

# Re-urbanization of Population in the Tokyo Metropolitan Area: ROXY-index / Spatial-cycle Analysis for the Period 1947-2005

Tatsuhiko KAWASHIMA,\* Atsumi FUKATSU<sup>†</sup> and Noriyuki HIRAOKA<sup>‡</sup>

## Contents

1 Introduction

2 Spatial Cycles

3 ROXY Index

4 Empirical Analysis

5 Findings

6 Conclusion

References, Appendices

## Abstract

*The four major stages of the spatial-cycles are quantitatively examined, by use of the Japan's population census data extending over the past sixty years (for the period 1947-2005), for the Tokyo Metropolitan Area and its five major railway-line regions. The spatial-cycle hypothesis constructed by Klaassen and the method of the Roxy-index analysis developed by the first author, are applied to our investigation. The results obtained clearly illuminate the recent trend of the re-urbanization of the population in the Tokyo Metropolitan Area as a whole and its five major railway-line regions as well. This would imply that the core-area part of the Tokyo Metropolitan Area will play an increasingly critical role in the future urban policies of Japan. Among other findings is the possible existence of the metropolitan (or urban) spatial cycles of the estimated length of the period of 80 ~ 100 years.*

## Keywords

*Centralization, Klaassen, Metropolitan Area, Re-urbanization, Revived Centralization  
Roxy Index, and Spatial Cycles*

---

\* Gakushuin University, Tokyo.

† Independent researcher, Tokyo.

‡ Mitsubishi Research Institute, Tokyo.

The earlier version of this paper was presented in preliminary form at the 53rd Annual North American Meetings of the Regional Science Association International, Toronto, Canada, on November 16 -18, 2006, and at the 20th Annual Meetings of the Applied Regional Science Conference, Hiroshima, Japan, on December 9-10, 2006. The authors would like to express their deep gratitude to those who provided their helpful suggestions and encouraging remarks at the meetings, especially Professor Atsuyuki Okabe.

## 1 Introduction

In this paper, the four stages of the spatial cycles are quantitatively examined for (1) the Tokyo Metropolitan Area <sup>1 )</sup> as a whole and (2) its five major railway-line regions. As analytical tools for our study, Klaassen's spatial-cycle hypothesis and Kawashima's ROXY-index method are applied, while our population data for the above-mentioned six urban spatial systems cover the period of the nearly sixty years from 1947 through 2005.

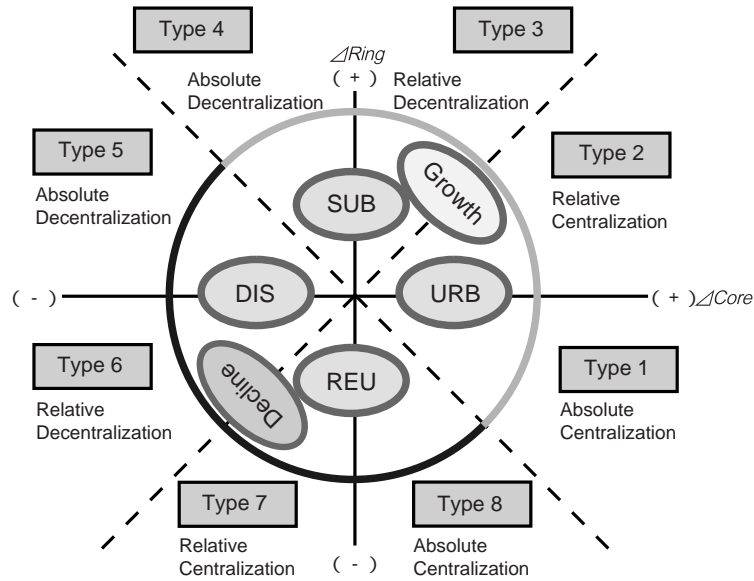
In the following, the basic scheme of Klaassen's spatial-cycle hypothesis is explained in Section 2, and the primary characteristics of the ROXY-index method are illustrated in Section 3. In Section 4, the empirical analysis is carried out for the six urban spatial systems to gain a better understanding of the spatial redistribution processes of the population in large metropolitan areas. Some research findings are shown in Section 5. In the concluding remarks in Section 6, rough thoughts of the authors on the mechanism of the urban transformation is given.

## 2 Spatial Cycles

The original framework of Klaassen's spatial-cycle paradigm <sup>2 )</sup> for the intra-metropolitan spatial systems (*i.e.* the spatial systems formed within agglomeration) is described by Figure 1. A revised version of this scheme argues the existence of the four major recursively transmuting stages along the spatial-cycle path as shown by Table 1. The four major stages are: accelerating centralization, decelerating centralization, accelerating decentralization, and decelerating decentralization. We use, in what is discussed below, the term 'revived accelerating centralization' (or, simply 're-centralization' or 're-urbanization') to indicate the phenomenon of the re-entry of the spatial-cycle path into the accelerating centralization stage from the decelerating decentralization stage as shown by Table 2. In addition, the terms of 'spatial cycles' and 'urban cycles' are interchangeably used.

- 
- 1 ) For the definitions of the metropolitan areas in Japan and their closely associated concepts of FUC (functional urban core) and FUR (functional urban region) in detail, see Kawashima and Hiraoka (1995). The FUR can be considered as the metropolitan area, while the FUC is the central core city (or a set of central core cities) of the FUR. The Japanese FURs have been set up several times since the first half of the 1970s, with the intention of delineating the boundaries of functionally meaningful metropolitan areas corresponding to the Standard Metropolitan Statistical Areas (SMSAs) or the Metropolitan Statistical Areas (MSAs) in the U.S.A. See Glickman (1979) for the background to the early work on delineating Japanese FURs and data arrangements for them. This paper employs the 1995-version of the FURs in Japan the geographical boundaries of which are delineated by the Mitsubishi Research Institute (1999). The 1995-version has the 87 FURs including the Tokyo FUR (*i.e.* Tokyo Metropolitan Area) consisting of 145 localities (in case we treat 23 Tokyo Special Wards as one locality) or 167 localities (in case we treat the Special Wards as separate 23 localities).
- 2 ) For an early discussion on the spatial-cycle hypothesis, see Klaassen and Paelinck (1979), and Klaassen, Bourdrez and Volmuller (1981). This original framework tries to indicate the existence of the intra-metropolitan spatial-cycle path in terms of the absolute change in the population levels of spatial units comprising a specific metropolitan area. This framework has been revised and later extended by the first author and his research collaborators, without losing its original unique and valuable conceptual essence, to analyse the phenomena of the intra-metropolitan and inter-metropolitan spatial cycles by use of the growth ratio of population instead of the absolute changes in the population levels.

Figure 1 Spatial Cycles within Agglomeration: Klaassen's Original Framework



URB: Urbanization, SUB: Suburbanization, DIS: Disurbanization, REU: Reurbanization  
 $\Delta Core$  : Absolute change in core-population  
 $\Delta Ring$  : Absolute change in ring-population

Table 1 Four Major Stages of Spatial Cycles  
 (For Intra-metropolitan Urban Cycles)

Type of Population Changes	Stage	Speed of Spatial Agglomeration and Deglomeration
Centralization (Urbanization)	1	Accelerating Centralization (AC)
	2	Decelerating Centralization (DC)
Decentralization (Suburbanization)	3	Accelerating Decentralization (AD)
	4	Decelerating Decentralization (DD)

Table 2 Stages into Revived Centralization  
 (For Intra-metropolitan Urban Cycles)

Type of Population Changes	Stage	Speed of Spatial Agglomeration and Deglomeration
Decentralization (suburbanization)	3	Accelerating Decentralization ( AD )
	4	Decelerating Decentralization ( DD )
Revived Centralization (Re-centralization or (Re-urbanization)	1'	Revived Accelerating Centralization ( RAC )
	2'	Revived Decelerating Centralization ( RDC )

### 3 ROXY Index

The ROXY index <sup>3)</sup> is an indicative instrument to quantitatively identify the major stages of the spatial cycles. This index can be used in conducting both of the intra-metropolitan analysis and inter-metropolitan analysis to study the spatial agglomeration and deglomeration processes.

The standard mathematical formulation to define the ROXY index is given by Table 3. We apply to our study the two variations of this standard definition. One is for the case in which we set the weighting factor of “core-city = 0, suburbs = 1” as shown by Table 4, while the other is, as shown by Table 5, for the case in which we set the weighting factor of “the CBD distance” for each of the spatial units which constitute a specific urban spatial system <sup>4)</sup> under investigation. The former weighting factor is used in the spatial-cycle analysis for the Tokyo Metropolitan Area as a whole, while the latter is used for each of the five major railway-line regions in that metropolitan area.

Table 3 ROXY Index: Standard Definition

$$R^t \equiv \left( \frac{WAGR^t}{SAGR^t} - 1.0 \right) \times S_c$$

$$= \left\{ \frac{\sum_{i=1}^n (w_i \times r_i^t)}{\sum_{i=1}^n w_i} \times \frac{n}{\sum_{i=1}^n r_i^t} - 1.0 \right\} \times S_c$$

where

$R^t$  : Value of ROXY Index for Period between Years  $t$  and  $t + 1$   
 $WAGR^t$  : Weighted Average of Annual Growth Ratios of Population of Each Spatial Unit for Period between Years  $t$  and  $t + 1$   
 $SAGR^t$  : Simple Average of Annual Growth Ratios of Population of Each Spatial Unit for Period between Years  $t$  and  $t + 1$   
 $S_c$  : Scaling Factor ( $= 10^4$ )  
 $r_i^t$  : Annual Growth Ratio of Spatial Unit  $i$  for Period between Years  $t$  and  $t + 1$   
 $w_i^t$  : Weighting Factor for Spatial Unit  $i$  for Time  $t$   
 $n$  : Number of Spatial Units

- 3 ) The basic concept of the ROXY index was initiated and applied in an empirical study by Kawashima (1978, pp.9, 13 and 14). Since then, the method of ROXY-index analysis has been furthermore developed and applied in a number of empirical studies to examine the spatial-cycle phenomena associated with the changes in the population and other social and economic variables for the various systems of spatial units. In parallel with these studies, some theoretical examinations have been carried out on the fundamental characteristics peculiar to the ROXY index. See Kawashima (1981, pp.10-12; and 1982, pp.26-30), for example, as one of the early-stage studies of the ROXY-index.
- 4 ) The neutral situation of the spatial redistribution pattern means that the spatial-cycle stage is corresponding to neither the phenomenon of centralization nor that of decentralization, implying the parallel growth or decline of each spatial units constituting a specific spatial system.

Table 4 ROXY Index (with Weighting Factor of "C=0 : S=1"):  
For Centralization and Decentralization of a Metropolitan Area

$$R^t \equiv \left( WAGR^t / SAGR^t - 1.0 \right) \times S_c$$

$$= \left\{ \frac{\sum_{i=1}^n (w_i \times r_i^t)}{\sum_{i=1}^n w_i} \times \frac{n}{\sum_{i=1}^n r_i^t} - 1.0 \right\} \times 10^4$$

where

$n$  : Number of Spatial Units ( $n=2$ )  
 $i$  : Spatial-unit Number  
 ( $i=1$  for Core City (C),  $i=2$  for Suburbs (S))  
 $w_i$  : Weighting Factor for Spatial Unit  $i$   
 $\begin{cases} 0 & \text{for Core City (i.e., } w_i = 0) \\ 1 & \text{for Suburbs (i.e., } w_i = 1) \end{cases}$   
 Other Symbols : See Table 3

Table 5 ROXY Index (with Weighting Factor of CBD Distance):  
For Centralization and Decentralization of a Railway-line region radiating  
from the CBD to Suburbs in a Metropolitan Area

$$R^t \equiv \left( WAGR^t / SAGR^t - 1.0 \right) \times S_c$$

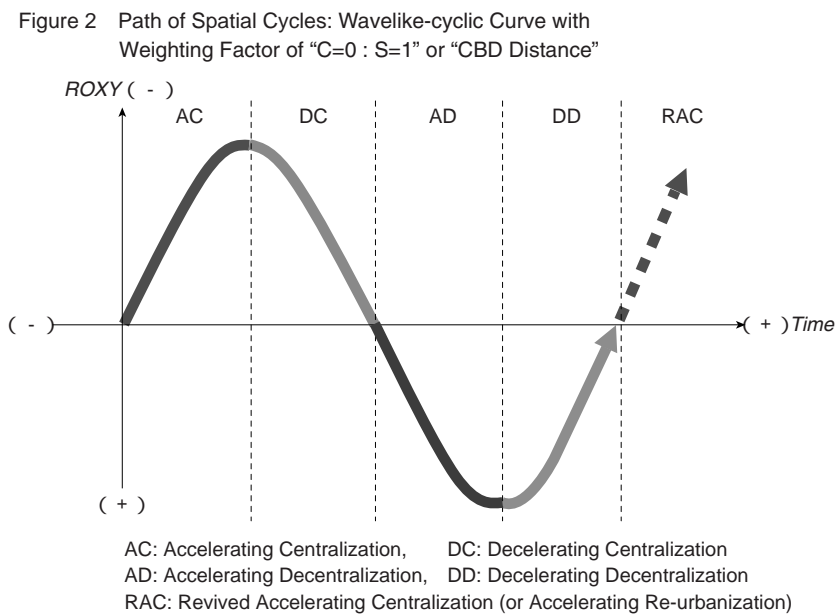
$$= \left\{ \frac{\sum_{i=1}^n (d_i \times r_i^t)}{\sum_{i=1}^n d_i} \times \frac{n}{\sum_{i=1}^n r_i^t} - 1.0 \right\} \times 10^4$$

where

$d_i$  : Weighting Factor for Spatial Unit  $i$  (or Locality  $i$ )  
 = Distance from the Central Business District (CBD)  
 to the Spatial Unit  $i$  (or Locality  $i$ )  
 Other Symbols : See Tables 4 as well as Table 3

