ACTIVE AGRICULTURAL POPULATION IN POSTWAR JAPAN

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It is in the postwar period that the active agricultural population in Japan has for the first time shown a decline in numbers. This article is based on a statistical examination of the fact that the decline was due to the decrease of young recruits to agriculture rather than to an outflow of population from agriculture. From this the author points out (1) the fact that there exist conditions which will accelerate the tendency toward decrease in the agricultural population, and (2) the changes that have been occurring in the role and characteristics of the agricultural population as a source of labor supply. Serious attention is also paid to the influence of this decrease upon wage costs of industrial enterprises, chief point of which is the shift in the relative weight of the labor force supplied from rural areas, from single persons to persons tied to family and land.

I. ACCELERATED DECREASE IN AGRICULTURAL POPULATION

From around 1950 on, the agricultural population in Japan began to decrease; and the tempo of this decrease has gradually accelerated. Through what process has this decrease materialized? Will this decrease continue? What is the future role of the agricultural labor force as a source of labor? In this article the author intends to treat mainly these three questions.

Nationwide statistics concerning active agricultural population are presented in the following four surveys: (1) the National Census, (2) Labor Force Survey, (3) Employment Status Survey, and (4) Agricultural Census. The former three have been conducted by the Statistics Bureau, Office of the Prime Minister; and the fourth has been done by the Statistical Research Division, Ministry of Agriculture and Forestry. Of these, the former two are actual surveys and the latter two are usual surveys. Both the National Census and Agricultural Census are nationwide surveys, while the Labor Force Survey and Employment Status Survey are sample surveys. The Labor Force Survey is carried out every month and gives up-to-date information on the labor. Although the National Census has been administered at five or ten year intervals since 1920, the other three surveys started after the war. Since revisions were made on the Labor Force Survey several times before 1953, only those which have been carried out since 1953 are comparable. The Employment Status Survey has been carried out every three years since 1956; while the Agricultural Census has been done in 1947, 1950, 1960, and 1965, including the extraordinary one (1947).

Table 1 shows the results of these surveys. It is clear from the table that both the total active agricultural population and the rate of decrease differ according to the survey. It is probable that this diversity derives partially from the differences in date, method, and subject of each survey. However, the difference in the rate of decrease cannot be fully explained only by such technical points. Although I will neither discuss how the differences came to be nor examine which statistics reflect more accurately the reality of the situation of the time,[1] the most important facts observed in all the surveys are, first, the consistent decline of the active agricultural population since 1950; and second, the acceleration of the decline beginning around 1960.

According to the Labor Force Survey the annual rates of decline during the periods 1955–60 and 1960–65 were 2.9% and 3.6% respectively; but according to the National Census those for the periods 1950–55, 1955–60, and 1960–65 were 1.7%, 2.3%, and 3.9% respectively. In the Employment Status Survey these were calculated as 2.5 for 1956–59, 6.1 for 1959–62, and 3.2 for 1962–65; while in the Agricultural Census they were 1.5 for 1950–55 and 4.5 for 1960–65. The rate of decrease presented in the Employment Status Survey which shows a decrease from 6.1% in 1959–62 to 3.2% in 1962–65, is an exception. Other surveys illustrate the reverse situation, in which the declining rate in

Table 1. Results of Various Surveys on the Active Agricultural Population

Survey Date	Labor Force[1] Survey (every month)	National Census (1st of Oct.)	Employment Status Survey (1st of July)	Agricultural Census (1st of Feb.)
1950	—	16,132	—	16,866
1951	—	—	—	—
1952	—	—	—	—
1953	16,070	—	—	—
1954	15,670	—	—	—
1955	16,040	14,890	—	—
1956	15,610	—	15,681	—
1957	15,210	—	—	—
1958	14,710	—	—	—
1959	14,070	—	14,501	—
1960	13,910	13,216	—	14,542
1961	13,530	—	—	—
1962	13,110	—	12,031	—
1963	12,400	—	—	—
1964	11,970	—	—	—
1965	11,540	10,852[2]	10,905	11,514

Notes; 1) Figures are taken from *Rōdōryoku chōsa kekka hōkoku* (The Report on the Revised Results of the Labor Force Survey), but those for 1953–1961 are taken from the annual report of the Labor Force Survey. Figures include those employed in forestry.

