SOCIAL CHANGE AND VOTING BEHAVIOR IN POSTWAR JAPAN*

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I. RESEARCH DESIGN AND DATA

It is often argued that neither war nor revolution could produce ·such a tremendous effect upon the way of the life of the Japanese as the social change that has been going on since the end of World War II. From a rural society, Japan has emerged as the third largest industrial power in the world, and the consequent changes in social structure are no less note-worthy than this impressive economic achievement. No wonder this social change has attracted so much attention on both sides of the Pacific, and that we have now a considerable number of papers on this topic. Most of them belong, however, to the category of journalism and academic works on this problem are still very few.

The purpose of this paper is to make an academic investigation into the effect that postwar social change and especially urbanization (the latter being the most important aspect of this social change) have had on the pattern of voting behavior.

Our research design is as follows. First, we have gathered the data necessary for the analysis of voting behavior in terms of social change. Secondly, we have made a statistical analysis using this data.

We have taken the representative constituencies (electoral districts for the House of Representatives) as the units of analysis and have examined the interrelationship among, and the operation of, political, social, and eco-nomic variables[1] in the context of postwar social change. Our main efforts have been directed at the analysis of the effects of the social variables (the operation of which is expected to indicate the characteristics of social change) on the percentage of votes cast for each political party (which we take to be the key political variable for analyzing the operation of the political process).

1 The analysis of which is committed in this paper.

Our data are as follows:

1. indicators of political variables
    (1) the percent of votes cast for each political party in the elections for the House of Representatives.[2]
    (2) the percent of votes cast for each political party in the elections for the House of Councillors.[3]
    (3) the percent of votes cast for each political party in the elections for the prefectural legislatures.[4]
    (4) the percent of eligible voters in each election at each level who did not vote.
2. indicators of social variables[5]
    (1) the percent of the labor force engaged in primary industries.[6]
    (2) the percent of the labor force engaged in secondary industries.
    (3) the percent of the labor force engaged in tertiary industries.
    (4) the annual growth rate of the industrial population (in the whole industries).
    (5) the annual growth rate of the total population.
    (6) the ratio of the people who live in densely populated districts[7] (to the total population).

All of the above data have been recalculated for each representative constituency, since we are taking these constituencies as the units of analysis.

In this paper, we report on the results of several principal component analyses and variance analyses which we performed on these data.

II. SOCIAL CHANGE IN POSTWAR JAPAN

What are the principal characteristics of postwar social change and how can we operationally define them? Usually they are defined as the rapid

[2]   This data is already prepared by the election committee in the official election returns.
[3]   This data has been recalculated for the representative constituencies from the official election returns for the House of Councillors.
[4]   This data has been gathered by the joint research project and recalculated for the representative constituencies.
[5]   This data has been recalculated for the representative constituencies using the census data.
[6]   The definition of the primary, secondary, and tertiary industries is according to that used in the Japanese Census and is somewhat (but not crucially) different from that used by Colin Clark.
[7]   In my opinion, this variable is more appropriate for an index of urbanization than the population density. In such a mountainous country as Japan, population density does not necessarily indicate the degree of density of people.

decrease in the primary industry ratio. This definition might be persuasive given the understanding that the primary industry ratio is the key variable of urbanization, and that urbanization is the central theme of the social change that is going on in postwar Japan. But nobody has ever proved that the primary industry ratio is the only variable indicating urbanization. Some alternatives may be possible. Moreover, social change might better be understood as multilinear process rather than as unilinear one. If so, we must take additional social variables into consideration and study the inter-relationship among them. We may thus find better indices of urbanization and cast some light on other aspects of social change. Our research strategy for detecting the characteristics of social change is to find the structure of the interrelationship among the social variables and to trace the main trend of these variables through the use of variance analysis[8] and principal component analysis.[9] The social variables that we take to represent the characteristics of social change are as follows:

(1) the primary industry ratio: x^1

(2) the secondary industry ratio: x^2

(3) the tertiary industry ratio: x^3

(4) the difference of the primary industry ratio: $\Delta x_t^1 = x_{t+1}^1 - x_t^1$

(5) the difference of the secondary industry ratio: $\Delta x_t^2 = x_{t+1}^2 - x_t^2$

(6) the difference of the tertiary industry ratio: $\Delta x_t^3 = x_{t+1}^3 - x_t^3$

(7) the annual growth rate of the industrial population or the industrial population growth rate: x^7

(8) the annual growth rate of the (total) population or the population growth rate: x^8

(9) the ratio of the people who live in densely populated areas (to total population), or the densely populated ratio: x^9

Here superscripts identify variables and subscripts denote the time.

Result of the Principal Component Analysis

We give weight or factor loading to these nine variables and factor score to the constituencies.

Censuses are conducted every five years. The Censuses in the postwar period were conducted in the years 1950, 1955, 1960, and 1965. There are 117 or 118 representative constituencies in all.[10]

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8   Cf. Kendall, M. G., *The Advanced Theory of Statistics*, New York, Hafner Publishing Company, 1951, pp. 175–246.

9   Cf. Harman, H. H., *Modern Factor Analysis*, Chicago, University of Chicago Press, 1960, pp. 154–191. Horst, P., *Factor Analysis of Data Matrices*, New York, Holt INC., 1965, pp. 156–177.

10 In the general election in 1967, several new constituencies were separated from old ones and now we have 123 constituencies in all. But for the sake of the uniformity

Table 1. The Explanatory Power of the Principal Component Analysis
(9 variables for social structure)

(percent)

Amount of Information	Census Year			
	1950	1955	1960	1965
First Principal-Factor Axis	57.3	68.7	80.6	70.5
Second Principal-Factor Axis	36.8	22.4	17.4	20.3

The result of the principal component analysis upon the social variables shows a very good fit. The absolute value of the largest characteristic root is considerably larger than that of the other characteristic roots and consequently the explanatory power of the first principal factor is very large which guarantees us a high reliability of the result.

The interpretation of the axes might be shown in Chart 1. The first axis is interpreted as a rural-urban axis. This interpretation is derived from the fact that the primary industry ratio takes a high positive value on the first axis while secondary and tertiary industry ratios, and the population growth rate take high negative values on this axis. We take it to be strong indicators of the rural-urban features of the constituencies. The second axis is not easily interpretable. The difference of the secondary industry ratio could be taken as an indicator of industrializing and if it takes a high value on the second axis and a low value on the first axis, the second axis can be interpreted as the industrializing axis. However, this variable is not alway clearly identifiable with the second axis and this interpretation is thus weakened. But the location of this variable does not, in my opinion, completely neutralize this interpretation.

Examining Figure 1, we have the following conclusions:

(1) The primary industry ratio is the best index for urbanization because it is always located at a point close to and high up on the first axis. This finding is important and confirms the general expectation.

(2) The population growth rate and the densely populated ratio are the next best indices for urbanization because they are always located low down and close to the first axis.

Chart 1.

Rural

Non-Industrializing　　　　Industrializing

Urban

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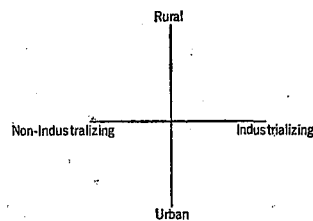
of analysis, the new constituencies have been included in the old ones. With this modification, we have 118 constituencies in 1967. The number was 117 before Amami Ōshima was returned to Japan.

This finding is important because the population growth rate is often used in place of the primary industry ratio as the urbanization index when the latter is not available. Our finding proves that they can be used interchangeably. We should, however, take it into consideration that the direction of their signs $(+, -)$ are opposite. The densely populated ratio gives us another good index for urbanization.

(3) These figures show the fundamental steadiness and occasional shift in the phase of the pattern of social change. A glance over the figures would be enough to grasp that the location of the variables in the tables are almost the same, but some move of a few variables have a meaning that cannot be neglected as we will see shortly.
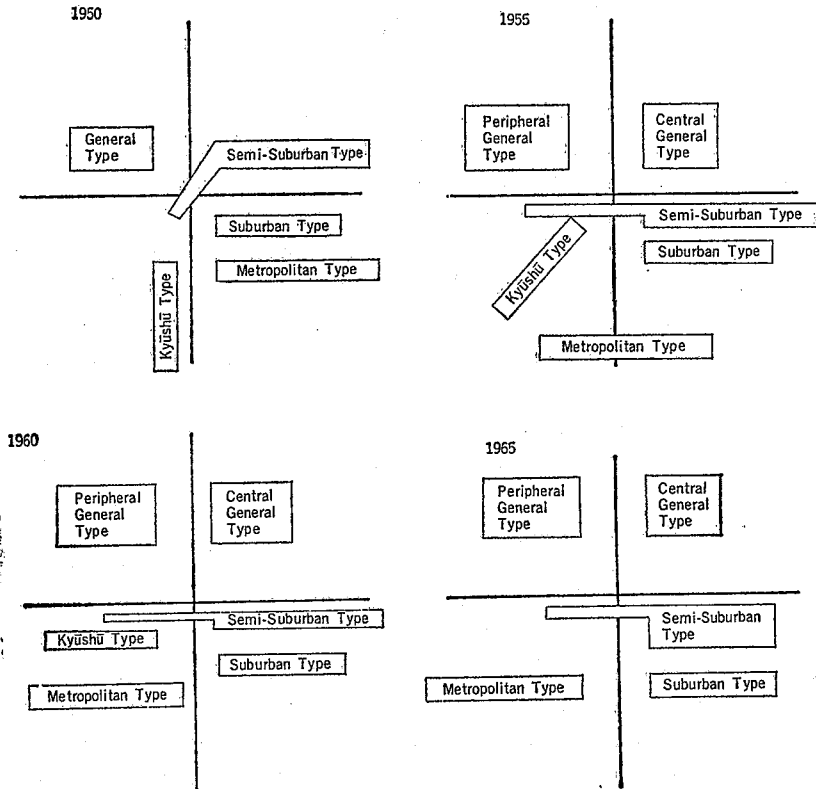
Turning to the analysis of the location of the representative constituencies in Figures 1′, 2′, 3′ and 4′ and examining them, we have the following conclusions:

(1) The most conspicuous feature in the urban-rural structures of the representative constituencies is that there are several extremely urbanized constituencies and many moderately rural ones. The urban indices amount to as high as 5 while rural indices are 2 at the highest in 1950. As time goes on, the absolute value of the rural indices increase but not to the level of their urban counterparts. This central tendency holds even after the rapid social change had taken place. These extremely urbanized constituencies are those located in the six largest cities: Tokyo, Osaka, Nagoya, Kyoto, Yokohama, and Kōbe.

(2) There occurs a notable movement of the constituencies over time. In 1950, most of the constituencies are found in the first quadrant close to the origin. This shows that these constituencies are almost uniform in their population structure and in the path of the change and probably in the social structure. Far apart from them lie the metropolitan constituencies,[11] which is a clear indication that the population structure and the path of the change of these constituencies are much different from the above-mentioned majority ones. Between these two types of constituencies we can find some other typed ones. They are not so many in number in this period but, their importance cannot be neglected because they are destined to grow into some marginal typed constituencies in later period and turn to be especially interesting examples for the analysis of voting behavior. Let us classify them into some sub-categories.