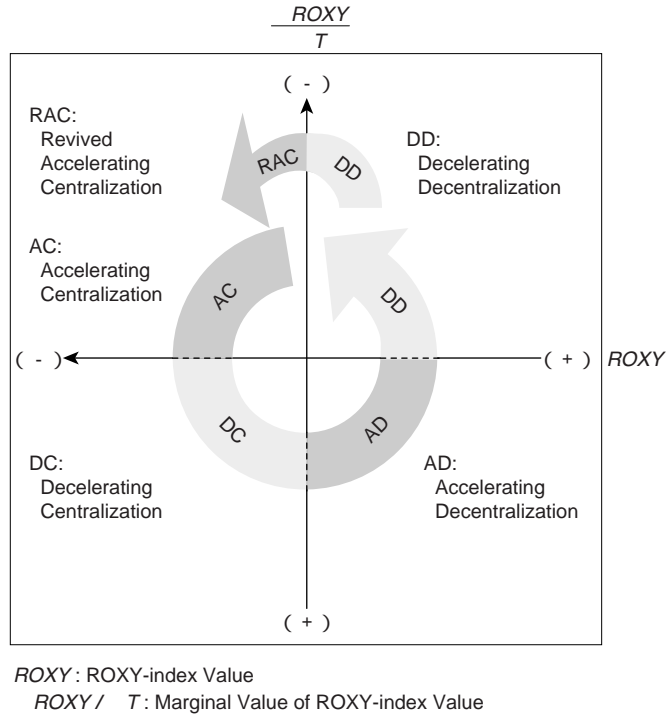
Based on Tables 4 and 5, we can draw Figure 2 which displays Klaassen's spatial-cyclic path in the form of a wavelike-cyclic curve. It should be noted that the abscissa and ordinate indicate the time and ROXY-index value (ROXY) respectively, and that the upper part of the ordinate carries the negative sign. As can be seen from Figure 2, the value of the ROXY index turns out to be:

- (1) negative and decreasing, for the stage of accelerating centralization (AC),
- (2) negative and increasing, for the stage of decelerating centralization (DC),
- (3) positive and increasing, for the stage of accelerating decentralization (AD),
- (4) positive and decreasing, for the stage of decelerating decentralization (DD),
- (5) negative and decreasing, for the stage of revived accelerating centralization (RAC), and
- (6) zero (more appropriately, at or in the vicinity of the value zero), for the stage at which the spatial redistribution process is neutral<sup>4</sup>).



On the other hand, also from Tables 4 and 5, we can draw Figure 3 which displays the spatial-cyclic path in the form of a circular-cyclic curve. In this figure, the abscissa and ordinate respectively indicate the ROXY-index value (ROXY) and the marginal value of the ROXY index with respect to time ( $ROXY/T$ ). It should be noted for the graph in Figure 3 that the upper part of the ordinate carries the negative sign so that the circular-cyclic curve can move in an anticlockwise direction as practiced in Klaassen's original framework shown by Figure 1.



Figure 3 Path of Spatial Cycles: Circular-cyclic Curve with Weighting Factor of “C=0 : S=1” or “CBD Distance”

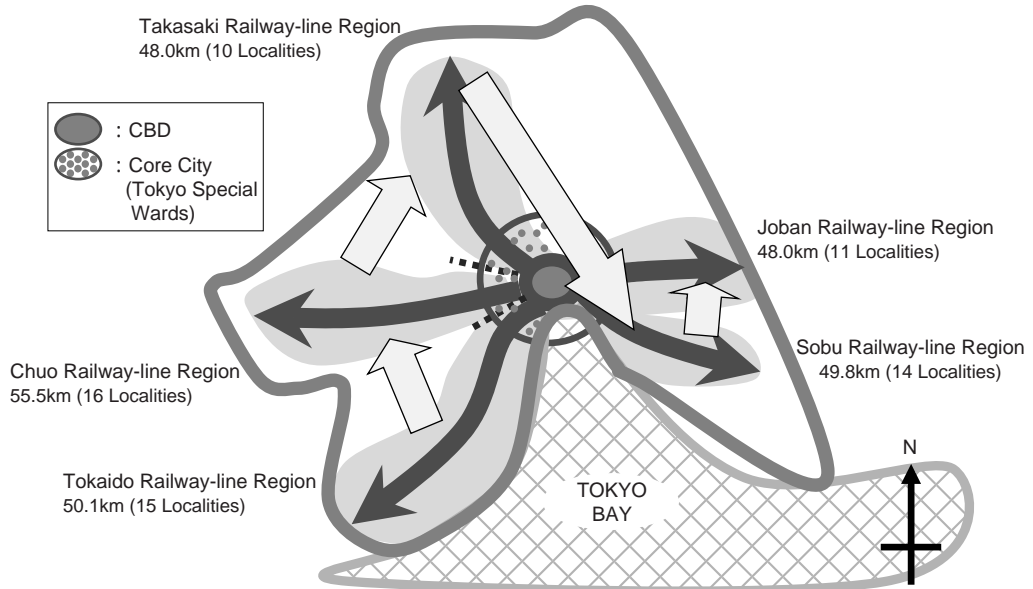


## 4 Empirical Analysis

### 4-1 Data and Setting

For our study, we use the Japan's population census data extending over the past sixty years for the period 1947-2005 (with 13 census-year points), for the Tokyo Metropolitan Area and its five major railway-line regions (*i.e.*, Tokaido, Chuo, Takasaki, Joban and Sobu railway-line regions) as shown by Tables A1, A5, A9, A13, A17 and A21. Figure 4 shows the geographical configuration of the six urban spatial systems together with the information on (1) the number of member localities constituting each of the six spatial systems that are the Tokyo Metropolitan Area and the Tokaido, Chuo, Takasaki, Joban and Sobu railway-line regions, and (2) the distance length of each of the five railway-line regions.

Figure 4 Fove Railway-line Regions (  ):  
In the Tokyo Metropolitan Area (  ) with 167 localities



#### 4-2 Results

For the six urban spatial systems, we calculate the ROXY-index values by going through those steps shown by Tables A2 ~ A4 for the Tokyo Metropolitan Area, A6 ~ A8 for the Tokaido railway-line region, A10 ~ A12 for the Chuo railway-line region, A14 ~ A16 for the Takasaki railway-line region, A18 ~ A20 for the Joban railway-line region, A22 ~ A24 for the Sobu railway-line region.<sup>5)</sup> The obtained ROXY-index values are shown by Table 6. Based on this table, we can draw the wavelike-cyclic curves and circular-cyclic curves of the spatial-cycle path for each of the six urban spatial systems as shown by Figures 5 ~ 16.

5 ) The last three lines of Tables A7, A11, A15, A19 and A23 are of assistance for the case we apply the weighting factor of “core=0 : suburbs=1” (instead of “CBD distance”) to the calculation of the ROXY-index values for each of the five major railway-line regions.



Re-urbanization of Population in the Tokyo Metropolitan Area ( Kawashima, Fukatsu and Hiraoka )

Table 6 ROXY-index Value and Its Marginal Value: 1947-2005

(a) Tokyo Metropolitan Area (Weighting Factor of " Core=0 : Sburbs=1 " )

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-305.44	-133.06	-19.41	213.88	265.33	220.10	142.68	77.85	104.01	67.25	10.16	-9.95
ROXY/ T	43.10	31.78	34.69	28.47	0.62	-12.27	-14.23	-3.87	-1.06	-9.39	-7.72	-4.02

(b) Tokaido Railway-line Region (Weighting Factor of CBD Distance)

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-136.68	-27.86	61.34	249.02	200.99	149.59	97.84	53.80	107.42	56.89	-20.59	-65.19
ROXY/ T	27.21	22.00	27.69	13.96	-9.94	-10.32	-9.58	0.96	0.31	-12.80	-12.80	-12.21

(c) Chuo Railway-line Region (Weighting Factor of CBD Distance)

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-164.58	-45.93	30.98	150.12	139.02	117.34	97.51	55.90	107.03	67.71	-12.75	-54.63
ROXY/ T	29.66	21.73	19.61	10.80	-3.28	-4.15	-6.14	0.95	1.18	-11.98	-12.23	-4.19

(d) Takasaki Railway-line Region (Weighting Factor of CBD Distance)

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-211.06	-97.58	-49.57	100.14	232.94	181.54	105.22	70.27	77.99	65.21	12.13	-25.13
ROXY/ T	28.11	18.42	19.77	28.25	8.14	-12.77	-11.13	-2.72	-0.51	-6.59	-9.03	-3.73

(e) Joban Railway-line Region (Weighting Factor of CBD Distance)

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-206.42	-81.17	-58.72	5.37	105.18	161.51	154.76	99.02	78.91	70.33	33.63	-1.33
ROXY/ T	31.31	16.41	8.65	16.39	15.61	4.96	-6.25	-7.59	-2.87	-4.53	-7.17	-3.50

(f) Sobu Railway-line Region (Weighting Factor of CBD Distance)

Period	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
ROXY	-315.66	-128.23	-107.83	50.51	160.06	210.90	204.64	126.75	140.41	113.84	18.28	-25.95
ROXY/ T	23.43	20.78	17.87	26.79	16.04	4.46	-8.42	-6.42	-1.29	-12.21	-27.96	-8.85

Figure 5 Spatial-cycle Path for the Tokyo Metropolitan Area:  
Wavelike-cyclic Curve  
(Weighting Factor: Core=0, Suburbs=1)

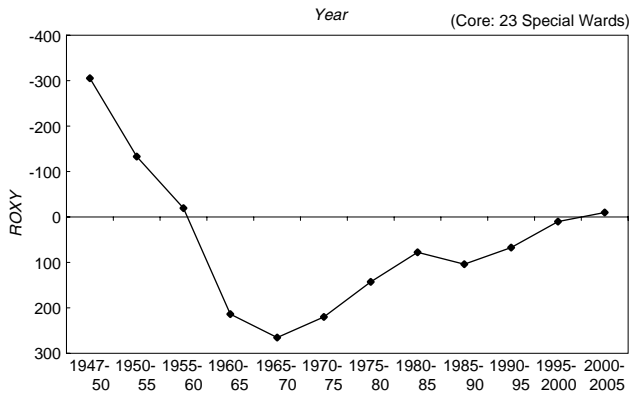


Figure 6 Spatial-cycle Path for the Tokyo Metropolitan Area:  
Circular-cyclic Curve (Weighting Factor: Core=0, Suburbs=1)

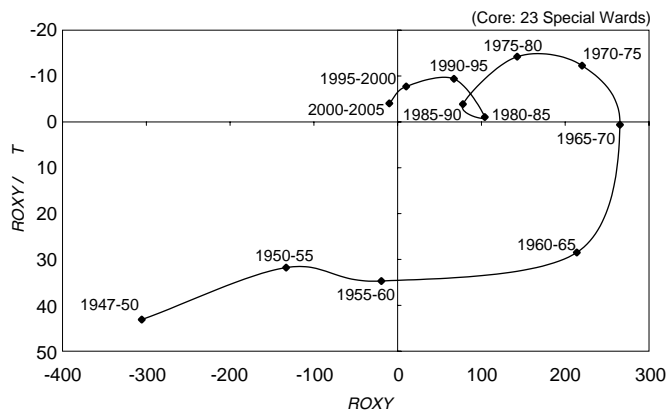


Figure 7 Spatial-cycle Path for the Tokaido Railway-line Region in the Tokyo Metropolitan Area: Wavelike-cyclic Curve (Weighing Factor: CBD Distance (km))

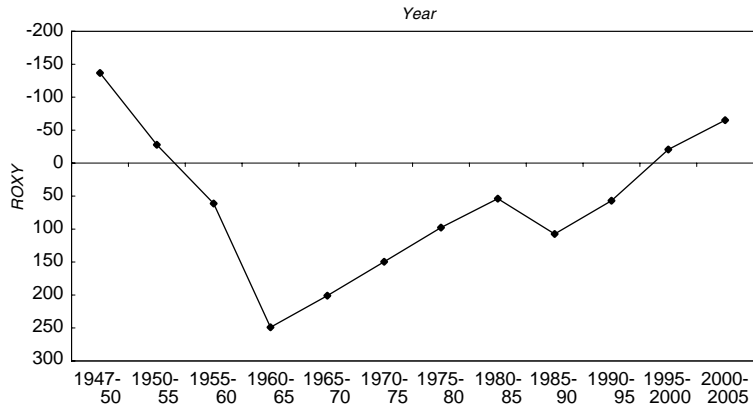


Figure 8 Spatial-cycle Path for the Tokaido Railway-line Region in the Tokyo Metropolitan Area: Circular-cyclic Curve (Weighing Factor: CBD Distance (km))

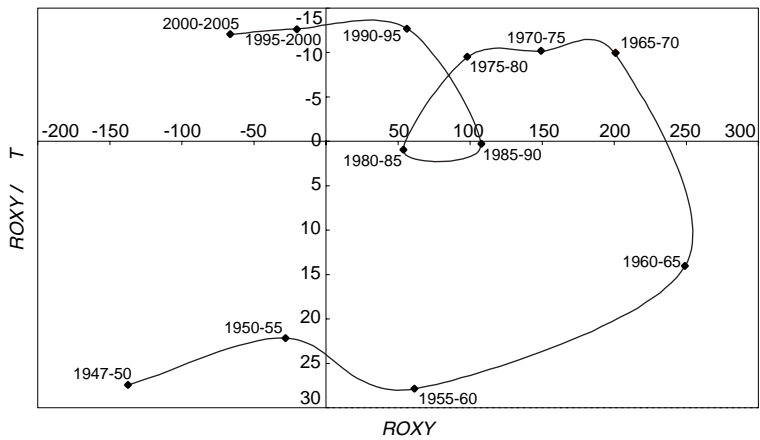


Figure 9 Spatial-cycle Path for the Chuo Railway-line Region in the Tokyo Metropolitan Area: Wavelike-cyclic Curve (Weighing Factor: CBD Distance (km))

