

Women in Farming: Cross-country Analyses of Trends in Agricultural Labor Force

Amrita Sharma¹

Abstract:

A relative increase in number of female farmers is an important aspect of demographic transitions in agriculture, especially in the initial stages of economic growth. However, little attention has been given to changes in gender composition of farming community as economies mature. This paper takes a look into statistics of 178 countries categorizing them into three stages of demographic transition in agriculture (given by Bicanic, 1972)- stage 1- when the agricultural population decreases relatively but increases in absolute numbers; Stage 2- when the agricultural population stagnates absolutely and decreases relatively; and Stage 3- when there is also a decline in absolute number of people involved in agriculture.

At the beginning of de-agrarianization of a society the number of female farmers increases at a faster rate compared to number of male farmers resulting in an increase in share of female farmers. As economies proceed to the final stage of demographic transition where the absolute number of people involved in agriculture also starts declining, there is a decline in female agricultural population too. The rate of decline, however, is still lower than that of men. From this we can infer that the movement of men out of agriculture is faster than that of women. One interesting fact that comes out of the analyses is the increase in absolute number of women engaged in farming in some very developed economies like US, UK, Netherlands, and Australia etc. In these economies there is a spurt in number of women farmers and while the total agricultural population and male agricultural population both decline there is an increase in absolute number of women farmers.

¹ Consultant, IWMI-Tata Water Policy Program, Anand, India. The author would like to thank Dr. O.P. Singh and Mr. R. Ravindranath for their help in GIS application.

1.0 INTRODUCTION

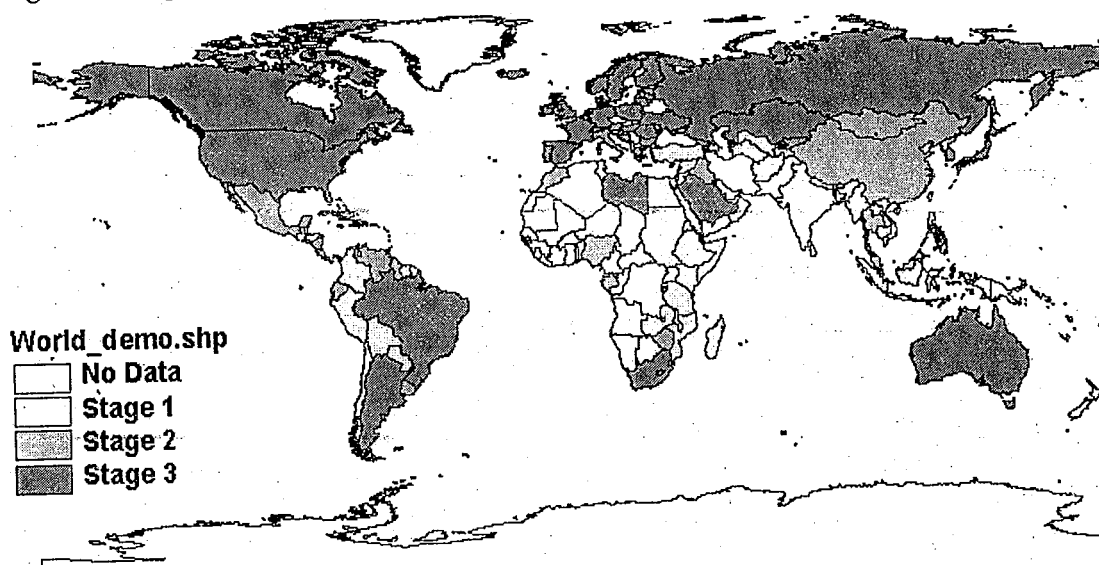
Demographic changes in agriculture are of great significance as they alter the way a country's agriculture is organized in a major way. Bicanic (1972, cited in Griggs 1982) in one of his seminal works identified three stages of changes in agrarian demography— first when the agricultural population decreases relatively but increases in absolute numbers; second, when the agricultural population stagnates absolutely and decreases relatively; and third when there is also a decline in absolute number of people involved in agriculture along with further decline in the relative population involved in farming. In the third stage there is acute labor shortage, farm size becomes bigger and agriculture is dominated by large farmers. One important aspect of this transition is withdrawal of young men from agriculture (Table 1, Annexure). As economies mature, young and able-bodied men move to better paying jobs where returns per unit of man-hour employed are higher. But, what happens to the gender composition of farming population? Little attention has been paid to understand -what happens to the female population dependent on agriculture as economies mature? This paper takes a look at countries across the world to analyse the trend in women's participation in farming with changes in agrarian demography.

2.0 Data Source and Analyses

For this analysis agricultural population data from 'aquastat' site of Food and Agriculture Organization (FAO) have been used. Barring a few countries data were available for a period of 49 years (1958 to 2007). The growth rates shown here are compounded annual growth rates (CAGR) and are for the entire time period of 49 years. In a few cases the growth rates were calculated for 19 years (1988 to 2007) because of non-availability of data for a longer time period.

