

## **Spatial Differentiation in the Nobi Core: Villages and Towns in Owari, Central Japan, 1672–1822**

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In order to elucidate the core-periphery structure and the central-place hierarchy in Owari region in relation to the transport grid and the political economy, and to explore the pattern of spatial differentiation at the village level, I analyze the local gazetteers: Kanbun-Muramura-Oboegaki (1672) and Owari-Junkoki (1822). Viewing Owari region through the central place theory, the towns of administrative centers were positioned based on considerations and economic centers such as market towns and post towns were located on the main roads. Most of the terminuses to which travelers from each village traveled can be treated as a kind of central place. These corresponded economic centers, not to the administrative centers as well as those functioned as sea port had lost their central places were quite different in accordance with the functions of them. That is to say, the central places which were specialized as post towns had the oval shaped territories, while those that had multiple functions exhibited hexagonal territories. In the hierarchical regional space of Owari, we can obtain the tendency that population per village increase as one moves from far periphery and the rims to inner core and the nodes, the rate of population growth is low in the inner core and the nodes as against high in the periphery and the rims, and the number of horses increases from inner core and rim to far periphery and node.

### **1. Introduction**

The present study tracks the transformation of the changing landscapes of Japan. At the beginning of the pre-modern period, Japan was united under the suzerainty of Tokugawa shogun, and the island remained divided into more than 250 separate domains. Some of them compiled important gazetteers in which we can obtain not only economic, but also the environmental, demographical, cultural, religious information of each village. The new regime that seized power in the Meiji Restoration of 1868 set about converting an alliance of competing fiefdoms into a unified industrial and imperial state. The new Meiji government ordered each prefecture office to make a gazetteer called Kokokuchishi.

In this paper, I pick up two important gazetteers: Kanbun Muranura Oboegaki (KMO) and Owari Junkoki (OJ) in Owari region, central Japan and try to determine its regional system by analyzing the local systems in the light of the core-periphery theory and the central place theory. A provisional analysis of the regional system of the Greater Nobi Region (GNR) has been proposed by G.W.Skinner based on his core-periphery structure theory. He divides GNR into four zones (the inner core, the outer core, the near periphery and the far periphery), and explores the core-periphery variation in terms of more than fifty variables by analyzing early Meiji data. For all the variables, he observes the figures to gradually rise or

decline from the inner core to the far periphery.<sup>1</sup> In this paper I attempt to examine whether his core-periphery structure theory can be fruitfully applied to the Owari region, the center of GNR. I consider some agricultural and demographic variables, dividing the Owari region into four zones and, furthermore, into four sectors for a more accurate explication of the regional differences. Instead of comparing gun (county: including more than fifty villages) as Skinner does in his study of GNR, I have chosen the village as the basic unit for analysis. This enables a truly fine-grained analysis of the region, which consisted of only eight guns, but had over 1,000 villages there.

The central place theory proposed by Christaller<sup>2</sup>, which has since been adopted in numerous regional studies, characterizes the region not as homogeneous but as having an internal structure made up of a functional hierarchy<sup>3</sup>. Many of the previous studies on central places have focused their attention on the spatial distribution of central places for which sizes were defined by the kinds and numbers of their functions. These studies are statistical and have validity only in one closed area. We have to think of the linkages with other areas when we study the regional system in any given area because there have been no area without any communication with other areas. Therefore, I mentioned the flows of commodities and artisans to make clear the central place structure in the Owari region.

Firstly, central places in the Owari region in Tokugawa period are identified. Secondly, the shapes of the “territories” of central places are discussed in order to examine whether or not there is any relationships between the shapes and the functions of central places. Lastly, various linkages between central places in Owari and their “territories” are explored by examining the intra- and inter-regional flow of commodities, traders and workers. The historical change in the central places in the region from Tokugawa period to Meiji is also briefly considered.

## 2. The core-periphery structure

A paucity of statistical data makes it difficult to determine whether or not a core-periphery structure existed in the whole GNR in the Tokugawa period. However, within the Owari region, which, according to Skinner’s formulation covers all of the inner core and some parts of the outer core of GNR, we can analyze the core-periphery structure based on Kanbun-Muramura-Oboegaki (KMO)<sup>4</sup> and Owari-Junkoki (OJ)<sup>5</sup>.

KMO, a local gazetteer compiled by Owari-han in 1673, provides us with information on economic and social conditions of the villages in Owari region. OJ, which was compiled in the same style as KMO by Higuchi Yoshihuru, a local officer of Owari-han for the period from 1772 to 1822, gives us more detailed information. Scholars in various academic fields have paid close attention to these documents and utilized them in their study. For example, Hayami Akira, a demographer, has investigated regional differences in agricultural intensity among the guns of Owari and Mino provinces by comparing mean family size, ratio of cattle to households and to population, and land productivity<sup>6</sup>. In the field of geography, Kajikawa Yusaku has analyzed land-use in Niwa-gun, Aichi-gun, Kasugai-gun, Kaito-gun, Kaisai-gun and Chita-gun<sup>7</sup>. Yamada Masahiro has studied sub-village administrative units in this area<sup>8</sup>.

According to KMO, the total number of the villages in the Owari region was 957 in 1672. Though it is known that more than 80 new reclaimed villages based on land reclamation (shinden-son) were established after that, only 904 villages were enlisted in OJ in 1822 owing to an absence of data for Haguri-gun and some parts of Aichi-gun, Nakashima-gun and Chita-gun<sup>9</sup>.

### 1) Zone and Sectors

In the present paper, I have divided the Owari region into four zones by the distance from Nagoya castle town; 1) within 10 km, 2) 10–16 km, 3) 16–22 km, 4) 22 km and over, and named these zones 1) inner core, 2) outer core, 3) near periphery and 4) far periphery, respectively. The zoning is based, not on the actual distance, but on the distance of villages to Nagoya castle town as indicated in KMO. Furthermore, I have divided these four zones into four sectors; 1) northeast, 2) northwest, 3) southwest and 4) southeast, because these sectors have quite different landform characteristics. While the eastern half of Owari is hilly and dry, the western half is low and wet. The northeastern section occupies the center of the Inuyama alluvial fan. The southwestern section includes floodplain, delta and reclaimed land on the Kiso River. And the southeastern section includes the southern part of Aichi foot-hill and Chita peninsula. Therefore, the villages belong to different characteristics. Note that the dividing lines between the sectors have been drawn on the border lines of villages which are of a roughly equal distance from two of the four major roads: the Tokaido, the Sayaji, the Minoji and the Kisoji. For example, the line from Nagoya to north roughly corresponds with the center line of the angle made by the Minoji and the Kisoji. As it will be shown later that post towns on a major road and their hinterlands situated on both sides of the road are closely four sectors connected with major roads (Figure 1).

### 2) Examining the core-periphery structure in Owari

Examining the core-periphery differentiation in Owari, I have chosen to discuss the topics in the agricultural variables (Table 1) and demographical variables (Table 2), considering the nature of my data.

#### Agricultural variables

Let us consider, first, kokudaka or assessed land yields in 1672 and 1822. In Tokugawa period the towns and villages were evaluated for purposes of land taxation in terms of kokudaka (putative agricultural yield expressed as a volume of rice). The mean kokudaka of the villages in the whole region in 1672 was 730 koku (a koku being about five bushels of rice, roughly the amount of rice a person consumes in a year). The villages in the inner core had a mean kokudaka of 1,084 koku, and those in far periphery 575 koku. These figures decrease dramatically from high in the inner core to low in the far periphery.