2) One percent sample survey.

1 Cf. Mataji Umemura, *Chingin, kōyō, nōgyō* (Wages, Employment, and Agriculture), Tokyo, Taimeidō, 1961, Chap. 7.

the latter period was higher than that in the former period.

II. PROCESS OF DECLINE OF THE ACTIVE AGRICULTURAL POPULATION

The decline of active agricultural population is caused not only by changes in occupation of those who had once been employed in agriculture. According to the Japanese experience reduction of replacements, that is to say, reduction of new agricultural recruits, played the most decisive role in the dramatic decline of the agricultural population. As is clear from Table 2, during the seven years from 1958 to 1964 the active agricultural population decreased at an annual rate of 3.3%. However, it is worthy of attention that out of this 3.3%, 2.2% was due to the difference between the number of new recruits and the number of persons who either gave up agricultural work or died. Therefore, only 1.1% is due to intersectoral flow of labor.

Here the author would like to make some additional remarks concerning persons newly employed in agriculture. There are two types; one consists of new graduates of middle and high schools and universities. The other consists of those who have once engaged in their family's occupation. The major portion consists of the former, so that the latter is excluded from Table 2. There are also two types among those who have given up agriculture and become part of the non-active labor population: one is temporary and the other is permanent. Table 2 shows the figures for "permanent retirement," including deceased.

Figures regarding retirement from and recruitment into agriculture are available in the surveys carried out by the Ministry of Agriculture and Forestry, and to some extent in the Employment Status Survey. However, the author did not utilize them because they seem far too samll.[2]

Table 2. Decreases in Active Agricultural Population, 1953–1964

(average annual rate)

Total	(1)+(4)−(2)−(3)	(−) 3.3%
(1)	Persons newly employed in agriculture	(+) 0.8%
(2)	Persons who gave up work including deceased	(−) 3.0%
	(1)−(2)	(−) 2.2%
(3)	Persons who moved out of agriculture	(−) 1.9%
(4)	Persons who moved into agriculture	(+) 0.8%
	(3)−(4)	(−) 1.1%

Sources: Total: Labor Force Survey.
(1): Mombushō (Ministry of Education), *Gakkō kihon chōsa* (Basic Survey on Schools).
(2): Calculated by subtraction.
(3) and (4): Nōrinshō (Ministry of Agriculture and Forestry), *Nōka shūgyō dōkō chōsa* (Survey of Trends in Farmfamily Employment).

2 In 1962, 146,000 moved out of agriculture and 63,000 moved in. In 1965 the figures were 92,000 and 74,000 respectively.

As has been mentioned above, the number of persons who gave up agriculture was calculated by simple subtraction. The annual rate of separation was 3.0% including deceased. This rate implies that the average duration of employment is 33 years. This can be said to be not very long judging from the actual situation of Japanese agriculture, because in Japan the average age of the agricultural population is conspicuously high as compared with the presumed age composition of farmers in stabilized societies. The author believes that what interests the reader is whether or not the situation in Japan as illustated in Table 2 resembles situations in Western advanced countries; and, if not, what are the differences between them. Although the author is not acquainted with the data necessary for comparison, it may be said that the proportion of decrease in intersectoral flow of labor is slightly larger in Western countries than in Japan.[3] And it can be presumed that in the future Japan will approach the Western pattern of labor flow. A discussion of this problem is, however, not a task of this paper.