11   The metropolitan constituencies in this section is no relation to the namesake in the other sections by definition. Any precise definition is not given in this section. But we should notice the fact that both of them are lucky enough to happen to almost coincide.

Chart 2. General Tendency of the Location of Constituencies

1950   1955

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        General              Semi-Suburban Type        Peripheral    Central
        Type                                           General       General
                                                       Type          Type

                        Suburban Type                           Semi-Suburban Type

                        Metropolitan Type                       Suburban Type

              Kyūshū Type                              Kyūshū Type

                                                           Metropolitan Type
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1960   1965

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    Peripheral    Central                    Peripheral    Central
    General       General                    General       General
    Type          Type                       Type          Type


              Semi-Suburban Type                          Semi-Suburban
    Kyūshū Type                                           Type
              Suburban Type
    Metropolitan Type                        Metropolitan Type    Suburban Type
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In 1955, the metropolitan constituencies are shifting toward the non-industrializing zone of the diagram. In 1950, the industrialization is rather an urban phenomena and metropolitan constituencies are comparatively rapid in the speed of industrialization but in 1955 the industrialization is the order of the day and progressing both in the metropolitan districts and in the rural districts alike. In the figures we can locate the difference of the secondary industry ratio far right and very close to the second axis. Our interpretation of the second axis can claim the strongest support in this period. Metropolitan constituencies are about the average in the speed of industrialization and those which are the highest in this speed are some of the suburban constituencies and semi-suburban ones. We should also notice that the uniformity of the general constituencies are split in this period into two types. Those constituencies which are located in the central part of Japan are usually rapid in the speed of industrialization while those which are located in the peripherial zones (Hokkaidō, Tōhoku,

Shikoku, and Kyūshū) are generally (with some exceptions) slow in this speed. This new tendency will steadily continue hereafter. The uniformity of the general constituencies is ceased to be predominant and the rural indices of them begin to increase steadily.

In 1960, the non-industrializing movement of metropolitan constituencies has almost completed and they are now placed in the urban-non-industrializing quadrant. Some of suburban constituencies are now proud of their most industrializing characteristics. This conclusion might sound strange when we think of the fact that the high-speed economic-growth policy is adopted in 1960. But when we realize that our statistical design of the principal component analysis is using centralized variables and all of our discussion are going on at the level of comparison, our conclusions are quite fit in with our intuition. All parts of Japan are rapidly industrializing but the speed is comparatively high in some parts and comparatively low in other parts. The latter cases are illustrated to be non-industrializing.

Result of the Variance Analysis

In this section we would like to cast some light on other sides of the social change through the use of a variance analysis of the social variables. We have used the variance analysis to see how much of the variance in the variables can be explained by change over time, that is, differences in the values of the variables in the same constituencies at different times, and how much can be explained by differences between different constituencies at the same time. We shall refer to the former factor as the time-serial effects, and to the latter as the cross-sectional effects.

Examining Table 2, we can draw the following conclusions:

(1) Change of the primary industry ratio is highly steady because the amount reducible to the unexplained term is only 2.5% and the explained part accounts for very much. This finding corresponds, I suppose, to the fact that the change of the primary industry ratio in the constituencies are uniform and nearly unilinear and their slopes are not much different.

(2) The cross-sectional effect of the primary industry ratio is predominantly larger than its time-serial effect. This finding shows that, in spite of the rapid social change, considerable differences in the rate of urbanization among the constituencies remain up to the present.

(3) We can say almost the same for secondary and tertiary industry ratios, that is, the changes in them are highly steady and the cross-sectional effects in them are predominantly larger than their time-serial effects. But their steadiness of change is not so sure as the primary industry ratio.

(4) The population growth rate is not so steady.

Table 2. Variance Analysis Model: The Representative, 1955–64

Party	Effect	Sum of Square	Degree of Freedom	Variance	SSD	The Explanatory Power	The Pure Explanatory Power	FO
The Primary Industry Ratio	A	0.17793×10^2	116	0.15338	0.17656×10^2	0.803	0.797	0.130×10^3
	B	0.38081×10	4	0.95202	0.38034×10	0.172	0.172	0.809×10^3
	E	0.54616	464	0.11771×10^{-2}	0.68741	0.025	0.031	
	T	0.22147	584		0.22147×10^2			
The Secondary Industry Ratio	A	0.62696×10	116	0.54048×10^{-1}	0.61694×10	0.870	0.857	0.626×10^2
	B	0.53233	4	0.13308	0.52887	0.074	0.073	0.154×10^3
	E	0.40078	464	0.86375×10^{-3}	0.50443	0.056	0.070	
	T	0.72027×10	584		0.72027×10			
The Tertiary Industry Ratio	A	0.53509×10	116	0.46129×10^{-1}	0.52726×10	0.748	0.737	0.683×10^2
	B	0.14929×10	4	0.37323	0.14902×10	0.209	0.208	0.553×10^3
	E	0.31330	464	0.67521×10^{-3}	0.39432	0.044	0.055	
	T	0.71571×10	584		0.71571×10			
The Difference of Primary Industry Ratio	A	0.21715×10^2	116	0.18720	0.20350×10^2	0.530	0.497	0.159×10^2
	B	0.13807×10^2	4	0.34519×10	0.13760×10^2	0.337	0.336	0.293×10^3
	E	0.54624×10	464	0.11772×10^{-1}	0.68750×10	0.133	0.168	
	T	0.40985×10^2	584		0.40985×10^2			
The Difference of Secondary Industry Ratio	A	0.17422	116	0.15019×10^{-2}	0.16207	0.759	0.706	0.143×10^2
	B	0.66256×10^{-2}	4	0.16564×10^{-2}	0.62064×10^{-2}	0.029	0.027	0.158×10^2
	E	0.48622×10^{-1}	464	0.10479×10^{-3}	0.61197×10^{-1}	0.212	0.267	
	T	0.22947	584		0.22947			
The Difference of Tertiary Industry Ratio	A	0.14002×10^{-1}	116	0.12071×10^{-3}	0.12454×10^{-1}	0.689	0.613	0.904×10
	B	0.11553×10^{-3}	4	0.28883×10^{-4}	0.62137×10^{-4}	0.006	0.003	0.216×10
	E	0.61939×10^{-2}	464	0.13349×10^{-4}	0.77958×10^{-2}	0.305	0.384	
	T	0.20312×10^{-1}	584		0.20312×10^{-1}			
The Population Growth Rate	A	0.90831×10^{-2}	116	0.78303×10^{-4}	0.75171×10^{-2}	0.513	0.424	0.580×10
	B	0.23737×10^{-2}	4	0.59341×10^{-3}	0.23197×10^{-2}	0.134	0.131	0.440×10^2
	E	0.62643×10^{-2}	464	0.13501×10^{-4}	0.78843×10^{-2}	0.353	0.445	
	T	0.17721×10^{-1}	584		0.17721×10^{-1}			
The Industrial Population Growth Rate	A	0.49893×10^{-2}	116	0.43011×10^{-4}	0.39409×10^{-2}	0.406	0.321	0.476×10
	B	0.31048×10^{-2}	4	0.77621×10^{-3}	0.30687×10^{-2}	0.253	0.250	0.859×10^2
	E	0.41933×10^{-2}	464	0.90373×10^{-5}	0.52778×10^{-2}	0.341	0.430	
	T	0.12287×10^{-1}	584		0.12287×10^{-1}			

Note: A=The Cross Sectional Effect, B=The Time Serial Effect, E=The Unexplained Term, T=Total

So are the other social dynamic variables. Mostly they are larger in time-serial effects and unexplained terms. One exception is the difference of the secondary industry ratio which is almost the same with the primary industry ratio in cross-sectional effect, time-serial effect, and unexplained terms.

III. URBANIZATION AND VOTING BEHAVIOR

We have obtained information about the characteristics of the social change through the investigation of the structure of the interrelatedness among the social variables. And now let us push our investigation further to know how and what effects this social change gives to the pattern of voting behavior. The influence of the urbanization upon voting behavior has attracted the attention of many people and we have some significant contributions. Mr. H. Ishida predicted the decline of the Liberal Democratic Party (LDP) taking a linear regression of the percent of votes cast for the LDP upon the primary industry ratio.[12] His prediction does not come true, but his paper is a pioneer work on this topic. The first academic research on this problem was made by Professors Kyōgoku and Ike.[13] They prove the existence of the significant difference in the type of voting behavior between the rural types of constituencies and the urban typed ones by the use of the variance analysis. We are now in a better position to approach to this problem in a more general context.

Result of the Principal Component Analysis

The use of the principal component analysis would give us an easy glance over the general characteristics of the pattern of voting behavior. Here we give weight or factor loading to the ratio of gain in voting for the political parties and factor score to the constituencies.

Examining Figures 2–5, 5′–13′, and the extent of the characteristic roots (see Tables 3, 4, and 5), we have an impressive finding that a

Table 3. The Explanatory Power of the Principal Component Analysis: the House of Representatives   (percent)

Amount of Information	Election Year								
	1947	1949	1952	1953	1955	1958	1960	1963	1967
First Principal-Factor Axis	41.0	39.4	37.1	42.8	36.9	61.5	55.3	57.2	69.2
Second Principal-Factor Axis	34.2	26.5	32.1	28.9	31.2	34.1	24.7	27.2	19.0

12 Ishida, H., "Hoshutō no bijon" (Vision of the Conservative Party), *Chūōkōron*, Jan., 1963, pp. 88–97.
13 Kyōgoku, J., and Ike, N., "Urban-Rural Differences in Voting Behavior in Post war Japan," *Shakaikagaku kiyō*, Tokyo, The University of Tokyo, No. 9, 1960, pp. 1–111.

Table 4. The Explanatory Power of the Principal Component Analysis:
the House of Councillors   (percent)

Amount of Information	Election Year					
	1950	1953	1956	1959	1962	1965
First Principal-Factor Axis	47.3	38.9	49.6	47.5	53.4	71.5
Second Principal-Factor Axis	30.6	33.9	28.9	27.4	25.8	16.0

Table 5. The Explanatory Power of the Principal Component Analysis:
Prefectural Legislature   (percent)

Amount of Information	Election Year				
	1951	1955	1959	1963	1967
First Principal-Factor Axis	47.1	43.9	61.1	56.8	67.3
Second Principal-Factor Axis	31.1	34.0	29.7	25.3	24.8

fundamental structural change has taken place in the pattern of voting
behavior about the year 1955. In this year, the two large parties, the
Liberal Democratic Party and the Japan Socialist Party (JSP) emerged out
of five minor ones. Some of the people expected the advent of the two
party system which was supposed to be an indispensable base for the
democratic functioning of the Constitution. Instead of their expectation
coming true, an important change in the structure of voting pattern (and
probably also in the structure of the political process) had stepped in.
The pattern of voting behavior after 1955 are characteristic of their
policy-inelasticity (and also popularity-inelasticity) and rigid petrification.
The extent and nature of the political issues and the popularity of the party
leaders ceased to do much for the gain in voting of the political parties.
Almost the same voting patterns are repeated over and over again quite
irrespective of the political issues and popularity of the party leaders. This
fundamental tendency is confirmed through the following analysis.

