

A STUDY OF REGIONAL STRUCTURE AS SEEN FROM FARMER EMIGRATION IN THE TOHOKU DISTRICT (2)

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東北地方における農民出稼より見た地域構造 (2)

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Chapter II. Characteristic Features which Stimulate the Wandering of Farmers in North East Japan

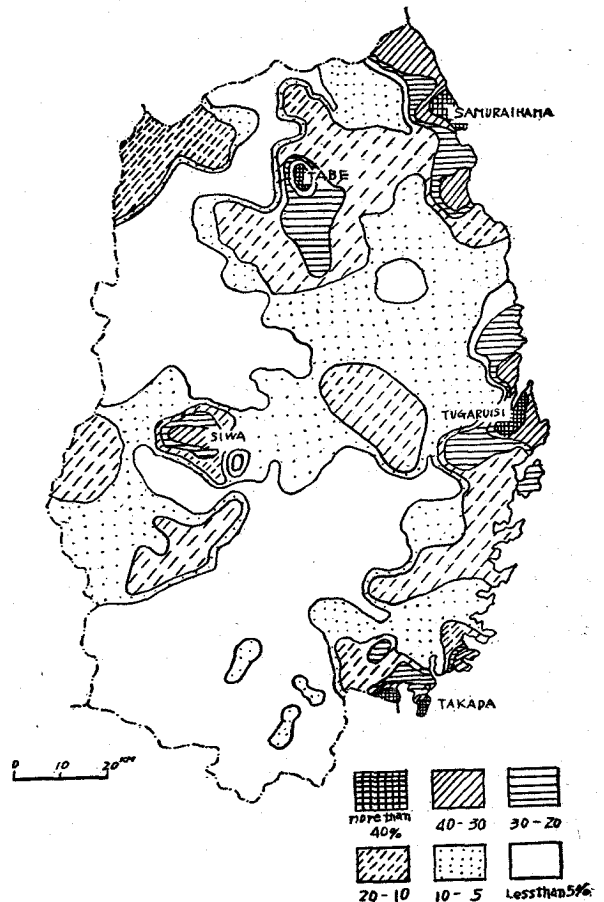
Section 1. Comparison *between Iwate and Shikoku,* *with Reference to the Factors Relevant to Wandering*

1) Productive Factors

For each of 4 cities and 222 towns and villages in Iwate prefecture, we compute the percentage of the number of farming families sending out wanderers to the total number of farming families in each area (the numbers here used being those between Aug. 1, 1951 and Aug. 1, 1952). And find that the ratios distribute between the highest ratio, i. e. 54.4%, of Samuraihama-mura (in Kunohe-gun) and the lowest ratio, i. e. 0.3%, of Matsuomura (in Iwate gun), Ôta-mura (in Iwate-gun) and Iwayado-chô (in Esashi-gun), the average of the wandering ratios in Iwate prefecture being 9.9%, (see Fig. 1)

As far the geographical distribution of the ratios, we can from Fig. 1, that in the Sanriku coastal tracts there are three high-ratio emigratory regions, namely, the northern coastal regions with Samuraihama as its center, the middle coastal region with Tsugaruishi as its center, and the southern coastal region around Takata and Hirota. In the inland parts we find a high percentage region situated in the north of the Kitakami Mountain district around Tabe-mura. We find another high ratio

Fig. 1. Distribution of migratory labourers, 1950~1951



wandering region distributed in the Kitakami River basins with Shiwa-mura as its center.

In order to compare the relevant general factors which have caused the ratios of wanderers to show such a distribution as is described above with the relevant factors of wandering in Shikoku,¹⁾ we apply the coefficient analysis and other statistical methods to our data and compute simple correlation coefficients between the percentage of wandering farmers (Y) and paddy-field ratios (X_1), the ratios of full-time farmers (X_2), the ratio of petty farmers with less than 5 tan (X_3) respectively. Table 1 is a tabulated representation of these coefficients of correlation, and from the table we can tell that ry_{X_1} and ry_{X_2} are significant for the critical ratios are below 0.1%, and ry_{X_3} is also significant for the critical ratio is below 1%. we find that, in case of Iwate, there is a negative correlation between the wandering ratios and the paddy-field ratios, and also between the wandering ratios and the ratios of full-time farmers, respectively, while between the wandering ratios and the ratios of petty farmers with less than 5 tan, there is a positive correlation in Iwate.