Here the author would like to call the readers' attention to the fact that in Japan the decline in active agricultural population occurred due to the decrease in replacements, is closely related to the seniority wage system which is one of characteristics of Japan's labor market and with the system of permanent employment in which employees work for long periods in one company. As is well known, in Japan's labor market job-recruitment has concentrated on the youger members of the labor force, especially recent graduates whose wage cost is low. Therefore, the demands for labor from farm families are oriented chiefly to the new entrants to the labor force who have just graduated, rather than to those who have once been employed in agriculture.

III. IS THIS A NEW PHENOMENON?

That the declining trend of active agricultural population had accelerated by 1965 is clear from Table 1. But serious opposition to this observation has been stated both on theoretical grounds and on statistical data.

Theoretical opposition points to the following facts as evidence of inaccurate observation. In Japan as a whole, the birth rate increased at an extremely rapid tempo after World War II, but turned downward from 1950. The number of children per family, in which the eldest child was born after 1950, averages two. In the case of farm families this change has taken place one or two years later, and it may be assumed that children who will graduate from middle or high school around 1970 will principally be family heirs and will thus be tied to family and land (they are called *'ie tsuki rōdōryoku'*.),

3 ILO, *Why Labor Leaves the Land, a Comparative Study of the Movement of Labor Out of Agriculture,* Geneva, 1960 and F. Riemann, "Grösse und Verleib aufgelöster landwirtschëftlicher Kleinbetriebe, Grunde und Auswirkungen der Agrarstrukturveränderungen," *Berichite über Landwirtschft,* Heft. 2, 1962.

forming a distinctly different type than that seen hitherto in the labor force. Therefore, because both family heads and their wives are also tied to family and land after 1970, the major part of the labor force from agricultural families should become labor tied to family and land. Moreover, farm families usually own property and as land owners expect rises in land prices which will be brought about through converting agricultural land to building lots, the demands for which gradually strengthen with the nationwide intensification of urbanization of rural areas.

It is extremely difficult for laborers tied to family and land to leave their hometowns. In this sense, when they seek work they invariably commute. This situation is entirely different from that of single laborers who do not find it so difficult to leave their hometowns. Consequently, the employment opportunities for laborers tied to family and land lessen; which results in a decline in the outflow of agricultural labor.

The author thinks this point is all-important. However, two questions arise concerning the rate of decline of the active agricultural population. The first is the fact that the effects derived from the lowering of the birth rate did not being to appear until recentry, and will be come more visible in a few years. Second is that, as has been seen above, the major factors in the decrease in active agricultural population are that there are fewer persons newly employed in agriculture than those who retire from agriculture. The gap between the two types of labor force will become widened, so long as the situation does not change, accelerating the trend toward decrease in the agricultural labor force. In the final analysis, the question is focused on the problem of whether the decrease in the active agricultural population caused by the difference between inflow and outflow will slow down at the same or a more rapid tempo, and if so, will result in slowing the degree of decrease derived from the gap between new recruits to and departures from agriculture. This question is one that has to be answered on the basis of statistics.

Four sets of recent statistical data may be regarded as indicating the new trends in changes in the labor flow:

(1) The 1968 Employment Status Survey presents figures showing that the annual rate of decline of the active agricultural population during 1965–68 was 2.8%; demonstrating a tendency to level off in comparison with the previous two periods, at 6.1% and 3.2%.

(2) The number of new graduates employed in agriculture decreased heavily from 1955 but around 1962 the rate of decrease began to slow down.

(3) The number of persons who change occupations into other industries after being employed in agriculture amounted to 300,000 in 1960; but after 1965 this fell to 150,000.

(4) Middle and high school graduates employed in companies outside of their native prefecture decreased.

After careful examination, the author has come to the conclusion that these facts do not support sufficiently the views that a new trend is taking place. The reasons for this are as follows:

(1) According to the Employment Status Survey the rate of decline has gradually slowed down since 1959–62 as has been mentioned above. However, there is another survey showing data contradictory to this. According to the Labor Force Survey, which gives statistical data for after 1965, no substantial changes in the declining trend have occurred—3.8% in 1965–66, 3.6% in 1966–67, and 3.7% in 1967–68.

