

Title	THE POPULATION AT THE BEGINNING OF THE TOKUGAWA PERIOD : An Introduction to the Historical Demography of Pre-industrial Japan
Sub Title	
Author	速水, 融(HAYAMI, AKIRA)
Publisher	Keio Economic Society, Keio University
Publication year	1967
Jtitle	Keio economic studies Vol.4(1966/1967), ,p.1- 28
JaLC DOI	
Abstract	
Notes	
Genre	Journal Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AA00260492-19660000-0001

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

THE POPULATION AT THE BEGINNING OF THE TOKUGAWA PERIOD

—An Introduction to the Historical Demography of Pre-industrial Japan—

AKIRA HAYAMI

I

Tokugawa Japan bequeathed to us an abundant supply of materials for population study. Although these do not constitute vital statistics in the modern demographic sense, Japan in the Tokugawa period was a rare example of a well-documented pre-modern state. There are two reasons for this fortunate situation:

(1) When Hideyoshi Toyotomi succeeded in the unification of the country in the last part of the 16th century, the Shōgun and the provincial feudal lords became very much interested in the quantitative aspect of their subjects and conducted surveys on the width of their domains and the size of their population, the first attempt of the sort since the eighth and ninth centuries when a census was carried out. Such being the situation, Japan is fairly well provided with demographic materials.

(2) As a result of the strict ban put on Christianity by the Tokugawa government, the registration of individual's religious faith was enforced. The people were ordered to report what religious faith they embraced, what religious body they belonged to, and to avow themselves to be Buddhists. The people in general, both urban and rural, were all ordered to enter their family temples in the registration book prepared on the basis of the town or village unit.

It was about 1670 that this registration system was put in effect on a nationwide level. At first, the system had nothing to do with census-taking, but later it came to be utilized for that purpose too. Besides the names and the family temples of individuals, their sex, age and relation to their household heads, and such matters as the reason and the time for the change of their domiciles were entered. These registrations were not nationally uniform in form. The fact, however, that census-like registrations existed in many provinces, and especially, the fact that they were conducted annually, should be considered a significant phenomenon facilitating the demographic study of the Tokugawa period.

Besides the material mentioned above, there exist such first hand materials as the demographic information found in various research

papers and the genealogical records that were filed quite commonly in those days. It is also possible to obtain some materials concerning various social classes, as the literacy of the masses regardless of class distinction was rather high in Tokugawa Japan.

Such an abundance of demographic research material is very encouraging, but at the same time we should be aware that it contains many pitfalls. In other words, it is important to pay close attention to the reliability or the exactness of material to be used as statistical data. Otherwise, we are likely to fall into erroneous conclusions.

In spite of the importance of the population problem in Japan and the abundance of material for research, the historical study of it has been rather retarded, as historians were generally interested in other phases of the matter. It does not follow, however, that the historical study of Japanese population has been totally neglected. For example, Mr. Naotarō Sekiyama and Mr. Bonsen Takahashi published scholarly books and special reports on the population in the Tokugawa period; the late Professor Kanetarō Nomura⁽¹⁾ brought out a short essay on the subject in English; and Mr. Ayanori Okazaki⁽²⁾ and Mrs. Irene B. Taeuber⁽³⁾ also touched on it in their works, the former in French and the latter in English.

Seeing, however, that the study of historical demography has recently reached a higher level in the advanced countries of Europe, especially with reference to economic development, the Japanese scholars in the line have awakened to the importance of approaching the demography of the Tokugawa period from a new angle, from that of the latest professional techniques. Influenced by this trend, some scholars, reflecting a fresh perception, have come forward to publish their works.

The author⁽⁴⁾ of this essay, cooperating with some experts in the field, is now engaged in the study of the demographic history of the

(1) Kanetarō Nomura: *On Cultural Conditions Affecting Population Trends in Japan*, Economic Series No. 2, Division of Economics and Commerce, the Science Council of Japan, 1953, Tōkyō.

(2) Ayanori Okazaki: *Histoire du Japon, l'économie et la population*, Paris.

(3) Irene B. Taeuber: *The Population of Japan*.

(4) Akira Hayami: "Demographic History of Tokugawa Period (Tokugawa Jidai no Jinkō-shi Kenkyū)", *Shakai-Keizai-Shigaku*, Vol. 32, No. 2, 1966.

Akira Hayami: "The Vital Statistics in a Late-Tokugawa Village—A Quantitative Analysis of the *Shūmon-aratame-chō*, 1778-1871, (Tokugawa-kōki Owari Ichi Nōson no Jinkō Tōkei)", *Mita Gakkai Zasshi*, Vol. 59, No. 1, 1966.

Akira Hayami: "The Demographical Aspects of a Rural Village in Tokugawa Japan, 1671-1871" (*Shūmon-aratame-chō o tsūjite mita Shinshū Yokouchimura no chōki jinkō-tōkei*) *Keizaigaku Nenpō*, No. 10, 1966.

Tokugawa period as viewed from the standpoint mentioned above, and has published the results in Japanese. Seeing, however, the pressing importance of the problem, I am now ready to take any possible opportunity to publish them in English. This essay is an introductory attempt to realize my intention, presenting at the same time critical views on the ways the national population of Japan in early Tokugawa days has been treated in the past, as well as the size of this population as estimated from lately discovered local materials.⁽⁵⁾

II

It was in 1721 when the national population of Tokugawa Japan was enumerated for the first time. As one of the measures of the Kyōho Reform to strengthen the administrative power of the Shogunate, Shōgun Yoshimune ordered the feudal lords to report the size of the population in their domains, according to their respective customary methods. This order was repeated in 1726, with a ruling that a report be submitted every 6 years. Not all the results of these orders are available now, but it is clear that this measure was continued in some way or other as far down as 1846. However, the figures thus obtained, generally ranging around 26,000,000 or 28,000,000, can not be called very significant.

The new government of the Meiji period began a census system (the so-called Jinshin Census) in 1872, and found the national population to be about 34,000,000, later adjusting it to 35,000,000. The discrepancy of 7 or 8,000,000 between the size of the population as counted by the Tokugawa and by the Meiji governments was not due to an increase in population but was due to the imperfect census-taking of the Tokugawa government. It is a common view that the population of Japan in 1720 would amount to about 30,000,000 if the omissions were added, and reached 35,000,000 mark in the following 150 years.

Yōichirō Sasaki: "An Urban Population in the later Tokugawa Period" (Tokugawa-jidai kōki toshi jinkō no kenkyū—Settsu-no-kuni, Nishinari-gun, Tennōji-mura) *Shikai*, No. 14, 1967.

Yōichirō Sasaki: "Population Trends in Musashi-no-kuni, 1823-1876 (Bakumatsu-meiji Shoki Musashi-no-kuni Jinkō Sūsei ni kansuru Ichikōsatsu,)" *Mita Gakkai Zasshi*, Vol. 59, No. 3, 1966.

(5) Akira Hayami: "An Estimation of the Gross Population in Japan at the Beginning of the 17th Century (Kokurahan Jinchiku Aratame-chō no Bunseki to Tokugawa Shoki Zenkoku Jinkō Suikei no Kokoromi), *Mita Gakkai Zasshi*, Vol. 59, No. 3, 1966.

A demographic situation such as this is generally interpreted in terms of a stationary state of population movement or is taken as a case of Malthusian equilibrium in population. It is, however, important that this so-called stationary state be examined in two lights. In the first place, we generally assume an omission in census-taking to have taken place in a demographic situation like this, but in the particular case of Tokugawa Japan, duplication rather than omission could be the case. It has been discovered that duplication occurred in the early census-taking, especially when the census was carried out along with the registration of religious faith, as was the case with the Tokugawa government. It seems, therefore, quite reasonable to infer that the results of the national census in 1720 were closer to actuality than those of later years. In other words, the so-called stationary state of the population in the latter part of the Tokugawa period need not be taken as rigidly as is generally done.