In order to understand the changes in female farmer population the three-stage classification done by Bicanic, depicting the agrarian consequences of demographic transition (mentioned earlier) has been used. This analyses attempts to add a new element to Bicanic's work by exploring the gender dimension of demographic transition. Figure 1 shows different countries of the world in their respective stages of demographic transition.

Figure 1: Stages of Demographic Transition



Analyses: Author Data Source: Aquastat, FAO

Stage 1: Agricultural population increases absolutely and decreases relatively; Stage 2: Stagnates absolutely and decreases relatively; Stage 3: Decreases absolutely and relatively

3.0 FINDINGS

3.1 Stage One

According to Bicanic (1972 cited in Griggs, 1982), this is the stage where there would be a decline in proportion of people engaged in farming while the absolute number of people involved in agriculture would keep increasing. Out of 178 countries analyzed for the study, 89 countries fell under "Stage One" category. Almost all of them belonged to the class of developing and least developed countries.² The only developed country with increase in agricultural population was New Zealand.

The relative proportion of women involved in farming in this stage one was 42 per cent. Table 1 gives the summary statistics for trend in male and female agricultural population for stage 1. The female farmer population grew at a higher rate than that of men. It is noticeable that more than 76 per cent of the countries have shown a higher rate of growth in female farmer population vis-à-vis male farmer population. The proportion of women farming increased annually at a rate of 0.33 per cent while the percentage of male agricultural population registered a decline of 0.18 per cent annually.

Table 1: Summary Statistics for Stage 1 of Demographic Transition

| Growth Rate of Total Farmer Pop. | Growth Rate of Male farmer Pop. | Growth Rate of Female farmer Pop. | Growth Rate - Proportion of Men Farmers | Growth Rate - Proportion of Women Farmers | % Countries with higher growth in female farmer Pop. |
|----------------------------------|---------------------------------|-----------------------------------|---|---|--|
| 1.42 | 1.23 | 1.70 | -0.18 | 0.33 | 76.40 |

Analyses: Author Data Source: Aquastat, FAO

² The classification of developing, developed and least developed countries is as per Aquastat, FAO.

3.2 Stage Two

In stage two category the absolute number of people farming starts stagnating. For the countries analyzed the stagnation was observed in the last 15-19 years. The number of countries falling in this category was fewer as compared to the other two categories - a total of 25. There were no developed countries in this category. The class was dominated by developing countries with a small number of LDCs.

Table 2: Summary Statistics for Stage 2 of Demographic Transition

| Growth Rate of Total Farmer Pop. | Growth Rate of Male farmer Pop. | Growth Rate of Female farmer Pop. | Growth Rate of Proportion of Male Farmers | Growth Rate of Proportion of Female Farmers | % Countries with higher growth in female farmer Pop. |
|----------------------------------|---------------------------------|-----------------------------------|---|---|--|
| 0.20 | 0.12 | 0.72 | -0.12 | 0.47 | 68.00 |

Analyses: Author Data Source: Aquastat, FAO

In the countries falling under stage two category the percentage of women farmers was around 31. It is noticeable that whatever small growth that took place in the agricultural population in this stage, was primarily by virtue of increase in women farmer population (Table 2). The share of women farmer population also grew at a much higher rate - at 0.47 per cent per annum.

3.3 Stage Three

The third and final stage of demographic transition in agriculture is when the absolute number of people involved in agriculture also starts declining. A net of 64 countries (out of 178 analyzed) fell under this category and most of them belonged to the developed countries category. The percentage of women farming in this category was close to the figure in stage two- at 30 per cent. Table 3 gives the average statistics for countries in this category. There is an overall decline in farming population at the rate of 2 per cent per annum. Along with male population there is also a decline in female farmer population, though the rate is lower than that of men.

Table 3: Summary Statistics for Stage 3 of Demographic Transition

| Growth Rate of Total Farmer Pop. | Growth Rate of Male farmer Pop. | Growth Rate of Female farmer Pop. | Growth Rate of Proportion of Male Farmers | Growth Rate of Proportion of Female Farmers | % Countries with higher growth in female farmer Pop. |
|----------------------------------|---------------------------------|-----------------------------------|---|---|--|
| -2.05 | -2.14 | -1.64 | -0.02 | 0.40 | 51.56 |