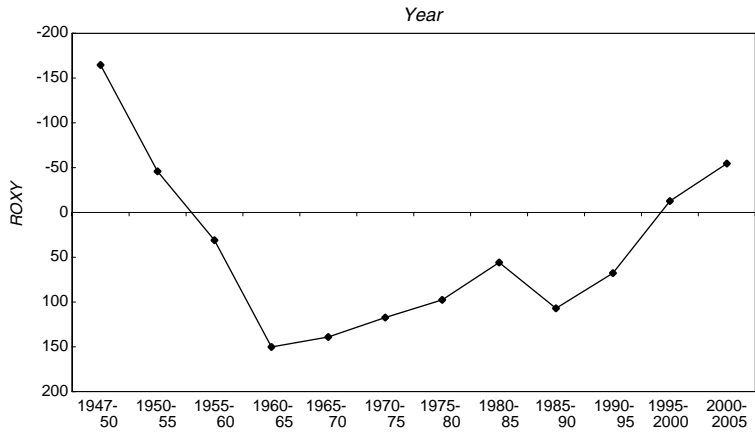


Figure 10 Spatial-cycle Path for the Chuo Railway-line Region in the Tokyo Metropolitan Area: Circular-cyclic Curve (Weighing Factor: CBD Distance (km))

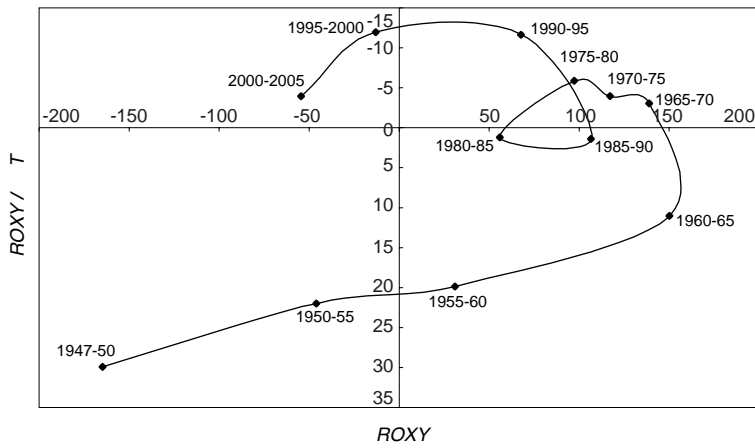


Figure 11 Spatial-cycle Path for the Takasaki Railway-line Region in the Tokyo Metropolitan Area: Wavelike-cyclic Curve (Weighing Factor: CBD Distance (km))

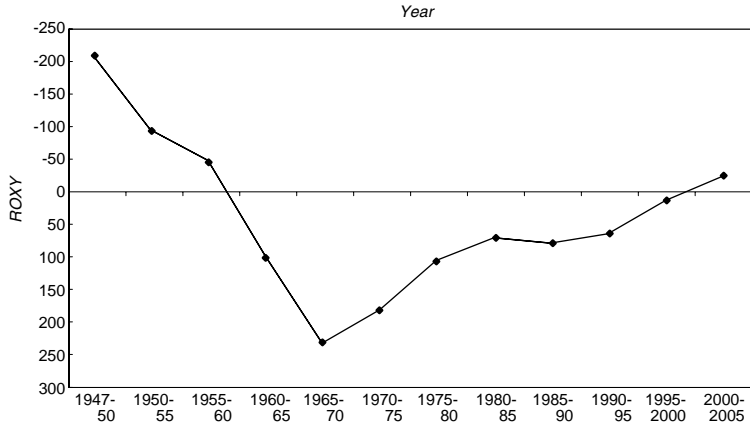


Figure 12 Spatial-cycle Path for the Takasaki Railway-line Region in the Tokyo Metropolitan Area: Circular-cyclic Curve (Weighing Factor: CBD Distance (km))

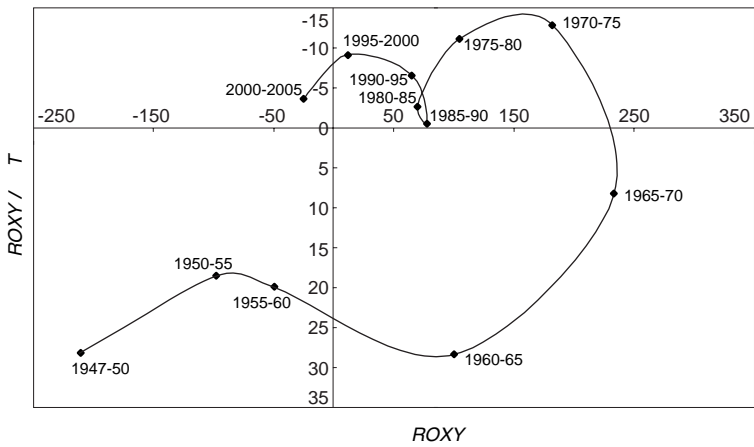


Figure 13 Spatial-cycle Path for the Joban Railway-line Region in the Tokyo Metropolitan Area: Wavelike-cyclic Curve (Weighing Factor: CBD Distance (km))

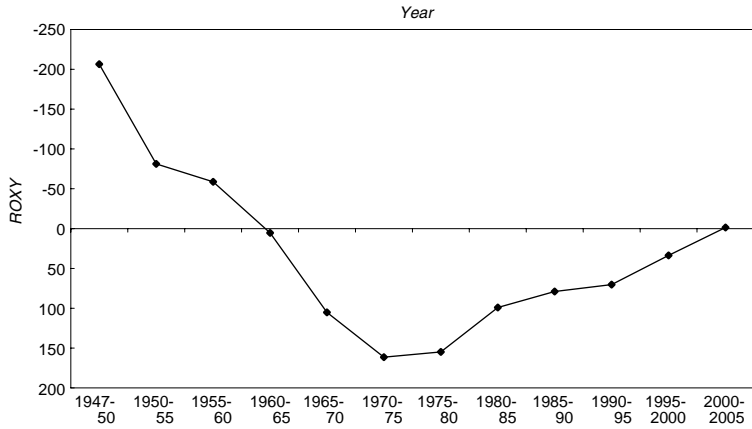


Figure 14 Spatial-cycle Path for the Joban Railway-line Region in the Tokyo Metropolitan Area: Circular-cyclic Curve (Weighing Factor: CBD Distance (km))

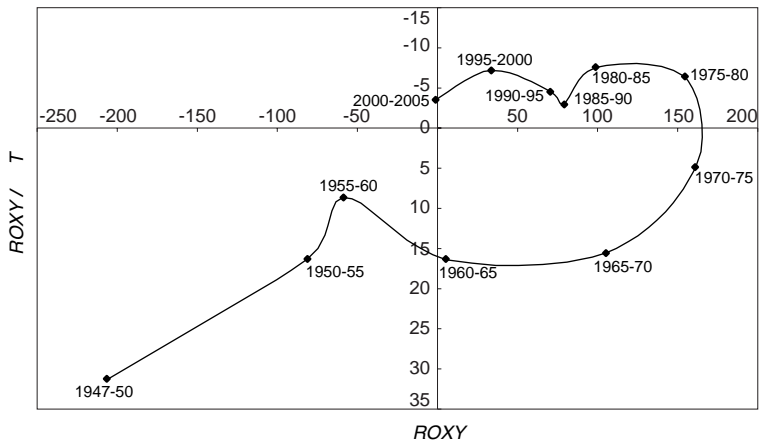


Figure 15 Spatial-cycle Path for the Sobu Railway-line Region in the Tokyo Metropolitan Area: Wavelike-cyclic Curve (Weighing Factor: CBD Distance (km))

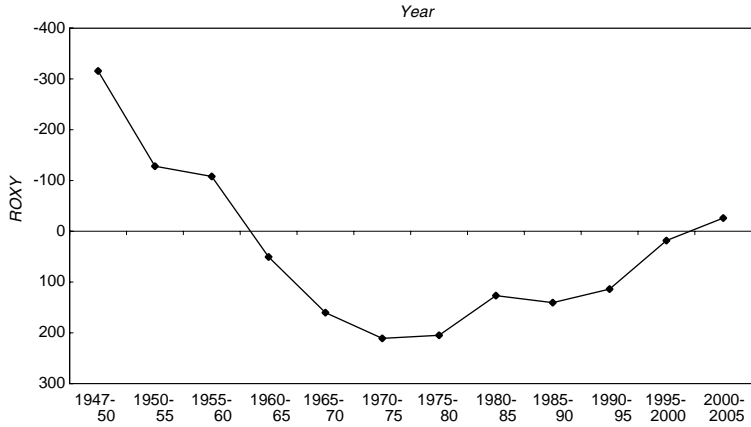
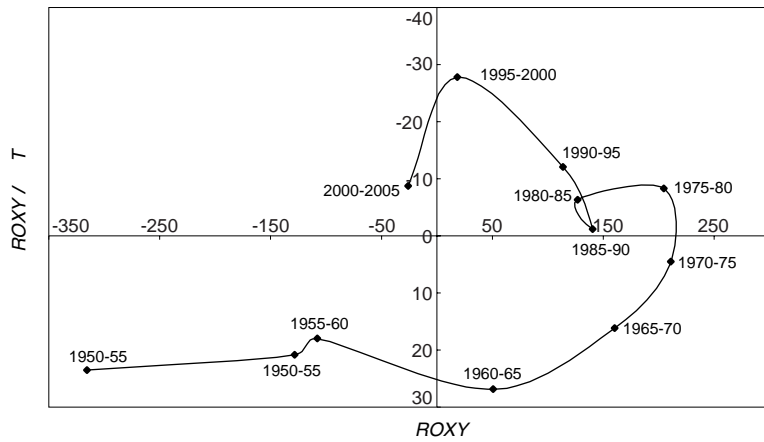


Figure 16 Spatial-cycle Path for the Sobu Railway-line Region in the Tokyo Metropolitan Area: Circular-cyclic Curve (Weighing Factor: CBD Distance (km))



## 5 Findings

The following are among the primary findings from our analysis.

### (1) Re-centralization (*i.e.*, re-urbanization)

The first arrival of the re-centralization stage<sup>6)</sup> of spatial cycles for the Tokyo Metropolitan Area in the postwar 60 years, after passing through the stages of decelerating centralization, accelerating decentralization and decelerating decentralization. This phenomenon would suggest that the core-area part of the Tokyo Metropolitan Area will significantly increase its important role in the future urban policies of Japan.

### (2) Periodic length of 80 ~ 100 years

There would possibly exist the urban spatial cycles with the estimated period of 80 ~ 100 years as to the spatial redistribution processes of the population in the Tokyo Metropolitan Area.

### (3) Clockwise spatial urban development

Rough tendency of the clockwise rotation in the “spatial urban development” is observed over the five major railway-line regions each of which radiates from the CBD of the Tokyo Metropolitan Area to its suburbs.<sup>7)</sup>

## 6 Conclusion

Having conducted our analysis, we are now eager to detect the causal relationships, by assuming their existence nearly without doubt, that would substantially govern the spatial cycle processes. This kind of feedback from the obtained outcomes of the empirical analysis to the construction of a new causality paradigm, should certainly be encouraged. I would not want to discount to any degree the tremendous importance of this kind of scientific attitude through which we try to find the “external explaining variables” controlling the path of spatial cycles. However, at the same time, we wonder whether there are not a few phenomena for which we can not successfully discover any suitable external explaining variables, perhaps because there are no such external relations existing. As for those phenomena, some insight might be gained that it would perhaps be appropriate for us to tackle such phenomena by suspecting the possible existence of a self-embedded mechanism within the phenomena that are administered by various sorts of internal urban genes which we can not easily manipulate externally. This approach might sometimes contribute to open our minds to grasp the so-far-well-hidden but critical factors of such phenomena. The more we have investigated the spatial cycle movements through the ROXY-index approach, the more we have become inclined to sense that the urban entity itself may have its own built-in urban genes to direct the urban dynamism, or its own internal self-organized mechanism to dictate the basic fate of spatial agglomeration and deglomeration transformation.

---

6 ) More precisely speaking, the stage of revived accelerating centralization or the stage of accelerating re-urbanization.

7 ) See the light-gray arrows in Figure 4.



## References

- Fukatsu A., and T. Kawashima, 1999, "Urbanization, Suburbanization and Revived-urbanization: ROXY-index Analysis for the Chuo-line Region of Tokyo," *Gakushuin Economic Papers (Gakushuin Daigaku Keizai Ronshuh)*, Vol.36, No.3, Gakushuin University, Tokyo.
- Glickman N., 1979, *The Growth and Management of the Japanese Urban System*, Academic Press, New York, USA.
- Hirvonen M., N. Hiraoka and T. Kawashima, 1999, "Long-term Urban Development of the Finnish Population: Application of the ROXY-index Analytical Method," *Gakushuin Economic Papers (Gakushuin Daigaku Keizai Ronshuh)*, Vol.36, No.2, Gakushuin University, Tokyo, pp.243- 263.
- Klaassen L. H., and J. H. Paelinck, 1979, "The Future of Large Towns," *Environment and Planning A*, Vol.11, No.11, pp.1095-1104.
- Klaassen L. H., J. A. Bourdrez and J.Volmuller, 1981, *Transport and Reurbanization*, Gower Publishing Company Limited, Hants, England.
- Kawashima T., 1978, "Recent Urban Evolution Processes in Japan: Analysis of Functional Urban Regions," presented at the Twenty-fifth North American Meetings of the Regional Science Association, Chicago, Illinois, USA, 1978.
- Kawashima T., 1981, "Urbanization and Metropolitan Analysis," *Shin-toshi*, Toshi Kyohkai, Tokyo, August 1981, pp.1-12 (in Japanese).
- Kawashima T., 1982, "Recent Urban Trends in Japan: Analysis of Functional Urban Regions," *Human Settlement System: Spatial Patterns and Trends*, T. Kawashima and P. Korcelli (eds.), International Institute for Applied Systems Analysis, Laxenburg, Austria.
- Kawashima T., and N. Hiraoka, 1993, "Mathematical Characteristics of ROXY Index (I): Distance and Reversed Distance Used as Weighing Factors," *Gakushuin Economic Papers (Gakushuin Daigaku Keizai Ronshu)*, Vol.30, No.2, Gakushuin University, Tokyo, pp.255-297.
- Kawashima T., and N. Hiraoka, 1995, "ROXY-index Analysis on the Spatial-cycle Path for Six Spatial Systems in Japan," *Gakushuin Economic Papers (Gakushuin Daigaku Keizai Ronshu)*, Vol.32, No.4, Gakushuin University, Tokyo, pp.201-255.
- Kawashima T., and N. Hiraoka, 2001, "ROXY Index Analysis of Spatial Cycles for Population Changes in Japan: Larger Metropolitan Areas and Smaller-and-Non-Metropolitan Areas," *Gakushuin Economic Papers (Gakushuin Daigaku Keizai Ronshu)*, Vol.37, No.3•4, Gakushuin University, Tokyo, pp.227-244.
- Mitsubishi Research Institute, 1999, *Toshikenbetsu Jinkou Suikei Chosa (Population Projections by Functional Urban Region)*, Tokyo (in Japanese).