Secondly, even if we yield a point and admit that population movement in Japan was slack in the latter part of Tokugawa period, it is still not correct to grant that this occurred uniformly throughout the country, as different regions must have had unique conditions affecting this stationary trend in population. Whatever the case may be, there is little danger that the reported national estimate of Japanese population after 1721 was very far from the truth, since a national census was effected time and again after 1721.

The situation is different, however, when we deal with the population of Japan prior to 1720. There is nothing to depend on but estimates when we try to look into the nationwide demographic condition of Japan in that period, as no positive evidence exists now to prove that an attempt was factually made to establish the size.

A national estimate of Japanese population in the early days of the Tokugawa period was made by Togo Yoshida at the beginning of the 20th century. His method was very simple as will be explained later.

Having succeeded in the unification of Japan, which had been in a chaotic state of civil war in the last part of the 16th century, Hideyoshi Toyotomi conducted a national land survey (Taikō Kenchi), and found that the total area of Japan amounted to 18,500,000 *roku*. *Roku* is a quantitative estimation unit for cereals, equivalent to about 5 bushels. In this case, the national land, subject to taxation, was found to be 18,500,000 *roku* estimated in terms of rice crops.

The national *rokudaka* (the amount of *roku*) was reestimated many times in the Tokugawa period which succeeded the Toyotomi period;

it was set at 26,000,000 *roku* in the last part of the 17th century and at 28,000,000 *roku* in the middle of the 18th century. The last figure bespeaks the annual quota of one *roku* of rice per person. In other words, according to the report of the national census conducted by the Tokugawa government about that time, the population of Japan then was estimated to be 28,000,000. Applying the relationship 18,500,000 *roku* = a 18,500,000 population for Japan in the 17th century, that is, 1 *roku* to one person, we may deduce the population of Japan in the first part of the 17 century to have been about 18,000,000. This estimate is generally accepted without much criticism. And it is the generally accepted view that the population of Japan was increasing to some extent up to the middle of the Tokugawa period but ceased to grow after that time.

This estimation by Yoshida, however, involves a great hypothesis. The relationship: "1 *roku* to 1 person" may be significant. But he applied this relationship in his depiction of the national population of Japan 100 years later. I wonder if this is right.

In the first place, let us examine the *kokudaka*. As a matter of fact, the *kokudaka* often did not represent the actual amount of the cereals produced. Not to mention the deficiencies in the survey methods used in those days, or the omissions in the survey, the figure the *kokudaka* expresses, being institutionalized, became gradually fixed apart from the actual harvested amount of products with the passage of time. In the Tokugawa period, it was officially forbidden to resurvey land even when it was obvious that it had gained in yield, except when it was newly reclaimed land.

It seems important here to explain the purpose for which the land survey was conducted in those days. The land survey was enforced in the feudal age in order to find the proper standard for the annual assessment on the agricultural villages and that of the rice-stipend to be paid to the retainers of a provincial lord. The first standard was ascertained by multiplying the village *kokudaka* by a tax rate. Thus it was possible to increase the annual assessment by altering tax rates, while the village *kokudaka* estimated by a land survey was kept as officially set.

On the other hand, the *kokudaka* of a provincial lord signified his status, the basis of the feudalistic social order. Any change, therefore, in the officially granted *kokudaka* of a feudal lord meant a disturbance in the existing social order, which was avoided if possible. Thus *kokudaka* remained unvaried in spite of the changes there may have been in actual productivity. The only change made in *kokudaka*

was an occasional addition of a negligible piece of taxable land to the lord's domain.

In short, *kokudaka* expressed a dead value, statistically speaking. Thus, when the Meiji government made a nationwide survey of the total amount of the cereal products of the country about 1870, it was found that the amount far exceeded the one calculated on the basis of the *kokudaka* reported by the Tokugawa administration.⁽⁶⁾ This does not mean a sudden increase of cereal products just prior to the Meiji period, but testified to a continuous development of farming throughout the Tokugawa period.

Such being the situation, it is erroneous to apply a relationship between the *kokudaka* and the population of Japan found at a specific time in the Tokugawa period to any other time. In other words, the estimate made by Yoshida of the population of Japan at the beginning of the 17th century seems to have no authenticity. Is it not strange that his work has been constantly quoted for more than 50 years?

III

Since it is impossible to obtain any directly and nationally collected statistics on population prior to 1721, the only way to calculate it is to estimate it from locally gathered material. It is fortunate, however, that the feudal lords who were assigned to rule provincially after the advent of Hideyoshi Toyotomi took interest in knowing the quantitative aspects of their domains and populace. Compared with the medieval lords who were rather indifferent to their provinces, the feudal lords who appeared in and after the 16th century seem to have been more rationally inclined in ruling their people. They were eager to ascertain the strength of their domains in order to administer their people wisely, to stabilize their provinces financially, to conduct business properly, and to win in war.

Feudal lords who had been utterly indifferent as to how many houses or people there were in their domains since the 7th century came to pay attention to them. At first, they had to be satisfied with a knowledge of the number of houses only. With the coming

(6) For example, the total cereal production of 47.2 million *koku*, including 31.5 million *koku* of rice, 11.8 million *koku* of wheat, and 3.9 million *koku* of other grains, estimated at the beginning of the Meiji Era (1870's) would be 94.4 million *koku*, if estimated on the basis of *koku* unit used in the Tokugawa period.

Calculated from K. Ohkawa, M. Shinohara and M. Umemura (ed.), *Estimates of Long-term Economic Statistic of Japan since 1868*. (*Chōki Keizai Tōkei*), 9, Agriculture and Forestry. 1966, Tokyo. Chap. 3 "Agricultural Output."

of the 17th century, however, they became interested in knowing the number of their people, as they wanted to find out how much labor service they could exact in their domains. Of course, their attempt was far short from what is called vital statistics in the modern sense of the word. The survey was gradually improved, however, from an inquiry which took the household for its basic study unit and the aim of which was to find out how many houses there were which qualified in order to furnish a prescribed amount of statute labor, into one which, assuming a more rationalized procedure, took the individual for the unit of inquiry so as to decide the burden of service labor to be imposed according to sex and age. This point was referred to previously.⁽⁷⁾

The oldest and the best arranged demographic record of this sort was made in the beginning of the 17th century. Lord Hosokawa, whose domain centered around Kokura of Kyūshū, made surveys in 1609 and 1611 of the *kokudaka*, the number of houses, the number of people and the number of oxen and horses of each village in his provinces.⁽⁸⁾

There is another piece of evidence, similar in nature, which came out about the same time as the above, although the exact date of its issue is unknown. Lord Uesugi, whose headquarters were at Yonezawa in the Tōhoku district made a study of his domain on items practically the same as Hosokawa's. A part of this work has been printed and published. It is dubious, however, how much scientific value is to be found therein if such a crude form of investigation is scrutinized statistically.

So, as a more reliable source material, we cite here one which was obtained by Lord Hosokawa when he made an investigation of his provinces, Buzen and Bungo of Kyūshū, in 1622. Titled *The Registration of Men and Domestic Animals in Kokura Domain* (*Kokura-han Jinchiku Aratamechō*), it was printed and published.⁽⁹⁾

We will now examine this collection of materials, which is composed roughly of two types of historical material. One contains the total amounts of village *kokudaka*, the number of houses, people, oxen and horses, by the villages of the 10 counties in the entire domain,

(7) Akira Hayami: *The Registration of Population and the Yakuya System in the 17th Century*. (Kinsei Shoki no Iekazu-hitokazu Aratame to yakuya ni tsuite) *Keizaigaku Nenpo* No. 1, 1957.

(8) *The Registration of Men and Beasts of Kokura Domain* (*Kokura-han Jinchiku Aratamecho*), 5 vols., *The Japanese Historical Material of Tokugawa Regime* (*Dai-Nihon Kinsei-shiryō*).

(9) *Fukushima Prefectural History* (*Fukushima-ken-shi*), Vol. 5, 1965.

with the exception of the two counties for which no *kokudaka* is reported. The other reports on the families within a village, being very much like the village register of the present. All the materials of the last type now available are ones concerned with Hayami County, Bungo Province.