To see if the comparison of the correlation coefficients of Iwate and Shikoku can be significant,²⁾ we test the differences between the ratios of these two districts and find that all of them are significant, for the critical ratios of them are all below 5%,

Table. I Comparison of the Coefficient of Correlation between the Emigration ratios and the Conditions of Emigration, X_1 , X_2 , X_3 , in Iwate and in the Shikoku Districts.

	Iwate	Shikoku	Testing of the difference between the Coefficient Ratios of Iwate and Shikoku
ry X_1	-0.37**	-0.67	** Significant, for the Critical ratio Stands below 1%
ry X_2	-0.57***	-0.39	* Significant, for the Critical ratio Stands below 5%
ry X_3	0.29**	-0.56	* Significant, for the Critical ratio Stands below 5%

According to Table 1 the coefficient of correlation between the paddy-field ratio and the wandering ratio is -0.37 in Iwate, showing a negative correlation, far lower than in Shikoku. The percentage of wandering farmers in Iwate is found to have a positive correlation to the percentage of petty farmers with less than 5 tan - this average marks the smallness of the farm-scale -, but the coefficient value is far lower than that of Shikoku.

These low coefficients of correlation indicate that the phenomenon of wandering in Iwate is less directly controlled by the ratio of paddy-fields and the scale of the farm than that of Shikoku.

But the fact that the coefficient of correlation with the percentage of full-time farmers is higher than that of Shikoku, (i. e. $r = -0.57$ for Iwate, while, $r = -0.39$ for Shikoku) shows that there is a higher and more direct relationship between the ratio of wandering farmers and the ratio of full-time farmers than that between the wandering farmer's ratio and the ratios of paddy-fields and petty farmers. Thus we may state that the low ratio of full-time farmers is a universal feature characteristic of high ratio emigratory regions.

In the emigratory regions of Shikoku, low ratio of paddy fields and the high ratio of petty farmers are factors directly relevant to the phenomenon of wandering, low ratio of

full-time farmers being a secondary factor, while in the emigratory regions of Iwate, low ratio of full-time farmers is the strongest factor. The phenomenon of wandering labour is less influenced in Iwate by the ratio of paddy fields than in Shikoku.

When we examine the correlation with the scales of farms more minutely, we find that the correlation with the percentage of petty farmers with less than 5. tan is positive, while the correlation with the percentage of big farmers with more than 10 tan is negative, but the values coefficients are small for both. (I. e. $r=0.29$, and $r=-0.29$. See Table 1.)

Thus we know that the phenomenon of wandering labour, in Iwate as is the case with the paddy field ratio, is far less directly related to the size of the farm scale in Shikoku.

Causes of wandering may be numerous and divers, but we may presume that wandering, specifically, wandering of farmers, occurs "fundamentally in the following two cases; in the first place, when the annual income of the land products is not sufficient by itself to support the family, and in the second place, when the surplus family labour which cannot be used economically in farm work, is stored. Thus we may say that these two conditions of wandering are brought about at the same time, when the land production stops completely. The long leisure season of winter in the colder districts tends to bring about the complete stoppage of farm activity.

Now the important factors which decide the length of the leisure season of winter are meteorological conditions. Above all, the duration of the permanent snow period is considered to be directly the duration of related to the length of the stoppage of land production.

2) Meteorological Factors.

In addition to the factor, which we took into consideration when we analyzed the wandering in the Shikoku districts i. e. paddy field ratio, ratio of full-time farmers and ratio of petty farmers, have we compute the correlation coefficient of emigration ratio to the ratio of the permanent snow period³⁾ (r_{YX_6}), to the ratio of farmers with acreage between 5 tan and 10 tan (r_{YX_4}), and to the ratio of farmers with more than 10 tan, (r_{YX_5}) and testing the significance of each correlation. we find that, except the correlation coefficient between emigration ratio and ratio of families with acreage between 5 tan and 10 tan, the correlation in every other case is significant, the critical ratio being below 5%. Especially the correlation with the ratio of the permanent snow period to positive (i. e. $r=0.32$) and significant, the critical ratio being below 0.10%.

In order to show the regression lines we also calculate the regression equations between emigration ratio and all the other factors, except the correlation between emigration ratio and ratio of families with acreage between 5 tan and 10 tan, where the coefficient is too low.

(See Table 2 Fig. 2).