If we calculat the rate of decline of the number of persons who are working mainly at agriculture, using the figures in the Employment Status Survey, the annual rates moved from 5.8% in 1959–62, to 2.7% in 1962–65, and to 5.5% in 1965–68; showing a remarkable down trend after 1965. This was particularly striking in the case of female farmers. However, the most important in this context is the distinct trend of full-time agricultural workers, evidenced by statistical data especially when we consider agricultural labor force which involves certain amount of fringe labor.

(2) The changes in the number of new graduates employed in agriculture are shown in Table 3; newly recruited farmers numbered 287,000 in 1953; and decreased to 186,000 in 1958, 90,000 in 1963, and 58,000 in 1968. These figures clearly evidence the fact that the tempo of decline has slowed down. However, it can hardly be said to have reached its nadir. The reasons for this are that:

(a) the tighter the demand-supply balance of the labor force becomes after 1969–70, the higher will be the starting salary and wage levels in the secondary and tertiary industries.

(b) the growth rate of agricultural income has shown a tendency to slow down since 1968, mainly because of the decline in the rate of price rise of agricultural products which was brought about by constant over-supply. During the years 1961 to 1967, in fact, the prices of agricultural products have continued to rise at a 9% annual rate. In this sense, this period can be said to be a "honey-moon" for agriculture. But it seems to come virtually to an end in 1968. Japanese farmers had experienced record rice harvests

Table 3. Changes in Number of Novice Farmers, 1955–1968

	Total (1,000)	Male (1,000)	As Percentages of Total School Employed Graduates (male-female total)
1955	263	149	23
1960	127	78	10
1961	77	48	6
1962	81	51	6
1963	90	58	6
1964	68	44	5
1965	62	42	4
1966	66	48	4
1967	63	46	4
1968	58	43	4

Source: Mombushō, *Gakkō kihon chōsa.*

in 1967 and 1968, from which about half of their agricultural income was derived. The result of this was rapid accumulation of a stockpile of rice.[4] Moreover, production of citrous fruits, which occupied about 40% of total fruit production, has continued to increase at an annual rate of 20% because recently planted trees reached maturity. Consequently, prices of citrous fruit fell as compared to previous years. In addition, increased production of eggs, poultry, and pork become easier by using import grain-fodder. Production of these animal products is being promoted among farmers with large-scale facilities. It seems to the author that one of reasons for this concentration lies in the fact that since Japan has only a short histry of livestock-raising, there is little resistance to the new agricultural activity from traditional agriculture. Thus, livestock-raising has developed into a profitable enterprise in Japan with the use of imported fodder. But the heavy dependence on imported fodder serves to enable producers to easily manipulate the prices of these products.

(c) That children of farm families are extending their school careers has the effect of decreasing the number of newly recruited farmers. The ratio of middle school graduates who were employed in agriculture to total employed middle school graduates was 5.5% in 1968, whereas in the same year the ratio for high school graduates was 3.9%. While the proportion of those entering high school to total middle school graduates has become higher and higher and now reaches 75%.

(d) The number of farmhouseholds whose agricultural income is equal to or a par with the income of workers in other industrial sectors—such farmers may be called "viable units" (*jiritsu keiei*)—gradually tend to decrease with the decline in the proportion of agricultural income to national income. And there are too many novice farmers in comparison with the number of "viable units."[5]

(3) The decline in the number of those who changed their occupation from agriculture into other industries was greatest in 1961; in 1968 140,000 switched occupations. This decrease due mainly to the decrease in farmers under 35, who constitute the major portion of reserved forces of the labor transfer. However, with the stabilization of the labor market and the increasing demand for middle and high school graduates, the absorption of agricultural workers by other industries can be considered to have become strong. In reality, the number of farmers over 35 who transferred jobs increased from 61,000 in 1966 to 64,000 in 1967 and 70,000 in 1968. This trend will continue for several years in the future. Up until now, the generations over 30 which have been thought to have the lowest mobility in Japan's labor force has

4 The production of rice amounted to 14.45 million tons in both 1967 and 1968, exceeding 2 million tons the annual domestic consumption. Thus the amount of stored rice at the end of 1969 will reach 6 million tons. Even now, rice is under government control and the government distribution system is continuing.