Coming across these two types of material that have been handed down, we students of historical demography feel quite encouraged, as they prove that some sort of personal study within a village was made in the past, and that they are fairly reliable for use as positive evidence.

Before we proceed to analyze the material in general, we must first check its reliability. Table I below shows an unnatural distribution of ages, if judged by the end numerals of different ages obtained from the material of the Hayami County type. The persons whose ages end with 0, 5, or 8 are 4 times more numerous than the persons whose ages end with 4, 7, or 9. This uneven distribution of persons at different ages seems due to the low intellectual level of the general populace and the undeveloped training in statistical investigation that are generally prevalent in pre-modern society. But this particular case in Japan with the large discrepancies seems to involve another factor: the superstitious aversion of anything which sounds or hints at "death" and "suffering", that is, "shi" and "ku" in Japanese. Hence, some uneducated persons in old Japan were prejudiced against 4 which reads "shi"; 7, "shichi"; and 9, "ku".

TABLE I. THE AGE DISTRIBUTION OF THE POPULATION OF BEPPU AND
ISHIGAKI VILLAGES, HAYAMI COUNTY, BUNGO PROVINCE, 1622,
AS JUDGED BY NUMERAL IN TEN'S PLACE, 1622

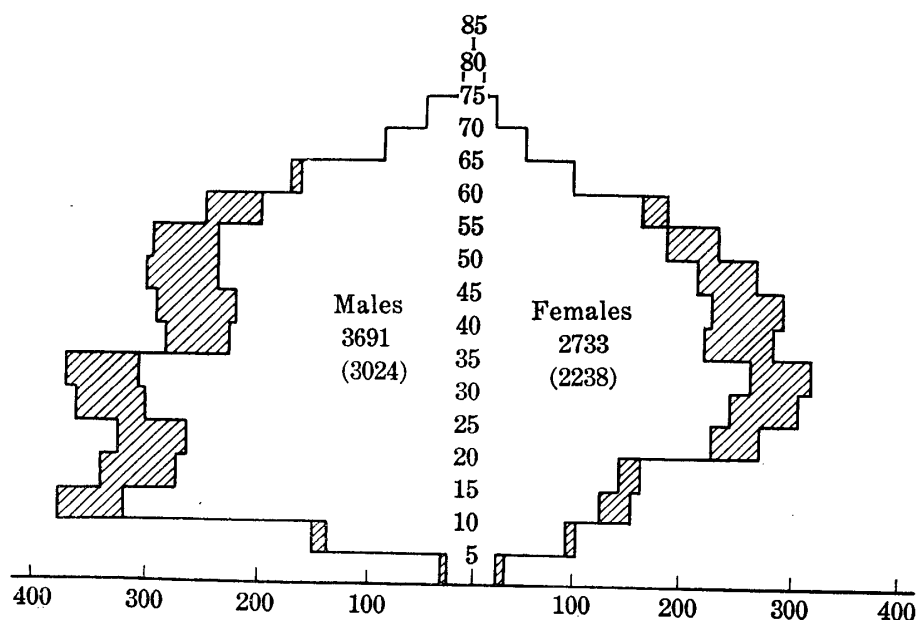
Numeral in Ten's Place	Total Population (1)	Population at and Above 21 Years Old (2)	Percentage for (2)
0	128	118	21.4%
1	75	67	12.2
2	53	45	8.2
3	66	61	11.1
4	23	18	3.3
5	83	76	13.8
6	38	37	6.7
7	31	20	3.6
8	98	82	14.9
9	34	27	4.9
Total	629	551	

IV

Chart 1 represents 6,444 persons excepting 14 whose ages are unknown, by 5 years age divisions; these people are registered in the historical materials of 76 villages in Yufuin, Yokonada, Kitsuki districts of Hayami County. For 5 villages out of the 76, Beppu, Ishigaki, Hamawaki, Onokodaira, and Tateishi in the so-called Yokonada district, practically no people at and above 61 are entered. It cannot be that no persons of those ages lived there; probably, the investigation was confined to those below 60 years of age. The population of these five villages is represented by the shaded parts to show it distinctly.

Glancing at Chart 1, we are struck by two points: (1) an unbalanced ratio of the sexes and (2) a very small number of young people, these two combined greatly reducing the number of females below 20 years of age. This is again something inconceivable, bespeaking a possible blunder in the registration of females and youngsters. Should any population have this composition, it would be called a "vanishing type." It may be possible with one or two villages, but it could

Chart 1. The Population Composition by Age, Hayami County, Bungo Province, 1622



(1) The shaded parts of Chart 1 denote 5 villages: Beppu, Ishigaki, Hamawaki, Onokodaira, Tateishi.

(2) The numbers in parentheses are the totals exclusive of the above mentioned 5 villages.

(3) Sex ratio: 100 females against 135 (136).

never happen with so many as 76 as was the case with Hayami County.

What was the reason for these results? As was mentioned before, it was in the nature of the object for which the registration was enforced that a demographic deformation like this occurred. As it aimed at finding out how much labor service could be secured in a domain, the investigation naturally confined its search to the males between 16 and 60 years of age, when examined on the basis of the individual instead of the family as its survey unit. Careless handling of the persons who were not the direct object of study accounted for the results shown in Chart 1.

Should we conclude then that this chart is entirely useless? Examining the chart closely, however, we find it properly representing conceivable age compositions of the persons above a certain age group. It seems we can definitely give credit to the chart on this point. For example, the sex ratio of the persons at and above 31 years of age is 120; this is a possible numerical value in the early years of the Tokugawa period. Using this as the basis, is it impossible for us to estimate the total population including the persons that are not mentioned in the historical material?

In proceeding with our discussion on this basis, it is essential for us to grant the hypothesis that the population at and above 31 years of age, male and female, in the chart are actual numbers. Of course, this is a groundless hypothesis. Should we succeed, however, in showing that they represent certain percentages of the actual numbers, a theoretical estimation of the total population adjusted from them would not be a very difficult task. What we must do here is to substitute a proportionately calculated age composition of the people who are under as similar conditions as possible.

It is, however, practically impossible to find the materials which will properly meet this requirement from among the ones that have been handed down to us, not only with reference to area conditions but to chronological time, since the one under our consideration now is the oldest of its type. Further, it is necessary to limit the selection of the age group population composition tables to the exact or the fairly exact ones which may be somewhat defective but which can be adjusted by other conditions or by some additional historical materials. Looking for the materials that will satisfy these conditions, we found that there was after all no way but to resort to the annually conducted religious faith registration materials.

Thus, we have decided to use the annually conducted *shūmon-*

aratame-chō (religious faith registration materials) that were taken in the years closest to 1622. Even these materials with very few exceptions, were by no means adequately analyzed to meet our purpose.

Imperfect as these materials are, we have arranged them in Table II below:

TABLE II. THE POPULATION COMPOSITION RATIOS OF SPECIFIC AGE GROUPS IN KŌMI AND YOKOUCHI VILLAGES

Villages	Years	Total Population (annual average)	Sex Ratio	Age					
				Males		Females		Total	
				Below 5	31 & up	Below 5	31 & up	Below 5	31 & up
Kōmi*	1674-1688	356.5	99	10.4%	43.0%	8.4%	41.3%	9.3%	42.1%
Kōmi inclusive of servants	1674-1688	433.0	109	9.0	40.2	7.4	37.8	8.2	37.8
Yokouchi	1671-1681	201.4	113	12.3	34.5	10.2	42.5	11.4	38.2

* For Kōmi village two types of population are given: one which excludes servants but includes emigrant employees, and the other which includes both servants and emigrant employees.⁽¹⁰⁾

It is doubtful in the case of Kōmi village whether the actual number of servants was included. Also, it is not clear whether the low ratio of the population below age 5 was due to a low birth rate or a defective description of the material. While entertaining such doubts on this material, we raise another question, that of whether the composition ratio for the population at and above 31 years of age is too high. On the other hand, the figures for Yokouchi village are the results after necessary adjustments were made. In both cases, however, the number of the infants one year old is not included.⁽¹¹⁾

The population composition ratio by age varies according to natural and social conditions. While putting aside the question of increase or

(10) A Study Group of the Prof. Nomura Seminar, "Statistical Survey on the Population of Kōmi Village, Motosu County, Mino Province, Ōgaki Domain—1674-1872—", *The Mita Gakkai-zasshi*, Vol. 53, Nos. 10, 11, 1960.