## Appendices

Table A1 Population for the Tokyo Metropolitan Area (Core: Tokubetsu-ku)

(unit: person)

	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Core	4,177,837	5,385,071	6,969,104	8,310,027	8,893,094	8,840,942	8,646,520	8,351,893	8,354,615	8,163,573	7,967,614	8,134,688	8,483,050
Suburbs	5,456,410	5,855,052	6,633,222	7,757,513	10,281,933	13,328,456	16,245,308	18,098,359	19,570,082	21,218,811	22,150,116	22,845,477	23,587,848
Total	9,634,247	11,240,123	13,602,326	16,067,540	19,175,027	22,169,398	24,891,828	26,450,252	27,924,697	29,382,384	30,117,730	30,980,165	32,070,898

Table A2 Population Growth Ratio between Two Neighboring Census Years for the Tokyo Metropolitan Area

	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Core	1.2890	1.2942	1.1924	1.0702	0.9941	0.9780	0.9659	1.0003	0.9771	0.9760	1.0210	1.0428
Suburbs	1.0731	1.1329	1.1695	1.3254	1.2963	1.2188	1.1141	1.0813	1.0842	1.0439	1.0314	1.0325
Total	1.1667	1.2102	1.1812	1.1934	1.1562	1.1228	1.0626	1.0557	1.0522	1.0250	1.0286	1.0352

Table A3-1 Annual Growth Ratio of Population for the Tokyo Metropolitan Area

	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Core	1.0883	1.0529	1.0358	1.0137	0.9988	0.9956	0.9931	1.0001	0.9954	0.9952	1.0042	1.0084
Suburbs	1.0238	1.0253	1.0318	1.0580	1.0533	1.0404	1.0218	1.0158	1.0163	1.0086	1.0062	1.0064
Total	1.0527	1.0389	1.0339	1.0360	1.0294	1.0234	1.0122	1.0109	1.0102	1.0050	1.0057	1.0069

Table A3-2 Simple Average of the Annual Growth Ratio of Population for the Tokyo Metropolitan Area

	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Simple Average	1.0560	1.0391	1.0338	1.0358	1.0260	1.0180	1.0075	1.0079	1.0058	1.0019	1.0052	1.0074

Table A4 Weighted Average of Annual Growth Ratio of Population for the Tokyo Metropolitan Area (Weighting Factor: Core=0, Suburbs=1)

	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Weighted Average	1.0883	1.0529	1.0358	1.0137	0.9988	0.9956	0.9931	1.0001	0.9954	0.9952	1.0042	1.0084

Table A5 Population for Localities of the Tokaido Railway-line Region in the Tokyo Metropolitan Area (unit: person)

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	139,179	161,925	171,316	161,299	128,017	103,850	90,097	82,700	79,973	68,041	63,923	72,526	98,135
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	89,681	110,348	122,745	116,944	93,047	74,185	61,656	54,801	50,493	39,472	34,780	36,035	41,721
Minato-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.4	164,966	216,120	254,592	267,024	241,539	223,978	209,492	201,257	194,591	158,499	144,885	159,398	185,649
Shinagawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.1	219,562	288,624	373,341	427,859	423,015	397,302	366,058	346,247	357,732	344,611	325,377	324,608	346,361
Ohta-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.6	313,684	400,327	568,498	706,217	755,535	734,990	691,337	661,147	662,814	647,914	636,276	650,331	665,370
Saiwai-ku <sup>1)</sup>	Kanagawa-ken	Kawasaki-shi	S	15.6	46,695	56,709	76,037	103,614	133,974	145,773	148,756	138,585	137,306	142,320	139,134	136,487	144,513
Kawasaki-ku <sup>2)</sup>	Kanagawa-ken	Kawasaki-shi	S	17.1	68,678	83,193	111,237	151,123	194,758	211,143	216,569	199,148	193,954	200,056	196,338	194,091	203,777
Turumi-ku	Kanagawa-ken	Yokohama-shi	S	19.8	142,427	170,868	201,028	230,377	255,755	256,360	242,808	231,477	237,083	250,100	251,232	254,103	264,450
Kanagawa-ku	Kanagawa-ken	Yokohama-shi	S	24.9	85,456	107,068	142,797	172,068	196,258	207,362	213,645	201,794	201,062	205,510	206,158	210,724	221,832
Nishi-ku	Kanagawa-ken	Yokohama-shi	S	27.6	66,442	85,292	100,446	104,173	104,255	132,470	89,015	80,539	78,858	76,978	75,758	78,320	84,960
Hodogaya-ku <sup>2)</sup>	Kanagawa-ken	Yokohama-shi	S	28.0	64,778	74,156	96,822	143,804	223,038	327,953	377,337	390,747	418,557	444,677	448,487	454,478	453,887
Totsuka-ku <sup>3)</sup>	Kanagawa-ken	Yokohama-shi	S	37.1	65,330	69,425	82,084	113,514	207,606	248,696	339,420	402,239	444,116	489,168	505,763	516,705	537,764
Kamakura-shi	Kanagawa-ken	-	S	44.3	81,277	85,391	91,328	98,617	118,329	139,249	165,552	172,629	175,495	174,307	170,329	167,583	171,122
Fujisawa-shi	Kanagawa-ken	-	S	44.9	90,971	96,880	109,101	124,601	175,183	228,978	265,975	300,248	328,387	350,330	368,651	379,185	395,997
Chigasaki-shi	Kanagawa-ken	-	S	50.1	46,409	50,112	56,895	68,054	100,081	129,621	152,023	171,016	185,030	201,675	212,874	220,809	228,430
Total (15 Localities)					1,685,535	2,056,438	2,558,267	2,989,290	3,350,390	3,561,910	3,629,740	3,634,574	3,745,451	3,793,658	3,779,965	3,855,383	4,043,968
Core Total (5 Localities)					927,072	1,177,344	1,490,492	1,679,345	1,641,153	1,534,305	1,418,640	1,346,152	1,345,603	1,258,537	1,205,241	1,242,898	1,337,236
Suburbs Total (10 Localities)					758,463	879,094	1,067,775	1,309,945	1,709,237	2,027,605	2,211,100	2,288,422	2,399,848	2,535,121	2,574,724	2,612,485	2,706,732

37

Table A6 Population Growth Ratio between Two Neighbouring Census Years, for Localities of the Tokaido Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.1634	1.0580	0.9415	0.7937	0.8112	0.8676	0.9179	0.9670	0.8508	0.9395	1.1346	1.3531
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.2305	1.1123	0.9527	0.7957	0.7973	0.8311	0.8888	0.9214	0.7817	0.8811	1.0361	1.1578
Minato-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.4	1.3101	1.1780	1.0488	0.9046	0.9273	0.9353	0.9607	0.9669	0.8145	0.9141	1.1002	1.1647
Shinagawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.1	1.3145	1.2935	1.1460	0.9887	0.9392	0.9214	0.9459	1.0332	0.9633	0.9442	0.9976	1.0670
Ohta-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.6	1.2762	1.4201	1.2423	1.0698	0.9728	0.9406	0.9563	1.0025	0.9775	0.9820	1.0221	1.0231
Saiwai-ku	Kanagawa-ken	Kawasaki-shi	S	15.6	1.2145	1.3408	1.3627	1.2930	1.0881	1.0205	0.9316	0.9908	1.0365	0.9776	0.9810	1.0588
Kawasaki-ku	Kanagawa-ken	Kawasaki-shi	S	17.1	1.2113	1.3371	1.3586	1.2887	1.0841	1.0257	0.9196	0.9739	1.0315	0.9814	0.9886	1.0499
Turumi-ku	Kanagawa-ken	Yokohama-shi	S	19.8	1.1997	1.1765	1.1460	1.1102	1.0024	0.9471	0.9533	1.0242	1.0549	1.0045	1.0114	1.0407
Kanagawa-ku	Kanagawa-ken	Yokohama-shi	S	24.9	1.2529	1.3337	1.2050	1.1406	1.0566	1.0303	0.9445	0.9964	1.0221	1.0032	1.0221	1.0527
Nishi-ku	Kanagawa-ken	Yokohama-shi	S	27.6	1.2837	1.1777	1.0371	1.0008	1.2706	0.6720	0.9048	0.9791	0.9762	0.9842	1.0338	1.0848
Hodogaya-ku	Kanagawa-ken	Yokohama-shi	S	28.0	1.1448	1.3057	1.4852	1.5510	1.4704	1.1506	1.0355	1.0712	1.0624	1.0086	1.0134	0.9987
Totsuka-ku	Kanagawa-ken	Yokohama-shi	S	37.1	1.0627	1.1823	1.3829	1.8289	1.1979	1.3648	1.1851	1.1041	1.1014	1.0339	1.0216	1.0408
Kamakura-shi	Kanagawa-ken	-	S	44.3	1.0506	1.0695	1.0798	1.1999	1.1768	1.1889	1.0427	1.0166	0.9932	0.9772	0.9839	1.0211
Fujisawa-shi	Kanagawa-ken	-	S	44.9	1.0650	1.1261	1.1421	1.4060	1.3071	1.1616	1.1289	1.0937	1.0668	1.0523	1.0286	1.0443
Chigasaki-shi	Kanagawa-ken	-	S	50.1	1.0798	1.1354	1.1961	1.4706	1.2952	1.1728	1.1249	1.0819	1.0900	1.0555	1.0373	1.0345
Total (15 Localities)					1.2201	1.2440	1.1685	1.1208	1.0631	1.0190	1.0013	1.0305	1.0129	0.9964	1.0200	1.0489
Core Total (5 Localities)					1.2700	1.2660	1.1267	0.9773	0.9349	0.9246	0.9489	0.9996	0.9353	0.9577	1.0312	1.0759
Suburbs Total (10 Localities)					1.1590	1.2146	1.2268	1.3048	1.1863	1.0905	1.0350	1.0487	1.0564	1.0156	1.0147	1.0361

Table A7 Annual Growth Ratio of Population for Localities of the Tokaido Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.0518	1.0113	0.9880	0.9548	0.9590	0.9720	0.9830	0.9933	0.9682	0.9876	1.0256	1.0623
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.0716	1.0215	0.9904	0.9553	0.9557	0.9637	0.9767	0.9838	0.9519	0.9750	1.0071	1.0297
Minato-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.4	1.0942	1.0333	1.0096	0.9801	0.9850	0.9867	0.9920	0.9933	0.9598	0.9822	1.0193	1.0310
Shinagawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.1	1.0954	1.0528	1.0276	0.9977	0.9875	0.9838	0.9889	1.0065	0.9926	0.9886	0.9995	1.0131
Ohta-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.6	1.0847	1.0727	1.0443	1.0136	0.9945	0.9878	0.9911	1.0005	0.9955	0.9964	1.0044	1.0046
Saiwai-ku <sup>1)</sup>	Kanagawa-ken	Kawasaki-shi	S	15.6	1.0669	1.0604	1.0638	1.0527	1.0170	1.0041	0.9859	0.9981	1.0072	0.9955	0.9962	1.0115
Kawasaki-ku <sup>2)</sup>	Kanagawa-ken	Kawasaki-shi	S	17.1	1.0660	1.0598	1.0632	1.0520	1.0163	1.0051	0.9834	0.9947	1.0062	0.9963	0.9977	1.0098
Turumi-ku	Kanagawa-ken	Yokohama-shi	S	19.8	1.0626	1.0330	1.0276	1.0211	1.0005	0.9892	0.9905	1.0048	1.0107	1.0009	1.0023	1.0080
Kanagawa-ku	Kanagawa-ken	Yokohama-shi	S	24.9	1.0781	1.0593	1.0380	1.0267	1.0111	1.0060	0.9887	0.9993	1.0044	1.0006	1.0044	1.0103
Nishi-ku	Kanagawa-ken	Yokohama-shi	S	27.6	1.0868	1.0332	1.0073	1.0002	1.0491	0.9236	0.9802	0.9958	0.9952	0.9968	1.0067	1.0164
Hodogaya-ku <sup>2)</sup>	Kanagawa-ken	Yokohama-shi	S	28.0	1.0461	1.0548	1.0823	1.0917	1.0802	1.0285	1.0070	1.0138	1.0122	1.0017	1.0027	0.9997
Totsuka-ku <sup>3)</sup>	Kanagawa-ken	Yokohama-shi	S	37.1	1.0205	1.0341	1.0670	1.1283	1.0368	1.0642	1.0345	1.0200	1.0195	1.0067	1.0043	1.0080
Kamakura-shi	Kanagawa-ken	-	S	44.3	1.0166	1.0135	1.0155	1.0371	1.0331	1.0352	1.0084	1.0033	0.9986	0.9954	0.9968	1.0042
Fujisawa-shi	Kanagawa-ken	-	S	44.9	1.0212	1.0240	1.0269	1.0705	1.0550	1.0304	1.0245	1.0181	1.0130	1.0102	1.0057	1.0087
Chigasaki-shi	Kanagawa-ken	-	S	50.1	1.0259	1.0257	1.0365	1.0802	1.0531	1.0324	1.0238	1.0159	1.0174	1.0109	1.0073	1.0068
Simple Average of Annual Growth Ratio for the Total Population: [A]					1.0592	1.0393	1.0325	1.0308	1.0156	1.0008	0.9972	1.0028	0.9968	0.9963	1.0053	1.0149
Simple Average of Annual Growth Ratio for the Core Population: [B]					1.0795	1.0383	1.0120	0.9803	0.9764	0.9788	0.9864	0.9955	0.9736	0.9860	1.0112	1.0281
Simple Average of Annual Growth Ratio for the Suburbs Population: [C]					1.0491	1.0398	1.0428	1.0561	1.0352	1.0119	1.0027	1.0064	1.0084	1.0015	1.0024	1.0084
Average of S.A. Annual Growth Ratio for the Suburbs and Core Population: [(B+C)/2]					1.0643	1.0391	1.0274	1.0182	1.0058	0.9953	0.9945	1.0009	0.9910	0.9937	1.0068	1.0182

