

# Emancipation of Female Labor and Its Relation with New Technology and Other Socio-economic Factors in Rural Turkey: The case of Adana province

Gulinuer Maimaiti

*Graduate School of Agriculture, Kyoto University*

Oiwake-cho, Kitasirakawa, Sakyo-ku, Kyoto, 606-8502, JAPAN

*e-mail: gulmurm@kais.kyoto-u.ac.jp*

## 1. Introduction

Development in Turkish agriculture such as mechanization, irrigation system, improved seeds, and chemical fertilizers has reduced labor requirements in cereal food crop production and increased labor-intensive operations in certain cash crop production, the latter being mainly supplied by unpaid, female family labor.

The aim of this study is to investigate the impacts of agricultural development on farmers' income, which directly affects female farmers' workloads in Adana province, in Cukurova plain. Specifically, comparing irrigated and rain fed areas in Adana, this study examines how agricultural tasks allotted to male and female farmers following the changes in cropping pattern, how female farmers' workload is affected by new technology such as mechanization and irrigation system, and how female farmers' authority in decision making is assured in their families.

## 2. Data

In Dec 2002-Jan 2003, the first survey was conducted in four villages of Yureigir district of Adana province, and in Oct-Nov 2003, the second survey was

conducted in another four villages. Data on female farmers' conditions was collected only in the second survey. In this research, the data of ICCAP project's main farm survey and of female farmers' survey were used. In the main questionnaire, we interviewed male household heads or male household members. In female farmers' questionnaire, 26 samples from 2 villages, Kayisli from irrigated areas and Kilicli from rain fed was selected as representatives and married women and widows are mainly interviewed.

In the below, irrigated villages are designated by the letters IR, and rain fed villages by the letters RF.

## 3. Female Farmers' Labor Allocation

According to the survey, the female farmers' labor days in the irrigated areas are shorter than that in the rain fed areas and household income level in the irrigated areas is higher than in the rain fed areas, as presented in table 3.1. In addition, the survey found that farmers in the irrigated areas relied more heavily on hired labor force than those in the rain fed area

Table 3.1. Substitution of female labor by hired labor input following the increases of income.

Data	Kilicli (RF)	Beloren (RF)	Kayisli (IR)	Abdioglu (IR)
Income/capita (million TL)	957	1,084	1,547	2,111
Hired labor input days /HH	288.9	160.4	217.6	2341.8
On-farm labor input days/wife	182.2	183.8	38.6	18.8
Off-labor labor input days/wife	4.6	NA	0	NA

Source: Farm household survey and female farmers' survey in October-November 2003.

Note: HH shows household. NA shows data not available (female farmers' questionnaire was not conducted in those two villages).

### 3.1 On-farm labor allocation

#### 3.1.1. Labor allocation to crop production

According to cropping pattern, male and female labor allocation to crop production are different

between the irrigated and rain fed areas.

Female farmers in Kilicli (RF) participate in most of the crop production activities such as hoeing, cotton picking, and wheat leftover picking.

Because farmers in Abdioglu (IR) and in Kayisli (IR) plant labor-intensive cash crops more than cereal crops, they rely on hired labor more than family labor, and female farmers' labor force there is substituted by hired labor force (shown in table 3.1).

### 3.1.2. Labor allocation to livestock production

In the irrigated areas but for Abdioglu (IR), farmers deal with livestock production for home consumption purpose, but in the rain fed areas they deal with it not only for home consumption purpose but also for earning some income and coping with poor crop risks. Female farmers' participation in livestock production is more active than that of male farmers in both areas. (shown in table 3.2)

Table 3.2 Female farmers participation in livestock production (%).

Activity	Kayisli (IR)	Kilicli (RF)
Feeding	41.67	64.29
Grazing	16.67	57.14
Milking	41.67	64.29
Processing	41.67	57.14
Manure making	25.00	42.86
Marketing	25.00	57.14

Source: Female farmers' survey in October-November 2003.

### 3.2. Labor allocation to off-farm work

According to the survey (presented in table 3.3.below), about 21% of female farmers in Kilicli (RF) were engaged in off-farm activities such as hoeing, and cotton and grape leaves picking, whereas those in Kayisli (IR) did not participate in any off-farm work

Table 3.3. Female farmers' off-farm labor input days and income (TL) in Kilicli (RF)

Activity	Participation rate (%)	Days/year	Million TL/day
Hoeing	21.43	10	8
Cotton picking	21.43	15	8
Grape leaves picking	21.43	40	8

Source: Female farmers' survey in October-November 2003.

### 3.3. Labor allocation to daily activities

According to the data, I found that female farmers in Kayisli (IR) spent less hours in house works thanks to electrical appliances, but that female farmers in Kilicli (RF) were spending longer hours in house works because they cannot afford to have electrical appliances.

### 3.4. Theoretical analysis of female family labor's emancipation

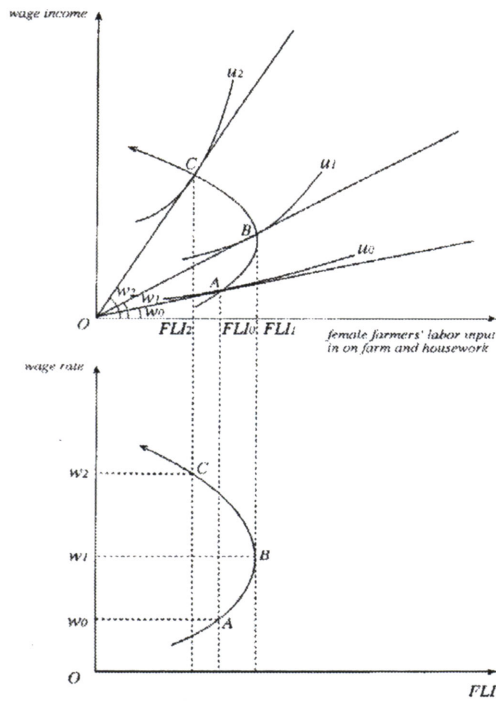
The above data suggests that female farmers in irrigated areas are physically emancipated from agricultural hard work and some daily activities, compared with rain fed areas. This fact can be explained in the following way.