(1) The relative amount of the absolute value of the largest character-
istic roots compared to other ones had become significantly larger after
1955 almost in every election at the three levels, and therefore increased
the explanatory power (or the amount of the information) of the first
factor. This finding seems to us very important in that the type of
voting behavior has transformed into that which are fit for the principal
component analysis after 1955 while it was not animals tamable by this
analysis before then. Unfittingness for the principal component analysis is
a clear indication of the absence of several key factors to which the variables
in the system can be reduced. The interrelationships among the variables

in the system are so complex and multi-dimensional that several factors are not enough to explain their complexity and multiplicity. The structure of the pattern of voting behavior had transformed from such a miscellaneous framework to a firmly channelized one.

(2) The principal axes began to allow us some easy and definite interpretation after 1955.

The principal axes before 1955 are conspicuous in their difficulties of meaningful interpretation. But after 1958 (the year of the first general election after 1955) we can easily find that an impressive structural change has taken place in the voting pattern of the representative constituencies and similar tendencies are observable in the elections of the House of Councillors and the prefectural legislatures. In the general election in 1958, the LDP is found high up at the first axis and the JSP and the Communist Party (JCP) are low down at the same axis. This would give us a clear interpretation that the first axis is the conservative-progressive one.[14] The interpretation of the second axis is not so easy to give.[15]

Now let us examine the fundamental tendencies in the pattern of voting behavior. In the 1958 general election, the LDP is highly conservative and the independents are mildly so. They are located in the opposite direction in the second axis. The JSP is progressive and the JCP is still so. They may be interpreted to be in the main body in the progressives. Opposite to them in the second axis are found the minor parties and the non-voters. It seems to be noteworthy that the non-voters are found in the progressive zone at the first axis. They remain almost always in this zone of the quadrant at the three levels of the elections hereafter.

We can get interesting information from the location of the constituencies. The scores of the constituencies on the first factor can be used as index of conservativism-progressivism. There are few constituencies with high progressive scores and many with moderately high conservative scores. These few highly progressive constituencies are mostly those

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14   This interpretation is further supported by a high correlation between this index and the constituency effect of the conservative parties through the variance analysis. In the latter analysis, we defined the terms conservative and progressive in a somewhat different way. We defined the parties and their predecessors which united to form the LDP as conservative; and those which united to form the JSP, plus the DSP and the JCP, as progressive. The definition is naturally different from that given in the principal component analysis. Yet the high correlation stated above is noteworthy. But this high correlation decreases as time goes on. This fact is also noteworthy in the sense that it proves the consevatization of the Socialist Party.

15   Figures 2–5, however, might give us a tentative interpretation that the second axis is that of main clique—subsidiary clique in the conservatives and the progressives respectively.

whose urbanization indices are also very high. This high correlation be-
tween the progressive-conservative indices and urban-rural indices after
1955 is worth paying much attention. It is a clear indication that there is a
significant difference between voting behavior in urban district and that
in rural district. The urban-rural difference of voting behavior existed even
before 1955 and caught the attention of some researchers. Our finding
confirms us its existence and shows that this difference became more sig-
nificant after 1955 than before this year.

Let us summarize other important findings from Figures 2–5, 5′–13′.
As for the representative constituencies, our primary conclusions are as
follows:

(1) The location of the LDP does not change much during this period
(1958–67). This party is found always high up at the conservative axis.
This result tells us the remarkable stability of the gaining pattern in voting
of this party.

(2) The location of JSP moves from the progressive zone to the con-
servative zone. In 1958, this party is found fairly close to the JCP and
quite opposite to the LDP. In 1960, the JSP begins to move toward the
conservative direction in the first axis and becomes quite opposite to the
JCP and the Democratic Socialist Party (DSP) in the second axis. This
confirms us that the voting support pattern of the JSP becomes somewhat
different from those of the JCP and the DSP and a little close to that of the
LDP. This characteristic movement continues steadily until the JSP crosses
the borderline and becomes almost half as much conservative as the LDP.
The crossing of the borderline occurred in 1963. In the general election in
this year, the JSP becomes a little conservative for the first time. In the
general election in 1967, the JSP comes still closer to the LDP. Now these
two parties are almost in the same boat about their gaining patterns in
voting, and in the opposite direction from them lie the JCP, the DSP, and
the Komeito.

(3) The location of the constituencies in the first axis does not change
so much as the location of the political parties. This tendency is especially true
for those constituencies whose progressive or conservative indices are high.

This means that the progressive-conservative characteristic of the con-
stituencies does not change much. It is political parties that change this
characteristic.

So far about the representative elections. Let us now turn our atten-
tion to the other levels of elections.

In the Councillors' elections, we can also find the petrification in the
voting pattern after 1955's unification of conservatives and progressives.

Some noteworthy conclusions are summarized in below.

Up to 1955, there was not so much resemblance between the voting pattern of the Councillors' elections and that of the representative ones. After 1956's election of Councillors (the first one after 1955), we can easily identify a significant similarity between those two levels of elections. Let us call this tendency the "convergency" of the Councillors' election to the representative one. It is quite parallel to the representative elections that the LDP is located always high up in the first axis and the JCP, the non-voters, the DSP and Komeito are found almost always low down in the axis. One of the most conspicuous features in the Councillors' election is the location of the JSP. This party has gained a conservative voting support pattern since the beginning of this period. In 1959, the JSP is rather far from the LDP but it still remains in the conservative zone. In 1962, the JSP comes very close to the LDP. In 1965, the former comes so close to the latter that they are almost unidentifiably by their conservative indices. The conservatization of the Socialist Party goes on far earlier in the Councillors' elections than their representative counterparts.

Lastly, let us examine the voting pattern of the prefectural elections. At this level of elections, we can also identify a clear tendency of:

(1) The petrification of the voting pattern after 1955.

(2) The converging tendency toward the representative elections after 1955.

Figure 5 will support these conclusions. The locations of the LDP after the 1959's prefectural election seem to be almost the same with and as stable as those at the representative and Councillors' levels showing the remarkable stability of the voting pattern of this party. The location of the JSP is different from those at the representative level and also at the Councillors' level. We noticed the conservatization of the JSP at those levels of elections. But in the elections at the prefectural level, the situation is somewhat different. Though we can trace similar tendency, there exists a definite moving lag. In 1959, the JSP is highly progressive. In 1962, the party moves toward the conservative direction but still remains in the progressive zone. In 1965, the movement toward the conservative direction still continues but the party does not cross the borderline. Let us call this phenomenon the "retardation in the local elections."

Result of the Variance Analysis

We use variance analysis to determine how much the variance in the percent of votes cast for each party is due to difference across constituencies (cross-sectional or constituency effects) and how much is due to change

over time, from election to election (time-serial or election effects). The election effects after 1955 reveal a uniform steady decrease in the proportion of votes cast for the LDP. Some people might conclude from this that the power of this party is steady declining and that in the near future the LDP will lose control of the Diet.

Table 6. The Election Effect of the Liberal-Democratic Party

		1947	1949	1950	1951	1952	1953	1955
Representatives		−1.23	3.61			7.18	5.47	2.34
Councillors		−12.7		3.1			0.71	
Prefectural					−0.56			−6.26

	1956	1958	1959	1960	1962	1963	1965	1967
Representatives		−2.17		−2.27		−4.76		−8.18
Councillors	2.76		5.99		1.10		−0.92	
Prefectural			4.62			2.94		−0.75

But in figures in the Tables 7, 8, and 9 testify against such a hasty conclusion. The cross-sectional effects (the constituency effects) are considerably larger than the time-serial ones (the election effects), and the unexplained terms (the residuals) are also fairly larger than the time-serial effects. The LDP is quite able to manage out the time-serial effects maneuvering the residuals combined with large cross-sectional effects. For the progressive parties as a whole, the cross-sectional effects are still larger than those of the LDP amounting as high as 73.7%, which indicates that their gains in voting are firmly attached to the characteristics of constituencies. Their combined unexplained terms are smaller than those of the LDP. This fact seems to us very interesting when we take it into consideration that the unexplained terms of the JSP and those of the JCP are very large and the cross-sectional effects of them are rather small. The voting pattern of the progressive parties as a whole is quite stable or even more stable than that of their conservative rival. But the way of its construction is unstable. This finding will support our findings through the principal component analysis and can be collaborated by the between-elections correlation coefficients of the parties.

As is easily seen in this diagram, the between-election correlations are high in the LDP. In the JSP and in the JCP they are almost as low as those in the minor parties and in the independents. From the above discussion we may conclude that the substitutability is low between the conservative and the progressive but the substitutability among progressive parties is generally high (except the DSP).

Table 7. Variance Analysis Model: The Representatives, 1955–64

Party	Effect	Sum of Square	Degree of Freedom	Variance	SSD	The Explanatory Power	The Pure Explanatory Power	FO
The Conservative	A	0.54251×10	116	0.46768×10^{-1}	0.46127×10	0.579	0.492	0.668×10
	B	0.69749	4	0.17437	0.66947	0.074	0.071	0.249×10^2
	E	0.32497×10	464	0.70037×10^{-2}	0.40901×10	0.347	0.436	
	T	0.93723×10	584		0.93723×10			
The Progress	A	0.60158×10	116	0.51861×10^{-1}	0.55904×10	0.737	0.685	0.141×10^2
	B	0.44221	4	0.11055	0.42754	0.054	0.052	0.301×10^2
	E	0.17019×10	464	0.36679×10^{-2}	0.21421×10	0.209	0.263	
	T	0.81600×10	584		0.81600×10			
The Non-Voters	A	0.29287×10	116	0.25247×10^{-1}	0.27500×10	0.769	0.722	0.164×10^2
	B	0.16711	4	0.41778×10^{-1}	0.16095	0.044	0.042	0.271×10^2
	E	0.71474	464	0.15404×10^{-2}	0.89959	0.188	0.236	
	T	0.38105×10	584		0.38015×10			
The Socialist	A	0.46934×10	116	0.40460×10^{-1}	0.23075×10	0.328	0.161	0.197×10
	B	0.92693×10^{-1}	4	0.23173×10^{-1}	0.10421×10^{-1}	0.006	0.001	0.113×10
	E	0.95436×10	464	0.20568×10^{-1}	0.12012×10^2	0.666	0.838	
	T	0.14330×10^2	584		0.14330×10^2			
The Communist	A	0.51363×10	116	0.44278×10^{-1}	0.65923	0.222	0.028	0.115×10
	B	0.91836×10^{-1}	4	0.22959×10^{-1}	-0.62544×10^{-1}	0.004	-0.003	0.595
	E	0.17908×10^2	464	0.38595×10^{-1}	0.22540×10^2	0.774	0.974	
	T	0.23136×10^2	584		0.23136×10^2			
The Minor	A	0.71530×10^{-1}	116	0.61664×10^{-3}	0.99225×10^{-2}	0.219	0.030	0.116×10
	B	0.88550×10^{-2}	4	0.22138×10^{-2}	0.67306×10^{-2}	0.027	0.021	0.417×10
	E	0.24643	464	0.53110×10^{-3}	0.31016	0.754	0.949	
	T	0.32681	584		0.32681			
The Independent	A	0.75958	116	0.65481×10^{-2}	0.10130	0.218	0.029	0.115×10
	B	0.87810×10^{-1}	4	0.21952×10^{-1}	0.65111×10^{-1}	0.025	0.019	0.387×10
	E	0.26331×10	464	0.56748×10^{-2}	0.33141×10	0.757	0.952	
	T	0.34805×10	584		0.34805×10			

