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## OFF-FARM EMPLOYMENT AND FARM ADJUSTMENTS: IMPLICATIONS OF PART-TIME FARMING FOR RURAL DEVELOPMENT

Ryohei Kada

Statistical evidence shows that farm families in most of the developed countries are increasingly dependent on income from off-farm sources. In the United States, for example, over 50 percent of all farm operators worked off the farm in 1969, which is almost twice the percentage of forty years ago. The percentage of income from off-farm sources, as a result, increased from 29 percent in 1935 to 54 percent in 1976 (U.S. Department of Agriculture).

The taking up of off-farm employment by one or more members of a farm family is probably one way to counteract the cost-price squeeze and to adjust to the rapidly changing economy and technology of a modern society. Little attention has been paid, however, to the nature and mechanism of adjustments through off-farm employment, especially at the micro level. Furthermore, very few economists have attempted to make intercountry comparisons of part-time farming from this viewpoint, due mainly to the lack of comparable data in most developed countries (Gasson).

Taking the farm family as the unit of account, the main objective of this paper is to present and discuss the direction of on-farm and off-farm adjustments, labour allocation decisions, and the life cycle pattern of employment and income of the part-time farm family.

### Research Method and Data Characteristics

Case studies from the United States and Japan, each essentially different in the nature of labour and land market situations and institutional settings, are compared. It is hoped that the intercountry comparison will make it possible to analyse how a different structure of opportunities in these two countries affects and determines the adjustments made by farm families with respect to factor use (land, labour, and capital), types of farm technology, and other farm and family organizations.

Primary data, collected by me in 1976-77 in Wisconsin, USA, and Shiga Prefecture, Japan, serve as the main source of the analysis of part-time farming. A total sample of 193 part-time farm families from Wisconsin and 239 from Shiga were interviewed and analysed. A part-time farm family is defined here as one in which one or more members is engaged in off-farm work, including self-employed enterprises, for 30 days or more per year, and thus earns off-farm income.

The average size of farm operation is 59 hectares in the Wisconsin sample, compared with only 0.9 hectare in Shiga. Various types of farm operation exist in Wisconsin: 42 percent of the sample are in dairying, 38 percent in beef and hog enterprises, and 11 percent in cash cropping. In Shiga, in contrast, over 95 percent of the sample specialized in rice cropping, with only a few engaged in other speciality crops.

Although income components are quite different, off-farm income makes up a significant part of the total family income in both countries. The average income derived from off-farm employment in Wisconsin amounts to U.S.\$13,018, about 71 percent of the total family income. The dependence on income from off-farm sources is much heavier in Shiga, where nearly 80 percent of the total family income comes from off-farm sources.

Wisconsin data also show that part-time farm families are not homogeneous. Two major types are classified by the criterion of the existence of urban-rural relocation of residence: the first is the group of farm families who are on a long-standing farm but who for some reason shifted the farm operation from a full-time to a part-time basis (type A); the other group comprises those

previously established in urban areas, but who thereafter acquired farmland, relocated residence to a rural area within commuting distance to off-farm employment, and started the farm enterprise as a supplementary source of income (type B). Nearly 30 percent of the total Wisconsin sample of part-time farm families belong to type B, which reflects the high mobility of labour and land market situations in the USA. Part-time farm families in Shiga are not so diversified as in Wisconsin, the majority are heavily dependent on off-farm income for their livelihood and also specialize only in rice farming. In fact, no farm families in the Shiga sample have ever relocated their residence from urban to rural areas.

## Major Findings

### On-Farm and Off-Farm Adjustments

Various on-farm and off-farm adjustments are made by dual job holders in order to relieve the burden of dual job holding. In Wisconsin, among the major adjustments made on the farm are: to get other family members' help; to ask outside help; to change the size or type of farm operation; and to work harder or longer on the farm. The nature of these on-farm adjustments is significantly related to the type of farm operation, the pattern of labour allocation, and the size of farm. For example, dual job holding operators of relatively larger size farms mentioned other family members' help to be the most important on-farm adjustment; those of smaller size farms have more frequently changed their type of farm operation into less labour intensive ones and relied more heavily on outside help such as custom work.

The nature of on-farm adjustments made by Shiga farmers is similar to those in Wisconsin except for the following two points. First, a great majority of dual job holding farmers mentioned using labour saving machines as a most important adjustment, which reflects the recent rapid development and diffusion of rice farming mechanization. Second, there are almost no farm families that have changed the type of farm operation; almost all part-time farms have basically remained in rice cropping with unchanged farm size, though intensity of land use has been reduced by eliminating the winter crops on paddy fields.

A remarkable impact of off-farm employment on agricultural production is the change in the nature of farm operation in the two countries: in Wisconsin, the type of farm enterprise has often been shifted to a less labour intensive one, such as from dairy to beef or cash grains, and such changes occurred more frequently in areas relatively proximate to large cities; in Shiga, the heavy dependence on off-farm employment has brought about the elimination of winter crops, resulting in the monocropping pattern of rice everywhere.