Table A8 Weighted Annual Growth Ratio of Population for Localities of the Tokaido Railway-line Region in the Tokyo Metropolitan Area (Weighting Factor: CBD Distance (km))

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005	
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.1569	1.1125	1.0868	1.0503	1.0549	1.0692	1.0813	1.0926	1.0650	1.0864	1.1281	1.1686	
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	2.2503	2.1452	2.0798	2.0062	2.0070	2.0237	2.0511	2.0659	1.9991	2.0475	2.1149	2.1624	
Minato-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.4	2.6261	2.4799	2.4230	2.3523	2.3640	2.3681	2.3808	2.3839	2.3035	2.3573	2.4463	2.4743	
Shinagawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.1	8.8731	8.5279	8.3238	8.0816	7.9990	7.9684	8.0104	8.1530	8.0397	8.0075	8.0962	8.2058	
Ohta-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.6	12.5825	12.4429	12.1143	11.7577	11.5362	11.4588	11.4969	11.6058	11.5474	11.5580	11.6508	11.6532	
Saiwai-ku	Kanagawa-ken	Kawasaki-shi	S	15.6	16.6438	16.5424	16.5960	16.4227	15.8656	15.6633	15.3806	15.5711	15.7123	15.5295	15.5402	15.7793	
Kawasaki-ku	Kanagawa-ken	Kawasaki-shi	S	17.1	18.2286	18.1229	18.1808	17.9899	17.3785	17.1870	16.8156	17.0099	17.2063	17.0360	17.0607	17.2674	
Turumi-ku	Kanagawa-ken	Yokohama-shi	S	19.8	21.0388	20.4543	20.3471	20.2182	19.8094	19.5861	19.6117	19.8950	20.0128	19.8179	19.8450	19.9587	
Kanagawa-ku	Kanagawa-ken	Yokohama-shi	S	24.9	26.8435	26.3761	25.8461	25.5638	25.1756	25.0491	24.6174	24.8819	25.0092	24.9157	25.0093	25.1571	
Nishi-ku	Kanagawa-ken	Yokohama-shi	S	27.6	29.9961	28.5177	27.8018	27.6043	28.9543	25.4905	27.0531	27.4838	27.4671	27.5120	27.7842	28.0529	
Hodogaya-ku	Kanagawa-ken	Yokohama-shi	S	28.0	29.2908	29.5341	30.3052	30.5689	30.2444	28.7966	28.1962	28.3877	28.3411	28.0478	28.0744	27.9927	
Totsuka-ku	Kanagawa-ken	Yokohama-shi	S	37.1	37.8595	38.3639	39.5851	41.8612	38.4645	39.4810	38.3816	37.8422	37.8239	37.3484	37.2592	37.3976	
Kamakura-shi	Kanagawa-ken	-	S	44.3	45.0352	44.8996	44.9856	45.9443	45.7661	45.8598	44.6724	44.4461	44.2399	44.0959	44.1562	44.4855	
Fujisawa-shi	Kanagawa-ken	-	S	44.9	45.8518	45.9796	46.1089	48.0663	47.3704	46.2653	46.0017	45.7117	45.4846	45.3601	45.1537	45.2913	
Chigasaki-shi	Kanagawa-ken	-	S	50.1	51.3986	51.3883	51.9270	54.1174	52.7597	51.7231	51.2936	50.8954	50.9706	50.6444	50.4681	50.4412	
Weighted Average of Annual Growth Ratio					334.7	1.0447	1.0364	1.0389	1.0565	1.0360	1.0158	1.0070	1.0081	1.0075	1.0020	1.0032	1.0083

Table A9 Population for Localities of the Chuo Railway-line Region in the Tokyo Metropolitan Area (unit: person)

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	139,179	161,925	171,316	161,299	128,017	103,850	90,097	82,700	79,973	68,041	63,923	72,526	98,135
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	89,681	110,348	122,745	116,944	93,047	74,185	61,656	54,801	50,493	39,472	34,780	36,035	41,721
Sinjuku-ku	Tokyo-to	Tokyo-tokubetu-ku	C	5.7	153,924	246,373	348,675	413,690	413,910	390,657	367,218	343,928	332,722	296,790	279,048	286,726	302,287
Shibuya-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.1	131,682	181,244	243,410	282,687	283,730	274,491	263,815	247,035	242,442	205,625	188,472	196,682	203,129
Nakano-ku	Tokyo-to	Tokyo-tokubetu-ku	C	9.6	168,010	213,198	288,808	351,360	376,697	378,723	373,075	345,733	335,936	319,687	306,581	309,526	310,210
Suginami-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.7	284,698	326,873	406,022	487,210	536,792	553,016	560,716	542,449	539,842	529,485	515,803	522,103	528,180
Musashino-shi	Tokyo-to	-	S	18.5	63,479	73,149	94,948	120,337	133,516	136,959	139,493	136,895	138,783	139,077	135,051	135,746	137,464
Mitaka-shi	Tokyo-to	-	S	18.5	50,699	54,820	69,466	98,038	135,873	155,693	164,852	164,449	166,252	165,564	165,721	171,612	177,031
Koganei-shi	Tokyo-to	-	S	23.7	19,583	22,624	30,349	45,734	76,350	94,448	102,703	102,412	104,642	105,899	109,279	111,825	114,114
Fuchu-shi	Tokyo-to	-	S	25.8	40,828	45,240	58,804	82,098	126,235	163,173	182,379	191,980	201,972	209,396	216,211	226,769	245,626
Kokubunji-shi	Tokyo-to	-	S	27.5	16,389	19,135	25,763	39,098	64,911	81,259	88,155	91,014	95,467	100,982	105,786	111,404	117,663
Kunitachi-shi	Tokyo-to	-	S	29.2	10,539	14,766	23,242	32,609	43,477	59,709	64,404	64,154	64,881	65,833	66,719	72,187	72,669
Tachikawa-shi	Tokyo-to	-	S	31.0	60,028	63,214	76,309	81,951	100,699	117,057	138,097	142,600	146,523	152,824	157,884	164,709	174,287
Hino-shi	Tokyo-to	-	S	33.2	22,944	24,444	27,305	43,394	67,979	98,557	126,754	145,417	156,031	165,928	166,537	167,942	176,490
Hachioji-shi	Tokyo-to	-	S	40.3	120,463	131,408	148,061	164,622	207,753	253,527	322,558	387,162	426,654	466,347	503,363	536,046	560,048
Fujino-machi	Kanagawa-ken	-	S	55.5	9,697	9,605	9,365	8,659	8,473	8,295	8,571	9,470	10,186	10,729	11,473	11,312	10,825
Total (16 Localities)					1,381,823	1,698,366	2,144,588	2,529,730	2,797,459	2,943,599	3,054,543	3,052,199	3,092,799	3,041,679	3,026,631	3,133,150	3,269,879
Core Total (6 Localities)					967,174	1,239,961	1,580,976	1,813,190	1,832,193	1,774,922	1,716,577	1,616,646	1,581,408	1,459,100	1,388,607	1,423,598	1,483,662
Suburbs Total (10 Localities)					414,649	458,405	563,612	716,540	965,266	1,168,677	1,337,966	1,435,553	1,511,391	1,582,579	1,638,024	1,709,552	1,786,217

Table A10 Population Growth Ratio between Two Neighbouring Census Years, for Localities of the Chuo Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.1634	1.0580	0.9415	0.7937	0.8112	0.8676	0.9179	0.9670	0.8508	0.9395	1.1346	1.3531
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.2305	1.1123	0.9527	0.7957	0.7973	0.8311	0.8888	0.9214	0.7817	0.8811	1.0361	1.1578
Sinjuku-ku	Tokyo-to	Tokyo-tokubetu-ku	C	5.7	1.6006	1.4152	1.1865	1.0005	0.9438	0.9400	0.9366	0.9674	0.8920	0.9402	1.0275	1.0543
Shibuya-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.1	1.3764	1.3430	1.1614	1.0037	0.9674	0.9611	0.9364	0.9814	0.8481	0.9166	1.0436	1.0328
Nakano-ku	Tokyo-to	Tokyo-tokubetu-ku	C	9.6	1.2690	1.3546	1.2166	1.0721	1.0054	0.9851	0.9267	0.9717	0.9516	0.9590	1.0096	1.0022
Suginami-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.7	1.1481	1.2421	1.2000	1.1018	1.0302	1.0139	0.9674	0.9952	0.9808	0.9742	1.0122	1.0116
Musashino-shi	Tokyo-to	-	S	18.5	1.1523	1.2980	1.2674	1.1095	1.0258	1.0185	0.9814	1.0138	1.0021	0.9711	1.0051	1.0127
Mitaka-shi	Tokyo-to	-	S	18.5	1.0813	1.2672	1.4113	1.3859	1.1459	1.0588	0.9976	1.0110	0.9959	1.0009	1.0355	1.0316
Koganei-shi	Tokyo-to	-	S	23.7	1.1553	1.3415	1.5069	1.6694	1.2370	1.0874	0.9972	1.0218	1.0120	1.0319	1.0233	1.0205
Fuchu-shi	Tokyo-to	-	S	25.8	1.1081	1.2998	1.3961	1.5376	1.2926	1.1177	1.0526	1.0520	1.0368	1.0325	1.0488	1.0832
Kokubunji-shi	Tokyo-to	-	S	27.5	1.1676	1.3464	1.5176	1.6602	1.2519	1.0849	1.0324	1.0489	1.0578	1.0476	1.0531	1.0562
Kunitachi-shi	Tokyo-to	-	S	29.2	1.4011	1.5740	1.4030	1.3333	1.3733	1.0786	0.9961	1.0113	1.0147	1.0135	1.0820	1.0067
Tachikawa-shi	Tokyo-to	-	S	31.0	1.0531	1.2072	1.0739	1.2288	1.1624	1.1797	1.0326	1.0275	1.0430	1.0331	1.0432	1.0582
Hino-shi	Tokyo-to	-	S	33.2	1.0654	1.1170	1.5892	1.5666	1.4498	1.2861	1.1472	1.0730	1.0634	1.0037	1.0084	1.0509
Hachioji-shi	Tokyo-to	-	S	40.3	1.0909	1.1267	1.1119	1.2620	1.2203	1.2723	1.2003	1.1020	1.0930	1.0794	1.0649	1.0448
Fujino-machi	Kanagawa-ken	-	S	55.5	0.9905	0.9750	0.9246	0.9785	0.9790	1.0333	1.1049	1.0756	1.0533	1.0693	0.9860	0.9569
Total (16 Localities)					1.2291	1.2627	1.1796	1.1058	1.0522	1.0377	0.9992	1.0133	0.9835	0.9951	1.0352	1.0436
Core Total (6 Localities)					1.2820	1.2750	1.1469	1.0105	0.9687	0.9671	0.9418	0.9782	0.9227	0.9517	1.0252	1.0422
Suburbs Total (10 Localities)					1.1055	1.2295	1.2713	1.3471	1.2107	1.1449	1.0729	1.0528	1.0471	1.0350	1.0437	1.0448