Akira Hayami: "The Demographical Aspects of a Rural Village in Tokugawa Japan."

(11) This is an error due to the old Japanese way of counting age, that is, one year is added on every New Year. Through out this essay this old method has been used.

decrease due to social conditions, it is natural that the composition ratio for the young rises with a rapid increase in the birth rate. The total population of Kōmi village during this period increased from 440 to 471 or from 361 to 374 if servants are excluded, although it tended to decrease temporarily in this period. But the average birth rate for the period was 15‰ (18‰, if exclusive of servants); this is unbelievably low. Since the average death rate for the period was 18‰ (21‰, if exclusive of servants), with the death rate thus exceeding the birth rate, there should have been a decrease in population. But in actuality, an increase in population occurred. This is a strange phenomenon. There must have been something wrong with the birth registration. Here again the Kōmi village information should be considered problematic.

Now, taking up Yokouchi village, we find its population to have increased from 189 to 219 in this period with an average rate of increase of 1.2% a year. If judged by the birth rate of 30‰, this increase seems to have come from a fairly rapid natural increase of births. In other words, since the population of this village seems to be on the increase, the population ratio below age 5 is high, and that of 31 and up is low, if compared with Kōmi village as presented in Table II.

Despite the considerations discussed above, we apply this population composition by age of Yokouchi village to Hayami County, since we find no better example to use for our purpose.

Another point to be considered in this connection is the question

TABLE III. THE ADJUSTED POPULATION OF HAYAMI COUNTY

		Males	Females	Total	Sex Ratio
a	Population of 76 villages, Hayami County	3,691	2,739	6,430	135
b	Population of Hayami County exclusive of Beppu and other 4 villages	3,024	2,238	5,264	136
c	Population of Hayami County at 31 years of age and up	1,710	1,425	3,135	120
d	Composition ratio of the population at 31 years of age and up, Yokouchi village	34.5%	42.5%	38.2%	92
e	c/d	4,910	4,380	9,290	
f	c/d			8,210	
g	e/b			1.76	
h	f/b			1.56	

of sex ratio. The sex ratio both of Kōmi and Yokouchi villages is lower than that of Hayami County. Since the sex ratio varies with different age groups, we hesitated in deciding which of them to use. Thus, the population composition by age is presented in two different ways in Table III: one which utterly disregarded sex ratio, and the other which took it into consideration. According to the table, it is clear that the real size of the population in Hayami County could be obtained by multiplying the one which appeared in the historical material by 1.56 if the sex ratio is disregarded, and by 1.76 if it is to be given weight. In other words, the total population of Hayami County would be the number mentioned in the documents of 1622 plus an addition of 56% or 76%.

Next, let us examine the composition of the family. First, it is important here to clarify the meaning of the word "family" used as the unit of investigation in the historical material. To state the conclusion first, it is very doubtful if we can safely depend on the expression "number of houses" which often appears as the caption of a column of totals. The "number of houses" is used in confusion of two ideas: one signifying the members comprising a family, and the other identifying the number of houses or structures such as "rooms", "stables", etc. Thus, the expression "number of houses" as used in the historical material is meaningless, statistically speaking.

The situation, however, of Hayami County is different as an individual investigation of each member of a family was conducted. In Hayami County, there existed families of different scales, all the way from a small family consisting of a married couple and their children to the large family embracing scores of members.

The scale of a large family is determined by the extent to which it includes *nago* or *genin* (subordinate persons) as members. It is very difficult to tell if these *nago* or *genin* were quite subordinate to their masters or practically independent. Mr. Tokoro writes that since the live stock of each *nago* or *genin* is entered individually, "it is possible to say that they were economically independent in spite of their subordination to their masters".⁽¹²⁾ This is certainly a sensible interpretation of the matter. Seeing however that almost all the farmers, who are the heads of large families, constitute a squire class of people, we shall take the families that are treated as unit entities in the documents to be independent families. (The

(12) Mitsuo Tokoro: "Labor Service as Carried on by Peasants in Early Tokugawa Days", (Kinsei Shoki no Hyakushō Honyaku) Shohei Takamura and Yoshitaka Komatsu, ed.,: *Feudalism and Capitalism (Hōkensei to Shihonsei)*.

TABLE IV. FAMILY COMPOSITION BY THE NUMBER OF MEMBERS, HAYAMI COUNTY, 1622

	Actual Numbers			Rates		
Areas	Yokonada	Kitsuki	Yufuin	Yokonada	Kitsuki	Yufuin
Number of Villages*	5	45	27			
Composing Family Membership:						
Number	Household	Household	Household	%	%	%
1	1	5	2	0.5	0.9	0.5
2	16	82	18	7.4	15.1	4.9
3	42	131	42	19.6	24.1	11.4
4	46	119	44	21.4	21.9	11.9
5	29	68	33	13.5	12.5	8.9
6	24	55	93	11.2	10.1	10.5
7	24	33	36	11.2	6.1	9.8
8	9	16	33	4.2	2.9	8.9
9	5	13	30	2.3	2.4	8.1
10	6	6	21	2.8	1.1	5.7
11	2	4	14	0.9	0.7	3.8
12	3	2	10	1.4	0.4	2.7
13		3	17		0.6	4.6
14	1	1	2	0.5	0.2	0.5
15	3	1	5	1.4	0.2	1.4
16	1	1	6	0.5	0.2	1.6
17		1	3		0.2	0.8
18	1	1	4	0.5	0.2	1.1
19	1	1	1	0.5	0.2	0.3
21			1			0.3
22			2			0.5
23	1		1	0.5		0.3
25			1			0.3
28			1			0.3
30			2			0.5
61			1			0.3
Total	215	543	369	100%	100%	100%
Average Number	5.4	4.5	7.6			

* In accordance with the feudatory nature of administration in the Tokugawa period, one village was sometimes reported as two tenures of land, or two villages, being put together as one tenure of land for a local provincial lord. These feudal tenures were adjusted in this study on the basis of the existing village unit.

number of the people entered here is without the additions discussed in a previous paragraph.)

The Yokonada area includes such large villages as Beppu, Ishigaki and Hamawaki along the seacoast; the Kitsuki area is in the south of the Kunisaki Peninsula; the Yufuin area includes a small basin and hilly places separated from Beppu by a mountain. As is clear at one sight, there are distinct differences in the family compositions of these three areas. They are not so conspicuous with the average sizes of families, but coming to their rates, we find them very interestingly marked. The Yufuin area, for example, is not only large in point of the average size of its families but their distribution is extensively scattered compared with other places. Indeed, the families of 11 members and up comprise as many as 16% of all households, and one family has as many as 61 members. Certainly, there must be some factors working in this area which are peculiar to it. With the Kitsuki area we find a noticeable tendency for a smaller family. The family size distribution of this place is very much like that of the middle part of the Tokugawa period.

Now, the family composition consists roughly of the blood relatives and the subordinate members. The number of persons who belong to the first category, including the master of a house, his wife, and their lineal relatives, is rather limited, and this number is very little influenced by area conditions. Thus it is obvious that the relative size of a family varies according to whether it has a large number of subordinate members or not.

These figures should be adjusted for the reasons mentioned above. But generally speaking, the numerical variance in the family size between the Yufuin type and the Kitsuki type should be attributed to the difference in the developmental concept of family. The factor which regulates the family conditions of the Yufuin type is a remaining powerful medieval clannishness in the management of affairs, calling for a large number of subordinate laborers, whereas the Kitsuki type has progressed to a stage of small scale management based on the labor force of the family. The fact that the investigations, carried out by the same lord, in the same county, and in the same year, exhibited such a marked difference in their results should be considered characteristic evidence showing the transition from the ancient to an advanced stage of social development.