This tendency was also seen in 1822. In all the zones, kokudaka per village had not increased much from 1672 to 1822. Though it increase a little in the near and far periphery, that of the inner and outer core decreased. This shows that more farmland had been reclaimed in the periphery than in the core region. It is also noteworthy that while in the northwestern sector, where cultivation had developed earliest, the rate of increase in

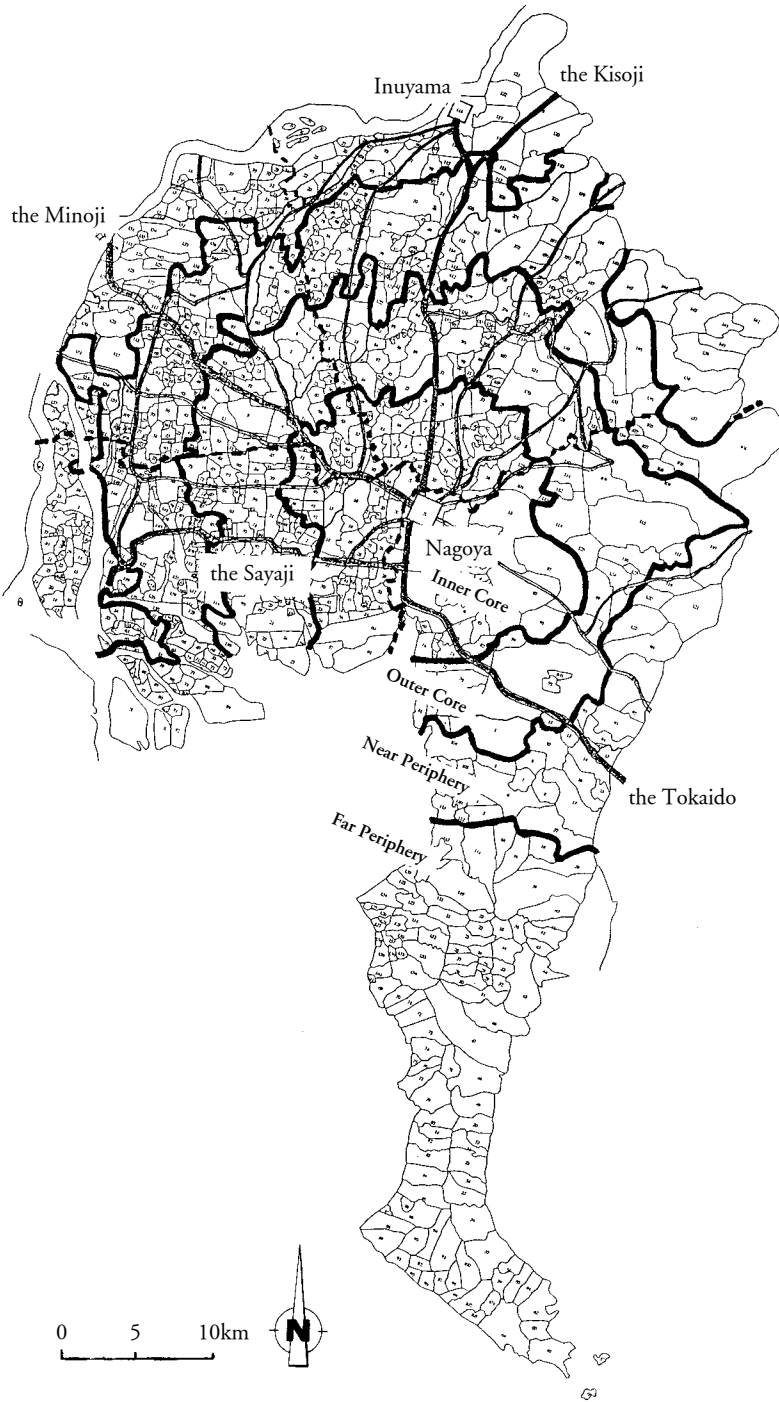


Figure 1 Zone and Sectors of Owari Region

Table 1 Agricultural variables (Mean value per village)

(by distance: all)						
	Kokudaka (1672)	Kokudaka (1822)	Koku/tan (1672)	Koku/tan (1822)	Koku/capita (1672)	Koku/capita (1822)
< 10km	1084	1011	1.61	1.6	24	24.9
10–16km	862	852	1.55	1.59	26.6	22.1
16–22km	641	648	1.34	1.38	23	17.9
≥ 22km	575	587	1.3	1.35	16.3	15.4
total	730	731	1.41	1.45	22	19.6
(by distance: northwest)						
	Kokudaka (1672)	Kokudaka (1822)	Koku/tan (1672)	Koku/tan (1822)	Koku/capita (1672)	Koku/capita (1822)
< 10km	1295	1235	1.71	1.68	24.6	27.5
10–16km	922	932	1.64	1.64	27.1	26
16–22km	668	682	1.4	1.43	21	20.4
≥ 22km	597	561	1.23	1.19	16.6	13.7
total	794	779	1.45	1.44	21.9	23.5
(by distance: southeast)						
	Kokudaka (1672)	Kokudaka (1822)	Koku/tan (1672)	Koku/tan (1822)	Koku/capita (1672)	Koku/capita (1822)
< 10km	1251	1234	1.59	1.57	20	19.3
10–16km	944	995	1.46	1.58	17.3	15.4
16–22km	733	775	1.38	1.46	17.8	15.4
≥ 22km	633	694	1.34	1.39	13.4	9.7
total	768	821	1.39	1.45	15.6	13
(by gun)						
	Kokudaka (1672)	Kokudaka (1822)	Koku/tan (1672)	Koku/tan (1822)	Koku/capita (1672)	Koku/capita (1822)
Aichi	937	961	1.51	1.4	20.6	19.8
Kasugai	790	817	1.44	1.3	24.3	20.2
Niwa	551	634	1.09	1.1	17.4	13.9
Haguri	449	—	1.1	—	—	—
Nakashima	742	825	1.46	1.6	22.2	23.5
Kaito	830	995	1.63	1.6	31.9	26
Kaisai	519	562	1.42	1.3	27.2	19.8
Chita	657	659	1.34	1.1	14	10.1

kokudaka per village was fairly small, the rate is quite high in the southeastern sector, where the villages are located on the hills with much initially uncultivated land.

Skinner proposes that a higher proportion of the total area will be put to agriculture use in the core areas than in the periphery. He observes, with regard to GNR in Meiji period, that the acreage covered with forest decreases from large in the far periphery to small in the regional core, and that the proportion of the total area devoted to paddy steadily increases as one moves from the far periphery to the inner core<sup>10</sup>. My analysis partly confirms this observation with regard to the Owari region in 1672. Though there is no data available on the state of forest at that time, the arable land (the total acreage of paddy and dry fields)

Table 2 Demographic variables (Mean value per village)

(by distance: all)						
	Household in 1822	Rate of increase (1672–1822)	Population in 1822	Rate of increase (1672–1822)	Household size in 1672	Household size in 1822
< 10km	115	1.6	471	1.1	5.8	4.1
10–16km	122	2.0	490	1.4	5.9	4.1
16–22km	91	2.1	375	1.5	5.8	4.2
≥ 22km	122	2.1	534	1.6	6.0	4.5
total	110	2.0	461	1.5	5.9	4.2
(by distance: northwest)						
	Household in 1822	Rate of increase (1672–1822)	Population in 1822	Rate of increase (1672–1822)	Household size in 1672	Household size in 1822
< 10km	118	1.5	521	1.2	5.4	4.2
10–16km	105	1.7	407	1.1	6.0	4.0
16–22km	92	1.8	370	1.3	5.7	4.1
≥ 22km	105	1.8	451	1.4	5.8	4.3
total	98	1.8	396	1.2	5.7	4.1
(by distance: southeast)						
	Household in 1822	Rate of increase (1672–1822)	Population in 1822	Rate of increase (1672–1822)	Household size in 1672	Household size in 1822
< 10km	154	1.6	634	1.1	5.8	4.2
10–16km	191	2.8	787	1.7	7.0	4.3
16–22km	120	2.6	478	1.7	7.0	4.2
≥ 22km	184	2.4	810	1.6	6.5	4.5
total	170	2.4	721	1.6	6.6	4.4
(by gun)						
	Household in 1822	Rate of increase (1672–1822)	Population in 1822	Rate of increase (1672–1822)	Household size in 1672	Household size in 1822
Aichi	132	1.5	537	1.1	6.2	4.1
Kasugai	108	1.8	450	1.3	6.0	4.2
Niwa	99	1.8	404	1.3	5.7	4.1
Haguri	—	—	—	—	6.2	—
Nakashima	87	1.5	350	1.0	5.7	4.0
Kaito	88	1.7	366	1.3	5.3	4.2
Kaisai	65	1.4	293	1.2	5.2	4.5
Chita	174	1.9	753	1.3	6.2	4.4

increases from the far periphery to the inner core. The percentage of paddy fields to the total arable land also decreases as one goes farther out from the core. This percentage is low in the northwest and southeast. It is noted that the percentage of paddy field in the southwestern section increases from the far periphery to the outer core, but decreases in the inner core. This is because, in the inner core, a considerable amount was used for growing green vegetables for quick cash income. In the southeastern section, however, we cannot see a clear core-periphery structure. Though this section was a hilly area, the percentage of paddy fields was comparatively high in the near and far periphery on account of the many irrigation ponds. KMO and OJ recorded at least a few ponds in each village, and the hand-drawn

maps<sup>11</sup> of the villages in the 1830s show that most of these ponds were constructed near the origins of small rivers.