Table. II Coefficient of Correlation between the Emigration Ratios and the relevant factors of Emigration ($X_1, X_2, X_3, X_4, X_5, X_6,$) in Iwate and their Regression Equations.

	ry_{x_1}	ry_{x_2}	ry_{x_3}	ry_{x_4}	ry_{x_5}	ry_{x_6}
Coefficient of Correlation	-0.37***	-0.57***	0.29**	0.03	-0.29**	0.32***
Regression Equation	$y=51.98-0.87x$	$y=40.28-1.23x$	$y=21.71-0.51x$	—	$y=50.0-0.58x$	$y=21.47-0.44x$

Fig. 2 Correlation between %age of migratory farmers (on abscissa) and

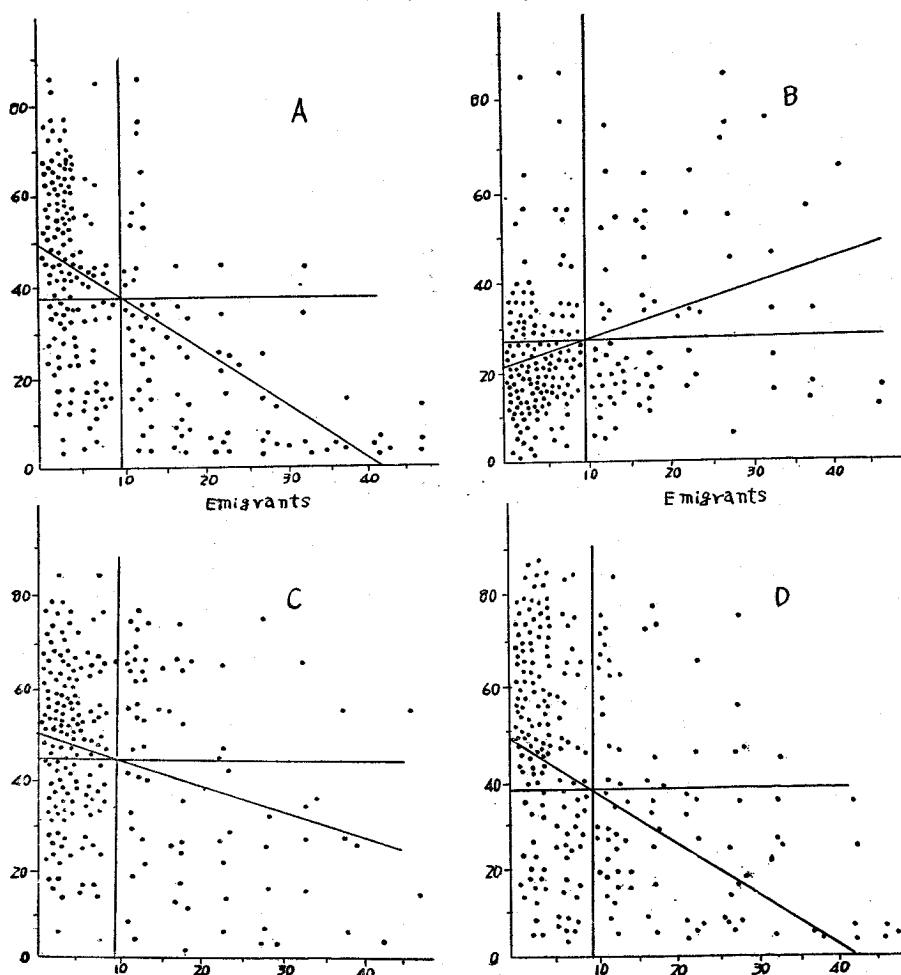
A : %age of full-time farmers to all famers

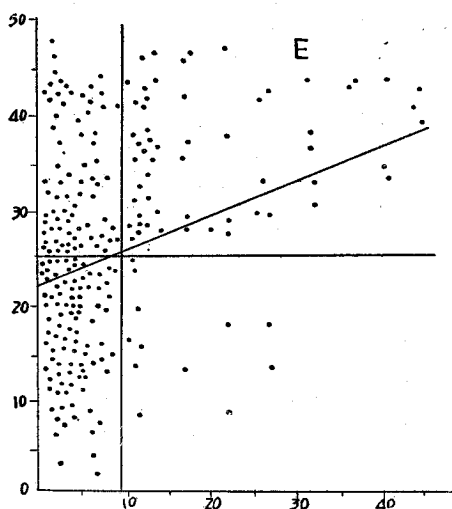
B : %age of farmers With acreage < 5tans,

C : %age of farmers With acreage > 10tans,

D : %age of paddy fields to all fields,

E : %ags of snow-covering period to year





From this we can tell that the correlation between the ratio of permanent snow period and the emigration ratio is higher than those between the emigration and the ratio of farm scale, and about as high as the correlation with the paddy ratio.

