.0	4.0	3.1	6.64

Note: Okinawa not included in the years 1965 and 1975.

(3) Information (Number of people employed by information services, survey, and advertising (%)

	1969	1975	1986	1991	1996	1999	2004
the three major urban economic spheres	77.5	75.5	76.7	75.0	75.2	75.6	77.7
(Tokyo urban economic spheres)	52.5	53.5	57.5	55.2	55.1	56.0	59.6
(Kansai urban economic spheres)	19.3	16.8	14.2	14.5	14.3	13.8	12.7
(Nagoya urban economic spheres)	5.7	5.2	4.9	5.3	5.8	5.9	5.4
the rural economic spheres	22.5	24.5	23.3	25.0	24.8	24.4	22.3

Note: 1. Okinawa not included in the year 1969.
2. The Fukae-machi and Shimabara-shi in Nagasaki Prefecture have been excluded in the
3. Only private businesses included in 1999 survey.

(4) Business-oriented services (Number of people employed by businesses (other than information services) listed under Business- (%)

	1966	1975	1986	1991	1996	1999	2004
the three major urban economic spher	57.9	56.0	57.6	59.2	59.1	58.9	59.7
(Tokyo urban economic spheres)	35.2	33.0	34.9	36.1	36.2	35.4	36.6
(Kansai urban economic spheres)	15.2	15.7	15.5	15.5	15.2	14.9	14.4
(Nagoya urban economic spheres)	7.6	7.3	7.3	7.6	7.7	8.6	8.7
the rural economic spheres	42.1	44.0	42.4	40.8	40.9	41.1	40.3

Note: 1. Okinawa not included in the year 1966.
2. The Fukae-machi and Shimabara-shi in Nagasaki Prefecture have been excluded in the year 1991.
3. Only private businesses included in 1999 survey.

(5) Business management (Number of businesses with paid-in capital of one billion yen or more) (%)

	1955	1965	1975	1985	1995	1999	2004
the three major urban economic spher	89.9	89.3	83.9	83.1	81.6	79.1	78.2
(Tokyo urban economic spheres)	63.3	61.1	58.4	59.4	58.5	56.0	57.0
(Kansai urban economic spheres)	23.7	22.5	20.1	18.3	17.2	16.7	14.9
(Nagoya urban economic spheres)	3.0	5.7	5.4	5.5	5.9	6.4	6.3
the rural economic spheres	10.1	10.7	16.1	16.9	18.4	20.9	21.8

Note: Okinawa not included in the years 1955, 1965, and 1975.

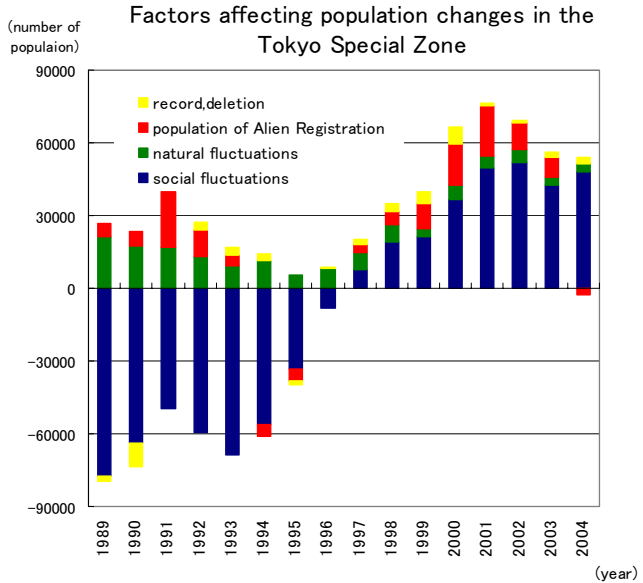
(6) Research and development (Number of persons employed in academic and technical research and development) (%)

