

# An Overview of Studies of the Low Non-Farming Wage Problem in the Rural Labor Market in Japan

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The discussion of the low wage problem has a long history, and there are a huge number of studies even if we were to consider only those that pertain to non-farming wages. Therefore, it is hard to trace all the discussion that has taken place. The aim of this article is to give an overview of the studies on the low non-farming wage problem. In addition, this article also introduces, based on data from the newest study, a fresh and relevant discussion of the low wage problem as it stands today. An overview of the actual wage levels indicate that non-farming wages of males meet their family budgets in the urbanized region, but fall to half these levels in the farming-oriented region. The outline of our discussion indicates that the family factor was paid more attention to in order to explain the low wage levels in the later discussions; moreover, the latest study points out that the different family norms have bond with the wage difference.

*Key words:* rural labor market, low non-farming wages, part-time farming, Kiriuri wage, Douglas-Arisawa's law, family norm, Japanese agriculture.

## 1. Introduction

The problem of farmers' low income has been one of the biggest issues in the Japanese Agricultural Society. The discussion about the problem has developed with the history of the Society, and there are therefore a huge number of related studies about the low incomes of farmers, even if we limit the studies to the problem of low wages for non-farming jobs in the rural labor market. The low wage levels of non-farming jobs in the rural labor market is related to the estimation of wages in family farming so that the low non-farming wage in rural areas is not just a wage problem but also a farming problem. Farmers' low income was affected by high rent in the prewar era, and the rent problem has been one of the main issues for the Japanese Agricultural Society from the beginning of its history. Farming income in family farming can be divided into wages and rent, and hence a low wage estimation connects directly to high rent. The low wage level in the

rural labor market is the key element of farmers' low income problems so the discussion has been intense and a huge number of studies have been published. The low non-farming wage problem is sometimes discussed as part-time farming, for example by Hallberg, Findeis and Lass [4] and the OECD [14] since it shares awareness of the problems associated with holding multiple jobs, and it is also discussed as a regional division of economic development, for example by Massey [11]. The studies also discuss factors that disturb agricultural and economic development in rural areas as a related focus for development studies. Because of the common focuses of studies, it would be fruitful to combine the related discussions, both from our society and the related studies outside Japan. However, most of the discussions in Japan are very theoretical and published in Japanese, and the studies have a strong tendency to develop the discussion into narrow theoretical focuses instead of linking to related overseas discussions.

The discussion about the low wage levels in rural areas peaked around the late 1970s to 1980s. At that time, various research was

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conducted and many influential results were introduced. The publication of studies decreased in the 1990s, however, new and deeper research is still required because farmers' income and the wage levels in farming regions are still low, and therefore the low wage problem is still a core issue in Japanese agriculture. The aim of this article is to introduce an overview of studies about low wages in the rural labor market in Japan. However, it is hard to trace the discussion and to understand what we have clarified and what we have omitted because of the long history of the discussion and the various focuses of the related studies. Additionally, the studies use various and unique theoretical concepts, and it is very difficult to introduce their theoretical background in a short article; even a comprehensive list of references is difficult to use because most of them are published in Japanese so that it hardly works as an actual reference list in English. Furthermore, most studies assume that readers are familiar with the agricultural problems in Japan, like low wages, high rent etc., although low wages and high rent sometimes do not appear in statistical data like the census. Most former studies observed the agricultural problem by using interviews. Therefore, an overview of the studies about low wages in the rural labor market can not be understood without an overview of the actual situation. Hence, this article introduces an overview of the low wage problem with data from the newest study, and then gives an overview of the studies that directly relate to the latest discussion.

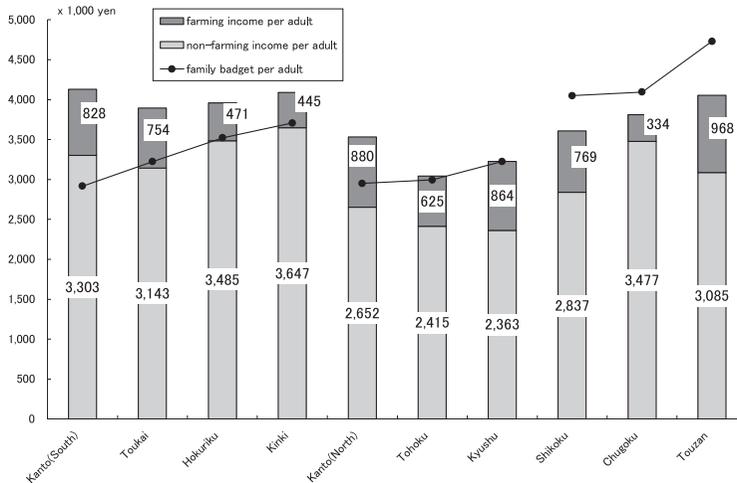
## 2. Overview of Low Wages in Rural Area