Note: A=The Cross Sectional Effect, B=The Time Serial Effect, E=The Unexplained Term, T=Total

Table 8. Variance Analysis Model: The Councillors, 1955–64

Party	Effect	Sum of Square	Degree of Freedom	Variance	SSD	The Explanatory Power	The Pure Explanatory Power	FO
The Conservative	A	0.42905×10	116	0.36987×10^{-1}	0.32762×10	0.562	0.429	0.423×10
	B	0.29938	3	0.99793×10^{-1}	0.27315	0.039	0.036	0.114×10^2
	E	0.30427×10	348	0.87435×10^{-2}	0.40832×10	0.399	0.535	
	T	0.76326×10	467		0.76326×10			
The Progress	A	0.32680×10	116	0.28172×10^{-1}	0.27517×10	0.610	0.514	0.633×10
	B	0.53726	3	0.17909	0.52391	0.100	0.098	0.402×10^2
	E	0.15489×10	348	0.44508×10^{-2}	0.20785×10	0.289	0.388	
	T	0.53541×10	467		0.53541×10			
The Non-Voters	A	0.28621×10	116	0.24673×10^{-1}	0.27196×10	0.741	0.705	0.201×10^2
	B	0.57055	3	0.19018	0.56686	0.148	0.147	0.155×10^3
	E	0.42746	348	0.12283×10^{-2}	0.57364	0.111	0.149	
	T	0.38601×10	467		0.38601×10			
The Socialist	A	0.31637×10	116	0.27273×10^{-1}	0.25022×10	0.606	0.479	0.478×10
	B	0.71606×10^{-1}	3	0.23869×10^{-1}	0.54500×10^{-1}	0.014	0.010	0.419×10
	E	0.19843×10	348	0.57020×10^{-2}	0.26628×10	0.380	0.510	
	T	0.52196×10	467		0.52196×10			
The Communist	A	0.33853	116	0.29184×10^{-2}	0.27801	0.579	0.475	0.559×10
	B	0.64900×10^{-1}	3	0.21633×10^{-1}	0.63335×10^{-1}	0.111	0.108	0.415×10^2
	E	0.18155	348	0.52171×10^{-3}	0.24364	0.310	0.416	
	T	0.58499	467		0.58499			
The Minor	A	0.11337	116	0.97731×10^{-3}	0.30332×10^{-3}	0.249	0.001	0.100×10
	B	0.35645×10^{-2}	3	0.11882×10^{-2}	0.64043×10^{-3}	0.008	0.001	0.122×10
	E	0.33919	348	0.97470×10^{-3}	0.45518	0.744	0.998	
	T	0.45613	467		0.45613			
The Independent	A	0.20544×10	116	0.17710×10^{-1}	0.96862	0.382	0.180	0.189×10
	B	0.62167×10^{-1}	3	0.20722×10^{-1}	0.34087×10^{-1}	0.012	0.006	0.221×10
	E	0.32573×10	348	0.93599×10^{-2}	0.43711×10	0.606	0.813	
	T	0.53738×10	467		0.53738×10			

Note: A=The Cross Sectional Effect, B=The Time Serial Effect, E=The Unexplained Term, T=Total

Table 9. Variance Analysis Model: The Prefectural

Party	Effect	Sum of Square	Degree of Freedom	Variance	SSD	The Explanatory Power	The Pure Explanatory Power	FO
The Conservative	A	0.61505×10	116	0.53022×10^{-1}	0.46951×10	0.543	0.414	0.423×10
	B	0.81584	3	0.27195	0.77820	0.072	0.069	0.217×10^2
	E	0.43663×10	348	0.12547×10^{-1}	0.58594×10	0.385	0.517	
	T	0.11333×10^2	467		0.11333×10^2			
The Progress	A	0.49841×10	116	0.42967×10^{-1}	0.46626×10	0.738	0.690	0.155×10^2
	B	0.80559	3	0.26853	0.79728	0.119	0.118	0.969×10^2
	E	0.96467	348	0.27920×10^{-2}	0.12945×10	0.143	0.192	
	T	0.67544×10	467		0.67544×10			
The Non-Voters	A	0.27620×10	116	0.23810×10^{-1}	0.26161×10	0.757	0.717	0.189×10^2
	B	0.44788	3	0.14929	0.44411	0.123	0.122	0.119×10^3
	E	0.43766	348	0.12576×10^{-2}	0.58732	0.120	0.161	
	T	0.36475×10	467		0.36475×10			
The Socialist	A	0.29929×10	116	0.25800×10^{-1}	0.27323×10	0.763	0.697	0.115×10^2
	B	0.14608	3	0.48693×10^{-1}	0.13934	0.037	0.036	0.217×10^2
	E	0.78172	348	0.22463×10^{-2}	0.10490×10	0.199	0.268	
	T	0.39206×10	467		0.39206×10			
The Communist	A	0.20965	116	0.18073×10^{-2}	0.18946	0.606	0.547	0.104×10^2
	B	0.75918×10^{-1}	3	0.25306×10^{-1}	0.75396×10^{-1}	0.219	0.218	0.145×10^3
	E	0.60564×10^{-1}	348	0.17403×10^{-3}	0.81273×10^{-1}	0.175	0.235	
	T	0.34613	467		0.34613			
The Minor	A	0.81911	116	0.70613×10^{-2}	0.38265	0.366	0.171	0.188×10
	B	0.10796	3	0.35988×10^{-1}	0.96677×10^{-1}	0.048	0.043	0.956×10
	E	0.13094×10	348	0.37626×10^{-2}	0.17571×10	0.585	0.786	
	T	0.22365×10	467		0.22365×10			
The Independent	A	0.38538×10	116	0.33222×10^{-1}	0.26145×10	0.396	0.268	0.311×10
	B	0.21718×10	3	0.72395	0.21398×10	0.223	0.220	0.678×10^2
	E	0.37178×10	348	0.10683×10^{-1}	0.49892×10	0.382	0.512	
	T	0.97435×10	467		0.97435×10			

Note: A=The Cross Sectional Effect, B=The Time Serial Effect, E=The Unexplained Term, T=Total

Table 10. The Election Effect of the Progressive Parties as a Whole

	1947	1949	1950	1951	1952	1953	1955	1956	1958	1959	1960	1962	1963	1965	1967
Representative	-2.58	-5.93		-8.31		-2.94	-0.48		1.94		5.73		6.68		5.85
Senatorial	-9.52		-4.62			-11.0		5.18		1.24		9.14		9.61	
Prefectural				-6.71			-4.54			0.46			4.62		6.16

Table 11. The Number of Representative Constituencies (by Shinohara's Definition)

Category	1947	1949	1950	1951	1952	1953	1955	1956	1958	1959	1960	1962	1963	1965	1967
Metropolitan	11	11	11	11	11	12	13	13	13	15	17	17	17	19	20
Urban	3	3	3	4	5	5	5	6	7	6	5	6	7	12	17
Semi-Urban	9	11	12	13	14	13	20	25	29	33	36	39	41	57	58
Rural	94	92	91	89	87	87	79	73	68	63	59	55	52	29	22

Table 12. The Number of Representative Constituencies (by Kyōgoku's Definition)

Category	1947	1949	1950	1951	1952	1953	1955	1956	1958	1959	1960	1962	1963	1965	1967
Metropolitan	12	14	14	14	14	14	14	16	18	18	19	19	20	22	27
Urban	11	11	11	13	16	16	24	28	31	35	39	45	50	66	68
Semi-Rural	31	37	42	45	48	53	54	52	50	48	47	44	40	25	20
Rural	63	55	50	45	39	34	25	21	18	16	12	9	7	4	2

But this applies only to the representative elections. In the Councillors' and the prefectural elections, the JSP and the JCP are as stable in their explanatory terms as the LDP and the progressive parties as a whole. Their between-election correlations are also almost as high as those of the LDP.

These findings might support the hypothesis that the votes cast for the JSP in the representative election does not necessarily mean the support to the party but a kind of criticism to the LDP.

The foregoing investigation through the principal component analysis clearly shows that there exists a remarkable difference in voting behavior between urban and rural constituencies. And let us now push this investigation further and obtain more detailed information.

The first thing we should do is to define operationally the urban and rural constituencies and to find a way to categorize them. A conclusion was given that the primary industry ratio is the best urban-rural index among would-be indices. So we use this variable as the index for our analysis. As for the way of categorization, the problems are two: (1) How many categories should we provide? (2) Where should we draw the borderline among these categories? The simplest way might be a dichotomy. But as we have seen in the principal component analysis, we have some marginal constituencies between the typically urban constituencies and the typically rural constituencies. Moreover, some of the urban constituencies are far different in their population structure from the majority of the urban constituencies. So we had better adopt the following quadruple classification. The constituencies are classified under the categories of metropolitan, urban, semi-rural and rural ones. This quadruple categorization was first advocated by Professors Kyōgoku and Ike.[16] They divided the constituencies into four categories using the primary industry ratio as the index. Their borderpoints are metropolitan: $0.26 \leq x^1 \leq 14.78$, urban: $21.24 \leq x^1 \leq 40.56$, semi-urban: $41.33 \leq x^1 \leq 56.89$, rural: $57.39 \leq x^1 \leq 79.89$.

Their way of quadruple categorization is useful even today but their borderpoints are now obsolete because of the rapid social change that has taken place after they published their investigation. Today very few constituencies are over 57% in their primary industry ratio and the four category method has almost lost its meaning. The voting behavior of the new era could better be investigated by some other levels of borderpoints. We propose 10%, 20% and 40% as new borderpoints.[17]

[16] Kyōgoku and Ike, *op. cit.*, pp. 48–49.

[17] The four categories then become: (1) Metropolitan: 10% of proper or less is engaged in primary industry; (2) Urban: between 10% and 20%; (3) Semi-rural: between 20% and 40%; (4) Rural: over 40%. This idea has been suggested by Professor Shinohara.