The high correlation of the snow period ratio presumably show that the occurrence of wandering is greatly controlled by the length of snow period and the long duration of snow period means the long stoppage of production in winter. The more the productivity of land declines, the more unemployed labour increases, and thus the farmers who are compelled to sell their surplus labours turn out wandering laborers. In this way, we can easily

see that the long period of permanent snow is an important factor of wandering.

It is because this natural condition controls the occurrence of wandering that the influence of the paddy ratio and the ratio of farm scale is not so strong in Iwate as in other warmer districts. Thus we find that the principles wandering derived from the study of the phenomena in Shikoku are not applicable to those in Iwate without modifications and we can also confirm that the wandering of farmers in Iwate is often directly caused by natural factors, as well as by productive factors.

The fact that the wandering in the West Ōu district, as was pointed out in the previous chapter, is subject to productive factors in lesser degrees than that in the East, is due to the stronger influence of the cold and snow in the West.

3) Analysis of High Ratio Emigratory Regions.

So far we have defined the general features of wandering in Iwate in comparison with those in Shikoku, which is one of the high ratio emigratory regions in South west Japan. In various regions of Iwate various groups of wanderers are distributed, each with its own specific features in addition to these general features.

Regions with emigration ratio higher than 10% in Iwate are Samurahiama, Tsugaruishi and Takata situated in the north, middle, and south of the Sanriku coastal districts respectively, Tabe and Kawai respectively situated in the north and middle of the Kitakami Highland districts, and Shiwa region in the Kitakami basin. (See Fig. 1.) Table 3 is a tabulated representation of the natural and productive conditions in each region.

Table. III Natural Conditions and Farming Conditions in the Regions With High Emigration Ratios.

	Tract on Sanriku Coast			Kitakami Highland Region		The Kitakami Basin
	North	Middle	South	North	Middle	
Average Emigration Ratio	30.1%	20.4	26.7	16.1	12.3	15.7

Natural Conditions	Ratio of permanent Snow period	13.6	9.2	7.9	27.7	28.6	26.6
	Ratio of Frosti period	57.5	51.7	50.9	61.6	65.7	57.5
	Ratio of Days with Minimum Daily Temperature below 5°C	52.5	50.7	49.8	54.7	58.0	50.4
Farming Conditions	Specialty Ratio	7.3	10.3	13.6	35.5	31.4	72.0
	Paddy-field Ratio	28.1	20.1	29.5	19.0	3.7	71.3
	Ratio of Families with less than 5 tan	46.6	53.0	59.5	18.2	20.0	13.2
	with more than 10 tan	24.1	17.9	11.3	56.7	39.3	64.2

Note: The regions considered here are those with Emigrations above 10%

3. 1. Emigratory regions along Sanriku Coast.

Of all the high ratio emigratory regions in Iwate, the Sanriku Coast tracts show the highest ratios, e. g. the average of the emigration ratios is 30.1% in the northern villages. But the natural conditions in these tracts are by no means unfavorable. Of all high ratio emigratory regions in Iwate, the permanent snow period ratio, the frosting period ratio, and the ratio of days with minimum daily temprature below 5°C (called low temperature ratio here after). are the lowest in these tracts. Especially, the coastal region in the south, where the permanent snow ratio is 7.9, the frosting period ratio 50.9% and the low temperature ratio 47%, is the most favorable agricultural region from meterological point of view. The fact that these tracts, notwithstanding these favorable conditions, have the highest ratio of wandering shows that they are the regions where the inferior conditions of management exert the strongest influence upon the occurrence of wandering.

The Samuraihama region in the north has the lowest ratio of full-time farmers, i. e. 7.3%, and farms the source region of wandering labor from which a large number of herring fishermen are sent to the western sea of Hokkaido in spring⁵). In the Tsugaruishi region, the ratio of full-time farmers is 10.3%, but its paddy field ratio, i. e. 20.1%, is the lowest of all the regions in the coastal districts. The Takata region shows a rather high ratio of full-time farmers, i. e. 13.6%, but nevertheless is one of the highest ratio emigratory regions in Iwate, forming the source region of farmer carpenters whose characteristic is the whole year farm of wandering⁶).