### 1) Kinki region

Part-time farming is one of the remarkable characteristics of Japanese agriculture. As the Committee for the Japanese Agriculture Session, XXI IAAE Conference [1] introduced, land reform changed land ownership from the landlord-peasant structure to self-own farmers. Although almost all peasants became self-own farmers, they still had the same farm size that they used to rent from the landlord, a size fit for a farming system based on manual labor. During the economic boom in the postwar era, a mechanized farming system was introduced and demand for

labor force in non-farming industries grew rapidly so that most farmers purchased farming machines and took non-farming jobs. As Kada [7] introduced, the majority of the Japanese farm households became part-time farmers and it became the main characteristic of Japanese agriculture. However, part-time farming was still part of the hierarchy of farm households; the upper hierarchy stayed in full-time farming and managed to grow their farm size by renting and purchasing land whereas the middle sized and small sized farm households became deeply dependent on non-farming income. The polarization of farm households took place inside villages and appeared as a regional division with a farming-oriented and urbanized split. Although the part-time farmers appear to be just workers, they still have a farmer's quality and they continue farming, so that it raises some questions for agricultural economics: the first question is the necessity of farming income for them, and the second question is whether the non-farming wages in a farming area are at the same level as in urbanized areas or not.

The relationship between farming income, non-farming income and the family budget for farming households is shown in Figure 1. The figure shows all regions in Japan (except Hokkaido) and the regions are categorized into three groups. One group consists of the four regions shown in the left of Figure 1. In this group, the farmers get enough non-farming income to meet their family budgets. These four regions, Kanto (south), Tokai, Hokuriku, Kinki, are the most industrialized regions on the main island. The second group contains Kanto (north), Tohoku, and Kyushu. This group does not have enough non-farming income to meet the family budget, so that they need farming income. These regions are less industrialized than the first group and are situated in more farming-oriented regions. The third group, shown on the right of Figure 1, consists of Shikoku, Chugoku, and Tozan. The figure suggests that they do not have enough income to meet their family budget. The reasons why income falls short of the family budget must be related to average age of farmers. The regions are known for the young generation moving out to urban areas and the older generation stay-



**Figure 1. Regional differences between income and family budget**

Source: Census (2000), Statistical Survey on Farm Management and Economy (Statistics on Trend of Management) (2000).

ing in the village, so old people tend to be counted as farmers in the statistics. These old people depend on income from pensions, which is not counted in the figures. Therefore income does not reach the family budget. Former studies of the low income problem in Japanese agriculture picked up Tohoku as a farming region and Kinki as an industrialized region. Figure 1 shows that the characteristics of both regions are retained, so that we mainly overview the wage situation in Tohoku and Kinki in this article.

Nonaka [13] indicates the newest research result of non-farming wages among farmers in both regions so we overview the data from Nonaka [13]. It compares two areas, one is Chuzu town in the Shiga prefecture as an example of the Kinki region, and the other is

Nishiki village in the Akita prefecture as an example of the Tohoku region.

Chuzu town is a farming area in the Shiga prefecture and is in close proximity to the central urbanized areas in the Kinki region such as the cities of Ostu and Kyoto. Table 1 lists the job structure of the interviewed males who were aged between 15 and 59 years and belonged to farming families. Among the 90 farming households that were surveyed, 79 males belonged to this age group, and only one was involved in full-time farming. It is natural that no full-time farming exists in the rented-out category or in category II that have no or small-sized farms. However, even category I has only one person involved full-time in farm work. In other words, almost the entire labor force is employed in non-

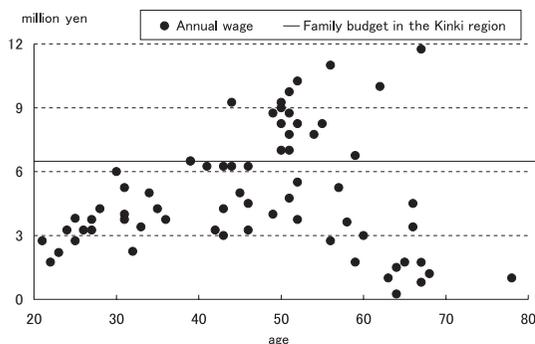
**Table 1. Job structure of males less than 60 years of age in Chuzu town**

Category	Males less than 60 years of age	Full time farming	Non-farming jobs			Unknown
			Temporary	Full-time	Own business	
I	34	1		31	2	
II	26		2	19	5	
Rented-out	13			10	2	1
Total	73	1	2	60	9	1

Note: I—larger than average farm size (1.2 ha), II—smaller than average farm size.  
Source: Survey data, 1998.

farming industries, and in most of the cases, it is a full-time job. As a job structure, most interviewees have full-time non-farming jobs as we saw in Table 1 and there is no difference in the tendency between these categories. Hence, the non-farming industries absorbed almost all of the labor force from farm households as full-time workers, irrespective of the size of their farms. This absence of a categorical difference in the job structure of males is a significant characteristic of Chuzu Town.

Figure 2 represents the annual wages of the males holding non-farming jobs. The horizontal line in the figure represents the annual family budget in the Kinki region. The non-farming jobholders' wages and the family budget indicate that wages in the figure generally meet the family budget itself or do with wives' additional income of around a million yen. There are a few wages that are around three million yen and below, but most wages are closer to the family budget. The



**Figure 2. Wages of non-farming jobholders (males) in Chuzu town**

Source: Survey data, 1998.

wages of these males in Chuzu town area common wage for workers and they do not include income from family farming. The wage level is clearly different from the Tohoku region.