5 Masayoshi Namiki, "Jiritsu keiei no seiritsu jōken" (Framework of Agricultural Viable Units), *Nōgyō sōgō kenkyū*, XXII-1 (Jan., 1968).

constituted an employment problem and formed the core of Japan's rural population problem. Therefore, as a new phenomenon in labor the trend of changing occupations which has taken place in this generation is worthy of attention. However, as has been stated, the overwhelming majority of these workers commute daily to the cities, because they are family heads, heirs, or housewives. Then, are there sufficient opportunities for these workers to find occupations in the districts to which they are able to commute? Many scholars have expressed pessimistic views taking granted the fact that factories are mainly concentrated in the Tōkaidō megalopolice belt. However, what must be taken into account regarding employment opportunities in local districts is that enterprises will have to establish immediately a system of operations in their factories which would make it profitable to employ such workers tied to family and land: a system which will differ greatly from that involved in the employment of single workers. Enterprises may find it profitable to disperse their factories in local districts.

The author should point out following two facts regarding local employment opportunities: first, there are many vacancies in the positions which were hitherto occupied by yonuger workers; and second, employment opportunities are increasing in various occupations which have come with the rise of levels of income and the living standard as well as changes in way of life in rural districts.

(4) There seems to be a certain degree of exaggeration in the argument that there has been an increasing trend for graduates of middle and high schools to stay in their native prefectures. The author finds this a kind of wishful thinking. It is not hard for us to understand the reason for this exaggeration if we take into account the desire of prefectural administrators, agricultural organizations, medium- and small-size enterprises, and retail stores in these prefectures whose population is constantly decreasing, to cease the efflux of population and of the younger members of the labor force in particular. However, the fact of the matter is that, as is clear from Table 4, the ratio of outflow of middle school graduates, which continued to decrease from 1965, again increased in 1967, while those of high school graduates distinctly rose both in 1967 and 1968.

It is not easy to forecast whether or not this increase will continue. What is most important here is that even if the ratio of the school graduates continues to decrease, this does not contradict but may coexist with a decrease in novice farmers. In Japan as of 1968, among heirs of farm families who had graduated from school and were employed in enterprises, 57% was commuting; the proportion is considerably higher than the 49% in 1964.[6] Consequently, it can be said that in reality the decrease in novice farmers is proceeding even when the rate of outflow is lowered.

On the basis of the above analysis, we conclude that no evidence exists to support the arguments which insist on either a weakened trend toward decrease in outflow of active agricultural population or a decline in agricul-

6 Norinshō, *Nōka shūgyō dōkō chōsa* (Survey of Trends in Farm-family Employment).

Table 4. Changes in Proportion of Graduates Finding Occupations Out of the Prefecture

	Middle School Graduates	High School Graduates
1961	33.3	26.5
1962	33.4	28.4
1963	31.7	27.4
1964	33.1	29.0
1965	33.3	29.8
1966	31.3	27.3
1967	31.5	28.2
1968	32.4	29.5

Source: Mombushō, *Gakkō kihon chōsa.*

tural population as a whole.

On the contrary, the point lies in the fact that there is new and obvious trend toward the use of women and week-end labor for farming which is a phenomenon characteristic of contemporary Japanese agriculture. This suggests that in the near future changes of occupation should intensify even among active female farmers.