The mean kokudaka per tan (a tan=993 square meters or 0.25 acre) per village which indicates the average land productivity of the villages in the region under study is 1.41 koku, and it increases from the periphery to the inner core. That is, the land was more intensively utilized in the core region than in the periphery. This tendency is concomitant with the change of the percentage of paddy field to the total arable land.

Kokudaka per household and per capita are variables which indicate the productivity of a given village. The figures in 1822 sharply increase from low in the far periphery to high in the inner core. Though kokudaka per household in 1672 was highest in the outer core and kokudaka per capita in 1672 was highest in the outer core zone, we can say that generally both of them were higher in the core regions than in the periphery.

#### **Demographical variables**

The size of the settlements or the average number of households per village for the far periphery is larger than those in some of the other zones. It increases as one moves from the near periphery to the inner core in 1672, from the near periphery to the outer core in 1822, and the mean population per village increases from the near periphery to the inner core in 1672, from the near periphery to the outer core in 1822. However, both the number of households and the population in the far periphery are the second largest among all the zones in 1672 and the highest in 1822. Though a definite explanation cannot be given yet, it is clear that this is caused by the large scale of the settlements in Chita-gun, which occupies the southeastern section of the far periphery.

The rate of increase from 1672 to 1822 in the number of households and population per village are low in the core region and of population per village are low in the core region and high in the peripheral region. Whereas it is 1.1 times in the inner core, it is as high as 1.6 times in the far periphery, "land-labor demand" is greater, infant mortality lower, and the extended family structure more common than in the core region<sup>12</sup>. We cannot clearly see the tendency in 1672, but in 1822, the size of a household increases from low in the inner and outer core to high in the far periphery. It seems that the transition from the extended family structure to the nuclear family structure, especially in the core region, had progressed between 1672 and 1822.

Though Skinner observes that the sex ratio declines from high in the far periphery to low in the core in GNR in 1880s, we do not find such a tendency in the Owari region in 1672<sup>13</sup>. The mean sex ratio in the total villages of Owari was 112.8. Whereas the sex ratios of the inner core and the far periphery were comparatively low, those of the outer core and the near periphery were higher. Though we cannot explain this variation in sex ratio in general terms, the reasons for the low ratio in the southeastern far periphery and the high ratio of the northwestern and the southwestern near periphery can be surmised. As for the former area, viz. Chita-gun, many men worked on ships or migrated for work. Some of them, I assume lost their lives at sea or chose not to come back for ever. Many documents about shipwrecks, found in Oono, remind us of the danger of sea transportation at that time. In the latter area, viz. Nakashima-gun, Kaito-gun and Kaisai-gun, we can identify a considerable number

of shinden-son (newly reclaimed villages), where men's labor was particularly needed for cultivating, especially in the early stages of new settlement. There were 23 sinden-sons in those areas in 1672, and the mean sex ratio for them was 129.0, which is fairly higher than that of the total villages in Owari.

Summing up, my zone-sector analysis confirms that the Owari region reveals a distinct core-periphery structure in terms of some agricultural factors, while in the light of some demographic data, we cannot recognize such sharp core-periphery variations that Skinner did in his analysis of GNR.

### 3. Central place structure

In a study of the central place structure of a region, the criteria by which the central places are identified are of critical importance. This is particularly true with a region which, like Owari which was linked with other regions by multiple means of communications. I have treated as the central places such settlements as seem to have a special function other than their agricultural function<sup>14</sup>. These central places can be classified into the following three categories; 1) administrative centers where local governors were posted, 2) economic centers such as market towns and post towns, and 3) "terminuses", i.e. places to which people in local villages frequently traveled. In KMO places are recorded in KMO for each village in the region and the major destinations of travels from it. KMO only enlists the "terminuses" for a given village together with the distance to them without mentioning in most cases the character of the linkage between the village and its "terminuses". In my opinion, the "terminuses" as central places can reveal connections between two localities in and around a region that is, not associated with any particular urban function. This complements an analysis of the central-place structure of Owari, which is based on administrative and economic functions.

#### 1) Administrative centers

A very elaborate urban network had developed as early as the middle of the Tokugawa period, centering on the three metropolises, Edo, Kyoto and Osaka. Edo was the center of political and economic networks which covered the whole Japan. Kyoto was characterized by its cultural influences, and Osaka was the biggest commercial center.

Anti-Tokugawa daimyo that were defeated in the war of Sekigahara (1600) were allotted their territories in the remotest regions such as Satsuma (now Kagoshima prefecture) and Choshu (now Yamaguchi prefecture). The most urgent concern for the government was to prevent those daimyo from revolting. Thus the urban networks were carefully planned by the Tokugawa from the military point of view. Owari-han was the biggest of the three shinpan (the collateral daimyo—relatives of Tokugawa Ieyasu, the founder of the Tokugawa government) and strategically located against possible revolts of "outer daimyo" in the west. Nagoya, the capital town of Owari-han, therefore, played an important political and military role throughout the Tokugawa period.

Accordingly, the major trunk roads which led to Nagoya castle town, and the main local



towns on those roads had military functions, as well as their economic functions. There were eight towns where daikan Intendant were posted in addition to Nagoya where dai-daikan or chief Intendant was located. Narumi was on the Tokaido, Saya on the Sayaji, Kiyosu on the Minoji, and Komaki on the Kisoji routes. The other four were not on trunk roads, but on the border of neighboring provinces; Kitakata and Utasu were located on the Kiso River, Yokosuka faced Ise Bay and Mizuno was situated in the eastern hilly area. Inuyama, where a chief retainer Naruse was, and Koori were defense towns in the north of Owari. The other retainers were placed in the southern towns of Oodaka, Kowa and Morozaki, Imao and Komazuka (Mino pv: "pv" for short hereafter) in the west, and Terabe (Mikawa pv) in the east<sup>15</sup>.

## 2) Economic centers

### a) Market towns

In medieval Japan, factors like the increase in the agricultural production, the development of handicraft industry, and the rise of a monetary economy in local market networks encouraged circulation of local commodities and a large number of markets emerged as nodal points. More than 100 markets were recorded in 13–14th century documents, and the majority of them appeared in records for the first time after the latter half of the 13th century. About 750 settlements all over Japan have a place-name which is connected to a market (e.g., Yokkaichi). This shows how extensively markets had developed in medieval Japan<sup>16</sup>. In Owari, seven market-places are found in historical documents. They are Kaito-kamishoichiba, Kayazuhigashisyukuichi, Yamadaichiba, Orizuichi, Higashihonjiichi, Shimosu-itsukaichi, and Yatsuseichiba<sup>17</sup>. Kobayashi counted 108 villages in which there is a place-name referring to market, and says that most of them originated before the Tokugawa period. Most of these villages were located in the central part of the Inuyama alluvial fan, the most developed area in the region from the Ancient time.

In the Tokugawa period, daimyo generally prohibited the commercial activities in rural areas in order to gather the wealth to the castle towns. In Owari, too, only a limited number of towns were permitted by the Owari-han to open markets. These towns can also be considered central places. According to Jikatakogi (JK)<sup>18</sup>, a manual for the local administration, Biwajima was the first town to be officially permitted to open a market (in 1682), and Nishiodaka was the last (1732) among eighteen such towns in the domain. Most of them are in the western half of Owari, which was a rather densely populated area. Furthermore they are located on major roads. These local markets were mostly open twice in 10 days (e.g., a "3–8 market" was held on the 3, 8, 13, 18, 23 and 28 of the month.) The 3–8 periodic market in Ichinomiya was famous for the trading of cotton and clothes. Ichinomiya, Komaki and Toyoba had horse markets which were closed by the latter half of the 18th century as the demand for horses for cultivation decreased. Some of the periodic markets were permitted to open daily in the busiest seasons; for example, in Iwakura the market was held daily in February, March and during the last ten days of December. The two big markets yet to be maintained were Shimoodai and Atsuta. Shimoodai, adjoining the Biwajima market which dealt mainly in sundries, was the largest vegetable assembles market.

Atsuta was the fish assemble market held twice a day. Vegetables and fish were taken into Nagoya castle town. The flow of commodities will be discussed in detail later.