## 2) Tohoku region

Nishiki village is located in the Akita Prefecture, in the north part of the Tohoku region. The village is farming oriented and there are no factories in the village apart from small factories related to family businesses. There is no industrialized city in close proximity to the village, and opportunities for non-farming jobs are lean. Hence, it is a typical agricultural area in the Tohoku region. Interviews were conducted in the same manner as in Chuzu town. Because of the opportunities for non-farming jobs, former studies picked the Tohoku region as a farming-oriented region.

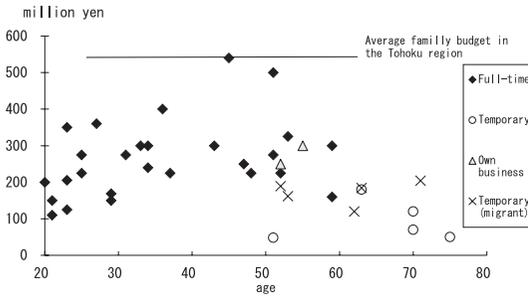
All jobs held by males are indicated in Table 2, which indicates some of the following features. There are only four full-time farmers out of the 43 males, which is an extremely small number. Indeed, most males hold full-time non-farming jobs, that is 29 out of 43, and the high rate of full-time non-farming jobs represents the nationwide tendency in Japan. Even in the Tohoku region, which is the primary agricultural region in Japan, taking up full-time non-farming jobs is a standard among the males.

Figure 3 represents the annual wages of all males holding a non-farming job as the total actual wages for the previous year. Each plot indicates the types of hiring trends such as full-time, temporary, that is those hired on a daily or hourly basis, own business and temporary (migrant), that is those hired on a

**Table 2. Job structure of males in Nishiki village**

Category	Male less than 60 years of age	Full time farming	Non-farming jobs			
			Temporary	Full-time	Own business	Unknown
I	18	2	3	11	1	1
II	23	2	1	18	2	
Rented-out	2				2	
Total	43	4	4	29	5	1

Source: Surveyed data, 2002.



**Figure 3. Annual wages of a non-farming job in Nishiki village**

Source: Surveyed data, 2002.

daily or hourly basis and who are required to move to an urban area in order to work during the winter, known as ‘Dekasegi’. The temporary (migrant) trend used to be extremely common in the Tohoku region, and most males used to move to the metropolitan areas in order to engage themselves in construction work or factory jobs.

It is evident that the most prominent feature in Figure 3 is the low wage level. Excluding two plots, one that meets the family budget and another that comes very close, almost none of the plots achieve the ideal level of income required to meet the family budget. Most of them are much lower than the ideal level, and fall between the range of 1 and 4 million yen. This would be understandable if the hiring trend was temporary or temporary (migrant) because temporary usually implies that the workers do not work throughout the year. Hence, the annual wages from such type of employment must be lower than for full-time workers. Despite this, most of the males hold full-time non-farming jobs as indicated in Table 2. Therefore, the wage level is common with respect to hiring trends. If we ignore the males in their early twenties, most males of an age to count as the breadwinner earn non-farming wages of between 2 and 4 million yen. Hence, they require another 1.5 to 3.5 million yen of income in order to meet their family budget. It means their wages are close to half of the family budget even though they are of an age to be the breadwinner. The average number of adult members of the family under 60 years of age is 2.05 in the Akita prefecture (Census, 2000). Therefore the males have to

split the bill of the family budget with their wives. In the research, most of the females do not hold any non-farming jobs; consequently, they require additional income from their family farming. The wages in Figure 3 and the necessity of farming income conform to the income structure in Figure 1. The sum of non-farming income and farming income meets the family budget in the Tohoku region. The relationship between the wages from the non-farming jobs and the family budget is significantly different from that in the case of Chuzu town, as seen in Figure 2.

### 3) Generation gap in the job structure in Nishiki village

Figure 3 also indicates the generation gap between those above 50 years of age and the younger generation, showing only the older generation holds temporary and temporary (migrant) jobs and the younger generation holds only full-time jobs. Table 3 contains data similar to that in Figure 3 listing the hiring trends and numbers. In the table, full-time farming is carried out in the age group of 50 to 59 years, and this generation holds most of the temporary non-farming jobs. Temporary non-farming jobs are usually combined with farming; therefore, this generation can be considered as belonging to the farming-oriented job structure. On the other hand, temporary non-farming jobs are extremely rare in the age group of 35 to 49 years. This age group, in particular, holds full-time non-farming jobs. Nonaka [12] indicated that there was a similar generation gap in Chuzu town but the generation that had temporary jobs and supplemented their wages with farming have already retired so that all males under 60 years of age have full-time jobs. It

**Table 3. Generation gap in the male job structure in Nishiki village**

	Age	
	50-59	35-49
Full-time farming	3	0
Non-farming jobs	Temporary	3
	Full-time	6
	Own business	4
No job	0	0

Source: Surveyed data, 2002.

indicated that the change in the farmers' job structure took place as a nationwide phenomenon with time differences between Kinki and Tohoku. Furthermore, the difference in non-farming full-time wage levels has also been shaped between Kinki and Tohoku.