Three points are cited below as indications of the new trend. First is the progress of mechanization of rice cultivation. In Japan more than half of all labor hour invested in rice cultivation has been accounted for by women, particularly by housewives. They have played the most important role in planting and harvesting, the part of the rice cultivating process which used to be carried out solely with human power. With the diffusion of small-sized binders and tractors, harvesting has rapidly been mechanized in recent years. The use of machines for planting, too, came about two or three years after the introduction of tractors. As a result it has become possible for Japanese farmers to undertake totally mechanized rice cultivation. As is well known, mechanization of farming in Japan first took root in large farms. In its initial stage, therefore, in one hamlet mechanical cultivation coexisted with cultivation by human labor. However, it was observed that with the dessimination of hand-tractors, machinery rapidly replaced human power in rice cultivation. And the mechanization of planting and harvesting is not exceptional. If this actually takes place, housewives will be faced with having to choose between undertaking rice cultivation using machinery themselves, or entrusting cultivation to farmers who can operate rice cultivation efficiently.

The second point concerns the future prospects of the rice price, wages of hired labor, farm rent, and the cost of renting machinery. The general circumstances are that (1) the raising of rice price seems to be difficult; (2) wage levels in non-agricultural sectors continue to rise; (3) the abolition of the ceiling of farm rents is being attempted;[7] and (4) the rate of the rise in the cost of hired machinery is lower than that of wages. Under these circum-

7 Farm rent is kept at a very low level by the Farm Land Law (Nōchihō) promulgated in 1952. But a bill containing an article calling for the abolition of the ceiling of farm rent being presented to the Diet.

stances it is more profitable for housewives to lease[8] paddy field to full-time farmers in order to obtain rent and to invest the labor thus saved in other industries in order to increase their income.

The third point deals with housewives as members of the labor force. It need hardly be said that for them commutation is the only possible way to manage a job. Therefore, the key to their working lies in the possibility of finding employment opportunity within the districts to which they could commute directly from their home. In reality, such opportunities are gradually increasing in various industrial spheres. Indeed, this is reflected in the increasing trend toward changes of occupation among the active agricultural population over 35, which has been apparent since 1966. This is more remarkable among female workers not only in districts near central industrial areas but also in agricultural and mountain villages.[9] As has been pointed out, of Japan's total active agricultural population, more than half is women and more pricisely housewives. Thus, the fact that they have begun to show a tendency to change their occupations from agriculture to other industrial sectors, is especially worthy of attention as a condition accelerating the decrease in agricultural population. If changes of occupation among female workers intensify from now on, we may conceive that the role of change-occupations will become greater in the process of decrease in Japan's agricultural population.

IV. FARMHOUSEHOLDS AS A SOURCE OF LABOR

The increase in the labor population in Japan has been accomplished mainly by the supply of middle and high school graduates, of whom one-third are children of farm families. This proportion of children from farm families seems to be somewhat high judging from the fact that total farm population is less than 30% of the total population of 10 million. However, it may not be inappropriately high if we take into account the high birth rate in farm families and the time-lag which was observed in the increasing proportion of children who enter higher grade schools. In reality, it should be said that this one-third proportion is exaggerated, because a considerable number of farm families in Japan have side-jobs and thus earn income from non-agricultural activities. About 40% of farm families obtain much more income from non-agricultural occupation than from farming.

What the author would like to discuss here is not the problem of the "one-third proportion" but the question regarding qualitative changes which have taken place in the farm population as a source of labor. The question can be summarized briefly as follows: what is the significance of the change in average number of children per farm family from five in the prewar

8 It is not probable that farmers will sell paddy field because cultivated land is considered to be not only insurance against accidents or other disasters, but also a means of making money through the anticipated rise of land prices.

9 Norinshō, *Nōka shūgyō dōkō chōsa, op. cit.*

period to two in the postwar period? As has been suggested earlier, as the successors to their family's occupation two children are in the position of having to look after their parents in the future. In this sense, they, as labor units, are closely tied to family and land. This land is their own, and brings with it reasonable expectation that the price of the land will rise with the intensification of demands for housing by city dwellers. Heads of families and their wives are not exceptions to this as a type of labor force.