Table V presents females from 16 to 50 years of age by area, according to whether they are married or not. Following the example of the documents, their status in the family is classified into two

TABLE V. NUMBER OF FEMALES (16-50 YEARS OLD) AND MARRIAGE RATES
HAYAMI COUNTY, 1622

Area	Number of the Married											
	Blood relations			<i>Nago</i>			<i>Genin</i>			Total		
	Mar- ried	Un- mar- ried	Total	Mar- ried	Un- mar- ried	Total	Mar- ried	Un- mar- ried	Total	Mar- ried	Un- mar- ried	Total
Yokonada	186	2	188	82	0	82	1	105	106	269	107	376
Kitsuki	440	27	467	82	5	87	24	109	133	546	141	687
Yufuin	365	2	367	249	2	251	9	144	153	623	148	771
Total	991	31	1,022	413	7	420	34	358	392	1,438	396	1,834

Area	Rate of the Married (%)							
	Family Composition Rate				Rate of the Married			
	Blood relations	<i>Nago</i>	<i>Genin</i>	Total	Blood relations	<i>Nago</i>	<i>Genin</i>	Total
Yokonada	50.0	21.8	28.2	100.0	98.8	100.0	0.9	71.5
Kitsuki	68.0	12.7	19.4	100.0	94.3	94.2	18.0	79.6
Yufuin	47.8	32.5	19.8	100.0	99.5	99.2	5.9	81.8
Average	55.6	22.9	21.4	100.0	97.0	98.3	8.7	78.4

categories: the blood relations of the household head including wife, mother, daughter, daughter-in-law and sisters, and the other members including *nago* and *genin*. There is a possibility that the unmarried includes some women who had been divorced or widowed. The document gives no information on this point.

The marriage rate of the blood relations is very high. Among the subordinates, the *nago* shows as high a rate as the blood relations, whereas *genin* shows a low rate; this fact betrays the conditions of life which bind these people. Seen from the standpoint of demographic history, this low rate of the people of a lower status must have affected to quite some extent the birth rate of the people in general. Of course, the word "marriage" creates a problem here. It is possible that some births occurred out of wedlock, but it is quite certain that the unmarried had less chance for child-bearing than the married. Assuming, therefore, that about 20% of the females capable of child-bearing were denied such a chance in this case, the general childbirth rate would be reduced to that extent. So, we may safely say that there exists a certain proportional relationship between the number

of females who are denied the chance of childbearing and the birth rate in general. It is important, therefore, that we look for some positive evidence while studying the historical demography of Tokugawa period before we can come to any definite conclusion.

Lastly, we shall examine the relationship between village *kokudaka* and population. In order to obtain insight into the relationship between a local *kokudaka* and its population, we picked the following areas: (A) the plains along the lower reaches of the rivers in Miyako County and Nakatsu County, (B) Kunisaki County (Kunisaki Peninsula), (C₁) the Yufuin area of Hayami County, (C₂) the Kitsuki area of Hayami County, (D) the mountainous area of Usa County. In selecting these places, we mainly went by their natural conditions, excluding the urban villages and fishing hamlets, though these were very few in number. Except for the last mentioned, we missed no village which appears in the still existing map attached to this historical material.

Consequently, (A) is purely agricultural; (B) is characterized by comprising the seacoast of a peninsula and some low hills; (C₁) is a basin among mountains; (C) is very much like B in its physical features; and (D) bears the features of mountain villages. To find out how these differences in the natural conditions of various areas affect *kokudaka*, the distribution of population, and the relationship between *kokudaka* and population is the aim of our analytical study presented in the following paragraphs.

Chart 2 including A, B, C₁, C₂, D shows the correlations between the village *kokudaka* and the population in each area. The numbers used in this Chart are as they were found in the documents. They should have been multiplied by 1.56 or 1.71 as was explained before. Disregarding, however, this necessary adjustment, we used the original numbers as they were, for our purpose was to seek the correlations among them.

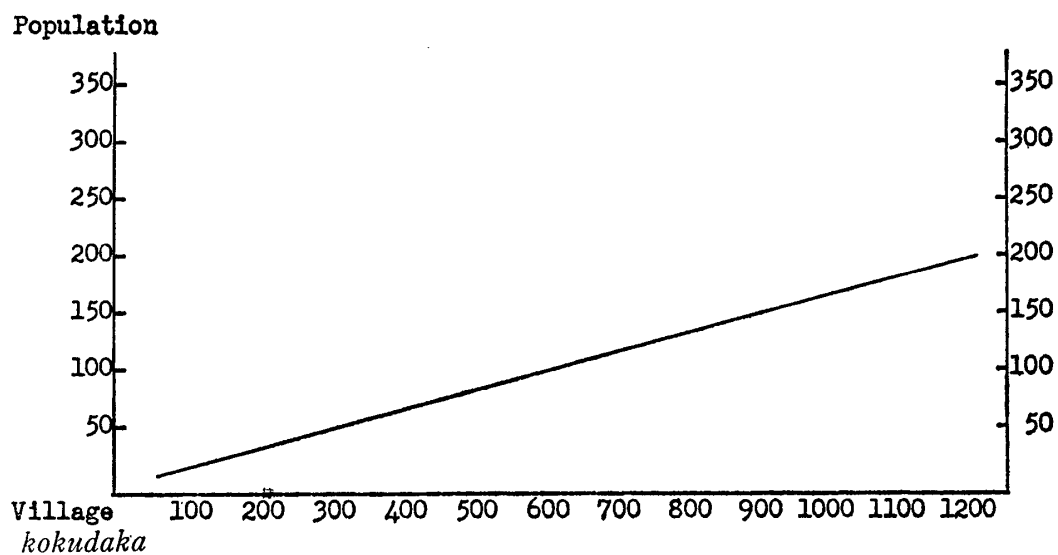
The straight line in each chart represents the regression line as analyzed by computer. A computer was also used in calculating correlation equations and coefficients.⁽¹³⁾ Looking at these results, we clearly perceive that there is a fairly high degree of correlation between the *kokudaka* and the population of every village.

This high correlation, varied as it is according to different areas, means the existence of a correspondence between a certain amount of *kokudaka* and a certain size of population in a village. This characteristic may have weakened with the passage of time, but for the

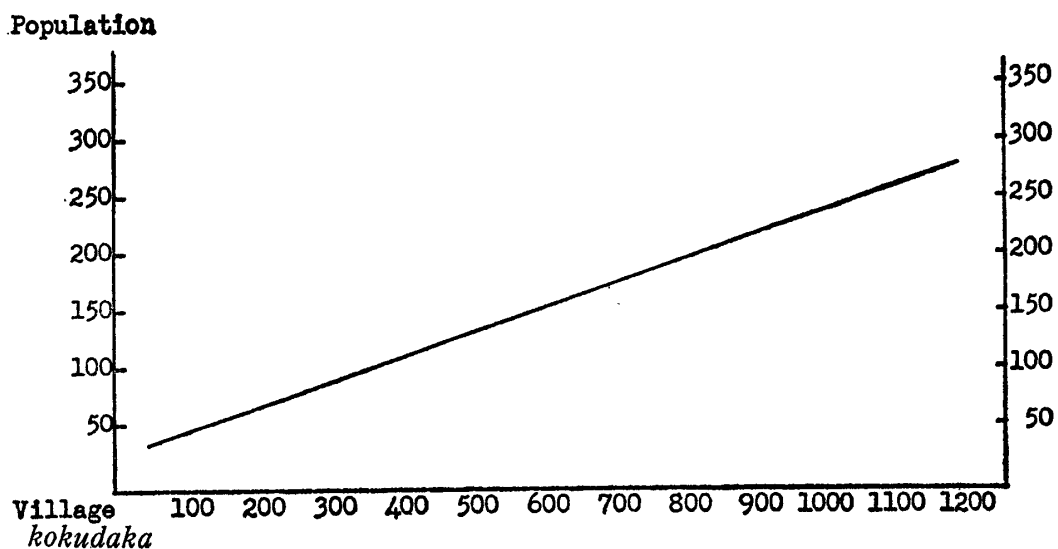
(13) For these calculations, the author is indebted to Mrs. Yōko Sano, the Institute of Management and Labor Studies in Keio University.