### 3. Overview of Studies

#### 1) Low wage estimation in farming

The discussion of low wage levels in rural areas is related to both estimated wages in family farming and non-farming jobs in rural areas at same time. The estimated wage is related to rent because rent is a surplus and has a trade-off relationship with wage estimation. High rent was the biggest issue for Japanese agriculture in the prewar era and in the early postwar era, so that farmers' low wage problems used to be a part of the rent problem. The latest trend is for rent to get lower, hence the low wage problem is now rather an issue about wage hierarchy and the bond between low wages and agriculture rather than a rent problem.

Wage estimation in family farming is not clear since family farming does not have an actual wage payment for each family member; their incomes are usually combined as an income for the household. On the other hand, there are two wages that we are able to observe as actual wages in a farming area under the circumstances. One is the non-farming part-time wage, and another is wages for helping other farmers in the neighborhood. Part-time farming became common for most regions after the postwar economic boom so that non-farming wages became commonly observed everywhere. The farming wages for helping other farmers can also be observed everywhere because those wages take shape when farmers ask for help; it used to be common that farmers, who did not own expensive machines or animals for cultivation, asked someone who had them for assistance. Hence the three wages, estimated wage in farming, non-farming wages and wages from helping other farms became a core issue for farmers' low wage studies; analyzing each relationship and the relative levels was the core of these studies. However, the part-time farming problem gathered national attention and labor supply from agriculture to growing industries became a national interest. Thus,

non-farming wages got more attention as a primary issue.

When farmers have freedom of choice as to whether they would put additional capital into farming for additional income or take a non-farming job instead, the estimated wage from farming and the non-farming wage would be in equilibrium. The economic boom provided this freedom of choice by giving farmers the opportunity to work in non-farming industries. However, before the growth of job opportunities in non-farming industries, low wage estimation and low income in farming was a severe problem, and was seen as an issue connected with over-occupation. Ohkawa [15] indicated that the farmers' low income problem was a problem of over-occupation after land reform. He indicated that the marginal return of labor in agriculture was much lower than other industries; a big definitive factor was that job opportunities for farmers were very few at that time. Takahashi [18] corrected Ohkawa's analysis by including the fact that farmers had more job opportunities for non-farming jobs, and he represented non-farming wages as

$$\begin{aligned} & \text{Marginal return of farming} \\ & = \text{non-farming wages}^1 \end{aligned}$$

The analysis indicated the serious low-income problem of farmers, even in the economic boom, and it was related to a discussion of Kiriuri (selling off in pieces) wages. However it was still hypothetical. On the other hand, the economic boom brought growth in the demand for agricultural products and the demand for labor force in rural areas giving new farmers the chance to develop their farming business. Kajii [8] indicated that such new farmers were undergoing structural change. Kajii [8] indicated the upper hierarchy of farmers got enough income to pay rent<sup>2)</sup> at the same level as the lowest hierarchy's farming income. It meant the upper hierarchy of farmers could expand their farm size by renting farmland, and it also meant that the expansion of farm size would bring higher productivity by using scale economy. The structure allowed the upper hierarchy to get more income by paying rent, and therefore they could make a profit, a milestone for their farming to be a proper capitalis-

tic agriculture. He indicated the situation of farmers' polarization at that time, the healthy growth of production power in agriculture and the formulation of wage categories among the upper hierarchy of farmers. Kajii's analysis indicated a proper wage in farming against the former studies that recognized wage estimation in farming as low, and it is also a critique for the hypothesis that denies the normal growth of Japanese agriculture under the state monopoly capitalism<sup>3)</sup>; the studies, that emphasized the state monopoly capitalism as a disturbance of Japanese agricultural growth were accepted widely at that time. Former studies tended to analyze the agricultural problem like the national economy, but, on the contrary, Kajii's study was based on detailed research data on farming including productivity, family budget, wage estimation and wages in rural areas to clarify the growth principles of Japanese agriculture; hence, the discussion about low wages had moved from an analysis of agriculture problems in the national economy to actual wage levels in farming areas with intensive research.

The general recognition of return of capital input in farming not being high enough to generate profit is shared by most studies. Farming generates wages and rent, sometime at an incomplete level, so that they are in a keen trade-off relationship. Kajii [8] also shared that recognition and he intended to analyze whether the upper hierarchy of farmers had sufficient productivity to generate enough wages and rent. Kajii [8] integrated analysis on productivity for each hierarchy of farmer and the condition of farmers' polarization under the economic boom, and hence he ignited the argument widely as to whether wage estimation in family farming is fair enough or not. We can say that there is a direct connection with the discussion of low wages today and that it starts here.

## 2) Kiriuri wage

Isobe [6] indicated that Kajii's analysis was generated by the low wage estimation. Isobe [6] indicated low wage estimation behind rent levels at that time. The wage level defined the farming trend and supply of the labor force from the farming to the non-farming labor market. He analyzed that the combination of low wages and high rent ex-

isted behind farm households that were managing to balance the farming income and family budget. In fact, actual rent was very high at that moment especially in the Tohoku region. The astonishing point of Isobe [6] is that it explained the high rent and low non-farming wage in rural areas at the same time, and also the behavior of part-time farming. The common farmers' non-farming jobs were temporary at that moment; we are still able to see the temporary jobs among the older generation in Tohoku in Figure 3. The Kiriuri (sell off in pieces) wage is the given name.