#### b) Post towns

Post towns had developed on major roads in Tokugawa period to provide the travelers with inns, restaurants and various kinds of services needed for traveling and transportation. Associated with these towns were designated villages, *sukego*, that provided a variety of support services. *Sukego* villages were assigned to provide services to a nearby post-town or section of a road. This *sukego* system was established by the Tokugawa government in 1637. Villages designated as *sukego* had to provide labores, horses and sometimes sailors according to their evaluated *kokudaka*, typically two men and two horses per 100 *koku*. Later as the traffic on major roads increased, *sukego* areas were enlarged, and *sukego* system were established for the local lines as well as nation roads. The system later became too heavy a burden on poor villages and sometimes caused political conflicts.

There were two types of *sukego*: 1) *jo-sukego*: a provision of help from designated nearby villages. There were from 1 to 30 such permanent *jo-sukego* villages for each post town. 2) *dai-sukego*: a provision of help from farther-away villages for special occasions, when shogun, daimyo, delegates from Korea or other VIPs passed the region, making it necessary to provide extra service. There were about twice as many *dai-sukego* villages as *jo-sukego* villages.

Post towns and their associated *sukego* can be treated as central places. Figure 2 shows all the post towns and their surrounding *sukego* villages documented in the KMO and and/or OJ.

There were fourteen post towns in Owari on five major roads : the Tokaido, the Sayaji, the Minoji, the Kisoji and the Gifukaido. The Tokaido was one, and the most important, of the five national roads of the time (the others being the Nakasendo, the Oshukaido, the Koshukaido and the Nikkokaido). There are two post towns on the Tokaido in Owari : Narumi and Atsuta. Narumi was the 40th post town on the Tokaido (from Edo), and was 12.1 km away from Chiryu in Mikawa pv. Atsuta, 6.5 km away from Narumi, was the 41st and the biggest post town on the Tokaido. It was called Miya at that time because there was a big shrine there. The Tokaido branched off here, the main route taking the 27.3 km sea route to Kuwana, Ise pv, and the bypass Sayaji taking the land route to Saya via three post towns, viz. Iwatuka, Manba, and Kamori. The distance between Atsuta and Iwatsuka, Iwatsuka and Manba, Manba and Kamori, Kamori and Saya were 7.8 km, 2.0 km, 6.8 km and 6.8 km, respectively. Iwatsuka and Manba were located on the opposite sides of the Shonai River and functioned collaboratively, alternating responsibilities as one post town<sup>19</sup>. At Saya, the Sayaji was connected again with the Tokaido main route by ferry boat which traveled 12 km along the Kiso River to Kuwana.

The Minoji, which was managed by Tokugawa government like the five national roads was an important bypass connecting the Tokaido and Naksendo. It ran from Atsuta on the Tokaido to Tarui on the Nakasendo via Nagoya, Kiyosu, Inaba, Hagiwara, Okoshi, Sunomata (Mino pv) and Ogaki (Mino pv). The distances between two adjacent post towns from Atsuta to Tarui were 5.9 km, 7.8 km, 5.9 km, 3.9 km, 9.7 km, 7.8 km and 9.9 km,

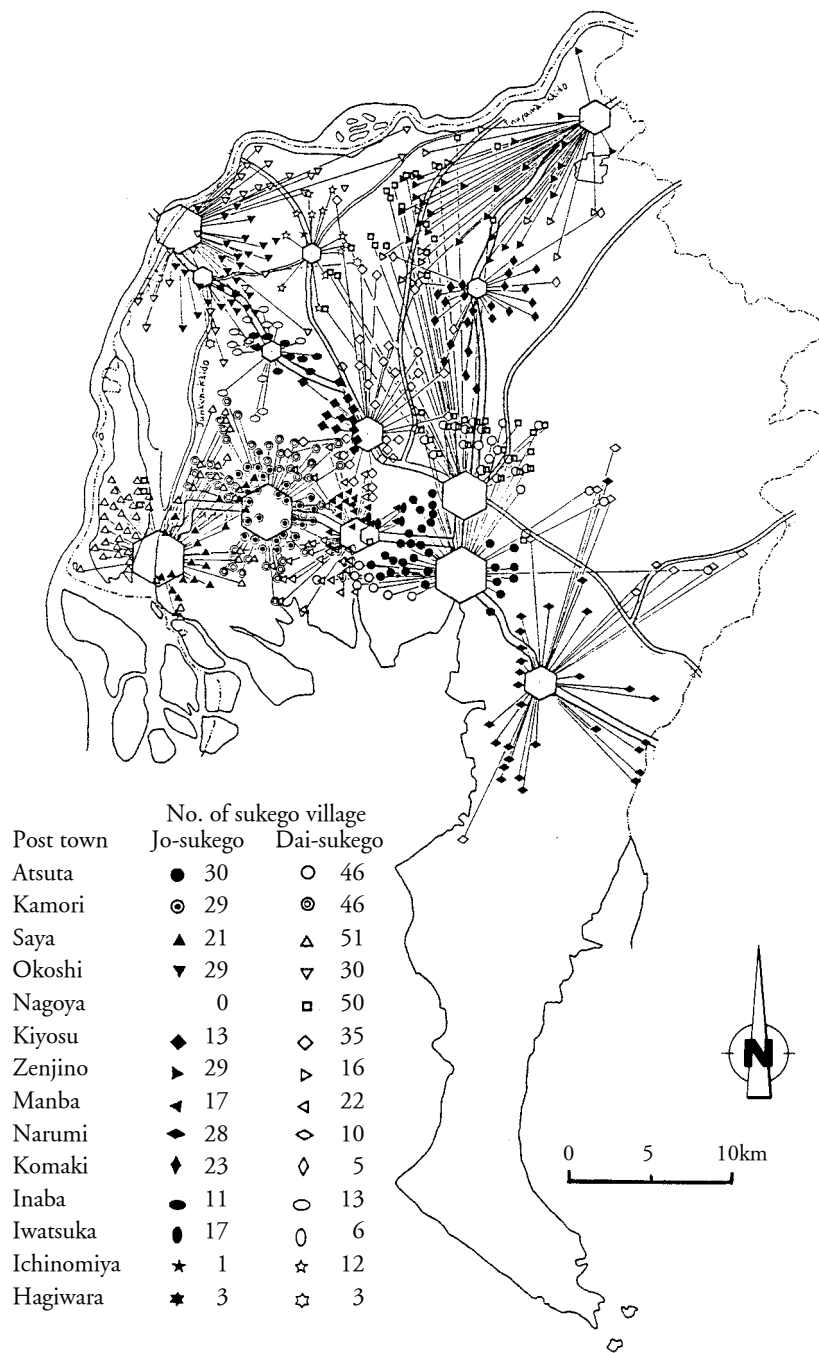


Figure 2 Post towns and their sukego villages

respectively. In addition to these towns which were recorded as a “post towns” in JK, I have included in this category the following three towns, which also had sukego villages; Komaki and Zenjino on the Kisoji and Ichinomiya on the junction of the Gifukaido and the Junkenkaido<sup>20</sup>.

As shown in Figure 2, dai-sukego villages covered a more extended area, through jo-sukego villages were immediately around the post towns. Thus, the dai-sukego areas of all the post towns cover the whole Owari region except the eastern half of Kasugai-gun and the southern half of Chita-gun, both of which are far from major roads. Nagoya had no jo-sukego villages, but had many dai-sukego villages in remote places in Niwa-gun. Saya’s jo-sukego villages were located on the east bank of the Kiso River, while its dai-sukego villages were located on the opposite side of the river.

### 3) “Terminususes”

KMO indicates the distance from a given village to major destinations from it. I think that the towns and villages designated as destinations can be considered to have functioned as central places for the villages from which people frequently traveled to them. I would like to call these towns and villages “terminuses”. 126 of this type of centers are recorded in KMO, 58 of which were in the Owari region, 35 in Mino, 17 in Ise and 16 in Mikawa. Table 3 shows the 41 sites which were designated terminuses for five villages or more. Those which are designated for less than five villages are omitted here because their significance seems to be minimal.