Chart 2 A Correlation between Village *Kokudaka* and Population

(A) Miyako County and Nakatsu County, Buzen Province (plains)
Number of villages: 113

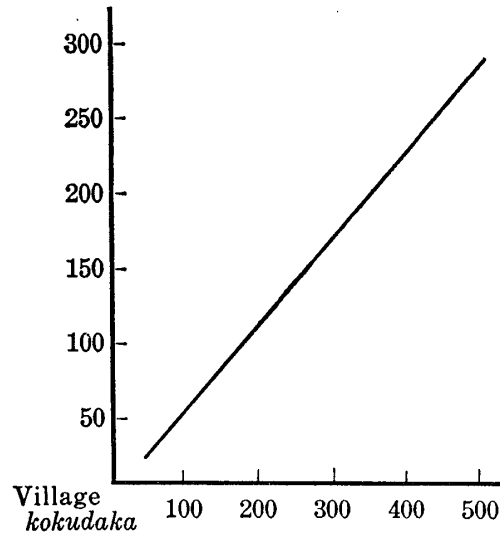


(B) Kunisaki County, Bungo Province (Kunisaki Peninsula)
Number of villages: 163



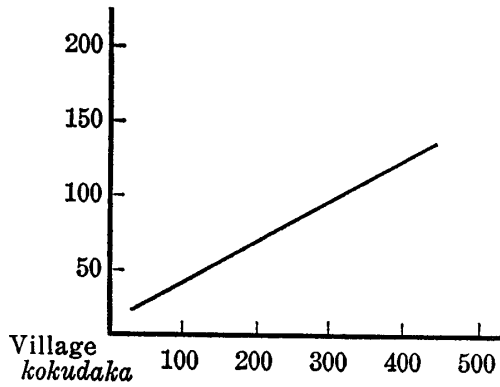
(C₁) Yufuin, Hayami County,
Bungo Province
Number of villages: 26

Population



(C₂) Kitsuki, Hayami County
Bungo Province
Number of villages: 45

Population



(D) Usa County, Buzen Province (mountains)
Number of villages: 115

Population

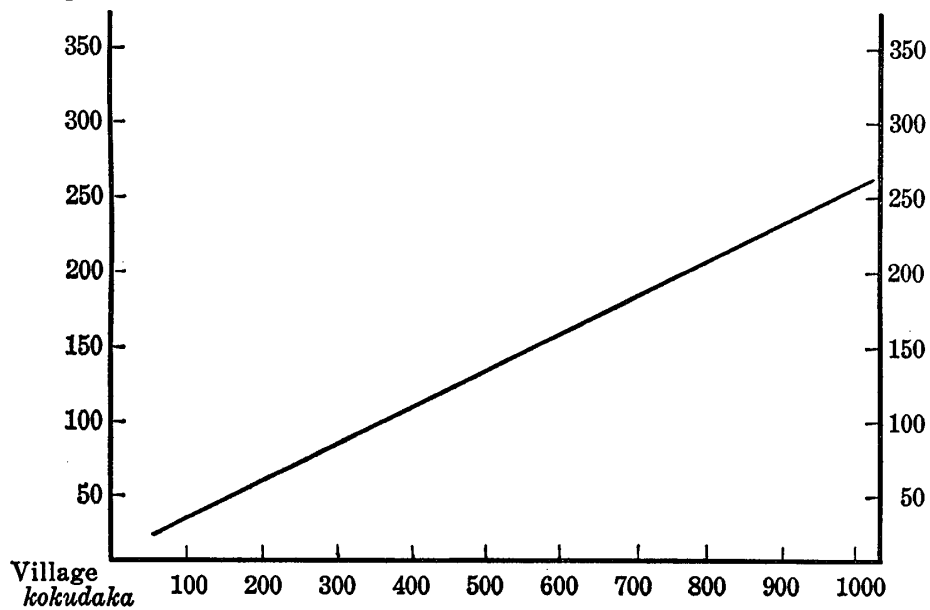
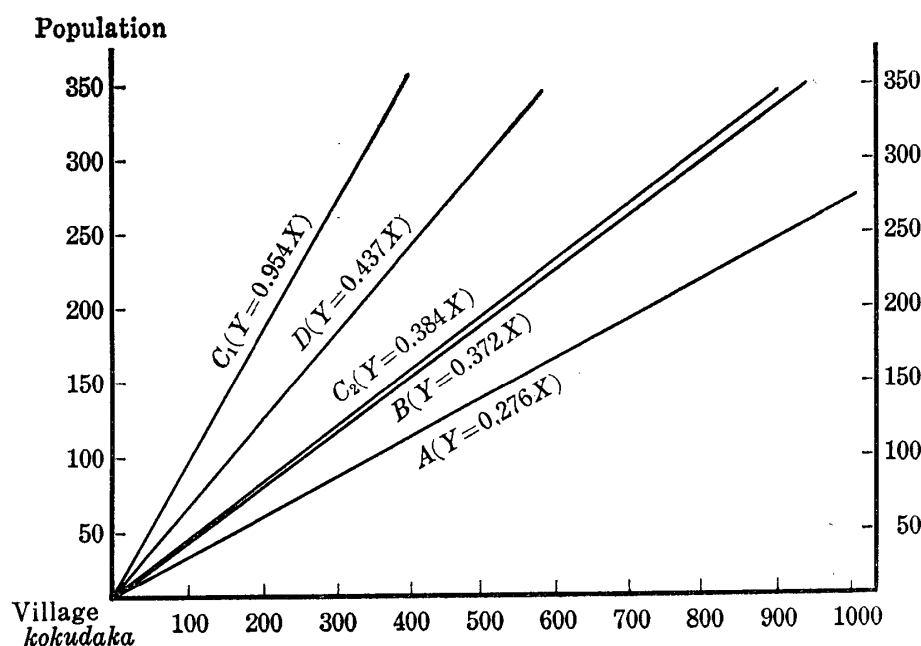


Chart 3. The Ratio between Kokudaka and Population
in Different Areas (1622)



early years of Tokugawa period, before the commodity production had been generally developed, it seems correct to regard village *kokudaka* as corresponding to the cultivated area and its population as corresponding to the potential labor force. Thus at least some sort of correspondence, if not a rigid relationship, between the two factors, arable land and population, will have to be admitted.⁽¹⁴⁾

Next, we notice sharp differences in the slants of the regression lines; this means that the ratio between *kokudaka* and population varies according to area. Chart 3 presents the regression lines adjusted from the ones shown in Chart 2. The first adjustment was the elimination of constants. The second was the multiplication of the numbers appearing in the historical material by the previously mentioned figures 1.56-1.76; 1.66 in this particular case for the purpose of obtaining the practical population.

According to Chart 3, Area A shows the lowest ratio between village *kokudaka* and population; in other words, a definite amount of *kokudaka* there corresponds to a number of people which is smaller than that

(14) In Chart 2, A→D, the values of the constants are not large. They may be quite disregarded, especially in estimating the national population of Japan as is discussed in the following section. "Statistical Survey on the Population of Kōmimura Motosu-gun, Mino-no-kuni.

of any other area (1,000 *koku* to 276). Examining the increasing order in the ratio, we find B and C₂ take almost the same slant, D deviates from them in some measure, and C₁ exhibits a marked contrast to them. The fact that Area A is open farm land, B and C₂ are on peninsulas, D is mountainous, and C₁ is a small basin among hills seems to account for the observed variation in the relationship between *kokudaka* and population.

In our study of these areas, we noticed that the means for life other than agriculture were amply provided for in descending order from A to D; in other words, judged by social structure, A should be considered the most advanced. In Area C₁ which was an exception to this general run of progress, "one *koku* per person" seems to have been the controlling standard of the people's life there. Socially speaking, therefore, this place should be considered the most backward among the areas under investigation. While discussing family composition above we became aware that this area had more large families than any other area.