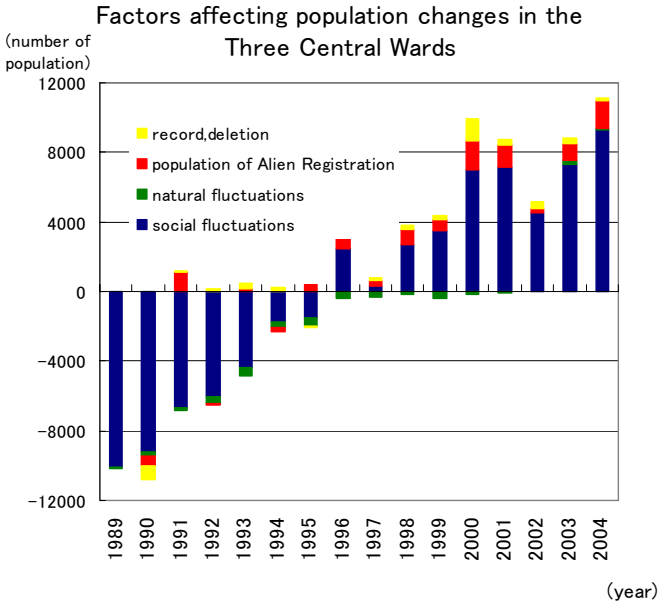
	1966	1975	1986	1991	1996	1999	2004
the three major urban economic spher	64.7	66.9	65.0	61.7	63.6	71.2	69.2
(Tokyo urban economic spheres)	45.8	49.2	46.5	41.6	45.7	53.5	53.3
(Kansai urban economic spheres)	14.0	13.5	13.8	15.2	12.6	13.3	11.5
(Nagoya urban economic spheres)	4.9	4.2	4.8	4.9	5.2	4.4	4.4
the rural economic spheres	35.3	33.1	35.0	38.3	36.4	28.8	30.8

Note: 1. Okinawa not included in the year 1966.
2. The Fukae-machi and Shimabara-shi in Nagasaki Prefecture have been excluded in the year 1991.
3. Only private businesses included in 1999 survey.

Population changes in the special ward and the three major wards in Tokyo.

A look at population changes in the center of Tokyo Metropolis (the Tokyo Special Zone and Three Central Wards) shows that since the late 1990s this area is once again experiencing net migration and that the rate of that growth is accelerating.



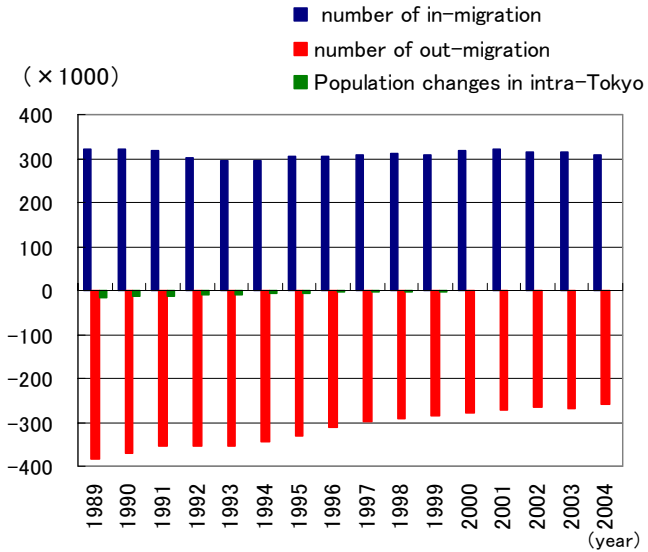


Note: The Three Central Wards comprise Chiyoda Ward, Chuo Ward, and Minato Ward.