The conditions in these districts are more or less different in different regions, but, roughly speaking, in the phenomena of wandering in these districts, the extremely low ratios of full-time farmers and the high ratios of petty farmers with acerage less than 5 tan act as the primary factors, the low ratios of paddyfields being secondary factors.

The coastal region near the northern part of Kitakami Highland may be regarded as a region where the general tendency of the negative correlation between the fulltime farmers' ratio and the emigration ratio is in its full swing, for in this region the ratio of full-time farmers is 7.3% while the ratios in other regions are about 10%.

The fact that the ratios of full-time farmers are low in these regions means that the

farmers cannot support themselves by a single occupation, and tells that the productivity of land is poor, But the main causes are to be sought, above all, in the smallness of management scale as well as in the low ratio of paddy field.

In this respect, these regions along Sanriku Coast may be said to be exceptional, for they resemble Shikoku to some extent in their causes of wandering.

3. 2. Emigratory regions in the Kitakami Highland district.

In this district, a tract of land which extends in the north with Tabe-mura as its center and a region in the middle part consisting of Kawai, Kadoma and Oguni are distinguished as prominent emigration areas. The permanent snow ratio, the frosting ratio and the low temperature ratio in these regions are the highest of all the prominent emigration areas in Iwate. Especially in the middle, the ratio of permanent snow period is 28.6% which shows that this region is covered with permanent snow for about 100 days in a year.

But the conditions of production in these regions are remarkably different from those in the Sanriku coastal districts, with about 35% of full-time farmers, by far higher than the ratios in the coastal regions, and with less than 20% of petty farmers with less than 5 tan. The ratios of big farmers with more than 10 tan, especially, are remarkably high, 56.7% in the north and 39.3% in the middle. Thus these regions, different from the Sanriku coastal tracts, are characterized by the low ratios of petty farmers and farmers with a large management scale are numerous in all the areas of this district, but, on the other hand, the ratios of paddy fields are remarkable low, 19% in the north and only 3.7% in the middle, by far lower than 25% in the Sanriku coastal districts.

Thus we may state that, in these regions, the long period of permanent snow and the remarkable low ratio of paddy fields are the primary factors which control the occurrence of wandering while the low ratio of full-time farmers is a secondary factor. The high ratios of big farmers with more than 10 tan in these regions where the paddy ratios are so low, mean that they are dry-field regions. The dry fields in these regions are used exclusively for the production of cereals and the long period of permanent snow brings about the long period of stoppage production. Thus the income of land production is so small and the season of unemployed agricultural labor is so long that the farmers are compelled to sell their labour as wanderers.

It is interesting to notice at the same time that most of the wanderers from these regions are from poor farming families of lower classes and are employed as mainly as bodily laborers such as coolies, navies, etc⁷⁾.

3. 3. Emigratory regions in the Kitakami basin.

The whole county of Shiwa in the Kitakami basin, with 15% of emigration ratio, constitutes one uniformed region of wanderers.

But in this region the relationship between the productive factors and the wandering differs from the general tendency of negative correlation between the emigration ratio and the ratios of full-time farmers and paddy fields, for both the specialty ratio and the paddy-field ratio in this region are the highest, of all the emigratory regions i. e. 72% and 71.3% respectively.

The ratio of petty-farmers with less than 5 tan is the lowest, while the ratio of big farmers with more than 10 tan is the highest, i. e. 64.2%.

In the Shikoku districts, high ratio emigratory regions are generally found in those regions where both paddy-field ratio and specialty ratio are low and the ratio of small farmers with less than 3 tan is high.

It is worthy of note that the Shiwa region where both the ratio of full-time farmers and the ratio of paddy-fields are so high and the ratio of petty farmers with less than 5 tan is so low is a group of area with such a prominently high ratio of wandering farmers.

But when we examine the meteorological conditions of this region, we shall find that there is no wonder that this region is one of the high ratio wandering regions in Iwate, for the ratio of the permanent snow period is by far higher in this region than that in the Sanriku districts, i. e. 26.6%, and both the ratio of frosting period and the low temperature ratio resemble those of the northern part of Kitakami Highland. Thus in this region, though during the busy farming seasons quite a considerable amount of farm labor is demanded, a large amount of unemployed labor is stored up during the long period of suspended land production owing to the long period of permanent snow. For this season, this region, with a large amount of surplus labor in winter, constitutes a source region of Nambu tōji^{8, 9)} (i. e. skilled saké brewery laborers) who go wandering as a seasonal type of wanderers, though the income of land production is fairly large.