The second thing we should do is to find an adequate method of inter-polation. The Censuses are conducted every five years and do not always coincide with the election year. We need the figures for the primary industry ratio during each election year. What method of interpolation should we use? The most naïve method is that of linear interpolation. This method, naïve as it is, fairly useful because of the steadiness and uni-formity of our social change. But the situation is a little different when differences and growth ratios are involved. In such cases, the method of the Lagrangian Interpolation seems to be better fit in with for our purpose. Here we have used both methods of interpolation complementarily.[18] For-tunately the nearlinearity of our social change variables (especially that of the primary industry ratio) guarantees us near equivalence of these two methods.

Now let us take a hasty birds-eye view over the rapid social change.
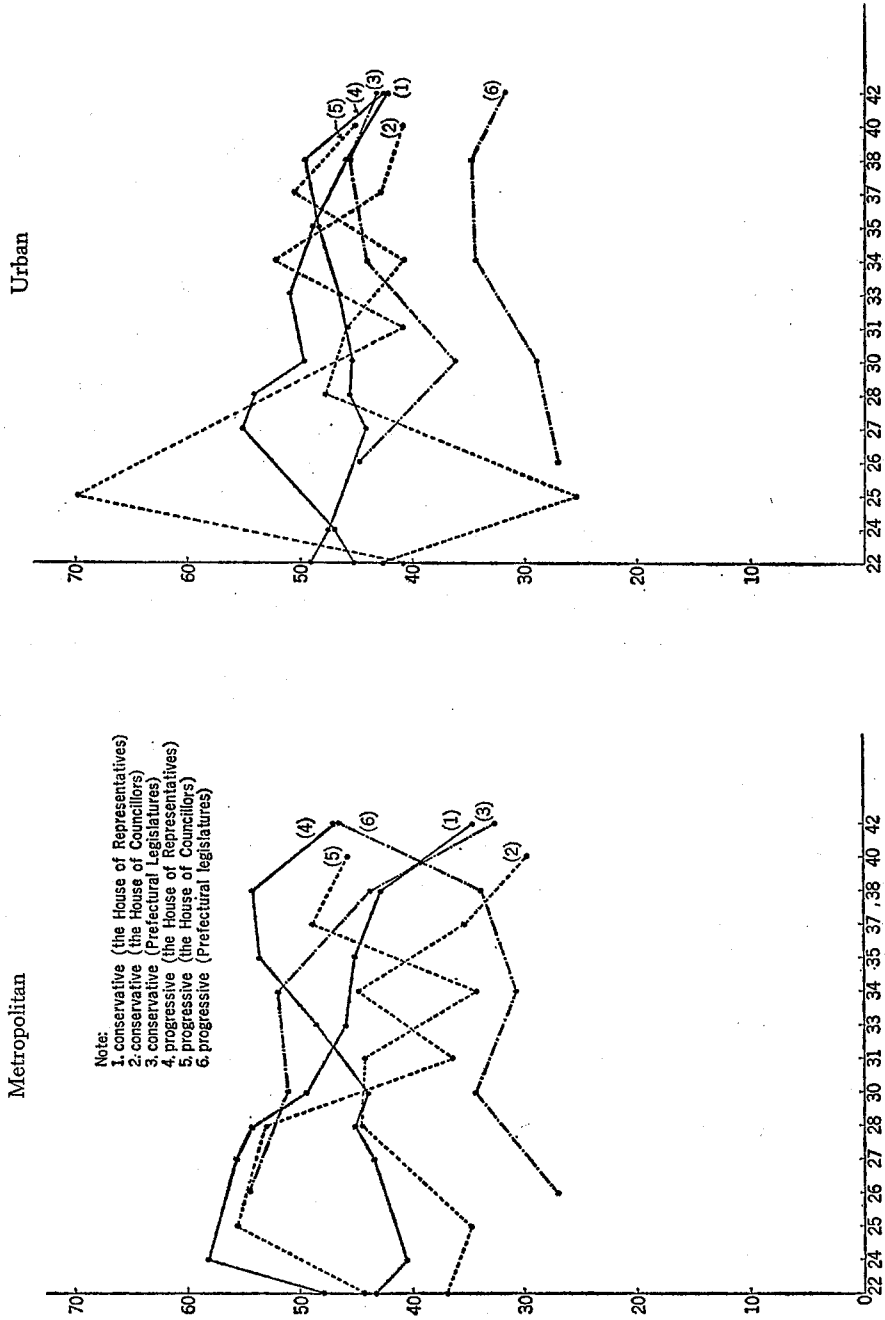
These tables clearly illustrate us how rapidly rural types of constituencies vanish and metropolitan and urban typed ones are increasing in number.

Let us next examine what effects this sweeping social change pro-duced on voting behavior of the people.

The most impressive thing we can get from the diagrams is a steady and almost uniform decrease of the conservative proportion of the vote in the metropolitan constituencies. This tendency holds true for all three levels of elections. In the representative elections, the conservative parties are dominating their progressive rivals up to 1955. In 1958, the things are the other ways round. The summation of the gain in voting of the progressive parties surpassed that of the LDP (the only conservative party at that time) for the first time. The difference between them are widening in every re-presentative election. The progressive parties are steadily gaining in their summed ratio up to 1963 but loses much in 1967 because of the joining of the Komeito in the election race. In the Councillors' elections, the turning-over occurred once in 1955 but the conservative party regains the domi-nancy in 1959. The LDP loses this dominancy again in the 1962's election. In 1965's election, both the conservative party and progressive parties loses much owning to the significant gain of the Komeito. At the prefectural level, the supremacy of the conservative parties over the progressive ones are long taken for granted until the former loses it in 1967. When we search into the details of the tendency, other important information comes out. One of the most important of them would be the fact that the JSP is also steadily losing their vote at three levels of elections. This fact does

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18   We do not use the method of the least-square inter (extra) polation in spite of its highest fitting because we cannot use the equi-annual data when the year of the Census coincides with the election year.

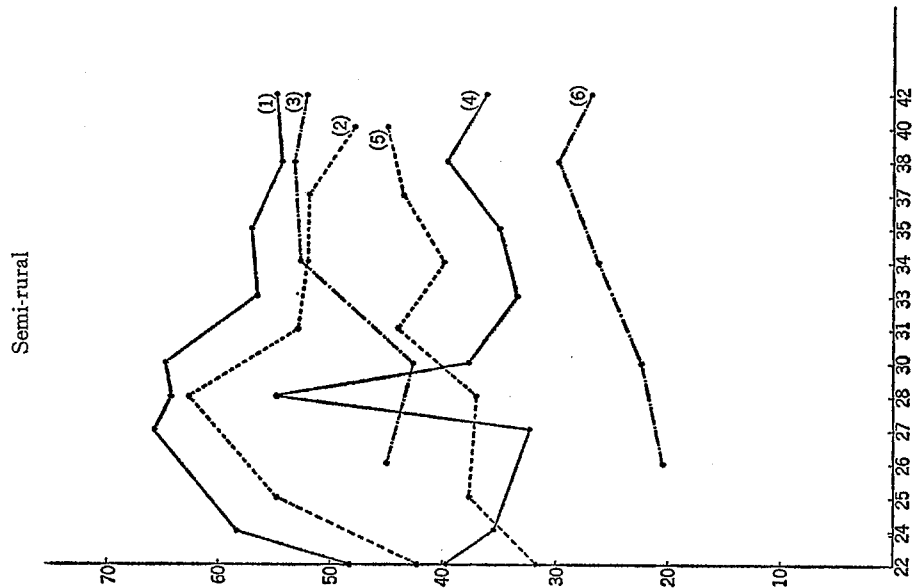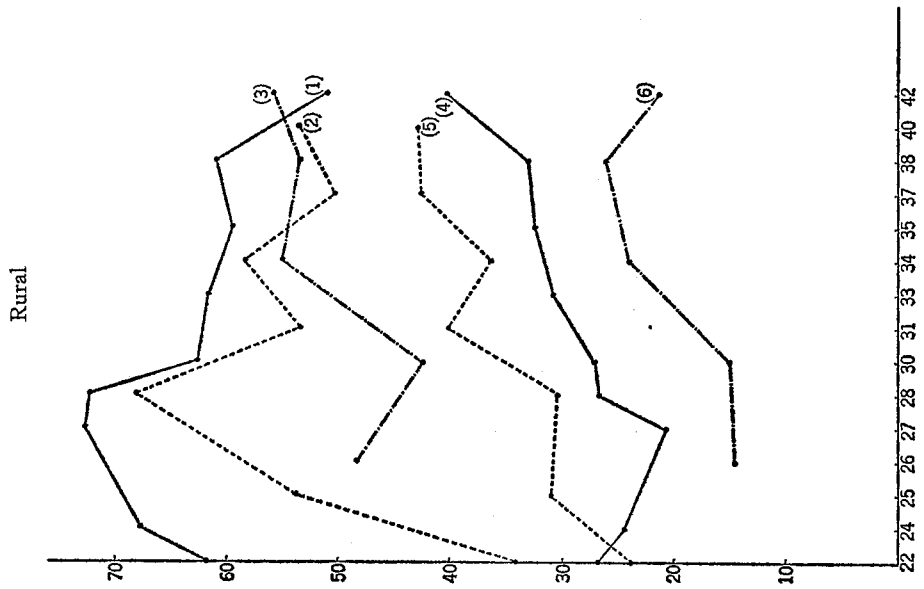**Diagram.** Classification by the Primary Industry Ratio

Metropolitan

Note:
1. conservative (the House of Representatives)
2. conservative (the House of Councillors)
3. conservative (Prefectural Legislatures)
4. progressive (the House of Representatives)
5. progressive (the House of Councillors)
6. progressive (Prefectural legislatures)

Urban

Table 13. Between Election Correlation Coefficient

The House of Representatives	1947–49	1949–52	1952–53	1953–55	1955–58	1958–60	1960–63	1963–67
Conservative	0.640	0.568	0.781	0.771	0.557	0.702	0.787	0.760
Progressives	0.713	0.620	0.889	0.886	0.856	0.883	0.877	0.833
Socialist	0.422	0.412	0.399	0.315	0.302	0.214	0.352	0.384
Communist	0.531	0.582	0.427	0.008	0.039	0.145	0.019	0.207
Non-voters	0.630	0.528	0.936	0.944	0.388	0.373	0.434	0.454

The House of Councillors	1950–53	1953–56	1956–59	1959–62	1962–65			
Conservative	0.201	0.412	0.470	0.526	0.631			
Progressives	0.312	0.419	0.598	0.619	0.789			
Socialist	0.333	0.481	0.689	0.536	0.724			
Communist	0.166	0.175	0.332	0.191	0.871			
Non-voters	0.657	0.894	0.856	0.835	0.863			

Prefectural Legislature	1951–55	1955–59	1959–63	1963–67				
Conservative	0.617	0.509	0.613	0.639				
Progressives	0.724	0.799	0.827	0.819				
Socialist	0.612	0.805	0.730	0.808				
Communist	0.536	0.845	0.776	0.815				
Non-voters	0.837	0.781	0.803	0.881				

not necessarily prove that the JSP is losing support in this district. Some occasional factors must be taken into consideration. First, the split of the Democratic Socialist Party from the Socialist Party and later the advent of the Komeito could account for some of the loss in voting on the part of the JSP. But the fundamental sway of the things cannot be denied. In this district, the multi-party phenomenon is order of the day in 1967.