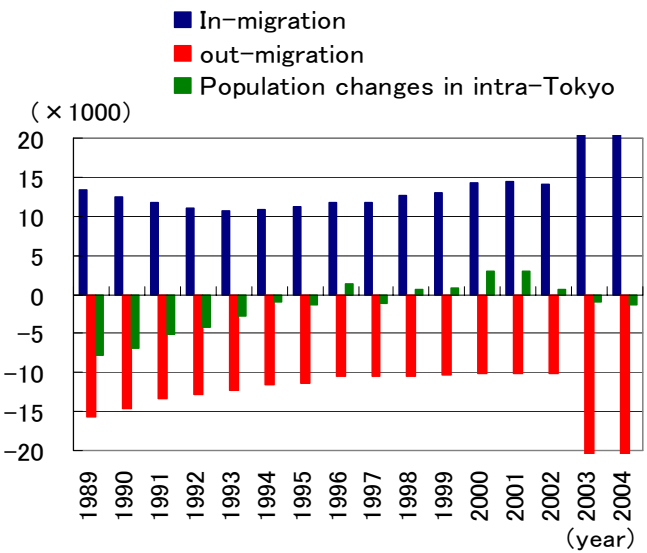
In-migration and out-migration in the special ward and the three major wards in Tokyo.

A look at net migration in the center of Tokyo Metropolis (the Tokyo Special Zone and the Three Central Wards) categorized into migration toward and migration from that area shows that while migration from the area has continued to decrease, migration toward the area has been increasing since the late 1990s.

In-migration and out-migration in the special ward in Tokyo



In-migration and out-migration in the three major wards in Tokyo.

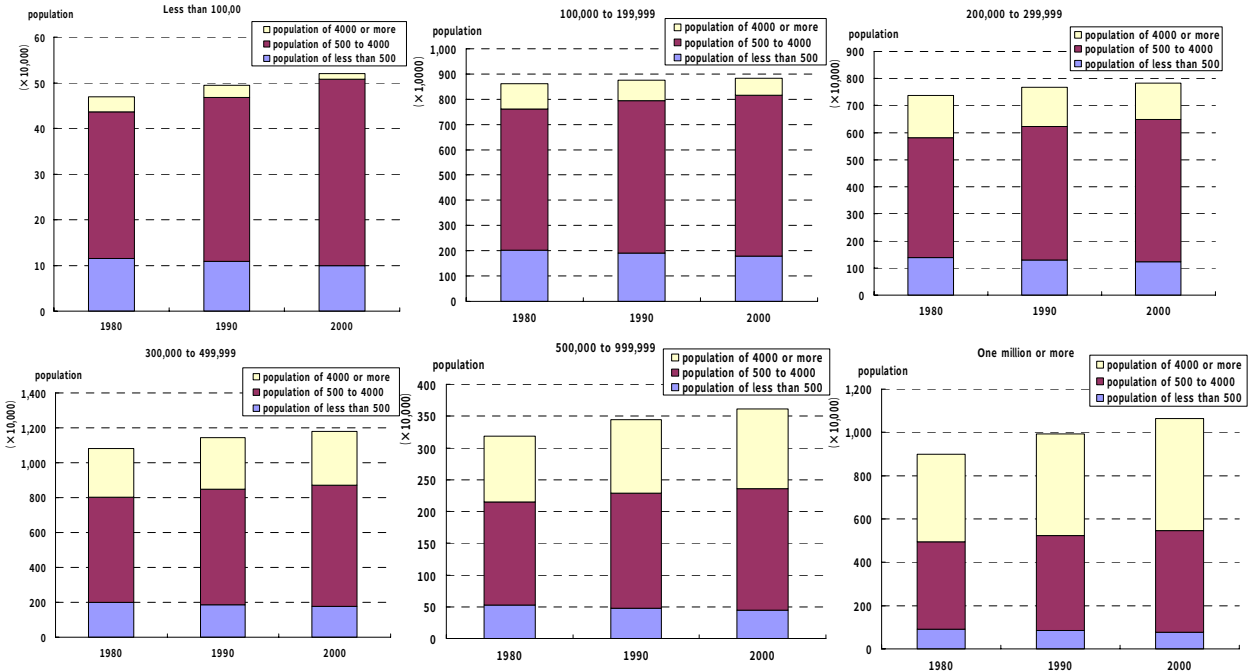


Note: The Three Central Wards comprise Chiyoda Ward, Chuo Ward, and Minato Ward.