Let us consider now the scale and the shape of the “territories” of these terminuses, i.e. the range of villages for which a given terminus is mentioned in KMO. The central place theory predicts that a center has a territory that forms a bigger or smaller hexagon depending on its scale. Indeed, some of the large centers in the region are observed to have a hexagon-shaped territory, including Nagoya and Komaki. Other centers, however, appear to have had territories shaped differently, depending on

Table 3 Terminuses as central place (1672)

	Central Place	No. of villages in CP's territory	Type
1	Nagoya	1051	A-0
2	Komaki	221	A-1
3	Kiyosu	197	A-1
4	Inuyama	194	A-1
5	Saya	178	A-1
6	Atsuta	144	B-1
7	Kuwana	98	B-3
8	Tsushima	93	A-1
9	Kamori	93	A-1
10	Inaba	79	A-1
11	Okoshi	73	A-1
12	Narumi	71	B-1
13	Ichinomiya	61	A-1
14	Oono	59	B-1
15	Takasu	45	B-2
16	Nagashima	40	B-2
17	Hagiwara	39	A-2
18	Zenjino	31	B-2
19	Kano	29	B-2
20	Manba	28	A-2
21	Mizuno	27	A-2
22	Iwatsuka	26	A-2
23	Utsutsu	23	B-2
24	Kariya	22	B-2
25	Morozaki	20	B-2
26	Gifu	19	B-2
27	Oominato	16	B-3
28	Iwakura	15	B-2
29	Nishio	13	A-2
30	Kasamatsu	11	B-2
31	Shirako	10	B-3
32	Ogawa	10	B-2
33	Hirabari	8	B-2
34	Oohama	7	B-3
35	Tokoname	7	B-2
36	Arai	6	B-2
37	Kariyasuga	6	B-2
38	Chiryu	5	B-2
39	Yagusa	5	B-2
40	Kachigawa	5	B-2
41	Oomori	5	A-2
42	Satokomaki	5	B-2

their specific functions, geographical positions and so on. Although, due to the absence of data on the villages outside Owari we are unable to determine the shape of the territories of terminuses in adjacent pvs (e.g. Inuyama, Okoshi), we still can say that these terminuses had two different types of territories: a) hexagonal (or round) type and b) oval type. Furthermore, it seems to be helpful to think of two different groups of terminuses in terms of the scale of their hinterlands. That is to say, 1) the terminuses which were designated as a destination for over 50 villages, and 2) those which were designated for 5 to 49 villages.

a) **Hexagonal type**

**A-1:** Most of the terminuses in this type were characterized by their multiple functions. They were already established in the Medieval period and had developed as local centers. Komaki (Figure 3), for example, had a fort, was a post town in the medieval period and hosted daikansho or other administrative office and a periodic market in the Tokugawa period. Kiyosu had been the capital of Owari until 1609, when people moved not only their houses but also temples and shrines to Nagoya. Though the population decreased for a short

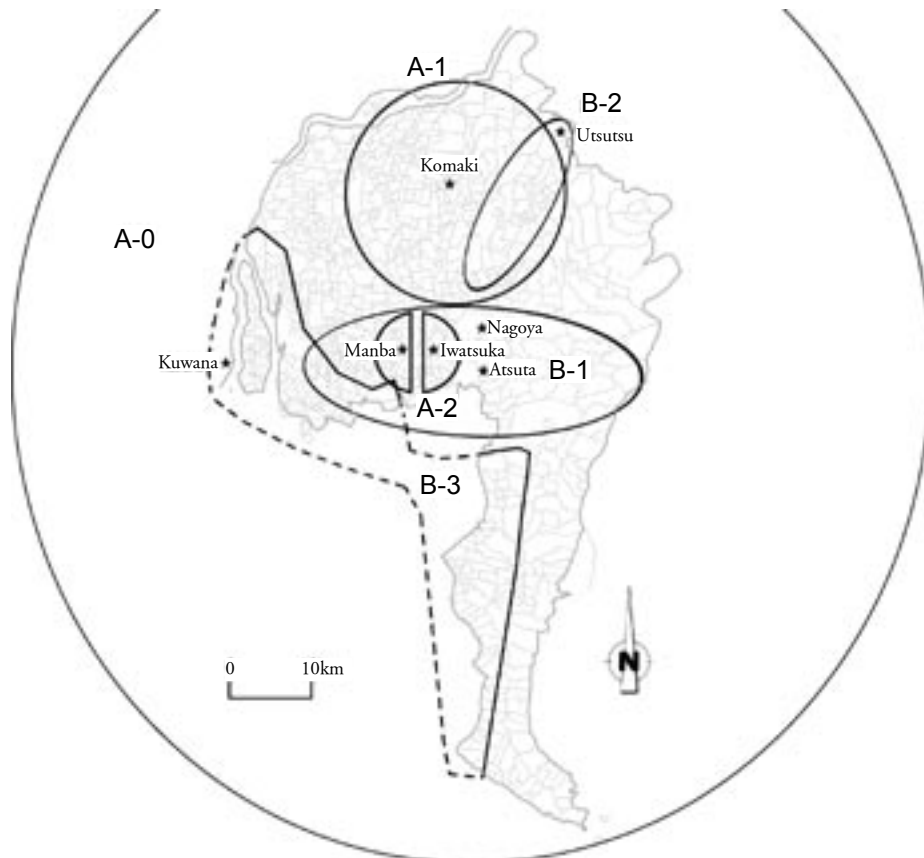


Figure 3 Types by Central Places' territory

A-0: Nagoya, A-1: Komaki, A-2: Iwatsuka & Manba,  
 B-1: Atsuta, B-2: Utsutsu, B-3: Kuwana

time, migrants from other areas soon came in and Kiyosu prospered as a post town, market town and administrative center during the Tokugawa period. Inuyama was the second largest castle town in Owari and played an important political role during the Tokugawa period. Saya was an important port and post town on the Sayaji (a bypass of the Tokaido) and had a daikansho. Tsushima, famous for its shrine, has been the biggest commercial center in Kaisai- and Kaito-gun from the Medieval period until now, though its position as a major port was taken over by Saya port during the first half of Tokugawa period. Kamori was a post town on the Sayaji, Inaba and Okoshi were post towns on the Minoji, the latter being also prosperous as a port town on the Kiso River. Ichinomiya was a post town on Gifukaido and had developed a market of cotton and clothes<sup>21</sup>. Among these hexagonal type towns, Nagoya is the biggest. Therefore I categorized Nagoya as A-0 type.

**A-2:** Hagiwara had a ferry port on Hagiwara River until a bridge was constructed in 1610s. It was the post town between Okoshi and Inaba on the Minoji. Manba and Iwatsuka (Figure 3), post towns on the Sayaji, were located on the opposite sides of Shonai River. They appear to have functioned as one post town together in that their subordinate villages made up one hexagonal shaped territory. Mizuno was a local political center where the daikan administrative office was located.

#### **b) Oval type**

While most of the big terminuses with multiple functions had hexagonal territories, the great majority of the smaller ones, which were first and foremost post towns or halfway towns, had oval-shaped territories.

**B-1:** Atsuta (Figure 3), Narumi, Oono and Morozaki belong to this type. Contrary to what the central place theory predicts, these towns had oval "territories". Atsuta is considered to have developed an oval territory for two reasons: 1) its function as a post town far exceeded others. Furthermore, it developed an oval territory along the Tokaido and the Sayaji. 2) its geographical position on the south of the bigger central place, Nagoya, prevented it from fully developing its own territory, i.e. Atsuta was not named as a destination for the villages on the north of Nagoya. Narumi, another post town on the Tokaido, was smaller than Atsuta, so its territory along the Tokaido was compressed between those of Atsuta and Chiryu. It was, however, also an administrative center governing the eastern halves of Aichi-gun and Chita-gun, thus, I think, it attracted people from many of the villages in this area and formed an oval drawn to north and south oval. In the case of Oono, its oval-shaped territory is accounted for by the shape of Chita peninsula. Oono prospered during the Tokugawa period as a center of coastal and longer-range trade with other regions in Japan. In those days, Oono was the key collection and distribution point along the west coast of China peninsula and was connected with most of the villages in Chita-gun either by land or sea.

**B-2:** The basic shape of the territories of this type of terminuses was an oval drawn along the road on which they were located, because people living in the villages along the road frequently commuted to these terminuses. Iwakura, Zenjino, Hirabari and Kariyasuga had their territories along the Inuyamakaido, the Kisoji, the Iidakaido and the Minoji, respectively. Utsutsu (Figure 3) and Kachigawa had their territories along the Shitakaido. Arai, Oomori and Satokomaki were the terminus in the southern half of Chita-gun, as

Ogawa was in the northeastern part of Chitagun. Tokoname, which was and its famous for its pottery industry, was connected only with several nearby villages located along the west coast of Chita peninsula. It seems that at that time towns with a specialized industry, like Tokoname and Seto, were not recognized by many as terminuses.