In the urban constituencies, the phase of the Councillors' elections is almost the same with that of the metropolitan constituencies. The turning-over point in the representative elections comes a little later than that in the metropolitan constituencies. At the prefectural level, the conservative party is still superior to the sum totals of the progressive parties in the gaining ratio even in 1967. In this district, the JSP is almost steadily losing the gaining ratio together with the LDP. The multi-party phenomenon is also going on.

The difference between the metropolitan and the urban constituencies in later years is not so significant. Significant differences well come about when we turn our attention to the semi-rural and rural constituencies. In these districts, the predominant supremacy of the LDP cannot be challenged. This single party is dominating over the sum totals of the other parties and their ratio of gain is not so much decreasing. One of the most conspicuous phenomena in these districts is a recovery of gain in voting in the JSP at the level of the representative and the Councillors' elections.

IV. CONCLUSION AND PROSPECT

This paper is the first part of an investigation into the effect of the social change on the pattern of voting behavior. We study almost separately the social change and the pattern of voting behavior through the use of principal component analyses and variance analyses. The next thing we should do is to connect those two research results. This work is performed through the use of covariance analysis and canoncial correlation method I am going to discuss the result of these analyses in other papers which are to appear in the near future. What we have done in this paper are (1) to lay a preparation for these papers by doing the above separate analyses and (2) to do a naïve analysis of the effect of the social change on the pattern of voting behavior. In fact, twin use of the principal component analysis over two groups of variables and comparing them would give us almost the same empirical result with the use of canonical correlation method over. Our method of quadruple categorization is also as useful a way of such an analysis as some other more sophisticated ones, naïve as it is.

Figure 1. Principal Component Analysis: Industrial Population, 1950–65

A: primary industry ratio
B: secondary industry ratio
C: tertiary industry ratio
D: population growth rate
E: industrial population growth rate
F: densely populated ratio

A': difference of the primary industry ratio
B': difference of the secondary industry ratio
C': difference of the tertiary industry ratio

Figure 2. Principal Component Analysis: Political Party the House of Representatives, 1947–53

Note: Notations in Figures 2–5 are illustrated in Chart 3 (p. 536).
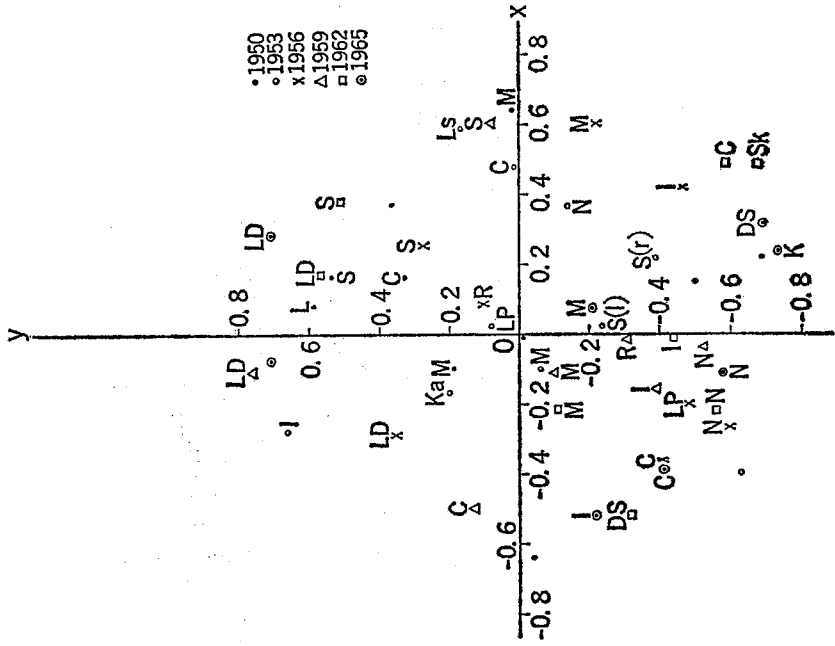
Figure 4. The House of Councillors, 1951–67

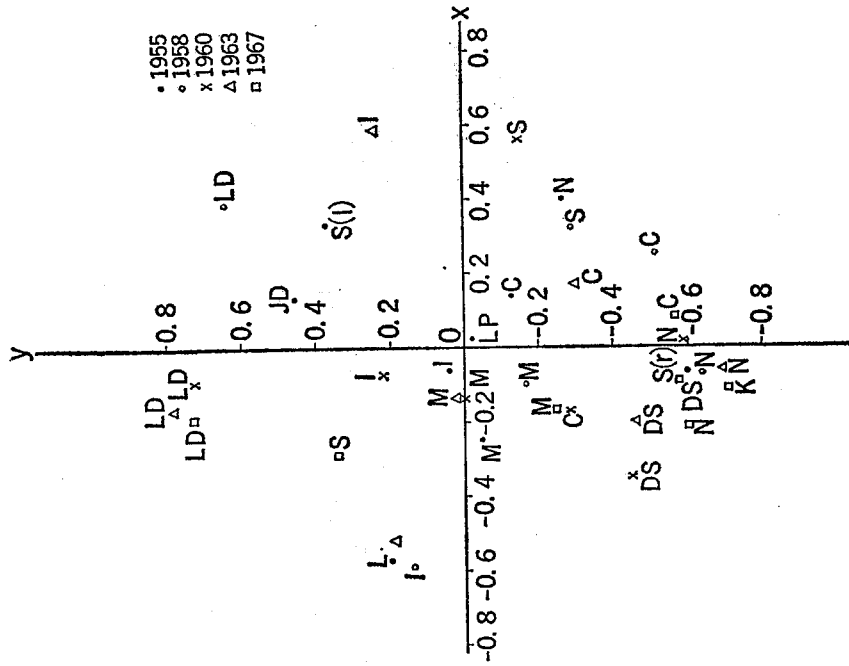Figure 3. The House of Representatives, 1955–67

Figure 5. Prefectural Legislature, 1951–67

. 1951
. 1955
× 1959
△ 1963
□ 1967

Chart 3.

The Minors M
The Independents I
Non-Voters N

Japan Communist Party
C (1945. 12)

Japan Socialist Party
S (1945. 11)

Right Wing
S(r)

Left Wing
S(l)

Japan Socialist P.
S (1955. 10)

Labor-
Peasant P.
LP (1948. 12)

Democratic-
Social P.
DS (1960. 1)

Kokumin Kyōdōtō
KK (1947. 3)

National Democratic P.
ND (1946)

Kaishintō
Ka (1952. 2)

Sōkagakkai
Sk

Kōmeiseji
renmei
Kr

Kōmeito
K (1964. 11)

Japan Liberal Party
JL (1945. 11)

Democratic-Liberal P.
DL (1948. 3)

Democratic P.
(1947)

Liberal P.
L (1950. 3)

Liberal P.
(Hatoyama)

Japan Liberal P.
JL (1953)

Liberal P.
L

Japan Democratic P.
JD (1954. 11)
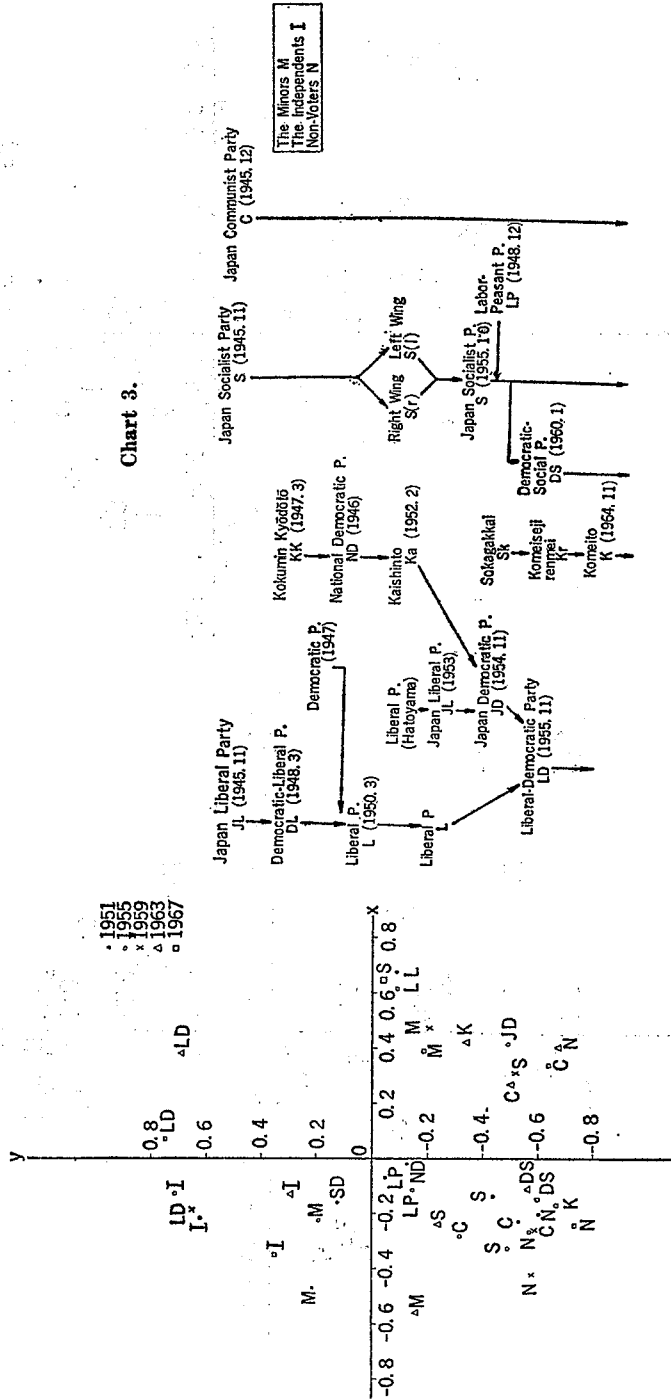
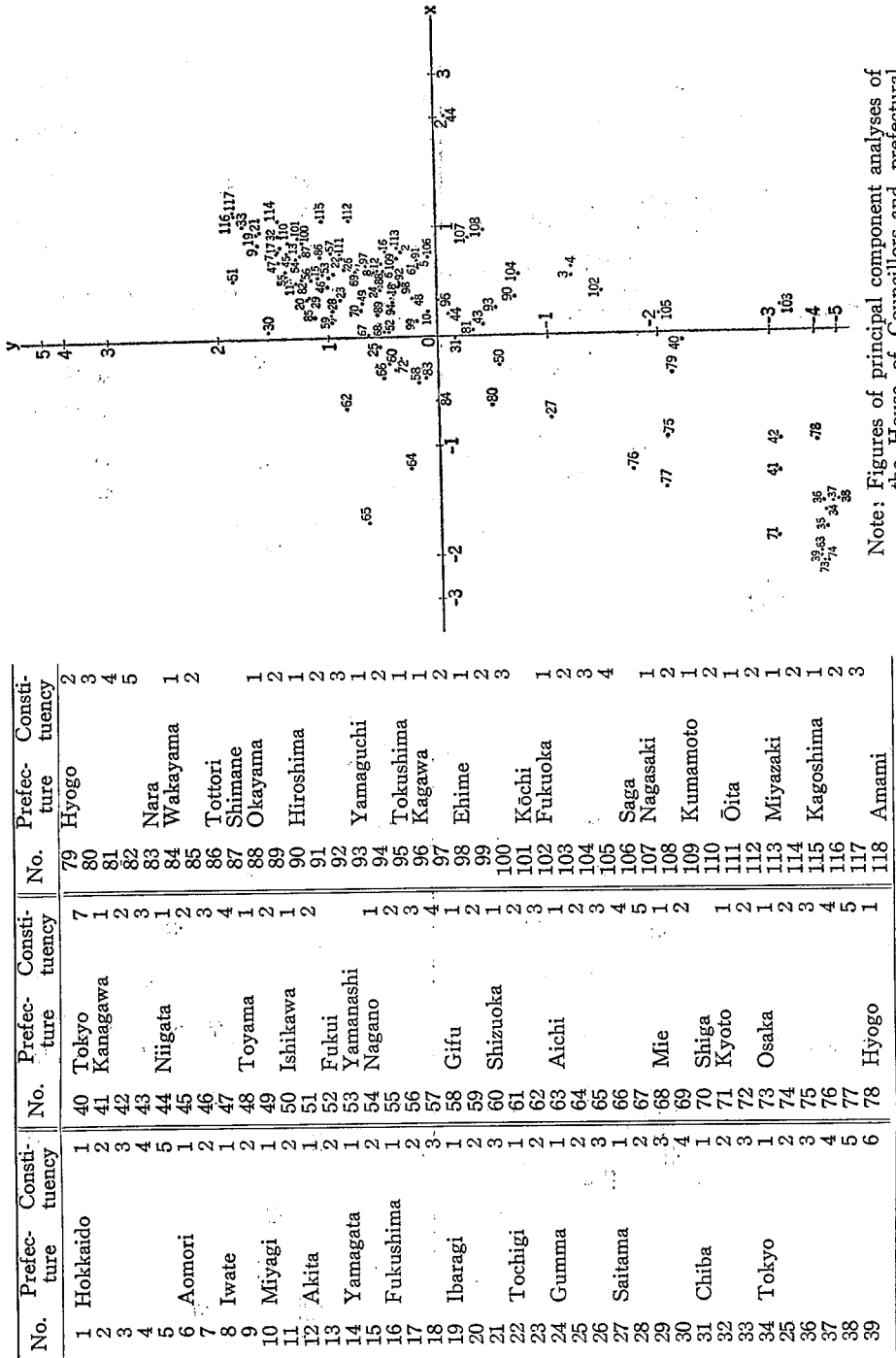Liberal-Democratic Party
LD (1955. 11)