Though the extent and possibility of off-farm adjustment are somewhat limited due mainly to the institutionalized nature of the nonagricultural employment pattern, more than half of the dual job holding farm operators in both countries made off-farm adjustments in one way or another. Among the major off-farm adjustments made by Wisconsin farmers are: to use paid vacation weeks to work on the farm; to select flexible off-farm employment including self-employed businesses; and to make nonregular work shift arrangements. In Japan, the widespread self-employed businesses, including putting out arrangements, are commonly found in rural areas where modern urban employment opportunities are limited. Hence, the selection of flexible off-farm employment was suggested as the most important off-farm adjustment made by Shiga farmers.

### Labour Allocation Patterns

The decision as to how the farm family allocates its available labour between farm and off-farm is taken into consideration, because it determines not only

the level of incomes obtained but also the nature of the adjustments and resource use pattern. As shown in figure 1, the direction of labour allocation is quite different among various members of the family. The farm operator (or family head) and spouse tend to take major responsibilities on both farm and off-farm almost equally. Members of the older generation tend to contribute more on the farm in both countries. The younger generation members devote more time to on-farm employment in Wisconsin, whereas they allocate more time to off-farm employment in Shiga.

Interdependency of labour allocation decisions among various members of the part-time farm family is another important finding of the present study. The nature of interdependency is, however, essentially different in the two countries. In Wisconsin, farm labour input is composed of as many family members in the working population as possible, with some school children helping on the farm. And the nature of family interdependency is complementary; the greater the farm labour inputs of the operator and the spouse, the heavier the farm contribution made by those of the younger generation. With respect to the off-farm labour inputs in Wisconsin, however, the extent of such interdependency seems relatively weaker than the case of farm labour input (figure 1).

In Shiga, on the other hand, such interdependency appears to exist in off-farm rather than on-farm labour inputs. Due to the limited farm size and its expansion potential, farm tasks are carried out sufficiently well by the elderly and the female members, with seasonal help from young male members in machinery operation. In contrast, off-farm labour input is composed of as many members of working age as possible in the family.

It is also found that the labour allocation pattern is influenced by various farm and family factors. Among those factors of importance, farm size and the type of farm operation are far more significant in Wisconsin than in Shiga. The varied types of farm operation and the greater opportunities to expand farm size in Wisconsin account for this difference. Among family related factors, the family structure and the stages of the family life cycle are shown to have significant influence on the pattern of the family's labour allocation in both countries. In Wisconsin, such influence appears more clearly with respect to the on-farm labour input, whereas in Shiga the influence is much stronger in the off-farm labour input.

### The Impact of the Family Life Cycle

The aging structure of the farm family over life cycle stages has a substantial impact on the nature of labour allocation, the amount of income received and

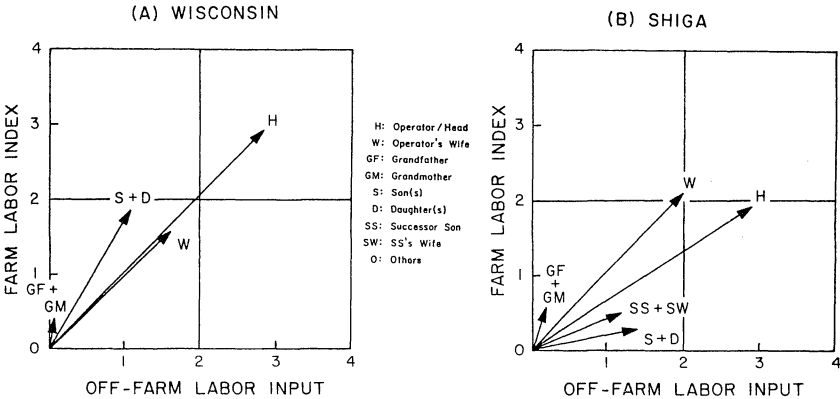


FIGURE 1

the type of farm operation. Two idea types of family structure are compared: one is the nuclear family system as a typical situation of the Wisconsin farm family, the other being the extended family system representing the Shiga farm family.

The pattern of family labour allocation and the composition of income received from the two sources show a marked difference between the two systems. As is depicted in figure 2, in Wisconsin the aggregated farm labour input increases at early stages but decreases at later stages, reflecting the aging structure of the farm family. The movement of the aggregated off-farm labour input somewhat complements that of on-farm labour input. As a result, the realized total family income is almost equalized at different life cycle stages. From this it is inferred that off-farm employment makes a significant contribution in smoothing out the family income stream at a high, stabilized level over time.