Lastly, let us consider the terminuses in neighboring provinces which were connected with villages in Owari. Takasu, Kano, Gifu, Kasamatsu (Mino pv) and Nagashima (Ise pv) were all connected by boat with the villages in Owari facing the Kiso River. They also had oval-shaped territories parallel to the river. We have to keep in mind that people in those villages depended on the ferry traffic in many ways. Chiryu and Yagusa (Mikawa pv) shaped oval because they were connected with villages in Owari along the road. Kariya (Mikawa pv) was seen as a terminus in many villages in the northern half of Chita-gun.

**B-3:** The territory of big harbors covered the villages located over Ise Bay. Kuwana (Ise pv) was a post town on the Tokaido and sea port on the mouth of the Kiso river. Almost all the villages on Ise bay and in Kaisai-gun were connected with Kuwana by boat (Figure 3). Oominato and Shiroko (Ise pv) were terminuses for some of the villages on the west coast of Chita peninsula, whereas Nishio and Oohama (Mikawa pv) were for some of the villages on the east coast of Chita peninsula. Though there are no documents available for the other provinces, the major ports in Owari might well have had their “territories” in Ise or Mikawa provinces. We know for example, that the communications by boat on Ise and Mikawa bays were more intimate before the Meiji period. It has to be realized that transportation on rivers and sea in those days played a role far more important than has been hitherto assumed. The surface-route between Miya (Atsuta) and Kuwana was an important portion of the Tokaido, and villages on the coast of Chita peninsula did business extensively by their boats both within and beyond the Owari region.

#### 4) Historical changes in central places

As mentioned above, the administrative centers and the economic centers did not necessarily overlap. The former were mainly placed from a military point of view, whereas the latter emerged with the development of monetary economy. In the beginning of Meiji period, however, new administrative offices were placed, not in towns that had only military functions as the Tokugawa government had done, but in local economic centers. The new administrative system in Meiji enforced in 1879 designated seven new administrative centers: Nagoya in Nagoya-ku, Atsuta in Aichi-gun, Shimoodai in Kasugai-gun, Koori in Niwa- and Haguri-gun, Inaba in Nakashima-gun, Tsushima in Kaito- and Kaisai-gun and Handa in Chita-gun<sup>22</sup>. Nagoya remained the biggest administrative center of Owari. Tsushima, having a daikansho, was the local administrative center in the beginning of the seventeenth century. Though the daikansho and ferry port were shifted to Saya after that, it continued to be a market center. In the Meiji period it regained its position as an administrative center. Kitakata, Utsu and Mizuno, in which daikansho had been located, were no longer administrative centers. Major river or sea ports such as Saya in Kaito-gun and Oono in Chita-gun had lost their functions as central places, because the key transportation means shifted from boat to trains and trucks.

### 5. Local system differentiation

We can distinguish the three different regional linkages; 1) the linkages between the villages and the central places of Owari, in which Nagoya is the largest. 2) Villages in Owari were linked to other producing, consuming or working villages/towns in and out of Owari. And, 3) there was a linkage with the villages, especially those in Chita-gun, and Edo, the largest central place in Japan.

The flows of vegetables, fruits, fish and rush mats, etc. directed to Nagoya, Shimoodai and Atsuta, and those of cotton and cocoon destined for Ichinomiya and Kochino, respectively. The staple food in this area was rice. And wheat was cultivated supplementally in dry fields or, sometimes, in the paddy fields after the rice harvest. But the flow of these two main crops was not recorded in OJ. Therefore, I will focus on the other foods. In the case of vegetables, the most notable product was daikon or giant white radish. The Owari region was known for the production of radish and dried radish. Radish and other vegetables were first carried into Shimoodai, the biggest daily vegetable market in Owari, and then to Nagoya. Some vegetables, as well as other kinds of food were taken directly to Nagoya. Some producers, who lived far away, carried their products to wholesalers in Shimoodai late at night. Early next morning (after a few hours' sleep) they sold products to Nagoya retailers through direct negotiation and/or auctions.

A regional specialization of production according to the distance from Shimoodai or Nagoya can be observed. In the area closest to Shimoodai or Nagoya perishable vegetables such as eggplants, gourds, watermelon were produced. Outside this area, root vegetables such as radish, potato, carrot and burdock were produced. Tea, persimmon, dates, sesame, peas and sweet potatoes were produced in the periphery. Gingers and lotus roots were brought in from the peripheral area, viz. west of Kaito-gun and Kaisai-gun. Cut and dried radish were brought in from such villages as Shigemoto, Taira and Baba which were located out of the area where fresh vegetables were produced. Cut and dried radish was also produced in Kaminoma, Kita-okuda, Minami-okuda and elsewhere on the Chita peninsula, from which it was exported to Kumano in Ise pv.

Tasho-sanbutsu-kakiagecho (TSK) written in the period 1804–13 indicates that the assemble territory of Shimoodai wholesale market extended both over and out of Owari—from Musashi pv (now, Saitama prefecture) in the east to Awa pv (now, Tokushima pref.) in the west. It also shows that the regional specialization in vegetables and fruits were already in progress at least in Central Japan in the early 19th century. Many kinds of special products were carried into Shimoodai, for example, tea from Mino pv and Totoumi (now, Shizuoka pref.), oranges from Kii (Wakayama pref.) and Totoumi, grapes from Kai (Yamanashi pref.), sea weed from Ise (Mie pref.) and mushrooms from Hida (Gifu pref.)<sup>23</sup>.

Most of the products traded in Shimoodai market were brought to Nagoya by retailers from Nagoya and its vicinities. TSK records that 136 retailers came to Shimoodai market from Nagoya, 41 from Shimoodai, 50 in total from Biwajima, Hioki and Furuwatari combined, and 2 from Atsuta. Most of the retailers from Shimoodai sold in Nagoya.

Atsuta was the most important fish wholesale market in Owari. As well as such fish



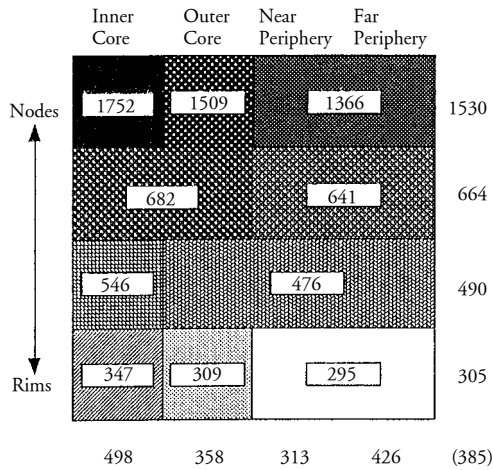


Figure 4 Population (1672)

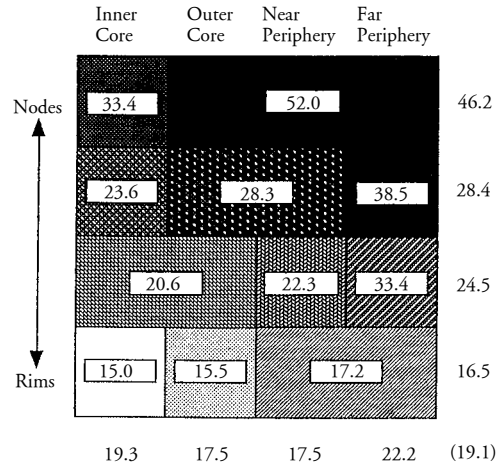


Figure 5 Horse (1672)

as sayori (hemiramph), kisu (sillaginoid), aji (saurei), cram, oyster, octopus, shrimps and lobsters, etc. were produced in Ise and Mikawa bays. Almost all of them were shipped to Atsuta, but some of them were carried on foot by traders. For example, fish was to Atsuta from Kamezaki every morning. Fish unloaded on Shimonoihiki was carried into Nagoya by peddlers. There were other circulation routes of seafood: sea slug was taken from Tokoname to Aotaki in Ise pv, fresh-water fish was taken to the market in Tsushima by village people in Kaisai-gun and dried fish was sent from Sotonohara to Nakatsugawa, a post town on Nakasendo in Mino pv.