Considering these facts, it seems permissible to observe that Yufuin, Hayami County, was slow to react against the feudal way of life because of its geographical isolation from other places, and continued strengthening clannishness among the people, especially among the large farm holders. When a land survey was carried out, for example, the officials in charge often made terms with these large family masters and reported the latter's crops to be smaller than the actual amount, resulting in an apparent high ratio of village *kokudaka* against the population in general. Whatever the situation, area C₁ should be treated as an exceptional case.

It is clear at any rate that there was a high degree of interrelationship between village *kokudaka* and population in the Kokura domain. In the following section, we are to examine this discovery to see if it can be used as a foothold in estimating the national population of Japan in early Tokugawa.

V

It is clear that there was a definite correlation between village *kokudaka* and the size of population as was revealed by land surveys. Since, however, different areas exhibit a large difference in their coefficients of this relationship, we were undecided as to which of them should be used in the estimation of the nation's population. For example, the national population would be 5,180,000, if we

adopted the coefficient of Miyako-Nakatsu County, and it would be 8,140,000, if we calculated by that of the mountain solitudes of Usa County, as against the 18,500,000 *roku* of crops. As we were unable to learn to what extent of the nation each of these criteria should be applied, we took them as expressive of the minimum and the maximum, and decided to judge the population of Japan at the time of the surveys at from 5,180,000 to 8,140,000 estimated on the basis of national *kokudaka*.

We assume, however, that this is merely "rural population", and that it is important to add other demographic elements if we want to obtain the number of the entire population. In other words, it is essential to take the urban population—the warrior class, merchants and artisans—and the people in fishing villages and mining towns into consideration. It is, of course, impossible to calculate this.

Mr. Naotaro Sekiyama estimates the urban population in the latter half of Tokugawa period at 3,700,000 or 3,800,000 out of a total population of 30,000,000, that is, "12% of the entire nation or one-seventh of the rural population".⁽¹⁵⁾ This estimation of his, which is supported by the urban census taken in the early years of Meiji period and other similar reports, should be considered fairly accurate. Of course, this estimate cannot be applied just, as it is, to the early Tokugawa period. Keeping this fact in mind, however, we seem justified in assuming that the urban population and the provincial population which had no connection with *kokudaka* was 20% of the rural farming population. Considering the difference in the size of population between the early and the later part of the Tokugawa period, this percentage may appear somewhat high, but it is not too low. Adding this to the rural population, we have come to conclude that the population of Japan in early Tokugawa was from 6,220,000 to 9,800,000.

On the basis of the 1721 survey, the population of Japan about that time is usually considered to have been 30,000,000; in other words, the population of Japan had increased 3.06 to 4.82 times, that is, at an annual rate from 0.9% to 1.3% during the 120 years up to 1721. This is by no means an impossible growth rate.

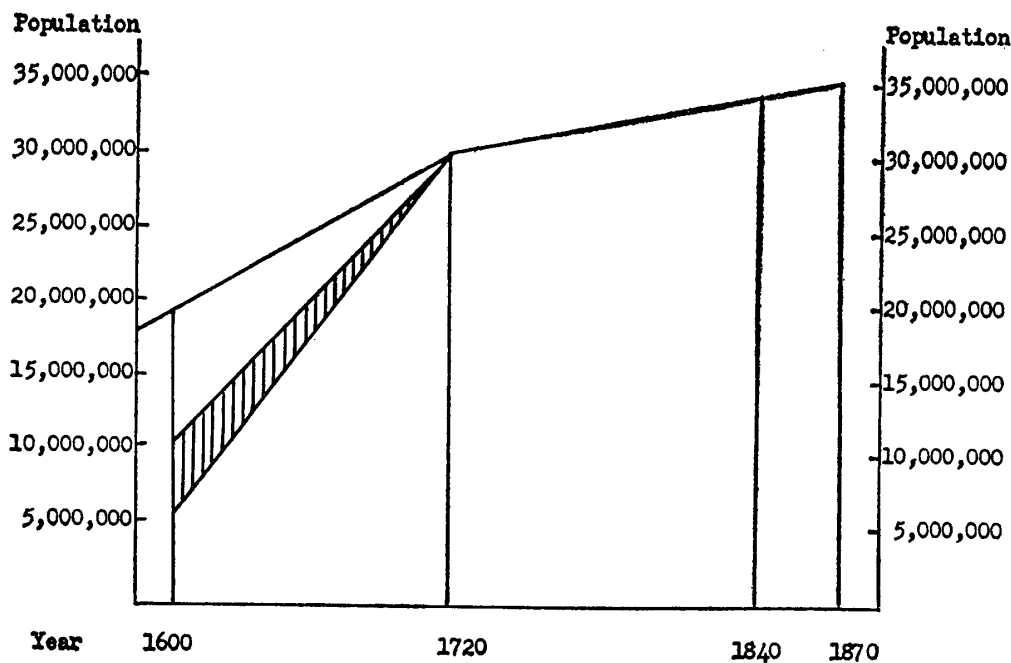
In pre-modern society where such demographic factors as a high birth rate and a high mortality rate prevail, even a slight variation in these have a great effect on population trends. Let us assume here that the long term mortality rate of the Tokugawa period was

(15) Naotarō Sekiyama: *Population Structure of Tokugawa Japan* (*Kinsei Nihon no Jinkō Kōzō*), 1958, p. 239.

30‰. Thus an annual population increase of 0.4% coupled with the above mortality rate requires a 34‰ birth rate. Similarly, an annual increase rate of 0.9% requires a birth rate of 39‰, and an annual increase rate of 1.3% necessitates a birth rate of 43‰. (It is not necessary to consider emigration and immigration of people in discussing the demography of the Tokugawa period. The trend of the national population in that period was influenced by nothing but the difference between births and deaths.) Thus, an annual birth rate as high as 40‰ was possible. If expressed inversely, it is not at all out of proportion to suppose that the 30,000,000 population of Kyōho Era (1716-1735) was the result of an annual increase rate of 1% prevalent during the 120 years up that time.

Chart 4 represents a sketch of the national population trends in the Tokugawa period as described above. The increase rate in this author's estimation is rather conspicuous for the first half of the period (the part enclosed by the two lines in Chart 4, which indicate the 0.9% and the 1.3% annual increase) but it will be seen that this is by no means an impossible rate of increase. However, we as yet do not know when such a sudden change began and when it came to an end. Judging by the chart, however, we may tentatively consider that it ended in the Kyōho era.⁽¹⁶⁾

Chart 4 The National Population Trend



(16) Strictly speaking, we are quite unaware which part of the Tenshō-Genna Era (1573-1623) is referred to by the expression "18,000,000 population=18,000,000 *koku*"

Before we begin examining the significance of the estimations we have obtained, we shall once again reflect on the process we have come through. To begin with, in estimating, we made various assumptions. They are: (1) that the population registration at Hayami County in 1622, at least the part which deals with the males of 31 years of age and up, is correct; (2) that in estimating the total population from part of it, the classification model by age of the far-off Yokouchi village of Shinshū province can be used; (3) that the ratio between population and *kokudaka* obtained from Buzen and Bungo provinces can be extended to a nationwide estimate; and (4) that the urban population (inclusive of fishermen; to be exact, the non-agricultural population) should be 20% of the agricultural population. These assumptions should be examined.

First, we take up assumption (1). It is true that there is no guaranteeing the exactitude of this assumption. For that matter, no census can be perfect in numerical preciseness. Taking into consideration the rate of probable error in this case, there is ample reason to believe that the population calculated here is smaller than the actual number, and this will result in a reduced estimate of the national population. If it represents only 80% of the actual population, the national population estimated on that basis should be multiplied by 1.25.