Figure 1'. Principal Component Analysis; Constituency, 1947

Note: Figures of principal component analyses of the House of Councillors and prefectural legislatures are omitted in this article.
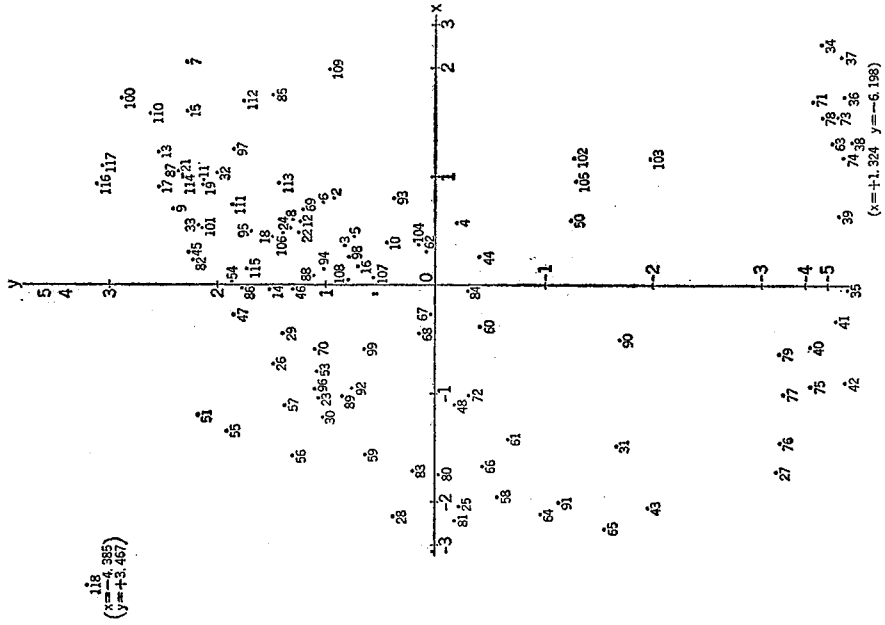
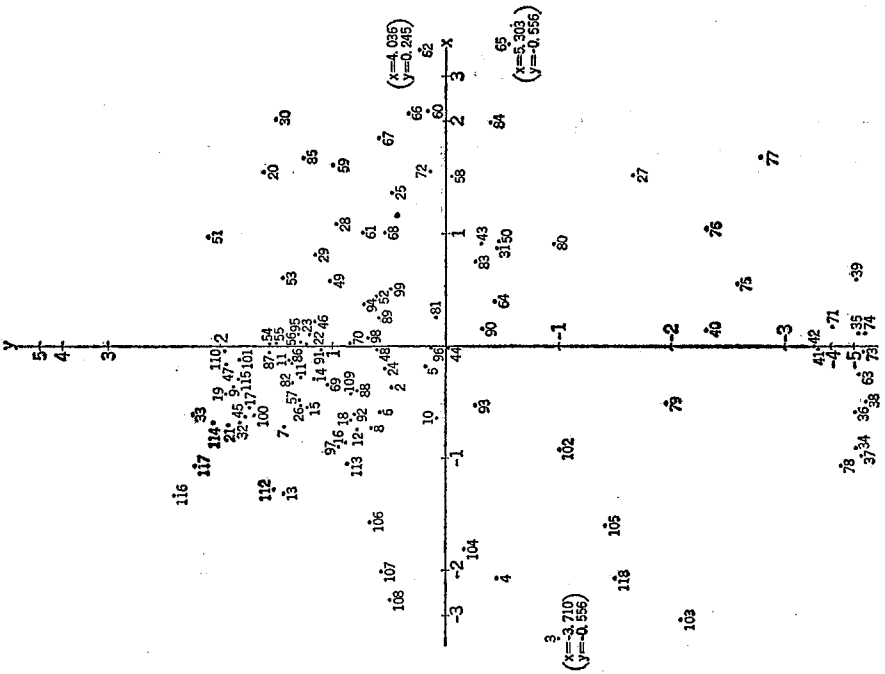| No.	Prefec-ture	Consti-tuency	No.	Prefec-ture	Consti-tuency	No.	Prefec-ture	Consti-tuency
1	Hokkaido	1	40	Tokyo	7	79	Hyogo	2
2		2	41	Kanagawa	1	80		3
3		3	42		2	81		4
4		4	43		3	82		5
5		5	44	Niigata	1	83	Nara	1
6	Aomori	1	45		2	84	Wakayama	2
7		2	46		3	85	Tottori	1
8	Iwate	1	47		4	86	Shimane	2
9		2	48	Toyama	1	87	Okayama	1
10	Miyagi	1	49		2	88		2
11		2	50	Ishikawa	1	89	Hiroshima	1
12	Akita	1	51		2	90		2
13		2	52	Fukui	1	91		3
14	Yamagata	1	53	Yamanashi	1	92	Yamaguchi	1
15		2	54	Nagano	2	93		2
16	Fukushima	1	55		3	94	Tokushima	1
17		2	56		4	95	Kagawa	2
18		3	57			96		3
19	Ibaragi	1	58	Gifu	1	97		4
20		2	59		2	98	Ehime	1
21		3	60		3	99		2
22	Tochigi	1	61	Shizuoka	2	100		3
23		2	62		3	101	Kōchi	1
24	Gumma	1	63	Aichi	1	102	Fukuoka	2
25		2	64		2	103		3
26		3	65		3	104		4
27	Saitama	1	66		4	105	Saga	1
28		2	67	Mie	1	106		2
29		3	68		2	107	Nagasaki	1
30		4	69		3	108		2
31	Chiba	1	70	Shiga	1	109	Kumamoto	1
32		2	71	Kyoto	2	110		2
33		3	72		3	111	Ōita	1
34	Tokyo	1	73	Osaka	1	112		2
35		2	74		2	113	Miyazaki	1
36		3	75		3	114		2
37		4	76		4	115	Kagoshima	1
38		5	77		5	116		2
39		6	78	Hyogo	6	117		3
						118	Amami	1

Figure 3'. 1960

Figure 2'. 1955

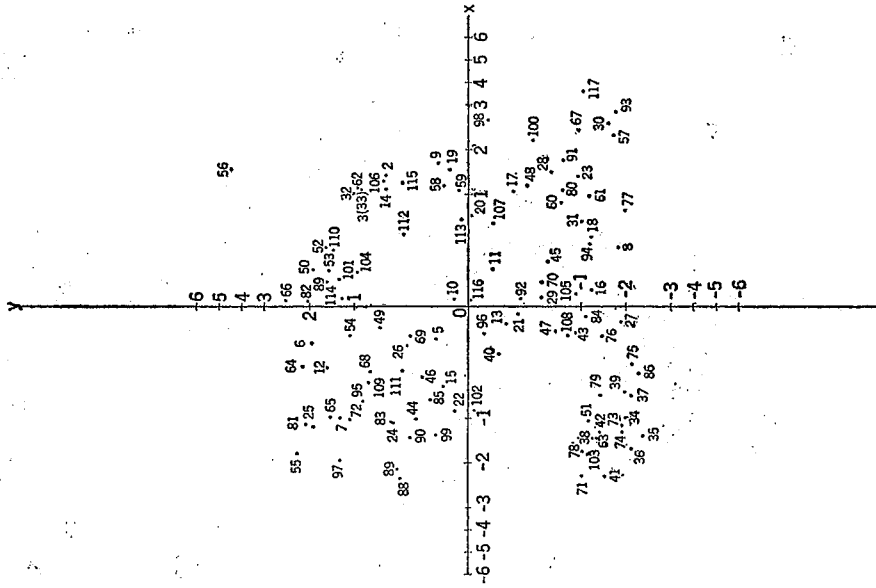Figure 5'. The House of Representatives, 1947