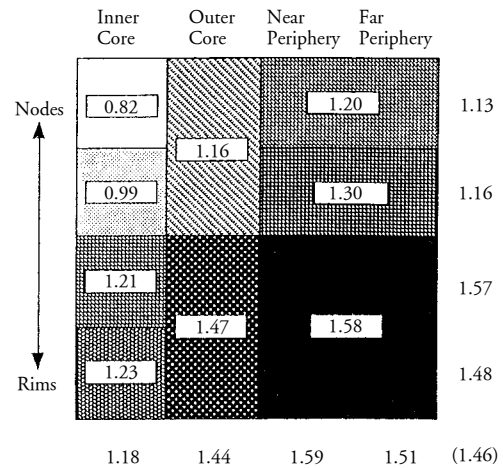


Figure 6 Population growth (1672-1822)

The most important food item that was exported from Owari to remote areas was sake. It was mostly produced in Chita-gun, where Handa had developed as a center of the industry and became the capital of Chita-gun in 1878. In 1822 there were 20 sake breweries in Handa, 25 in Kamezaki, 10 in Ariwaki, 5 in Narawa and Kowa, 4 in Ogawa, 3 in Ooashi, 2 in Fujie and Tokishi and 1 in Ishihama. In addition, there were 18 villages which had sake shops in the west coast of Chita-gun. It is not recorded in OJ whether or not sake was brewed in these sake shops, but we can infer that it was because there are long-standing sake breweries today in some of these villages. From most of these villages sake was transported to Edo and Ise by boat. The sake produced in Owari, Mikawa and Mino pvs was called “Chugokushu” and occupied 17.1 percent of the gross amount of sake which was imported

to Edo in 1785<sup>24</sup>. A number of villages in Chita-gun had *kaisen* and *isabasen*, boats for transporting goods, as well as boats for fishing and for gathering seaweed or carrying excrement for fertilizer. Many villages in Chita-gun were clearly and directly connected with places beyond the GNR. This implies that economic and other influences from outside the region reached these areas earlier than they did other parts of Owari. In particular, the geographical range of activity of those people engaged in shipping was very large. They were linked not only with Nagoya but also with Edo and other important towns located along the Pacific coast.

Understanding that there are three strong flows of commodities: 1) to Nagoya, 2) to local centers, and 3) to out of the Owari-han. We can consider next how these flows will be reflected in the core-periphery structure of 1822.

Here I focus on of OJ village-level data. The first objective will be to analyze town-centered systems, following the same methods used in the 1672 analysis. Population per village increases by stages as one moves from the Rims to the Nodes: 305, 490, 664, and 1530 (Figure 4), and the number of horses also increases in the same way: 16, 25, 28 and 46 (Figure 5). The rate of population growth (1672–1822) was low in the Nodes as against extremely high increase in the Rims (Figure 6).

Shifting to the core-periphery structure in 1822, I would scrutinize the spatial patterning of the village data around each market town, and each town with a *daikansho* (plus any other towns found to have been nodes in the 1672 analysis) and replicate the earlier analysis as much as possible. We can then compare the results with the earlier analysis, pointing up changes and continuities and accounting for them.

This tendency was also seen in 1869. In all the zones, *kokudaka* per village had increased from 1672 to 1869. The rate of increase ranges from 2.9 percent in the inner core to 8.3 percent in the near periphery. This shows that more new farmland had been reclaimed in the periphery than in the core region. While the rate of increase was highest in the intermediate zone than in the other sectors, it was highest in the near periphery within the other sectors. It is also noteworthy that while in the northwestern sector, where cultivation had developed earliest and the rate of increase in *kokudaka* per village was fairly small, the rate is quite high in the southeastern sector where the villages are located on the hills with much initially uncultivated land.

Let us first compare *kokudaka* or assessed land yields in 1672 and 1869. In the Tokugawa period, the towns and villages were evaluated in terms of *kokudaka*. The mean *kokudaka* of the villages in the whole region in 1672 was 730 *koku*. The villages in the inner core had a mean *kokudaka* of 1,090 *koku*, and those in far periphery 575 *koku*. These figures decrease dramatically from high in the inner core to low in the far periphery not only between the sectors but also within every sector.

Skinner proposes that a higher proportion of the total area will be put to agricultural use in the core areas than in the periphery. He observes, with regard to GNR in Meiji period, that the acreage of forest decreases from large in the far periphery to small in the regional core, and that the proportion of the total area devoted to paddy steadily increases as one moves from the far periphery to the inner core. My analysis partly confirms this observation

with regard to the Owari region in 1672. Though there is no data available on the state of forest at that time, the arable land (the total acreage of paddy and dry fields) increases from the far periphery to the inner core. The percentage of paddy field to the total arable land also decreases as one goes farther out from the core.

The paddy percentage is low in the northeast and the northwest where the gravelly land is unfit for paddy cultivation, whereas it is high in both the southwest and the southeast. It is noteworthy that the percentage of paddy field in the southwestern section increases from the far periphery to the outer core, but decreases in the inner core. This is because, in the inner core, a considerable amount of dry fields on the natural levee of Shonai River is devoted for growing green vegetables for quick cash income. In the southeastern section, however, we cannot see a clear core-periphery structure. Though this section was a hilly area, the percentage of paddy field was comparatively high even in the intermediate zone and in the near and far periphery because villages created many irrigation ponds. KMO and OJ record at least a few ponds in each village, and the hand-drawn maps of the villages in the 1830s show that most of these ponds were constructed near the origins of small rivers.

The mean kokudaka per tan (a tan=993 square meters or 0.25 acre) per village (an indication of average land productivity) was 1.41, and it increases from the periphery to the inner core in every sector except the southeast. That is, the land was more intensively utilized in the core region than in the periphery. This tendency is concomitant with the change of the percentage of paddy fields to the total arable land.

The size of the settlements or the average number of households per village for the far periphery is larger than those in some of the other zones. It increases as one moves from the intermediate zone to the inner core in 1672, from the near periphery to the outer core in 1822. The mean population per village increases from the intermediate zone to the inner core in 1672, and from the near periphery to the inner core in 1813. However, both the number of households and the population in the far periphery are the second largest among all the zones in 1672 and the highest in 1813. Although a final explanation cannot be given at present, it is clear that this is caused by the large scale of the settlements in Chita-gun, which occupies the southeastern section of the far periphery.

The rate of increases from 1673 to 1813 in the number of households and of population per village is low in the core region and high in the peripheral region. Whereas it is 10.6 percent in the inner core, it is as high as 64.5 percent in the near periphery. It is generally thought that the size of a household is larger in the periphery and smaller in the core. Skinner infers that this is because in the periphery, "land-labor demand" is grater, infant mortality lower, and the extended family structure more common than in the core region. We cannot clearly see the tendency in 1673, but in 1813, the size of a household increases from low in the outer core to high in the far periphery. It seems that the transition from the extended family structure to the nuclear family structure, especially in the core region, progressed between 1672 and 1822.

Though Skinner observes that the sex ratio declines from high in the far periphery to low in the core in GNR in 1880s, no such tendency appears in the core region in 1672. The mean sex ratio in all Owari was 112.8. Whereas the sex ratios the inner core and the

far periphery were comparatively low. Those of the outer core and the near periphery were comparatively low, those of the outer core and the near periphery were higher. Though we cannot explain this variation in sex ratio in general terms, the reasons for the low ratio in the southeastern far periphery and the high ratio of the northwestern and the southwestern near periphery and the high ratio of the northwestern and the southwestern near periphery can be surmised. As for the former area, viz. Chita-gun, many men worked on ships or migrated for work. Some of them, presumably lost their lives at sea or chose not to return. The many documents about shipwrecks, found in Ono, remind us of the danger of sea transportation at that time. In the latter area, viz. Nakashima-gun, Kaito-gun and Kaisai-gun, we can identify a considerable number of shindenson (newly reclaimed villages), where men's labor was particularly needed for cultivating, especially in the early stages of a new settlement. There were 23 shindenson in those areas in 1672, and the mean sex ratio for them was 129.0, which is fairly higher than that of the mean for all in Owari.

Summing up, the zone-sector analysis confirms that the Owari region reveals a distinct core-periphery structure in terms of some agricultural factors, while in the light of some demographic data, we cannot recognize the sharp core-periphery variations that Skinner found in his analysis of GNR. This is mainly because of the high ability of the peripheral Chita Peninsula's ability to retain population.