Table A11 Annual Growth Ratio of Population for Localities of the Chuo Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.0518	1.0113	0.9880	0.9548	0.9590	0.9720	0.9830	0.9933	0.9682	0.9876	1.0256	1.0623
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.0716	1.0215	0.9904	0.9553	0.9557	0.9637	0.9767	0.9838	0.9519	0.9750	1.0071	1.0297
Sinjuku-ku	Tokyo-to	Tokyo-tokubetu-ku	C	5.7	1.1698	1.0719	1.0348	1.0001	0.9885	0.9877	0.9870	0.9934	0.9774	0.9877	1.0054	1.0106
Shibuya-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.1	1.1124	1.0608	1.0304	1.0007	0.9934	0.9921	0.9869	0.9963	0.9676	0.9827	1.0086	1.0065
Nakano-ku	Tokyo-to	Tokyo-tokubetu-ku	C	9.6	1.0826	1.0626	1.0400	1.0140	1.0011	0.9970	0.9849	0.9943	0.9901	0.9917	1.0019	1.0004
Suginami-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.7	1.0471	1.0443	1.0371	1.0196	1.0060	1.0028	0.9934	0.9990	0.9961	0.9948	1.0024	1.0023
Musashino-shi	Tokyo-to	-	S	18.5	1.0484	1.0536	1.0485	1.0210	1.0051	1.0037	0.9962	1.0027	1.0004	0.9941	1.0010	1.0025
Mitaka-shi	Tokyo-to	-	S	18.5	1.0264	1.0485	1.0713	1.0675	1.0276	1.0115	0.9995	1.0022	0.9992	1.0002	1.0070	1.0062
Koganei-shi	Tokyo-to	-	S	23.7	1.0493	1.0605	1.0855	1.1079	1.0435	1.0169	0.9994	1.0043	1.0024	1.0063	1.0046	1.0041
Fuchu-shi	Tokyo-to	-	S	25.8	1.0348	1.0538	1.0690	1.0899	1.0527	1.0225	1.0103	1.0102	1.0072	1.0064	1.0096	1.0161
Kokubunji-shi	Tokyo-to	-	S	27.5	1.0530	1.0613	1.0870	1.1067	1.0459	1.0164	1.0064	1.0096	1.0113	1.0093	1.0104	1.0110
Kunitachi-shi	Tokyo-to	-	S	29.2	1.1190	1.0950	1.0701	1.0592	1.0655	1.0153	0.9992	1.0023	1.0029	1.0027	1.0159	1.0013
Tachikawa-shi	Tokyo-to	-	S	31.0	1.0174	1.0384	1.0144	1.0421	1.0306	1.0336	1.0064	1.0054	1.0085	1.0065	1.0085	1.0114
Hino-shi	Tokyo-to	-	S	33.2	1.0213	1.0224	1.0971	1.0939	1.0771	1.0516	1.0279	1.0142	1.0124	1.0007	1.0017	1.0100
Hachioji-shi	Tokyo-to	-	S	40.3	1.0294	1.0242	1.0214	1.0476	1.0406	1.0493	1.0372	1.0196	1.0180	1.0154	1.0127	1.0088
Fujino-machi	Kanagawa-ken	-	S	55.5	0.9968	0.9950	0.9844	0.9957	0.9958	1.0066	1.0201	1.0147	1.0104	1.0135	0.9972	0.9912
Simple Average of Annual Growth Ratio for the Total Population: [A]					1.0582	1.0453	1.0418	1.0360	1.0180	1.0089	1.0009	1.0028	0.9953	0.9984	1.0075	1.0109
Simple Average of Annual Growth Ratio for the Core Population: [B]					1.0892	1.0454	1.0201	0.9908	0.9839	0.9859	0.9853	0.9933	0.9752	0.9866	1.0085	1.0187
Simple Average of Annual Growth Ratio for the Suburbs Population: [C]					1.0396	1.0453	1.0549	1.0631	1.0384	1.0227	1.0103	1.0085	1.0073	1.0055	1.0069	1.0063
Average of S.A. Annual Growth Ratio for the Suburbs and Core Population: [(B+C)/2]					1.0644	1.0453	1.0375	1.0270	1.0112	1.0043	0.9978	1.0009	0.9913	0.9961	1.0077	1.0125

40

Table A12 Weighted Annual Growth Ratio of Population for Localities of the Chuo Railway-line Region in the Tokyo Metropolitan Area (Weighting Factor: CBD Distance (km))

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005	
Chuo-ku	Tokyo-to	Tokyo-tokubetu-ku	C	1.1	1.1569	1.1125	1.0868	1.0503	1.0549	1.0692	1.0813	1.0926	1.0650	1.0864	1.1281	1.1686	
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	2.2503	2.1452	2.0798	2.0062	2.0070	2.0237	2.0511	2.0659	1.9991	2.0475	2.1149	2.1624	
Sinjuku-ku	Tokyo-to	Tokyo-tokubetu-ku	C	5.7	6.6676	6.1100	5.8983	5.7006	5.6345	5.6299	5.6258	5.6624	5.5712	5.6302	5.7310	5.7606	
Shibuya-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.1	6.7854	6.4706	6.2853	6.1045	6.0597	6.0518	6.0203	6.0771	5.9023	5.9947	6.1522	6.1395	
Nakano-ku	Tokyo-to	Tokyo-tokubetu-ku	C	9.6	10.3933	10.2009	9.9839	9.7346	9.6103	9.5712	9.4550	9.5450	9.5053	9.5200	9.6184	9.6042	
Suginami-ku	Tokyo-to	Tokyo-tokubetu-ku	C	11.7	12.2514	12.2186	12.1344	11.9290	11.7699	11.7324	11.6228	11.6887	11.6548	11.6389	11.7284	11.7271	
Musashino-shi	Tokyo-to	-	S	18.5	19.3954	19.4907	19.3979	18.8885	18.5944	18.5680	18.4306	18.5507	18.5078	18.3916	18.5190	18.5466	
Mitaka-shi	Tokyo-to	-	S	18.5	18.9883	19.3972	19.8197	19.7478	19.0107	18.7127	18.4909	18.5404	18.4847	18.5035	18.6297	18.6154	
Koganei-shi	Tokyo-to	-	S	23.7	24.8682	25.1341	25.7257	26.2580	24.7301	24.1005	23.6866	23.8023	23.7567	23.8494	23.8094	23.7962	
Fuchu-shi	Tokyo-to	-	S	25.8	26.6977	27.1892	27.5807	28.1183	27.1590	26.3806	26.0661	26.0631	25.9869	25.9658	26.0472	26.2155	
Kokubunji-shi	Tokyo-to	-	S	27.5	28.9573	29.1854	29.8926	30.4344	28.7636	27.9517	27.6761	27.7640	27.8106	27.7568	27.7861	27.8023	
Kunitachi-shi	Tokyo-to	-	S	29.2	32.6741	31.9731	31.2461	30.9291	31.1128	29.6454	29.1773	29.2659	29.2852	29.2782	29.6637	29.2389	
Tachikawa-shi	Tokyo-to	-	S	31.0	31.5390	32.1895	31.4454	32.3040	31.9474	32.0420	31.1996	31.1687	31.2622	31.2026	31.2635	31.3524	
Hino-shi	Tokyo-to	-	S	33.2	33.9083	33.9431	36.4230	36.3184	35.7603	34.9135	34.1247	33.6711	33.6109	33.2243	33.2558	33.5313	
Hachioji-shi	Tokyo-to	-	S	40.3	41.4853	41.2733	41.1637	42.2199	41.9373	42.2884	41.7986	41.0905	41.0234	40.9204	40.8102	40.6546	
Fujino-machi	Kanagawa-ken	-	S	55.5	55.3239	55.2198	54.6368	55.2595	55.2648	55.8645	56.6183	56.3150	56.0795	56.2492	55.3434	55.0137	
Weighted Average of Annual Growth Ratio					339.5	1.0408	1.0405	1.0451	1.0516	1.0322	1.0208	1.0107	1.0084	1.0059	1.0052	1.0062	1.0054

Table A13 Population for Localities of the Takasaki Railway-line Region in the Tokyo Metropolitan Area (unit: person)

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	195,943	262,159	310,058	318,889	286,324	240,769	207,649	186,048	176,804	162,969	153,918	156,325	165,193
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	144,705	201,064	253,323	285,480	278,412	247,013	217,905	198,126	190,061	184,809	176,886	180,468	191,145
Kita-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.9	202,712	267,386	351,532	418,603	452,064	431,219	419,996	387,458	367,579	354,647	334,127	326,764	330,378
Kawaguchi-shi	Saitama-ken	-	S	14.8	110,876	118,761	137,771	173,692	249,112	305,886	345,547	379,357	403,015	438,680	448,854	460,027	479,986
Warabi-shi	Saitama-ken	-	S	18.0	27,964	29,846	35,184	50,952	69,715	77,225	76,312	70,876	70,408	73,620	72,021	71,063	69,995
Saitama-shi	Saitama-ken	-	S	23.2	298,576	319,145	364,247	420,442	530,661	657,425	813,711	879,284	921,757	1,007,569	1,078,545	1,133,300	1,176,269
Ageo-shi	Saitama-ken	-	S	36.5	31,640	32,613	35,395	38,889	54,776	110,792	146,359	166,244	178,587	194,947	206,090	212,947	220,223
Okegawa-shi	Saitama-ken	-	S	40.2	19,251	19,555	19,790	21,309	28,108	38,717	48,034	55,746	61,499	69,029	73,084	73,967	73,675
Kitamoto-shi	Saitama-ken	-	S	44.0	12,717	13,457	14,263	15,483	20,576	31,699	46,632	50,888	58,114	63,929	69,929	69,524	70,110
Kounosu-shi	Saitama-ken	-	S	48.0	51,102	50,827	51,174	51,760	58,296	66,318	77,549	86,855	92,971	107,124	116,421	124,318	119,588
Gyoda-shi	Saitama-ken	-	S	58.0	53,319	53,950	55,611	54,746	56,152	60,135	66,069	73,205	79,359	83,181	86,170	86,308	84,720
Total (11 Localities)					1,148,805	1,368,763	1,628,348	1,850,245	2,084,196	2,267,198	2,465,763	2,534,087	2,600,154	2,740,504	2,816,045	2,895,011	2,981,282
Core Total (3 Localities)					543,360	730,609	914,913	1,022,972	1,016,800	919,001	845,550	771,632	734,444	702,425	664,931	663,557	686,716
Suburbs Total (8 Localities)					605,445	638,154	713,435	827,273	1,067,396	1,348,197	1,620,213	1,762,455	1,865,710	2,038,079	2,151,114	2,231,454	2,294,566

Table A14 Population Growth Ratio between Two Neighbouring Census Years, for Localities of the Takasaki Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.3379	1.1827	1.0285	0.8979	0.8409	0.8624	0.8960	0.9503	0.9217	0.9445	1.0156	1.0567
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	1.3895	1.2599	1.1269	0.9752	0.8872	0.8822	0.9092	0.9593	0.9724	0.9571	1.0203	1.0592
Kita-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.9	1.3190	1.3147	1.1908	1.0799	0.9539	0.9740	0.9225	0.9487	0.9648	0.9421	0.9780	1.0111
Kawaguchi-shi	Saitama-ken	-	S	14.8	1.0711	1.1601	1.2607	1.4342	1.2279	1.1297	1.0978	1.0624	1.0885	1.0232	1.0249	1.0434
Warabi-shi	Saitama-ken	-	S	18.0	1.0673	1.1789	1.4482	1.3682	1.1077	0.9882	0.9288	0.9934	1.0456	0.9783	0.9867	0.9850
Saitama-shi	Saitama-ken	-	S	23.2	1.0689	1.1413	1.1543	1.2622	1.2389	1.2377	1.0806	1.0483	1.0931	1.0704	1.0508	1.0379
Ageo-shi	Saitama-ken	-	S	36.5	1.0308	1.0853	1.0987	1.4085	2.0226	1.3210	1.1359	1.0742	1.0916	1.0572	1.0333	1.0342
Okegawa-shi	Saitama-ken	-	S	40.2	1.0158	1.0120	1.0768	1.3191	1.3774	1.2406	1.1606	1.1032	1.1224	1.0587	1.0121	0.9961
Kitamoto-shi	Saitama-ken	-	S	44.0	1.0582	1.0599	1.0855	1.3289	1.5406	1.4711	1.0913	1.1420	1.1001	1.0939	0.9942	1.0084
Kounosu-shi	Saitama-ken	-	S	48.0	0.9946	1.0068	1.0115	1.1263	1.1376	1.1694	1.1200	1.0704	1.1522	1.0868	1.0678	0.9620
Gyoda-shi	Saitama-ken	-	S	58.0	1.0118	1.0308	0.9844	1.0257	1.0709	1.0987	1.1080	1.0841	1.0482	1.0359	1.0016	0.9816
Total (11 Localities)					1.1915	1.1896	1.1363	1.1264	1.0878	1.0876	1.0277	1.0261	1.0540	1.0276	1.0280	1.0298
Core Total (3 Localities)					1.3446	1.2523	1.1181	0.9940	0.9038	0.9201	0.9126	0.9518	0.9564	0.9466	0.9979	1.0349
Suburbs Total (8 Localities)					1.0540	1.1180	1.1596	1.2903	1.2631	1.2018	1.0878	1.0586	1.0924	1.0555	1.0373	1.0283

Table A15 Annual Growth Ratio of Population for Localities of the Takasaki Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.1019	1.0341	1.0056	0.9787	0.9659	0.9708	0.9783	0.9899	0.9838	0.9886	1.0031	1.0111
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	1.1159	1.0473	1.0242	0.9950	0.9764	0.9752	0.9811	0.9917	0.9944	0.9913	1.0040	1.0116
Kita-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.9	1.0967	1.0562	1.0355	1.0155	0.9906	0.9947	0.9840	0.9895	0.9929	0.9882	0.9956	1.0022
Kawaguchi-shi	Saitama-ken	-	S	14.8	1.0232	1.0301	1.0474	1.0748	1.0419	1.0247	1.0188	1.0122	1.0171	1.0046	1.0049	1.0085
Warabi-shi	Saitama-ken	-	S	18.0	1.0219	1.0335	1.0769	1.0647	1.0207	0.9976	0.9853	0.9987	1.0090	0.9956	0.9973	0.9970
Saitama-shi	Saitama-ken	-	S	23.2	1.0225	1.0268	1.0291	1.0477	1.0438	1.0436	1.0156	1.0095	1.0180	1.0137	1.0100	1.0075
Ageo-shi	Saitama-ken	-	S	36.5	1.0101	1.0165	1.0190	1.0709	1.1513	1.0573	1.0258	1.0144	1.0177	1.0112	1.0066	1.0067
Okegawa-shi	Saitama-ken	-	S	40.2	1.0052	1.0024	1.0149	1.0569	1.0661	1.0441	1.0302	1.0198	1.0234	1.0115	1.0024	0.9992
Kitamoto-shi	Saitama-ken	-	S	44.0	1.0190	1.0117	1.0166	1.0585	1.0903	1.0803	1.0176	1.0269	1.0193	1.0181	0.9988	1.0017
Kounosu-shi	Saitama-ken	-	S	48.0	0.9982	1.0014	1.0023	1.0241	1.0261	1.0318	1.0229	1.0137	1.0287	1.0168	1.0132	0.9923
Gyoda-shi	Saitama-ken	-	S	58.0	1.0039	1.0061	0.9969	1.0051	1.0138	1.0190	1.0207	1.0163	1.0095	1.0071	1.0003	0.9963
Simple Average of Annual Growth Ratio for the Total Population: [A]					1.0381	1.0242	1.0244	1.0356	1.0352	1.0217	1.0073	1.0075	1.0103	1.0042	1.0033	1.0031
Simple Average of Annual Growth Ratio for the Core Population: [B]					1.1048	1.0459	1.0218	0.9964	0.9776	0.9803	0.9811	0.9904	0.9904	0.9894	1.0009	1.0083
Simple Average of Annual Growth Ratio for the Suburbs Population: [C]					1.0130	1.0161	1.0254	1.0503	1.0567	1.0373	1.0171	1.0139	1.0178	1.0098	1.0042	1.0011
Average of S.A. Annual Growth Ratio for the Suburbs and Core Population: [(B+C)/2]					1.0589	1.0310	1.0236	1.0234	1.0172	1.0088	0.9991	1.0022	1.0041	0.9996	1.0025	1.0047