Concentration and dispersion of population and function. | What is the situation of urban structures of Tokyo area and local areas, in terms of population?

Distribution of population by population density in local areas, classified by the size of the central city in each area.

A look at one kilometer square population density grids for major cities in the rural economic sphere categorized by population size shows that major cities with smaller populations tend to have fewer grids with a population of 4000 or more, and that the trend is for the number of these grids to decrease.

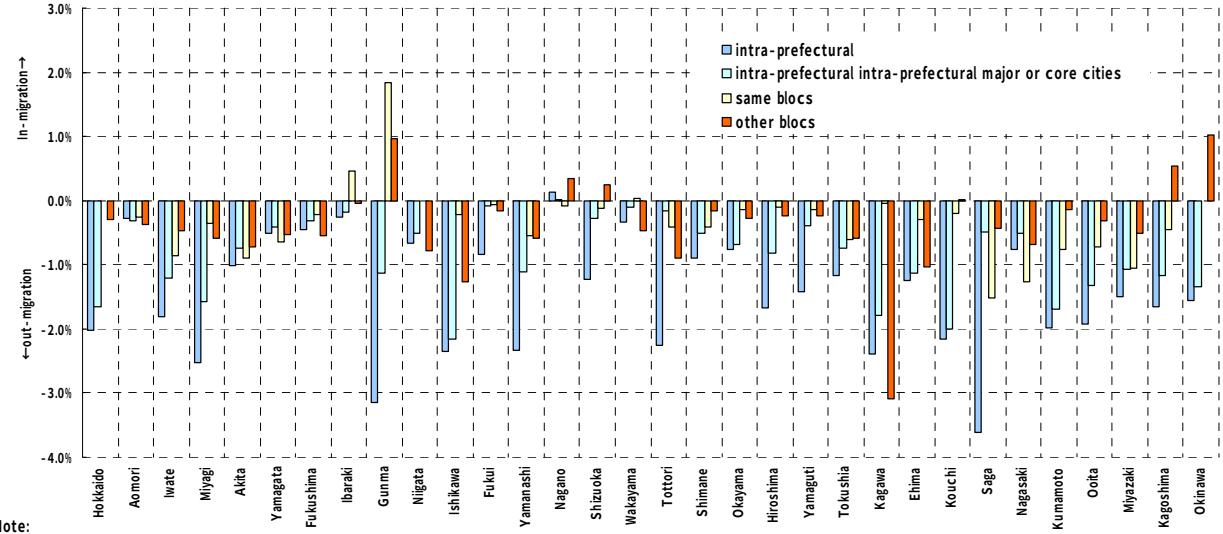


Note: Population ranges for major urban cities given here are from the 2000 National Census.

Rate of net migration to areas out of one hour sphere from central and core cities.

In areas one hour or more away from the major or core cities of prefectures in the rural economic sphere, the general trend is negative net migration, with the majority of these prefectures exhibiting migration predominantly toward intra-prefectural major or core cities.

Changes in population through intra-prefectural migration toward major and core cities from areas one hour or more away or inter-and intra-geographic region migration in the same prefecture for the years from 1995 to 2000.



Note:

1. The term areas one hour or more away refers to municipalities more than one hour's travel time away from a city that is either a prefectural capital or has a population of at least 300,000, and which has a day/night population ratio of greater than 1, as calculated for each prefecture.
2. The term area within one hour's travel time refers to travel via railways and roadways of the existing transportation infrastructure as of October 1998 and excludes the use of the Shinkansen or other special-express railway services. Calculations were based on travel to and from the city halls of the respective municipalities.
3. Tochigi Prefecture, Toyama Prefecture, and Fukuoka Prefecture were excluded from this graph because less than one percent of the population lives outside the area within one hour's travel time.