Let us consider the prewar period when the average number of children was five, of whom one child died before maturity according to the mortality rate. Two constituted to the natural increase and formed the "second and third children" problem, which refers to the fact that the second and third sons (or daughters) of farm families had mostly the difficulty finding employment. In this period the labor force demanded by enterprises was mainly comprised of the second and third children of farm families. Enterprises in industrial areas could collect such labor from rural areas by providing dormitories. This was the method by which labor was gathered at relatively low cost.

Following this line of consideration, we may notice the fact that there are two types of labor among those from rural areas: one is those persons who leave their hometowns, the majority being single persons; the other is those who commute, the majority being workers usually have their own families.

This is shown in Table 5 on the basis of the "*Nōka shūgyō dōkō chōsa*" (Survey of Trends in Farmfamily Employment) by the Ministry of Agriculture and Forestry.

Table 5. Commuters from Farm Areas (%)

	1967	1963
Total	55	53
Male	53	53
Female	57	54
Head of Family	89	87
Family Heir	62*	63
Female over 30	94	91
Second and Third Children	37	36

Note: *In the case of graduates, it decreases to 57%.
Source: Norinshō, *Nōka shūgyō dōkō chōsa.*

The table clearly displays the facts that the overwhelming number of family heads, housewives (in the table indicated as females over 30), and heirs commute and that the proportion of these is steadily raised year after year. In the case of second and third children it is less than 49%. Among male workers employed in 1967, heads of families and heirs together accounted for 51% in contrast to 48% in 1963 and 41% in 1959. It seems to me that this trend will be conspicuous until around 1970 when it is thought that the supply of second and third children to the labor force might have been

exhausted.[10]

As is clear from the above analysis, heads of families, their heirs and housewives gradually have come to compose the core of workers from farm families. They are, of course, tied not only to family but also to property. This makes it natural for them to commute. They form the labor force that enterprises in Japan are compelled to absorb as a precaution against the coming full-scale labor shortage. This type of labor force differs greatly from single persons such as second and third children. Wage costs will become higher for enterprises, which will be compelled to cope with this problem by employing various measures, one of which will be absorption of workers from the same industrial sector, that is to say, workers from the secondary and tertiary sectors. However, this method is not sufficient as a countermove for non-agricultural industrial sectors as a whole, but only effective for individual enterprises. Consequently, absorption of agricultural labor force by enterprises will inevitably become intensive.

Technical innovation through investment in equipment may not always work efficiently toward reducing demands for labor. When this is the case, the countermeasure for coping with this situation is either 1) dispersal of factories to local areas or 2) bringing the labor force from rural areas to central industrial areas. The former will be practised widely in situation given above.

However, in my view, this would result in an increase of commuters from farm families along with the effect of creating more employment opportunities brought about by a rise of income levels. During the decade from 1958–1968, per annum farmhousehold income increased about three times in nominal terms from 350,000 yen to 1,100,000 yen, of which about 56% is non-agricultural income. In the past, farm families in Japan could increase non-agricultural income. And as of 1968, non-agricultural income surpassed agricultural income in the average of total farmhouseholds.[11]

Necessarily, proportion of non-agricultural income to total income will become larger and larger in the future. This trend will accelerate the decrease in active agricultural population. Thus, the role played by the agricultural population as a source of labor will be changed quantitatively and qualitatively. Enterprises will face the difficulty of gathering a sufficient low-wage labor force.

However, it should not be concluded on the basis of the discussion above that the decrease of the active agricultural population will slow down.

10 It has been said that in America, 80% of the total number of farmers who transferred their occupation from agriculture (including those who retired) was married. See D. C. Johnson, "Policies to Improve the Labor Transfer Process," *The American Economic Review*, L-3 (May, 1960).

11 Norinshō, *Nōka keizai chōsa* (Survey on the Farmhousehold Economy).