42

Table A16 Weighted Annual Growth Ratio of Population for Localities of the Takasaki Railway-line Region in the Tokyo Metropolitan Area (Weighting Factor: CBD Distance (km))

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005	
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	4.6280	4.3434	4.2237	4.1105	4.0569	4.0775	4.1087	4.1574	4.1321	4.1523	4.2131	4.2466	
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	7.4764	7.0169	6.8621	6.6665	6.5416	6.5341	6.5737	6.6445	6.6626	6.6415	6.7269	6.7775	
Kita-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.9	9.7606	9.4006	9.2163	9.0379	8.8164	8.8532	8.7576	8.8067	8.8365	8.7945	8.8604	8.9196	
Kawaguchi-shi	Saitama-ken	-	S	14.8	15.1428	15.2461	15.5019	15.9069	15.4204	15.1653	15.0789	14.9802	15.0531	14.8680	14.8730	14.9263	
Warabi-shi	Saitama-ken	-	S	18.0	18.3951	18.6022	19.3837	19.1649	18.3721	17.9572	17.7359	17.9762	18.1613	17.9211	17.9519	17.9456	
Saitama-shi	Saitama-ken	-	S	23.2	23.7210	23.8215	23.8754	24.3058	24.2155	24.2110	23.5624	23.4199	23.6167	23.5180	23.4309	23.3733	
Ageo-shi	Saitama-ken	-	S	36.5	36.8704	37.1025	37.1937	39.0882	42.0220	38.5900	37.4419	37.0266	37.1455	36.9080	36.7397	36.7461	
Okegawa-shi	Saitama-ken	-	S	40.2	40.4105	40.2962	40.7990	42.4893	42.8588	41.9716	41.4151	40.9975	41.1395	40.6616	40.2967	40.1682	
Kitamoto-shi	Saitama-ken	-	S	44.0	44.8374	44.5149	44.7282	46.5751	47.9722	47.5314	44.7753	45.1841	44.8473	44.7965	43.9489	44.0739	
Kounosu-shi	Saitama-ken	-	S	48.0	47.9137	48.0654	48.1094	49.1553	49.2538	49.5257	49.1004	48.6577	49.3798	48.8057	48.6342	47.6291	
Gyoda-shi	Saitama-ken	-	S	58.0	58.2279	58.3528	57.8184	58.2949	58.8004	59.1020	59.2020	58.9439	58.5482	58.4110	58.0186	57.7850	
Weighted Average of Annual Growth Ratio					302.5	1.0161	1.0141	1.0172	1.0406	1.0523	1.0364	1.0174	1.0142	1.0166	1.0098	1.0039	1.0003



Table A17 Population for Localities of the Joban Railway-line Region in the Tokyo Metropolitan Area (unit: person)

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	195,943	262,159	310,058	318,889	286,324	240,769	207,649	186,048	176,804	162,969	153,918	156,325	165,193
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	144,705	201,064	253,323	285,480	278,412	247,013	217,905	198,126	190,061	184,809	176,886	180,468	191,145
Adachi-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.4	233,224	268,315	332,194	408,768	514,717	571,791	609,025	619,961	622,640	631,163	622,270	617,123	624,548
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	181,933	244,785	294,077	376,724	446,059	462,954	442,328	420,187	419,017	424,801	424,478	421,519	424,801
Matsudo-shi	Chiba-ken	-	S	17.8	61,161	59,813	68,509	86,372	160,001	253,591	344,552	400,870	427,443	456,210	461,503	464,841	472,504
Nagareyama-shi	Chiba-ken	-	S	23.3	18,284	18,335	19,075	25,672	39,168	56,485	82,936	106,635	124,682	140,059	146,245	150,527	152,653
Kashiwa-shi	Chiba-ken	-	S	28.6	35,142	38,482	45,030	63,745	109,239	150,635	203,063	239,199	273,128	305,058	317,750	327,851	381,016
Abiko-shi	Chiba-ken	-	S	31.7	22,458	23,113	24,910	27,063	33,216	49,240	76,218	101,061	111,659	120,628	124,257	127,733	131,198
Toride-shi	Ibaraki-ken	-	S	36.5	31,124	31,141	34,174	35,188	39,181	56,596	73,228	97,710	108,365	114,409	118,282	115,993	111,329
Ryugasaki-shi	Ibaraki-ken	-	S	45.6	34,745	34,528	34,337	33,581	34,917	37,267	40,569	43,131	48,857	57,238	69,163	76,923	78,954
Ushiku-shi	Ibaraki-ken	-	S	48.0	14,805	15,286	15,747	16,131	17,203	19,372	27,674	40,170	51,926	60,693	66,338	73,258	77,220
Total (11 Localities)					973,524	1,197,021	1,431,434	1,677,613	1,958,437	2,145,713	2,325,147	2,453,098	2,554,582	2,658,037	2,681,090	2,712,561	2,810,561
Core Total (4 Localities)					755,805	976,323	1,189,652	1,389,861	1,525,512	1,522,527	1,476,907	1,424,322	1,408,522	1,403,742	1,377,552	1,375,435	1,405,687
Suburbs Total (7 Localities)					217,719	220,698	241,782	287,752	432,925	623,186	848,240	1,028,776	1,146,060	1,254,295	1,303,538	1,337,126	1,404,874

Table A18 Population Growth Ratio between Two Neighbouring Census Years, for Localities of the Joban Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.3379	1.1827	1.0285	0.8979	0.8409	0.8624	0.8960	0.9503	0.9217	0.9445	1.0156	1.0567
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	1.3895	1.2599	1.1269	0.9752	0.8872	0.8822	0.9092	0.9593	0.9724	0.9571	1.0203	1.0592
Adachi-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.4	1.1505	1.2381	1.2305	1.2592	1.1109	1.0651	1.0180	1.0043	1.0137	0.9859	0.9917	1.0120
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	1.3455	1.2014	1.2810	1.1840	1.0379	0.9554	0.9499	0.9972	1.0138	0.9992	0.9930	1.0078
Matsudo-shi	Chiba-ken	-	S	17.8	0.9780	1.1454	1.2607	1.8525	1.5849	1.3587	1.1635	1.0663	1.0673	1.0116	1.0072	1.0165
Nagareyama-shi	Chiba-ken	-	S	23.3	1.0028	1.0404	1.3458	1.5257	1.4421	1.4683	1.2858	1.1692	1.1233	1.0442	1.0293	1.0141
Kashiwa-shi	Chiba-ken	-	S	28.6	1.0950	1.1702	1.4156	1.7137	1.3789	1.3480	1.1780	1.1418	1.1169	1.0416	1.0318	1.1622
Abiko-shi	Chiba-ken	-	S	31.7	1.0292	1.0777	1.0864	1.2274	1.4824	1.5479	1.3259	1.1049	1.0803	1.0301	1.0280	1.0271
Toride-shi	Ibaraki-ken	-	S	36.5	1.0005	1.0974	1.0297	1.1135	1.4445	1.2939	1.3343	1.1090	1.0558	1.0339	0.9806	0.9598
Ryugasaki-shi	Ibaraki-ken	-	S	45.6	0.9938	0.9945	0.9780	1.0398	1.0673	1.0886	1.0632	1.1328	1.1715	1.2083	1.1122	1.0264
Ushiku-shi	Ibaraki-ken	-	S	48.0	1.0325	1.0302	1.0244	1.0665	1.1261	1.4286	1.4515	1.2927	1.1688	1.0930	1.1043	1.0541
Total (11 Localities)					1.2296	1.1958	1.1720	1.1674	1.0956	1.0836	1.0550	1.0414	1.0405	1.0087	1.0117	1.0361
Core Total (4 Localities)					1.2918	1.2185	1.1683	1.0976	0.9980	0.9700	0.9644	0.9889	0.9966	0.9813	0.9985	1.0220
Suburbs Total (7 Localities)					1.0137	1.0955	1.1901	1.5045	1.4395	1.3611	1.2128	1.1140	1.0944	1.0393	1.0258	1.0507

Table A19 Annual Growth Ratio of Population for Localities of the Joban Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.1019	1.0341	1.0056	0.9787	0.9659	0.9708	0.9783	0.9899	0.9838	0.9886	1.0031	1.0111
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	1.1159	1.0473	1.0242	0.9950	0.9764	0.9752	0.9811	0.9917	0.9944	0.9913	1.0040	1.0116
Adachi-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.4	1.0478	1.0436	1.0424	1.0472	1.0213	1.0127	1.0036	1.0009	1.0027	0.9972	0.9983	1.0024
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	1.1040	1.0374	1.0508	1.0344	1.0075	0.9909	0.9898	0.9994	1.0027	0.9998	0.9986	1.0016
Matsudo-shi	Chiba-ken	-	S	17.8	0.9926	1.0275	1.0474	1.1312	1.0965	1.0632	1.0307	1.0129	1.0131	1.0023	1.0014	1.0033
Nagareyama-shi	Chiba-ken	-	S	23.3	1.0009	1.0079	1.0612	1.0882	1.0760	1.0798	1.0516	1.0318	1.0235	1.0087	1.0058	1.0028
Kashiwa-shi	Chiba-ken	-	S	28.6	1.0307	1.0319	1.0720	1.1137	1.0664	1.0616	1.0333	1.0269	1.0224	1.0082	1.0063	1.0305
Abiko-shi	Chiba-ken	-	S	31.7	1.0096	1.0151	1.0167	1.0418	1.0819	1.0913	1.0580	1.0201	1.0156	1.0059	1.0055	1.0054
Toride-shi	Ibaraki-ken	-	S	36.5	1.0002	1.0188	1.0059	1.0217	1.0763	1.0529	1.0594	1.0209	1.0109	1.0067	0.9961	0.9918
Ryugasaki-shi	Ibaraki-ken	-	S	45.6	0.9979	0.9989	0.9956	1.0078	1.0131	1.0171	1.0123	1.0252	1.0322	1.0386	1.0215	1.0052
Ushiku-shi	Ibaraki-ken	-	S	48.0	1.0107	1.0060	1.0048	1.0130	1.0240	1.0739	1.0774	1.0527	1.0317	1.0179	1.0200	1.0106
Simple Average of Annual Growth Ratio for the Total Population: [A]					1.0375	1.0244	1.0297	1.0430	1.0368	1.0354	1.0250	1.0157	1.0121	1.0059	1.0055	1.0069
Simple Average of Annual Growth Ratio for the Core Population: [B]					1.0924	1.0406	1.0307	1.0138	0.9928	0.9874	0.9882	0.9955	0.9959	0.9942	1.0010	1.0067
Simple Average of Annual Growth Ratio for the Suburbs Population: [C]					1.0061	1.0152	1.0291	1.0596	1.0620	1.0628	1.0461	1.0272	1.0213	1.0126	1.0081	1.0071
Average of S.A. Annual Growth Ratio for the Suburbs and Core Population: [(B+C)/2]					1.0492	1.0279	1.0299	1.0367	1.0274	1.0251	1.0171	1.0113	1.0086	1.0034	1.0046	1.0069

Table A20 Weighted Annual Growth Ratio of Population for Localities of the Joban Railway-line Region in the Tokyo Metropolitan Area (Weighting Factor: CBD Distance (km))

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	4.6280	4.3434	4.2237	4.1105	4.0569	4.0775	4.1087	4.1574	4.1321	4.1523	4.2131	4.2466
Arakawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	6.7	7.4764	7.0169	6.8621	6.6665	6.5416	6.5341	6.5737	6.6445	6.6626	6.6415	6.7269	6.7775
Adachi-ku	Tokyo-to	Tokyo-tokubetu-ku	C	8.4	8.8018	8.7665	8.7558	8.7963	8.5785	8.5067	8.4300	8.4072	8.4229	8.3762	8.3861	8.4201
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	11.5917	10.8924	11.0332	10.8608	10.5784	10.4047	10.3927	10.4941	10.5288	10.4984	10.4853	10.5163
Matsudo-shi	Chiba-ken	-	S	17.8	17.6683	18.2899	18.6443	20.1358	19.5174	18.9254	18.3472	18.0300	18.0334	17.8411	17.8257	17.8583
Nagareyama-shi	Chiba-ken	-	S	23.3	23.3216	23.4851	24.7261	25.3542	25.0701	25.1604	24.5012	24.0401	23.8483	23.5023	23.4349	23.3654
Kashiwa-shi	Chiba-ken	-	S	28.6	29.4788	29.5131	30.6588	31.8531	30.4983	30.3604	29.5523	29.3689	29.2395	28.8341	28.7796	29.4727
Abiko-shi	Chiba-ken	-	S	31.7	32.0052	32.1783	32.2300	33.0258	34.2968	34.5945	33.5401	32.3386	32.1936	31.8885	31.8754	31.8701
Toride-shi	Ibaraki-ken	-	S	36.5	36.5066	37.1848	36.7141	37.2931	39.2857	38.4301	38.6674	37.2634	36.8984	36.7438	36.3576	36.2016
Ryugasaki-shi	Ibaraki-ken	-	S	45.6	45.5049	45.5494	45.3974	45.9572	46.1979	46.3809	46.1619	46.7511	47.0670	47.3590	46.5802	45.8383
Ushiku-shi	Ibaraki-ken	-	S	48.0	48.5143	48.2861	48.2319	48.6217	49.1536	51.5491	51.7139	50.5287	49.5213	48.8614	48.9621	48.5083
Weighted Average of Annual Growth Ratio				261.3	1.0161	1.0161	1.0236	1.0435	1.0477	1.0521	1.0409	1.0257	1.0201	1.0130	1.0089	1.0068