The problem with assumption (2) is that the model adopted in this case is one which was originally made for a village of Shinano Province which differs in chronological time and local conditions. As was mentioned previously, this model is of an expanding character as it is a population model classified by age at a time of rapid increase under the a high birth rate and a high mortality rate. In other words, through the application of this model which represents a low percentage of population of working age, the entire population of Hayami County is apt to be estimated as greater than it probably was. Sex ratio is another question which should be considered here. The margin of its influence, plus or minus, will fall within 10 percent of the population.

Taking up assumption (3), we recall that the Taikō Land Survey played a decisive role in the systematization of land surveys with

of crops", whether or not the population increase in Kyōho era was in a straight upward movement, and of the general population trend up to the Meiji period after the Kyōho era. In a way, we may consider that a considerable population increase occurred in some areas of Japan around the closing years of the shogunate and the Meiji Restoration.

the village *kokudaka* as its central element. Generally speaking, it is safe to say that the calculated amount of the village *kokudaka* did not deviate much from the national average. The question to be considered here lies rather in the fact that this area is situated in such a remote place as Kyūshū. Compared with a small area centering around Kidai which was the most advanced area at that time, a large part of Japan in those days was either in a worse condition of backwardness or in a more advanced state. Therefore, in estimating the population on a national scale, it seems correct not to take this area as an exceptional case.

Concerning assumption (4), it was definitely stated above that the 20 percent version of urban population may be too high, but it is definitely not too low.

Thus, after checking the 4 assumptions, we come to the conclusion that assumption (1) may bring about an underestimation of the national population, and assumptions (2) and (4) may produce an overestimation. These two tendencies would tend to balance each other, and thus minimize probable errors in calculation, which would be less than 30 percent at worst. The real problem is with assumption (3). If the ratio of *kokudaka* of a backward rural village to its population differs widely from one of an advanced rural village, this sample is certainly not suitable to be used for the calculation of the national population, and it is important that some analytical study of similar material at another place be conducted. The author foresees that such a study would show a ratio of population to village *kokudaka* in an advanced area which is somewhat greater than in a backward area. But since there are places that are more backward than Buzen and Bungo, the ratio between the village *kokudaka* and the population of these areas can be considered not very far from the national average.

Having examined the above assumptions, we may conclude that the estimated figures presented in these assumptions should be accredited with some sort of validity, although the margin between their maximum and minimum is often very large. At least, they are better founded than the relationship 18,000,000 *roku* of rice=18,000,000 in population. Future studies will gradually reduce the distance from the truth. At the present stage of this type of research, we will have to be satisfied with the present degree of accurateness.

We should next look into the significance of these estimations as related to historical facts. To begin with, let us consider them in connection with the population of the Kyōho era. In discussing this,

it is necessary to obtain an exact figure of the national population in the Kyōho era, but here we will use the old one for expedience.

These estimates do not wholly deny the common view that the population of Japan in the Tokugawa period increased rapidly in the first half of the period but was slow in increasing in the second. They even strengthen the view that there was a rapid increase of population in the first half of the Tokugawa period. Furthermore, the adjusted increase rates are by no means too high, as they fall within the limits of possibility.

With the common view of the Japanese population thus established, in other words, a marked contrast in population trends between the first and the second half of the Tokugawa period, we naturally become interested in the reasons for such a situation.

First, we will raise the question of what caused such a rapid increase of population in the first half of the Tokugawa period? We know of a small number of similar population movements which occurred in some disparate rural villages prior to the Kyōho era. Thus it seems correct to assume that in the first half of the Tokugawa period the population increase in rural villages, together with a sudden development of cities followed by a rapid increase of urban population, enabled Japan to maintain a constant annual increase rate of the population of about 1%, a rate which should be considered rather high.

Briefly stated, there existed few conditions which restricted population increase at that time. People enjoyed a long period of peace, the cultivated area was expanded, and towns sprang up centering around the castle-towns. In other words, rural folk had no cause for limiting their family size. These were the external conditions, social as well as economic, which resulted in the increase of population.

The author, however, would like to rather call attention to the significance of the internal conditions that were closely connected with a change which took place in agricultural management. As was explained above, the agricultural management in the backward regions was mainly dependent on the possession of a large number of subordinate laborers. Demographically considered, this means a low marriage rate among the persons of working age, as was revealed in this article.

No sudden increase of population due to an increase of births can be expected of a society where the marriage rate is low. The society prior to the Tokugawa regime seems to have been one in this situation. There is no question that the total population of Japan then was only slowly increasing, or was stationary.

In the beginning of the Tokugawa period, however, the management of agriculture underwent a sudden change, transforming itself into small scale farming based on the single family unit which was primarily composed of the nuclear family. It became important, therefore, to reproduce the necessary labor force within the limited capacity of an individual peasant family, thus bringing about a rise in marriage rates and birth rates. The death rate may have stayed unchanged, but a sudden increase of population was realized.

VI. CONCLUSION

On the basis of the documents of 1622, an analytical study of Japanese population from various aspects has been undertaken. Of course, not all the contents of this document were used. More than anything else, we must recall that this work covers "domestic animals" as well as "men". We should not, therefore, neglect the parts dealing with the numbers of oxen and horses, especially as related to the relationship between the types of agriculture and the number of oxen and horses necessary for each of them. But this essay has confined the use or the study of this work to the part dealing particularly with the "registration of men".

Needless to say, it is impossible to draw any general conclusions from what we have discussed at the present moment when the demographic study of Tokugawa Japan is just beginning. What we have learned by this study should rather be called a preparatory lesson for a further inquiry into the question of Tokugawa demography. After all, this is merely a trial study which requires much more detailed investigation of various positive evidence before it can be considered complete.

Be that as it may, we now feel rather confident of the estimation we made of the national population of Japan which is considerably smaller than 18,000,000, the number generally held by scholars in the past as a legitimate inference of the population. This commonly held view is based on the assumption that the *kokudaka* and the population of Tokugawa Japan were in direct relationship to each other both during and after the Kyōho era, and that this can be applied retrospectively to the early years of the Tokugawa period.

The estimation presented here is the result of a nationwide hypothetical expansion of the situation in Buzen and Bungo Provinces. A hypothesis is after all only a hypothesis, however. Based on it, our estimations may be overestimated or underestimated. But it is likely

that the marginal errors involved in them have been offset or narrowed down. Thus we may be permitted to claim a higher reliability for our estimations than for the estimations that were commonly used in the past. If our assumptions and hypotheses are granted, the national population in the early part of the Tokugawa regime most probably was less than 10,000,000.

If we believe that no double reporting was committed, and that the exclusion of 3,000,000 or 4,000,000 persons was involved in the national census of the Kyōho era, we naturally come to see a high increase rate of population prevailing in the early part of the Tokugawa regime. Was such a sudden increase of population possible in those days, in a society where nothing like modern medicine, public sanitation or an environmental study of life was known? Of course, this question can not be easily answered.

But there is one thing which may serve as a possible explanation for a high fertility of the people at that time, an increase in the number of small families throughout the country. As was mentioned above, the marriage rate of *genin*, an important factor in the supply of service labor, was low; hence their birth rate was also low. Thus it should be generally surmised that the greater the proportion of *genin* in the composition of the population, the lower was the fertility of a population.

Once freed, however, *genin* proved a vital agency in the increase of population. The early part of the Tokugawa regime seems to have been a typical case of this. Also, domains became fixed and provincial lords took an interest in the efficient management of their lands, often trying to increase the productivity of their farms, expanding the area of cultivated land, facilitating irrigation, and promoting conservation works. The situation also encouraged the people to open up new fields, which had a stabilizing effect on the older fields and was thus helpful in supporting an increasing population in a village.

Another factor in connection with the population increase of the early Tokugawa period is the emergence of towns, mostly castle-towns built by ambitious feudal lords. This seems to have been a powerful agency in the rise of the birth rate. Thus both in urban and rural areas the population exhibited a sudden increase.

The above explanation for the movement of Japanese population, depicting its size at the beginning of Tokugawa period as smaller than the generally recognized one, and admitting its sudden increase soon afterwards, is merely a hypothesis not yet proved by sufficient positive evidence. For this, we await similar studies on other areas.