First, assume rural female labor (RFL) input is decided by labor's model. As new technology and mechanization develop in the village, RFL husband's

subjective evaluation of his wife's wage rate increases from  $w_0$  to  $w_1$  to  $w_2$  as shown in figure 3.1.

If isoquant for the RFL are  $u_0$ ,  $u_1$ , and  $u_2$  as shown in figure 3.1, the backward bending female labor supply curve can be identified as curve  $ABC$ . This model shows us that as farm income increase, shadow price and husband's subjective evaluation of his wife's wage rate of RFL increase, and thus if the husband's subjective evaluation of his wife's wage rate increase greater than  $w_1$ , RFL input starts to decrease bending properties of female farmers' labor supply curve (see curve BBFLSC in figure 3.1).

Figure 3.1 Backward bending rural female labor supply curve.



Source: Prepared by the author.

#### 4. Female Farmers' Cooperative Work and Their Authority

##### 4.1. Informal cooperative work ( *Keseleme or Koycek* )

According to the data collected from Kayisli (IR) and Kilicli (RF), I found that female farmers in both villages formed informal cooperative groups to exchange labor for their needs in farming and domesticity activities. In Kayisli, they formed groups to exchange labor in vegetable production and in cooking special Turkish bread (*Yufka*), and to help in funeral and wedding days. In Kilicli, they formed groups to exchange labor in cotton picking, hoeing and making *Yufka*, and to help in funeral and wedding days. Kinship or neighborhood relationships are very important for female farmers to get permissions of their husbands to form this kind of groups

##### 4.2. Female farmers' inheritance situation and their participation in decision-making

I studied the possibility that female farmers' authority at home in both social<sup>1</sup> and economical decisions<sup>2</sup> is affected by their inheritance situation. In Kayisli (IR), a fourth of the surveyed female farmers had inherited assets and participated in all of the decision making except purchasing farm inputs. But the rest neither had inherited assets nor participated in any kinds of social and economic decision-making. In Kilicli (RF), all the surveyed female farmers did not participate in social and economic decision-making whether or not they had inherited assets. In fact, the predominance of men over women in the rain fed areas is heavier than in the irrigated areas.

##### 4.3. Hidden labor of Female farmers

I found evidence of hidden female labor in our surveyed areas. As shown in table 4.1 (in page 5), in Kilicli (RF), female farmers participate in farming activities for 333 days a year on average. Their husbands answered that female farmers participated in farming activities for 187 days in a year on average. In the surveyed villages, female farmers are engaged in labor-intensive activities in farming, while male farmers are engaged in capital-intensive activities. Hence the agricultural labor productivity of female farmers is lower than that of male farmers. I conjecture that this is the main reason why male farmers underestimate the contribution of female farmers' labor.

Female farmers' participation in decision making the inheritance (*Miras*) situation of female farmers is one of the very important issues in our research areas. Female farmers who have inherited assets have different authority at home in both social and economical decisions. One thing necessary to emphasize here is that female farmers in irrigated areas are emancipated from hard fieldworks but they retreated staying at home without participating any outdoor activities. The other thing is that they are not considered to be able to participate in farm management even they have inheritance or higher

<sup>1</sup> The surveyed social decisions are concerned with separation from extended family, child's schooling and marriage.

<sup>2</sup> The surveyed economical decisions are concerned with agricultural land, livestock, saving in bank, credit/loan, seasonal worker, selection of crops and crop sale, farm machinery, and household expenditure.

education than their husbands. So, they are emancipated from hard physical labor only.

Table 4.1. Underestimated female farmers' average labor days/year.

Village	Activity	Spouses' answer	Household heads' answer
Kayisli (IR)	On-farm	205.5	38.27
Kilicli (RF)	On-farm	333.43	186.8

Source: Farm household survey and female farmers' survey in October-November 2003.

## 5. Conclusion

The conclusion of this study is summarized as follows. First, introduction of new technology such as mechanization, irrigation system, improved seeds, and chemical fertilizers has reduced labor requirements in cereal food crop production and increased labor-intensive operations in certain cash crop production. Labor-intensive work has become female farmers' tasks and capital-intensive work have become male farmers' in both irrigated and rain fed areas.

Second, in the irrigated villages, farmers cultivated cash crops more than cereal food crops, thereby increasing agricultural labor demands. Because their income level has improved, income effects reduce female farmers' on-farm labor supply and more hired labor is instead employed. In the rain fed areas, on the other hand, limited number of cash crops can be cultivated, and farmers' income has not increased as rapidly as in the irrigated areas. Therefore, female

farmers in the rain fed areas participate in crop and livestock production, and off-farm activities longer than those in the irrigated areas.

Third, female farmers tried to participate in informal cooperative works to improve their household income as much as possible. But their labor is always underestimated by their husbands in both irrigated and rain fed areas.

As concluded above, sexual labor division in the rain fed villages are against female farmers, because they are allotted labor-intensive works. It is necessary for female farmers to learn the skill of using farm machineries and to make labor division more favorable. In the irrigated villages, female farmers were emancipated from drudgery of field works. In the future, it is necessary to improve the education level of both male and female farmers and to remove cultural restrictions on female farmers' work