Table A21 Population for Localities of the Sobu Railway-line Region in the Tokyo Metropolitan Area (unit: person)

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	89,681	110,348	122,745	116,944	93,047	74,185	61,656	54,801	50,493	39,472	34,780	36,035	41,721
Sumida-ku	Tokyo-to	Tokyo-tokubetu-ku	C	3.8	173,478	236,074	305,373	331,843	317,856	281,237	250,714	232,796	229,986	222,944	215,681	215,979	230,996
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	195,943	262,159	310,058	318,889	286,324	240,769	207,649	186,048	176,804	162,969	153,918	156,325	165,193
Kohtoh-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.9	96,870	182,489	277,971	351,053	359,672	355,835	355,382	362,270	388,927	385,159	365,604	376,840	420,831
Edogawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.0	173,571	209,065	255,031	316,593	405,139	446,758	473,656	495,231	514,812	565,939	589,414	619,953	653,882
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	181,933	244,785	294,077	376,724	446,059	462,954	442,328	420,187	419,017	424,801	424,478	421,519	424,801
Ichikawa-shi	Chiba-ken	-	S	15.7	113,758	120,595	136,739	157,301	207,988	261,055	319,291	364,244	397,822	436,596	440,555	448,642	466,408
Funabashi-shi	Chiba-ken	-	S	19.5	95,326	100,134	114,921	135,038	223,989	325,426	423,101	479,439	506,966	533,270	540,817	550,074	569,829
Narashino-shi	Chiba-ken	-	S	23.5	26,342	28,489	31,999	42,167	64,897	99,951	117,852	125,155	136,365	151,471	152,887	154,036	158,750
Chiba-shi	Chiba-ken	-	S	31.7	172,510	185,546	215,526	241,615	332,188	482,133	659,356	746,430	788,930	829,455	856,878	887,164	924,353
Yotsukaido-shi	Chiba-ken	-	S	36.5	15,086	15,724	15,835	16,623	19,778	26,375	37,401	59,236	67,008	72,157	79,495	82,552	84,769
Sakura-shi	Chiba-ken	-	S	41.7	51,514	52,037	51,727	36,869	40,941	60,433	80,804	101,180	121,213	144,688	162,624	170,934	171,231
Shisui-shi	Chiba-ken	-	S	45.8	6,253	6,279	6,207	6,093	6,040	6,259	8,465	12,807	17,463	19,298	20,019	19,885	21,385
Yachimata-shi	Chiba-ken	-	S	49.8	24,135	24,921	25,807	25,387	25,173	25,357	28,511	31,939	37,532	50,036	65,218	72,595	75,728
Total (14 Localities)					1,416,400	1,778,645	2,164,016	2,473,139	2,829,091	3,148,727	3,466,166	3,671,763	3,853,338	4,038,255	4,102,368	4,212,533	4,409,877
Core Total (6 Localities)					911,476	1,244,920	1,565,255	1,812,046	1,908,097	1,861,738	1,791,385	1,751,333	1,780,039	1,801,284	1,783,875	1,826,651	1,937,424
Suburbs Total (8 Localities)					504,924	533,725	598,761	661,093	920,994	1,286,989	1,674,781	1,920,430	2,073,299	2,236,971	2,318,493	2,385,882	2,472,453

Table A22 Population Growth Ratio between Two Neighbouring Census Years, for Localities of the Sobu Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.2305	1.1123	0.9527	0.7957	0.7973	0.8311	0.8888	0.9214	0.7817	0.8811	1.0361	1.1578
Sumida-ku	Tokyo-to	Tokyo-tokubetu-ku	C	3.8	1.3608	1.2935	1.0867	0.9579	0.8848	0.8915	0.9285	0.9879	0.9694	0.9674	1.0014	1.0695
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.3379	1.1827	1.0285	0.8979	0.8409	0.8624	0.8960	0.9503	0.9217	0.9445	1.0156	1.0567
Kohtoh-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.9	1.8839	1.5232	1.2629	1.0246	0.9893	0.9987	1.0194	1.0736	0.9903	0.9492	1.0307	1.1167
Edogawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.0	1.2045	1.2199	1.2414	1.2797	1.1027	1.0602	1.0455	1.0395	1.0993	1.0415	1.0518	1.0547
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	1.3455	1.2014	1.2810	1.1840	1.0379	0.9554	0.9499	0.9972	1.0138	0.9992	0.9930	1.0078
Ichikawa-shi	Chiba-ken	-	S	15.7	1.0601	1.1339	1.1504	1.3222	1.2551	1.2231	1.1408	1.0922	1.0975	1.0091	1.0184	1.0396
Funabashi-shi	Chiba-ken	-	S	19.5	1.0504	1.1477	1.1751	1.6587	1.4529	1.3001	1.1332	1.0574	1.0519	1.0142	1.0171	1.0359
Narashino-shi	Chiba-ken	-	S	23.5	1.0815	1.1232	1.3178	1.5390	1.5401	1.1791	1.0620	1.0896	1.1108	1.0093	1.0075	1.0306
Chiba-shi	Chiba-ken	-	S	31.7	1.0756	1.1616	1.1210	1.3749	1.4514	1.3676	1.1321	1.0569	1.0514	1.0331	1.0353	1.0419
Yotsukaido-shi	Chiba-ken	-	S	36.5	1.0423	1.0071	1.0498	1.1898	1.3336	1.4180	1.5838	1.1312	1.0768	1.1017	1.0385	1.0269
Sakura-shi	Chiba-ken	-	S	41.7	1.0102	0.9940	0.7128	1.1104	1.4761	1.3371	1.2522	1.1980	1.1937	1.1240	1.0511	1.0017
Shisui-shi	Chiba-ken	-	S	45.8	1.0042	0.9885	0.9816	0.9913	1.0363	1.3525	1.5129	1.3636	1.1051	1.0374	0.9933	1.0754
Yachimata-shi	Chiba-ken	-	S	49.8	1.0326	1.0356	0.9837	0.9916	1.0073	1.1244	1.1202	1.1751	1.3332	1.3034	1.1131	1.0432
Total (14 Localities)					1.2558	1.2167	1.1428	1.1439	1.1130	1.1008	1.0593	1.0495	1.0480	1.0159	1.0269	1.0468
Core Total (6 Localities)					1.3658	1.2573	1.1577	1.0530	0.9757	0.9622	0.9776	1.0164	1.0119	0.9903	1.0240	1.0606
Suburbs Total (8 Localities)					1.0570	1.1219	1.1041	1.3931	1.3974	1.3013	1.1467	1.0796	1.0789	1.0364	1.0291	1.0363

Table A23 Annual Growth Ratio of Population for Localities of the Sobu Railway-line Region in the Tokyo Metropolitan Area

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	1.0716	1.0215	0.9904	0.9553	0.9557	0.9637	0.9767	0.9838	0.9519	0.9750	1.0071	1.0297
Sumida-ku	Tokyo-to	Tokyo-tokubetu-ku	C	3.8	1.1082	1.0528	1.0168	0.9914	0.9758	0.9773	0.9853	0.9976	0.9938	0.9934	1.0003	1.0135
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	1.1019	1.0341	1.0056	0.9787	0.9659	0.9708	0.9783	0.9899	0.9838	0.9886	1.0031	1.0111
Kohtoh-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.9	1.2350	1.0878	1.0478	1.0049	0.9979	0.9997	1.0038	1.0143	0.9981	0.9896	1.0061	1.0223
Edogawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.0	1.0640	1.0405	1.0442	1.0506	1.0197	1.0118	1.0089	1.0078	1.0191	1.0082	1.0102	1.0107
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	1.1040	1.0374	1.0508	1.0344	1.0075	0.9909	0.9898	0.9994	1.0027	0.9998	0.9986	1.0016
Ichikawa-shi	Chiba-ken	-	S	15.7	1.0196	1.0254	1.0284	1.0575	1.0465	1.0411	1.0267	1.0178	1.0188	1.0018	1.0036	1.0078
Funabashi-shi	Chiba-ken	-	S	19.5	1.0165	1.0279	1.0328	1.1065	1.0776	1.0539	1.0253	1.0112	1.0102	1.0028	1.0034	1.0071
Narashino-shi	Chiba-ken	-	S	23.5	1.0265	1.0235	1.0567	1.0901	1.0902	1.0335	1.0121	1.0173	1.0212	1.0019	1.0015	1.0060
Chiba-shi	Chiba-ken	-	S	31.7	1.0246	1.0304	1.0231	1.0657	1.0773	1.0646	1.0251	1.0111	1.0101	1.0065	1.0070	1.0082
Yotsukaido-shi	Chiba-ken	-	S	36.5	1.0139	1.0014	1.0098	1.0354	1.0593	1.0724	1.0963	1.0250	1.0149	1.0196	1.0076	1.0053
Sakura-shi	Chiba-ken	-	S	41.7	1.0034	0.9988	0.9345	1.0212	1.0810	1.0598	1.0460	1.0368	1.0360	1.0236	1.0100	1.0003
Shisui-shi	Chiba-ken	-	S	45.8	1.0014	0.9977	0.9963	0.9983	1.0071	1.0622	1.0863	1.0640	1.0202	1.0074	0.9987	1.0147
Yachimata-shi	Chiba-ken	-	S	49.8	1.0107	1.0070	0.9967	0.9983	1.0015	1.0237	1.0230	1.0328	1.0592	1.0544	1.0217	1.0085
Simple Average of Annual Growth Ratio for the Total Population: [A]					1.0572	1.0276	1.0167	1.0277	1.0259	1.0232	1.0203	1.0149	1.0100	1.0052	1.0056	1.0105
Simple Average of Annual Growth Ratio for the Core Population: [B]					1.1141	1.0457	1.0259	1.0025	0.9871	0.9857	0.9905	0.9988	0.9916	0.9924	1.0042	1.0148
Simple Average of Annual Growth Ratio for the Suburbs Population: [C]					1.0146	1.0140	1.0098	1.0466	1.0551	1.0514	1.0426	1.0270	1.0238	1.0148	1.0067	1.0072
Average of S.A. Annual Growth Ratio for the Suburbs and Core Population: [(B+C)/2]					1.0643	1.0299	1.0179	1.0246	1.0211	1.0186	1.0165	1.0129	1.0077	1.0036	1.0054	1.0110

Table A24 Weighted Annual Growth Ratio of Population for Localities of the Sobu Railway-line Region in the Tokyo Metropolitan Area (Weighting Factor: CBD Distance (km))

Locality	Prefecture	City	Core(C)/Suburbs(S)	Distance(km)	1947-50	1950-55	1955-60	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-2005
Chiyoda-ku	Tokyo-to	Tokyo-tokubetu-ku	C	2.1	2.2503	2.1452	2.0798	2.0062	2.0070	2.0237	2.0511	2.0659	1.9991	2.0475	2.1149	2.1624
Sumida-ku	Tokyo-to	Tokyo-tokubetu-ku	C	3.8	4.2110	4.0007	3.8637	3.7674	3.7081	3.7137	3.7441	3.7908	3.7764	3.7749	3.8010	3.8514
Taito-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.2	4.6280	4.3434	4.2237	4.1105	4.0569	4.0775	4.1087	4.1574	4.1321	4.1523	4.2131	4.2466
Kohtoh-ku	Tokyo-to	Tokyo-tokubetu-ku	C	4.9	6.0517	5.3303	5.1342	4.9238	4.8895	4.8988	4.9188	4.9701	4.8905	4.8492	4.9298	5.0094
Edogawa-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.0	10.6398	10.4055	10.4420	10.5056	10.1975	10.1176	10.0895	10.0779	10.1912	10.0816	10.1015	10.1071
Katsushika-ku	Tokyo-to	Tokyo-tokubetu-ku	C	10.5	11.5917	10.8924	11.0332	10.8608	10.5784	10.4047	10.3927	10.4941	10.5288	10.4984	10.4853	10.5163
Ichikawa-shi	Chiba-ken	-	S	15.7	16.0084	16.0995	16.1461	16.6020	16.4300	16.3452	16.1191	15.9793	15.9948	15.7284	15.7572	15.8224
Funabashi-shi	Chiba-ken	-	S	19.5	19.8225	20.0446	20.1394	21.5769	21.0126	20.5510	19.9937	19.7189	19.6983	19.5549	19.5663	19.6381
Narashino-shi	Chiba-ken	-	S	23.5	24.1219	24.0525	24.8333	25.6164	25.6201	24.2872	23.7843	23.9067	23.9990	23.5438	23.5352	23.6421
Chiba-shi	Chiba-ken	-	S	31.7	32.4792	32.6640	32.4328	33.7840	34.1520	33.7481	32.4962	32.0530	32.0192	31.9069	31.9210	31.9614
Yotsukaido-shi	Chiba-ken	-	S	36.5	37.0075	36.5514	36.8562	37.7909	38.6629	39.1409	40.0160	37.4111	37.0445	37.2139	36.7765	36.6940
Sakura-shi	Chiba-ken	-	S	41.7	41.8406	41.6502	38.9695	42.5829	45.0774	44.1945	43.6183	43.2342	43.2029	42.6861	42.1177	41.7145
Shisui-shi	Chiba-ken	-	S	45.8	45.8634	45.6945	45.6305	45.7200	46.1274	48.6508	49.7542	48.7304	46.7244	46.1372	45.7385	46.4710
Yachimata-shi	Chiba-ken	-	S	49.8	50.3348	50.1492	49.6368	49.7158	49.8726	50.9815	50.9438	51.4334	52.7479	52.5105	50.8788	50.2226
Weighted Average of Annual Growth Ratio				299.7	1.0239	1.0144	1.0057	1.0329	1.0424	1.0448	1.0411	1.0278	1.0242	1.0166	1.0075	1.0079