Figure 4'. 1965

Figure 7′. 1952

Figure 6′. 1949

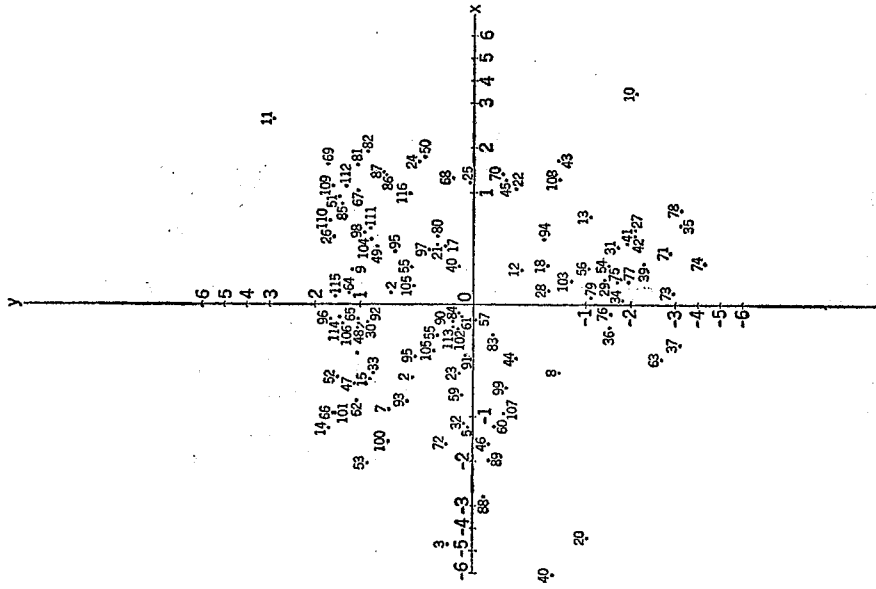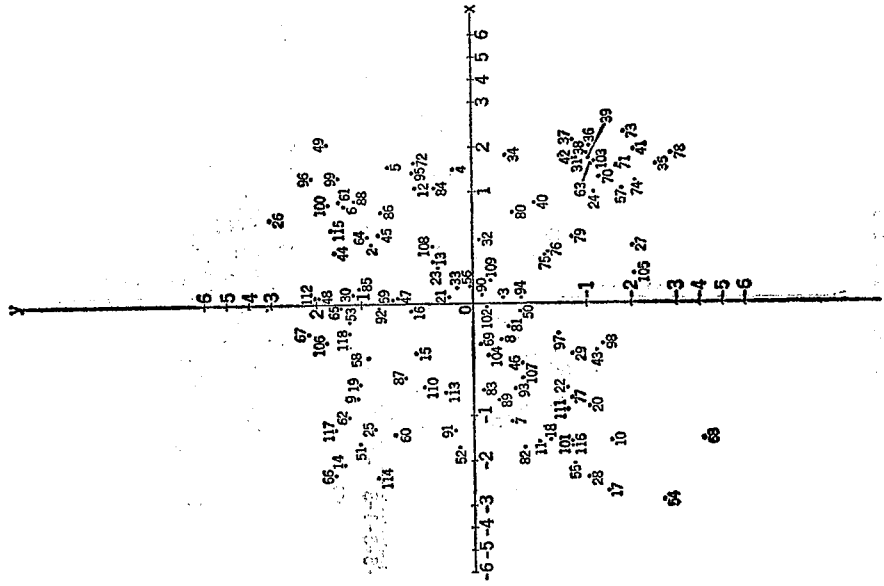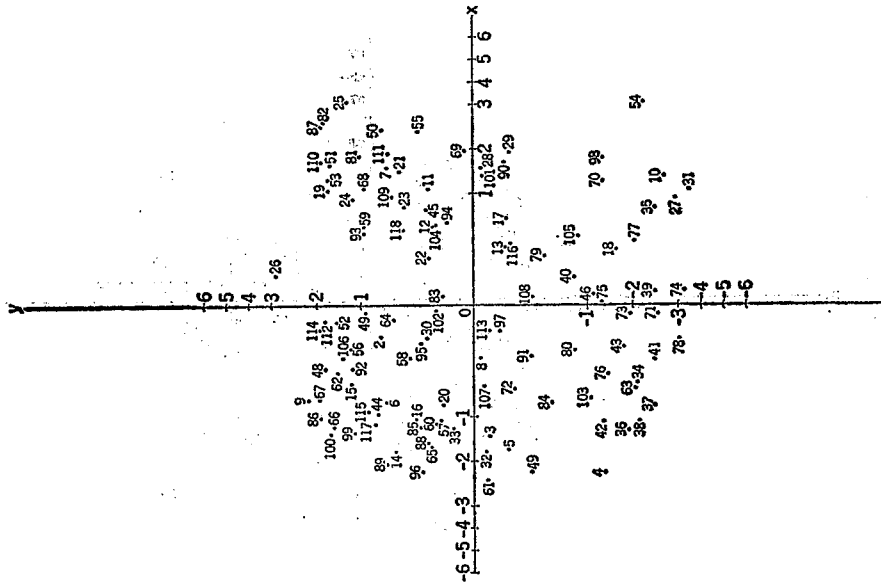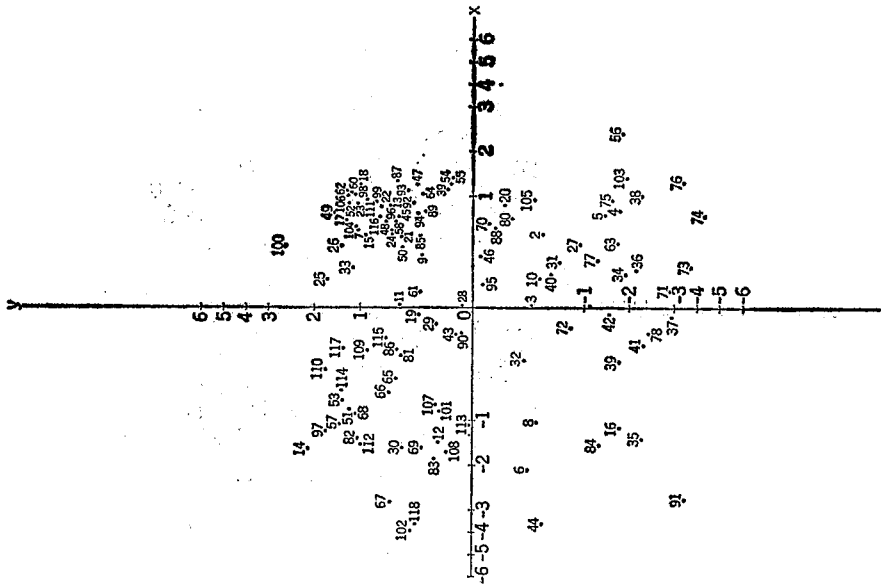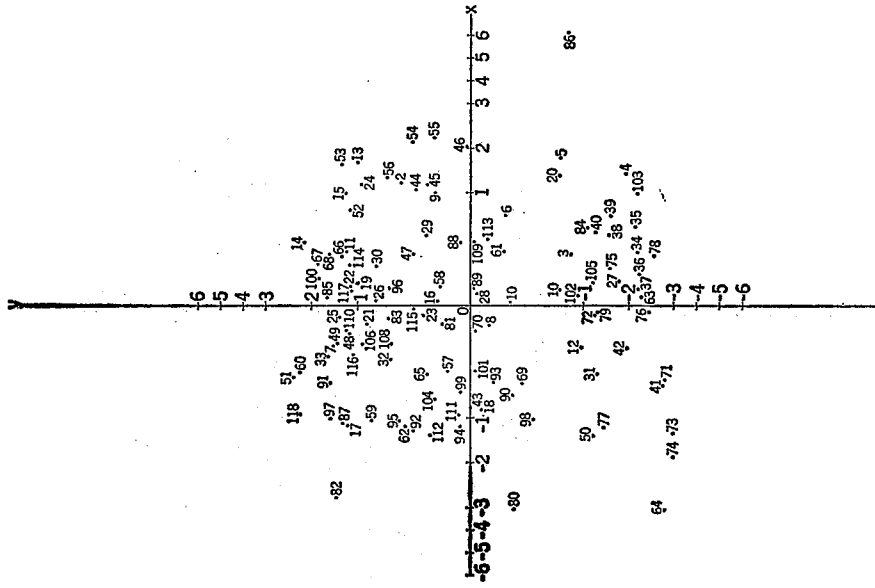Figure 9′. 1955

Figure 8′. 1953

Figure 11'. 1960

Figure 10'. 1958
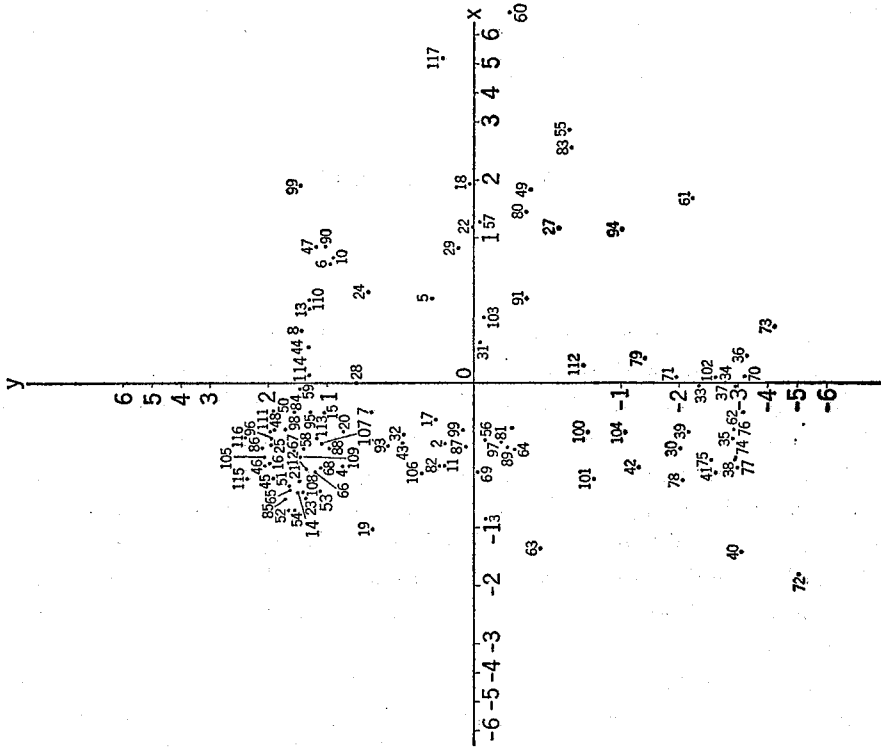
Figure 13′. 1967

Figure 12′. 1963