The standard farming style is a self-owned family farm so that wages and rent are basically just estimations as long as they farm their own land. On the other hand, farmers had a farming-oriented job structure but their own farm sizes tended to be too small to balance farming income and the family budget. Since the family budget also had a tendency to increase, farmers, especially from the upper hierarchy, tried to borrow farm land and expand their farm size; in this case, rent became an actual amount, and it was high compared to estimated wages. Hence, most farmers were under pressure from the rising family budget so that many of them were looking for additional income to make ends meet. Part-time farming became the primary feature of Japanese agriculture in this situation because most farmers tried to keep their farm size and therefore borrowing land was not easy, especially in farming-oriented regions. They got temporary non-farming jobs to earn enough to make up the shortage in the family budget and maintain an average living standard. A temporary job to make up the monetary shortage was described literally as Kiriuri. Since non-farming wages have characteristics as additional income, there would be equilibrium when it reached the amount of the shortage. High rent was also formed under the same circumstances because the estimated wages and the non-farming wages would balance as long as non-farming industries kept the farmers' wage level low; it withdrew a rich labor resource from the farming area. However, Isobe [6] indicated that there was a strong bond between the Kiriuri wages and rent. He indicated that the wages from non-farming jobs in rural areas,

commonly held by farmers, were at the same level as the farming wage that was estimated with the actual rent in the area; in other words, it indicated a bond between non-farming low wages, low wage estimation in farming and high rent. The wages did not balance farmers' family budget; hence, Isobe [6] indicated that the farmers' non-farming wages assumed the existence of farming income.

Rent plays a key role in Isobe's analysis and has a unique structure. Therefore rent and Kiriuri wages represent the particular characteristics of Japanese agriculture. However, Isobe [6] indicated that the Kiriuri wage was the low wage level in rural areas but he did not indicate the hierarchies of wages or regional differences.

### 3) Kiriuri as a keystone of hierarchies of wages

Isobe [6] left the analysis about how actual non-farming wages in rural areas would be determined, and how the farmers' low wage estimation would relate to other wages that were observed in rural areas as part of the hierarchies of wages. As long as growing industries are able to get enough labor force from rural areas, the low wage estimation of farmers' works as a weight to keep national wage levels low. However, farmers are becoming minor as a source of labor force in the national economy; hence, the structure between farming and non-farming wages has to be analyzed to keep up with the changes in the situation.

Tashiro [19] [20] analyzed the hierarchies of wages in the rural labor market and indicated the structure of wages and farming. Tashiro [20] indicated the Kiriuri wage in relation to farming income and the family budget as below.<sup>4)</sup>

$$I = \frac{B - C - \frac{1}{2}S}{H}$$

I : necessary minimum non-farming wage per hour

B : family budget

C : farming income

S : surplus of income

Data from Statistical Survey on Farm Management and Economy (Statistics on Trend of Management). Tashiro defined half of the surplus of income as insurance or savings for future emergency that is necessary for the re-

production of labor force.

H : working hours of non-farming job

A core of Tashiro's analysis is the necessary minimum non-farming wage per hour (I), which is in fact the shortage in the family budget that farming income can not fill. Because of the small farm size, most farmers are not able to get enough income by farming, thus they have to get additional income to meet the family budget. The necessary minimum non-farming wage per hour is the lowest price of farmers' labor supply; it is the renewed definition of the Kiriuri wage. In this case, the Kiriuri wage is the lowest male wage in the wage hierarchies and it is connected with other wages as Figure 4 indicates.

Tashiro indicated Figure 4 and defined the Kiriuri wage and other hierarchies of wages. E in Figure 4, the low, fixed wage is the wage for male temporary jobs described as the Kiriuri wage. The temporary wages of females, F in Figure 4, is a female case of the Kiriuri wage. He also indicated the link between the wage E and other wages in the hierarchy, saying that all wages for workers of a young age start at the same point as E, which is the lowest price for labor supply from farmers. The wage level of E assumes that the workers live with parents or other family members who have higher incomes, because E is de-

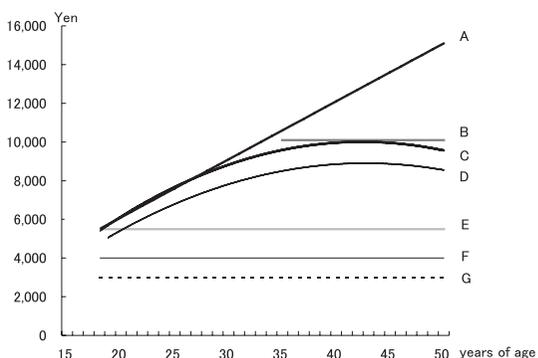


Figure 4. Tashiro's wage model of the rural labor market (1980, wages per day)

A: Government officers, B: Dekasegi (migrant labor in urban areas), C: Companies from metropolitan areas, D: Full-time non-farming jobs in farming area, E: Temporary jobs for males=high school graduates, F: Temporary jobs for females, G: Minimum wage.