Lastly, let us consider the terminuses in neighboring pvs which were connected with villages in Owari. Takasu, Kano, Gifu, Kasamatsu (Mino pv) and Nagashima (Ise pv) were all connected by boat with the villages in Owari facing Kiso River. They also had oval-shaped territories parallel to the Kiso river. People in those villages depended on the ferry traffic in many ways. Chiryu and Yagusa (Mikawa pv), which were connected with villages in Owari by road exhibit oval-shaped territories along the road. Kariya (Mikawa pv) was seen as a terminus for many villages in the northern half of Chita-gun.

Kuwana (Ise pv) was a post town on the Tokaido and a sea port at the mouth of the Kiso river. Almost all the villages on Ise bay and Kaisai-gun were connected with Kuwana by boat. Oominato and Shiroko (Ise pv) were terminuses for some of the villages on the west coast of Chita peninsula, whereas Nishio and Oohama (Mikawa pv) were terminuses for some of the villages on the east coast of the Chita peninsula. Though there are no documents available for the other pvs, the major ports in Owari might well have had their "territories" in Ise or Mikawa pvs. Since we know that the communications by boat on Ise and Mikawa Bays were more intimate before the Meiji period.

We need to think of the linkages with other areas when we study the regional system in any given area because there are no areas without any communication with some other areas. Therefore, we examined the flow of goods and people to make dynamically clear the central place structure in the Owari region. We chose three categories of central places: administrative centers, economic centers and terminuses. The key points of our analysis were to focus on linkage between central places. After giving an overview of central places and their territories, we will examine the intra- and inter-regional flow of commodities, traders and workers.

## 6. From Bunsei (1820s) to early Meiji (1870s, 80s)

My understanding is that no early Meiji village survey was conducted in Aichi comparable to those in Gifu and Nagoya. But there is the complication with data for Owari villages in volume three of Kyudaka Kyuryo Torishirabecho. Using the data for Mino villages we can locate and identify every village listed on the Meiji 24, 1:20,000 maps, with the exception of those swallowed up by Ogaki and Gifu during the Meiji 2–24 period. Using gazetteers for those two cities, we can reconstruct the built-up areas as of 1869 and locate the periurban villages that were subsequently absorbed as neighborhoods of the city. Thus, we can construct village maps for Owari as of 1869 and as of 1891. I can't take up additional detailed maps for this paper (though it is something we'll want to do for the larger project), but we can at least compare the OJ list with the 1869 list and note the number and location of new villages. Using the kokudaka data as of 1869, we can repeat the spatial analysis. The main objective in this part of the project would be to assess the degree of change in the economic landscape during the Tokugawa-Meiji transition, up to, but not including, the advent of railroads. The data pulled together on my central place list can help in assessing the changes and continuities in the central place system 1813 to 1883. Skinner has most of the data from the Aichi Tokeisho for 1884 computerized, and could supply me and with population and other kinds of data for the various gun and for Owari as a whole.

Just what will be emphasized depends on how these analyses and cross-time comparisons come out. On the methodological side, we can demonstrate how village-level data can be used to get at spatial differentiation and hierarchy at supra-village levels.

## 7. Conclusion

Viewing Owari region through the central place theory, towns of administrative centers were positioned based on considerations and economic centers such as market towns and post towns were located on the main roads. Most of the terminuses to which travelers from each village traveled can be treated as a kind of central place. These corresponded economic centers, not to the administrative centers as well as those functioned as sea port had lost their central places were quite different in accordance with the functions of them. That is to say, the central places which were specialized as post towns had the oval shaped territories, while those that had multiple functions exhibited hexagonal territories.

We have identified the core-periphery structure and town centered hierarchical systems in Owari region sharply with respect to agricultural variables, but not strongly with respect to demographic variables. For instance, though settlements and population should increase from small and sparse in the periphery to large and dense in the core by Skinner's core-periphery hypothesis, in the periphery of Owari the settlements and population were larger and denser in Chita-gun, located in the periphery of the southeastern section, a development that was so exceptional it distorted the core-periphery structure. We found that villagers in Chita-gun moved actively to other areas for work. Some engaged in boat transporting by boat, others migrated to other areas to construct roads, houses, banks, etc. These various non-agricultural

businesses seem to sustain the large settlement and dense population of Chita-gun.

When we examine the regional systems of any places in the Tokugawa Japan, we have to need to pay careful attention to the important role of the villages on the peninsula, even though they are located in the periphery, because people there engaged actively in the sea-borne transport businesses and thus had the close contracts with those in many other areas.

### Acknowledgements

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### References

- 1 Skinner, G. William, 1988, "Nobi as a Regional System", Paper presented at the Second Workshop of the Nobi Regional Project, Nagoya.
- 2 Christaller, W., 1933, "*Die zentralen Orte in Suddeuschland*" (Jena: Gustav Fischer, 1933), trans. by C. W. Baskin as *Central Places in Southern Germany* (prentice-Hall, 1966).
- 3 Among the most accessible general treatments of central-place theory in Japanese are Morikawa Hiroshi, *Chushinchi ron, Vols. I and II* (Taimeido, 1980); and Hayashi Noboru, *Chushinchi riron kenkyu* (Taimeido, 1986).
- 4 Nagoyashi Kyoiku Iinkai, ed., 1964–66, *Nagoyasosho Zokuhen 1–3*.
- 5 Nagoyashi Kyoiku Iinkai, ed., 1964–66, *Nagoyasosho Zokuhen 4–8*.
- 6 Hayami Akira, 1969, "*Kinsei Nobi noson ni okeru seisan kozo no henka: Tochi, jinko, gyuba no ryoteki kansatu o tsujite*", *Syakai keizaishigaku*, vol. 36, no. 1, pp. 1–18.
- 7 Kajikawa Yusaku, 1997, *Kinsei Owari no Rekisichiri, kikaku shudan NAF*.
- 8 Yamada Masahiro, 1984, "Seto to shima; Nagoya tobu ni okeru sonrakunai shochiiki shudan no jirei kenkyu, Owari junkoki no kijutsu o shuppatuten to shite", *Rekisho chirigaku*, vol. 112, pp. 29–40.
- 9 The villages numbered from 126 to 130 (omitted in this paper) in Aichi-gun, from 100 to 164 in Nakashima-gun, from 104 to 141 in Chita-gun and all the villages in Haguri-gun are not available in Owari junkoki, but available in Kanbun muramura oboegaki.
- 10 Skinner, 1988, p. 20.
- 11 The hand-drawn maps of all the villages in Owari in 1830s are owned by Tokugawa rinseishi kenkyujo. Some of them have been photocopied and published as appendices of individual city-, town- or village gazettiers. Those of Chita-gun are reprinted in Tokoname shishi, Chita shishi, and Mihama choshi.
- 12 Skinner, 1988, p. 12.
- 13 Skinner, 1988, p. 27.
- 14 Matsui Taketoshi, ed., 1983, Tokoname shishi; Bunkazai hen, Tokoname city office, p. 370.
- 15 The function of villages are identified, based on Aichiken no chimei (Heibonsya, 1981) as well as on KMO and OJ.
- 16 Yamori Kazuhiko, 1970, *Bakuhau syakai no chiiki kozo*, Taimeido, pp. 168–191.
- 17 Kobayashi Kentaro, 1985, *Sengoku jokamachi no kenkyu*, Taimeido, pp. 257–301.
- 18 Nagoyashi Kyoiku Iinkai, 1966, *Nagoya sosho zokuhen 3*, pp. 169–447.
- 19 According to Jikatakogi, Iwatsuka served as a post town for the first half of the month, and Manba for the latter half of it.
- 20 Junkenkaido literally means the route that government officials of Tokugawa bakufu went on a tour of inspection following the inauguration of a new shogun. Though the route for inspection covered the whole region only it happened that the road from Inuyama to Saya via Ichinomiya came to be called Junken-kaido.
- 21 Maruyama Yasunari, 1989, *Nihon kinsei kotsushi no kenkyu*, Yoshikawa kobunkan, pp. 205–208.
- 22 Beside men and horses, sometimes sailors were recruited.
- 23 Nishibiwajima cho, 1989, *Nishibiwajimachoshi Shiryo*, pp. 1–100.
- 24 Murase Masaaki, 1980, *Kinsei isewan kaiunshi no kenkyu*, Hosei daigaku shuppankai, pp. 186–214.