The wandering of farmers in this region is caused by a combination of various factors¹⁰⁾, it is true, but fundamentally, this region must be defined not as a wandering region with the poor conditions of productions as its direct cause of wandering, but as a region where the wandering of farmers is caused by the suspension of land production due to the unfavorable natural conditions in winter.

Summing up the results of the analyses made above, we may state as follows.

i) The occurrence of wandering in Iwate which lies in the eastern part of the Tohoku districts has the low ratio of full-time farmers as its primary factor, and the low ratio of paddy fields as its secondary factor, but the influence of paddy ratio upon wandering is by far weaker in this prefecture than in Shikoku. The relationships between wandering and the scale of farm management is so slight that the theory of wandering derived from the study of the wandering in the Shikoku districts is not always applicable to that in the Iwate districts.

ii) This means that besides these conditions of production, there are other factors which are relevant to the phenomenon of wandering. Especially, the agricultural environments of Iwate, with its long period of suspended land production in winter which reduces the income of land products on the one hand, and occasions a long period of unemployed farm labor on the other, are quite different from those of Shikoku.

The high correlation (i. e. $r=0.32$) between the migration ratio and the ratio of permanent snow period which determines the length of the leisure season of farmers shows that the occurrence of wandering in Iwate is prominently dominated by its natural conditions, besides its conditions of farm production.

This is not a characteristic special to Iwate only, but a feature common to all the rural districts of Tōhoku where the climate is cold and snowy.

iii) When we examine the region with emigration ratios higher than 10% with reference to these general factors of wandering, we can distinguish three of areas prominently migratory. The first group is areas in the Sanriku coastal districts where the low ratios of full-time farmers and the high ratios of petty farmers are presumed to be the direct cause of wandering. The second group is emigratory regions in Kitakami Highland, where, unlike the first group, the ratios of full-time farmers are fairly high and the ratios of petty farmers are low, the period of permanent snow is the longest and the ratios of paddy fields are very low, and these two may be regarded as primary causes of wandering. The third group is the group of emigratory areas in the Kitakami basin. In these areas both the ratios of full-time farmers and the ratios of paddy fields are high and the ratios of petty farmers are very low. What makes this region one of the ratio wandering regions, we may say, is the existence of the long permanent snow period which storing up a large amount of unemployed labour in winter, works as the fundamental cause of wandering.

(To be continued)

References

1. MINRU KISHIMOTO, A study of High Ratio Emigratory Regions-Emigratory Regions in shikoku : Geographical Review, Vol. 26, No. 5. pp. 199~205.
2. The coefficients for shikoku here given are taken from the Mr. KISHIMOTO's work cited above.
3. According to the 'Climatic Table of Iwate Prefecture' (1950), Morioka Meteorological observatory, and also to the data of agricultural meteorological researches made by the Iwate Prefecture Agricultural Experimental station. The ratio of Permanent snow Period indicate here the Proportion of the number of the days when the ground snow remains unthawed to the number of days of the year.
4. According to the 'Climatic Table of Iwate Prefecture', Morioka Meteorological observatory, cited above.
5. CHUHEI KAWAMOTO, A study of wandering Labour in the spring Herring Fishing, The Annual Report of Liberal Arts Faculty, Iwate University, Vol. 5, pp. 63~75 (1953).
6. CHUHEI KAWAMOTO, Wandering of Farmer-Carpenters from the Kesen Districts in Rikuzen, Tōhoku Geographical Association, Vol. 4, Nos. 3~4, pp. 3~9.
- 7.8. CHUHEI KAWAMOTO, A Qualitative Analysis of Nambu Sake' Brewery Wandering (Part III), Annual Report of Liberal Arts Faculty, Iwate University, Vol. 2, pp. 158~160 (1950).
9. CHUHEI KAWAMOTO, The Wandering Range and Distance of Nambu-tōji, Human Geography, Vol. 3, No. 1, pp. 30~43 (1951).
10. CHUHEI KAWAMOTO, A Qualitative Analysis of Nambu Sake' Brewery Wandering (Part I), Minor Report of Geographical studies. Ritsumeikan University, (3rd series) pp. 38~49 (1951).