Source: Tashiro [20] p. 207, Fig. 2.

defined as Tashiro's equation and it does not meet the family budget.  $E$  is the level that guarantees reproduction of the workers' labor force itself; it does not allow the workers to grow in the next generation. Farmers are able to reproduce their labor force in the next generation with  $E$  because they assume farming incomes. High school graduates supply labor force from a single household. It is unskilled, and at the lowest wage. Therefore, their wages equate with  $E$ . Most industries are able to seek the lowest wages and actually built factories in rural areas to get cheaper and richer labor supply from high school graduates during the economic boom. According to the labor demand activities of non-farming industries, the wages of high school graduates have a strong trend to equate with  $E$ . We saw the standardization of full-time non-farming jobs in Figures 2 and 3, and all interviewees answered that they had full-time non-farming jobs when they graduated from high school<sup>5)</sup>; it is commonly recognized that high school graduates are the main labor resource for full-time non-farming jobs in Japan. If wages for high school graduates are connected with farmers' Kiriuri wage, the Kiriuri wage would influence all wages by lowering the wages of high school graduates. Figure 4 indicated that  $E$  has connections with other hierarchies of wages. In other words, Tashiro indicated that the Kiriuri wage was the keystone of all hierarchies of wages in the rural labor market.

Wages are the reproduction cost of the labor force. In this definition, reproduction includes the next generation. The shape of the most hierarchies of wages in Figure 4 that increase with age is unique to the Japanese wage system; it is based on the estimated living cost for each stage of life so that new recruits have the lowest wage because they are assumed to be single. As we saw with Tashiro's equation, the Kiriuri wage is not a proper wage and as long as it matches with the high school graduates wage, it needs to be supplemented by farming income for reproduction of the labor force in the next generation. In the structure, farming income behind the Kiriuri wage works as a unique system to lower wage levels in the rural labor market generally. Tashiro emphasized it as a particularity of the rural labor market.

On the other hand, there is another way to explain the low level of  $E$  in Figure 4, simply as a single household wage that is for the workers' reproduction itself, excluding wife and children. Tashiro's equation indicates that wages of farmers' temporary non-farming jobs have a strong bond with farming, yet the wage has similar characteristics to a single household wage. Tashiro focused on the bond between the Kiriuri wage and farming income. However he admitted the characteristics of the single household wage partly. Kobayashi [10] already indicated the analysis that showed the characteristics of the single household wage, and Eguchi [2] renewed the analysis of this side just before Tashiro [19]. The single household wage does not have a bond with farming so that Eguchi [2] does not recognize it as the particularity of farming areas that Tashiro [20] emphasizes; it is the core of the argument between them.

Eguchi [2] and Tashiro [20] were aware of the tendency for the younger generation to have full-time non-farming jobs. They also found the low wage among full-time non-farming jobs, like full-time wages in Figure 3 and D in Figure 4. If we think that the 'normal' wage for the breadwinner should guarantee reproduction of all members in the household, the non-farming wages in Figure 3 are too low to call 'normal.' Eguchi [2] defined the low level of full-time non-farming wages as similar to single household wages. Tashiro [20] proposed the hypothesis that the low wage levels among full-time jobs were under the influence of the Kiriuri wage. Both are extended discussions of the Kiriuri wage, thus the low wage problem of full-time jobs in rural area are located peripherally to the Kiriuri wage problem.

#### 4) Break-down of Kiriuri

As we saw above, the Kiriuri wage is a keystone in Tashiro's analysis of the hierarchies of wages in Figure 4. However the farmers' job structure has a generational gap like that in Figure 3. It was already observed by Tashiro [20] but the gap was in the very young ages at that time, and therefore he left the detailed analysis. Kato [9] pointed out that the equilibrium between Tashiro's equation and temporary wages in rural areas had not been observed since the 1980s.<sup>6)</sup> He also indicated a new tendency of full-time

non-farming wages tending to match with Tashiro's equation instead of temporary wages. On the other hand, he confirmed the same hierarchies of wages as Figure 4 in his research; it suggests the structure of the Kiriuri wage still exists but it is changing.

Yamazaki [24] indicated that temporary non-farming jobs are not common for all regions in Japan. He conducted research in Kameyama city in the Mie prefecture and clarified the absence of the level that had temporary non-farming jobs; we confirmed the situation with Figure 2. As we saw above, the Kiriuri wage is a keystone of Tashiro's analysis, and therefore the absence of the Kiriuri wage represents a different structure that former studies did not capture. Yamazaki [24] also researched this issue in one village in the Ibaraki prefecture and indicated there were some changes but they still had a structure of Kiriuri wage that farmers combined farming with temporary non-farming jobs to meet the family budget. We confirmed this tendency with Figures 2 and 3. Yamazaki's analysis indicated new facts: the first one is that the discussion of the Kiriuri wage is limited to farming-oriented regions such as the Tohoku region; the second one is that the regions that do not have the Kiriuri wage should have a different wage estimation and therefore the style of farm management and the tendency of farmers' polarization should be different; and the third one is that we have to be aware of regional differences when we analyze the agricultural structure. Although former studies shared an awareness of the difference between regions, a clear index to categorize regions was not indicated; Yamazaki indicated the existence of the Kiriuri wage as the index.