In Shiga, however, no such complementary relationship can be observed; both farm and off-farm labour input patterns take a U-shaped curve over the development stages of the farm family. Under the extended family system, there is no end or contraction of the family or the family farm operation (figure 3). This sharp contrast regarding employment and income characteristics is due mainly to the different family systems, but it is also attributable to the different inheritance and property tax systems of the two countries.

Another significant finding in the life cycle approach is that farming changes are also related to the life cycle stages in Wisconsin. The Wisconsin data show that the change of the type of farm operation into a less labor intensive one mostly took place either at the time of the generational transfer of the family farm or when the physical capacity of family labour was sharply declining. Here again, such farming changes according to life cycle elements were minimal, if they occurred at all, among Shiga farm families.

### Conclusions and Implications

The most significant role played by off-farm employment is in additional income to the farm family, which, combined with net farm income, brings about a more stabilized and improved level of family well-being. If farm adjustments can be appropriately made, then disadvantages attached to dual employment, such as reduced time for leisure, limited access to services, and lower returns to investment in the farm operation are more likely to be offset by the utility derived from off-farm employment and off-farm income.

Policy implications of part-time farming are twofold. On the one hand, the dual employment pattern is likely to bring about more efficient use of family labour resources. That is, when stable off-farm employment opportunities are provided within commuting distance, excess family labour may be absorbed, resulting in higher productivity per unit of labour as a whole. On the other hand, nonlabour farm resources are more likely to be used less efficiently by the part-time farm family, farmland may be used at a lower level of capacity, and farm machinery and equipment may be used fewer hours per year, implying lower output per unit of capital investment. Therefore, policy planners need to take into consideration these twofold productivity characteristics of part-time farming. For the purpose of reducing rural poverty problems, the dual job holding appears to be an effective vehicle to enhance the well-being of the rural population.

The findings of the present study are largely inconclusive on the future of part-time farming, although the majority of the sample farm families expressed their intention to maintain the dual employment pattern, at least for the foreseeable future. But part-time farming, as broadly defined in this study, seems likely to remain, if not increase substantially, as an important part of rural settings considering that: (1) the labour-saving technological change within the farm sector will likely continue; (2) farmers with relatively small, insufficient farm

units will find it increasingly difficult to realize an adequate income from farming; and (3) the relative advantage of and preference for living in a rural area and taking up farming will likely be enhanced.

References

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RAPPORTEUR'S REPORT--Linda Chase

Discussion of Kada's paper focused on the direction of the flow of income between sectors, and on his use of the farm family unit. In Japan, does the farm support an off-farm worker or does off-farm work help finance higher levels of farm investment? Kada felt that the latter was more common, but that the issue is complex. The author's use of the farm family unit was supported, although where a farm family has a full-time, off-farm worker, the definition of a part-time, off-farm unit becomes less clear. It was noted that the unit labels in figure 1 are ambiguous; they appear to indicate an even scale where the author intended proximate figures. For example, "3" indicates 100-200 days of farm labour.

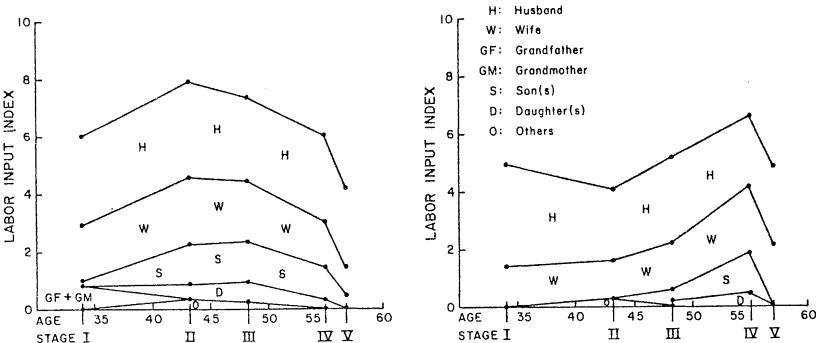


FIGURE 2

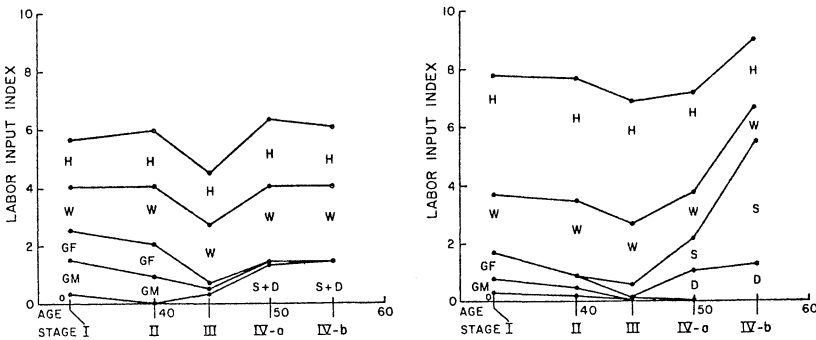


FIGURE 3