Yamazaki [25] indicated regional differences as in Figures 2 and 3. However he did not emphasize the generational gap in the job structure like that in Figure 3. Yamazaki was aware of the generational gap in farmers' job structure, but his researches were conducted more than ten years earlier than Figure 3. Therefore the comparison between the younger generation and older generation was difficult. Nonaka [12] indicated that the lack of the Kiriuri wage in Figure 2 had been formed by the generational gap, thus Kiriuri

used to exist and disappeared with the retirement of the generation who had a farming-oriented job structure. Yamazaki instead recognized that the Kinki region originally did not have a Kiriuri wage; he indicated that there had been different principles on wages in the Kinki region from farming regions. Thus, he emphasized the regional differences that suggest the wage hierarchies like Figure 4 were formed as regional divisions. However, he treated the Kinki and Tohoku region as totally different structures so that he did not focus on the integrated principle of the wage hierarchies including regional division.

##### **5) Low wages derived from the family norm**

As long as farming is the main income resource for most farm households, the wage problem is more an issue about wage estimation than non-farming wages. However, most farmers depended on non-farming wages after the economic boom. This suggested studies should extend in two directions: one is to renew the analysis of the bond between low wages and farming, and the other is to analyze low wages themselves as a low-income problem in rural areas. As Figure 4 indicated, wages for females are the lowest in rural labor markets and thus the low wage problem is a pressing one. Additionally, females tend to be engaged in farming in their farm households while husbands have full-time non-farming jobs; therefore, female wages are a key factor when analyzing farming by females.

Yoshida [26] analyzed the relationship between the low wage levels of females and the family institutions of farmers. He indicated that farmers have an old-fashioned family institution; females do not have an individual identity and belong to a family so that females are treated as an associated labor force even though they work as hard as their husbands. In the old fashioned family, all property and all decision-making belong to the breadwinner. In another words, only the breadwinner has an individual identity and other family members, wife and children, belong to him. Thus wife and children are counted as an associated labor force. This family institution has strong bonds with traditional family farming, and hence the old fashioned family institution is common in

farming areas. Since females can not be counted as a proper labor force, they get a low wage estimation. Former studies shared awareness of the farmers' family institution as a part of the particularity of the farming area, but the family factor tended to be treated as a just assumption. Yoshida [26] pointed out that the family factor still plays an important role in low wages in rural areas and tried to bring the issue into the discussion.

As we saw above, according to Tashiro, the Kiriuri wage is the key and it is defined by the unique agricultural structure; however, the Kiriuri wage is reducing its position in the national labor market. Yoshida pointed out that females still have a low wage structure, and they could reduce the general wage level because they are a rich resource for the labor force. The family institution that Yoshida focused on is a unique factor in farming areas and therefore the family institution would be the particularity of farming areas instead of the Kiriuri wage structure. Yoshida's analysis is limited to females and therefore he left out any analysis about the hierarchies of male wages.

Ishida [5] also focused on the family factor to analyze the low wage problem of females. He based his analysis on Douglas-Arisawa's law and indicated the low wage structure of females. Non-farming jobs of females are given characteristics as additional income seeking activity and therefore the wages tend to be low. Ishida [5] did not intend to renew the discussion that we saw above, but he introduced Douglas-Arisawa's law to analyze low wages in farming areas; Ishida's approach for analyzing female low wages is different from Yoshida [26], but both introduced the family factor to the discussion of low wage levels in the rural labor market. However, Douglas-Arisawa's law captured the tendency that the rate of wives having a job has a negative correlation with husbands' wages. Thus it means Douglas-Arisawa's law assumes husbands who earn enough wages for their family budget and wives who have no jobs as position of origin. The family style is different from the traditional family that Yoshida [26] focused on. Therefore, Ishida [5] indicated another family style as a factor for low wages.

## 6) Latest studies

Nonaka [13] intended to renew the analysis of low wages in the rural labor market like Figure 4 by integrating former studies not only on Kiriuri wages but also on the family factor. In former studies, family played an important role in the analysis; Yoshida [26] focused on the traditional family institution but other former studies also assumed the traditional family because the family style used to be common among farmers. When we call some wages low level, it is usually the evaluation by comparison between the family budget and the wages. The family budget assumes a certain family style. It means that the analysis of wage levels always relates to the family factor. However, most studies treat family as a given condition. For example, Douglas-Arisawa's law assumes the breadwinner-housewife family as standard. Former studies that recognized a farmers' family institution as a part of the particularity of farming areas also assumed the breadwinner-housewife family as a standard. They attributed a farmers' family style to be a unique factor in rural areas because it is different from the breadwinner-housewife family. On the other hand, the studies of feminism indicated that the breadwinner-housewife family is not a genuine family style in a capitalist economy; Sokoloff [17] indicated the family is created along with the development of productivity in British industries during the latter half of the nineteenth century. Ueno [23] indicated that the family, given name is modern family, was formed during the economic boom in Japan. The studies of feminism do not focus on farmers' family but they suggest that there is a division of family style between urban and rural areas. Nonaka [13] indicated the wage difference between the Kinki and Tohoku regions relates to the family norm.

Tashiro [20] indicated that the low wage level of full-time non-farming wages is influenced by the Kiriuri wage. However, as we saw in Figure 3, the Kiriuri wage is limited to the older generation in the Tohoku region so that it is difficult to explain the low level of non-farming wages in Figure 3 by the influence of the Kiriuri wage. Eguchi [2] defined low wages as a single household wage; it means the wage needed to reproduce the labor

force of the worker himself excluding wife and children. Figure 3 shows that most wages for workers of less than 50 years of age is about half of the family budget; hence if wives have comparable income, every household is able to meet the family budget. Their wages are not as low as the wages of the youngest workers, like the 20 year olds in Figure 3, that do not meet the family budget. Therefore, most non-farming wages in Figure 3 do not have the characteristics of single household wages. Nonaka [13] indicated that the wages in Figure 3 have a bond with the farmers' family norm that all members work and split the family budget. In Nonaka's analysis, the family norm is just the general way of earning and spending in the household so that it is different from the family institution that Yoshida [26] discussed. However, the family institution is a nationwide family institution and therefore it is difficult to say that there is a difference in family institutions between Figures 2 and 3. The family norm is instead an actual style of earning and spending so that it is possible to think of the difference between Figures 2 and 3 as background.

In the statistics, the average number of adults less than 60 in a household is 2.05 in the Akita prefecture and almost same in the Tohoku region. Therefore, if husband and wife share the family budget almost equally, the non-farming wages in Figure 3 reach an equilibrium with the family budget. On the other hand, the wages in Figure 2 almost match the family budget. It indicates that the wages have a bond with the family norm of the modern family. Nonaka [13] indicated that former studies that discuss wage hierarchies can be explained as the relationship with different family norms.

The Kiriuri wage stays at a low level because it reaches equilibrium when it meets the shortage in the family budget; it is obvious that the Kiriuri wage has a bond with the farmers' family norm. The studies related to Douglas-Arisawa's law assume the modern family. The low wage level of females was explained by Douglas-Arisawa's law and also by looking at the farmers' family norm like Yoshida [26]. Therefore female low wages have a bond with two family norms, the modern family and the farmers' family. For-

mer studies have left out any analysis of full-time non-farming wages but Nonaka [13] indicated it was linked with the farmers' family norm and pointed out that the wage hierarchies in Figure 4 are able to be explained by the bond with family norms; it suggests that estimated wages in farming would not be single. However, Nonaka [13] left out the analysis of wage estimation in farming.

#### 4. Conclusion

As we saw above, the discussion of low wages in rural areas started with the low wage estimation in farming and the high rent. Thus, the discussion was more rent theory than wage theory at that time. Then the discussion was developed as a wage theory as can be seen in the studies of Tashiro [19] [20] and Eguchi [2]. Analyzing wages requires a comparison of wages and the family budget. Hence the family factor was given attention in the later discussion. In Nonaka's latest analysis, the bond between wages and family norms played a key role. Since full-time non-farming jobs are standard for males in most farm households, and their wages become a major part of farmers' income, the low wage levels of full-time non-farming jobs are primarily a problem in rural areas. It is the background of Nonaka's [13] analysis of non-farming wages. Therefore, Nonaka [13] left out the analysis of wage estimation in farming, although it is still an important issue for many aspects of agricultural economics. However, analysis of full-time non-farming wages is not the last issue in rural studies. New and serious problems other than the issues we saw above are arising. For example, Tomoda [21] indicated the new tendency of temporary non-farming jobs for young males in rural areas. Temporary jobs for young people became common during the national economics policy shift that was mostly conducted by Prime Minister Koizumi (2001-2006); it would be thought of as a part of the worldwide neo-liberalism policy shift. As we saw in Figure 3 and Table 3, full-time jobs are standard for members of the younger generation and temporary jobs are limited to the older generation who have a farming-oriented job structure. The temporary jobs for young people that Tomoda [21] discussed are different from the older generation's ones, because

the young people do not have a farming-oriented job structure. He indicated the possibility that a new form of poverty in rural areas is growing. Tomoda [22] also pointed out that the number of foreign workers is growing in farming-oriented regions; the tendency suggests the relation between low wages and foreign workers is being formed. The low income problem in rural areas has many phases and deeply connects to the national economic structure. The economic situation for farmers keeps changing, and thus we still have to conduct various research and develop an integrated discussion about it.

- 1) Takahasi [18] p. 190.
- 2) Kajii [8] p. 286.
- 3) Ouchi [16] represents the hypothesis that indicates the definitive influence of the state monopoly capitalism that narrows the path to the capitalistic growth of farming. Hoshi [3] represents another study that indicated Japanese agriculture faced crisis and did not have the structure to generate enough income for farmers.
- 4) Tashiro [20] p. 205.
- 5) See Nonaka [12] [14].
- 6) Kato [9] p. 146, Table 1.

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