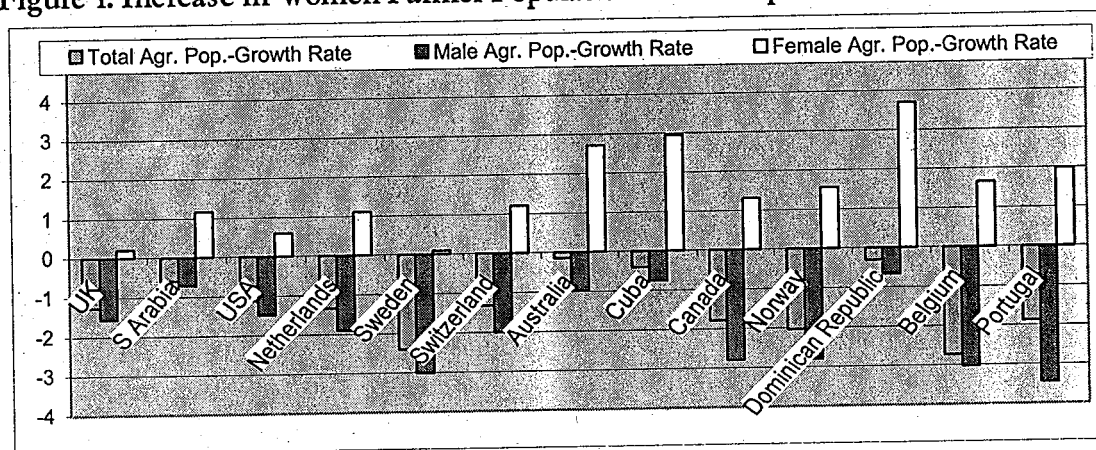
Analyses: Author Data Source: Aquastat, FAO

The average growth in proportion of female farmers out of total number of farmers is again high at 0.4 per cent per year. However, the percentage of countries with higher growth in female farmer population lowers down to 52 per cent compared to 76 per cent in stage 1 and 68 per cent in stage two.

The most noteworthy aspect of the trend in women's participation in farming in Stage three is an increase in the absolute number of female farmers in some of the highly advanced countries. Countries such as Australia, USA, Netherlands, Portugal, Belgium,

Sweden, Switzerland, UK, Norway, and Canada register an increase in female farmer population (Figure 1). The only developing countries showing an increase in number of female farmers are Argentina and Brazil. An article in 'The Economist' (2004) also mentioned about an increase in the number of farms being run by women. The article refers to a survey conducted by US department of agriculture (USDA) which showed that when Pennsylvania lost more than 2000 farms between 1997 and 2002, the number of farms managed by women actually rose by 1000. There were several reasons cited for the increase such as -women taking up farming as a result of environmental concerns relating to hormones or pesticides; women staying on farm after losing their husbands through death or divorce etc. One of the reasons for this trend could be the fact that women are also considered to be better in dealing with small animals, such as chickens and goats as compared to their male counterparts. The slower upward mobility of women in the professional sphere could also be another reason explaining women's entry into agriculture.

Figure 1: Increase in Women Farmer Population in Developed Countries

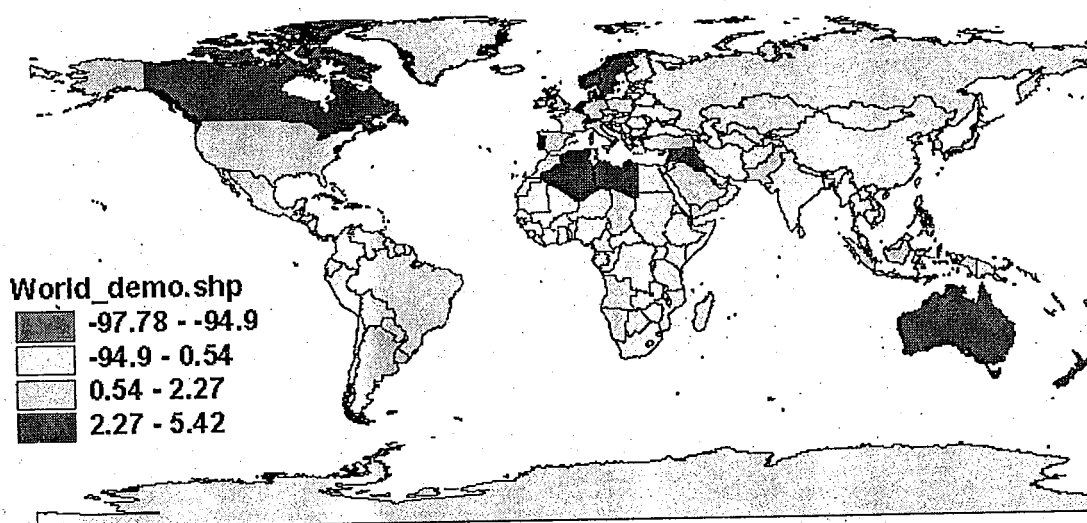


Analyses: Author Data Source: Aquastat, FAO

4.0 SUMMARY AND CONCLUSION

In all the three stages of agrarian demographic transition, one point that comes out prominently is that the movement of men out of agriculture is faster than that of women. In the initial stages (stages 1 and two), when the total people engaged in farming is still increasing the growth is primarily driven by increase in number of female farmers. In these stages, the share of women in farming also increases at high rates. In stage three, when the farmer population starts falling in absolute numbers, there is a decline in female farmer population also but the rate of decline is still lower than that of men.

Figure 2: Difference in Female and Male Growth Rates of Agricultural Population (1958-2007)



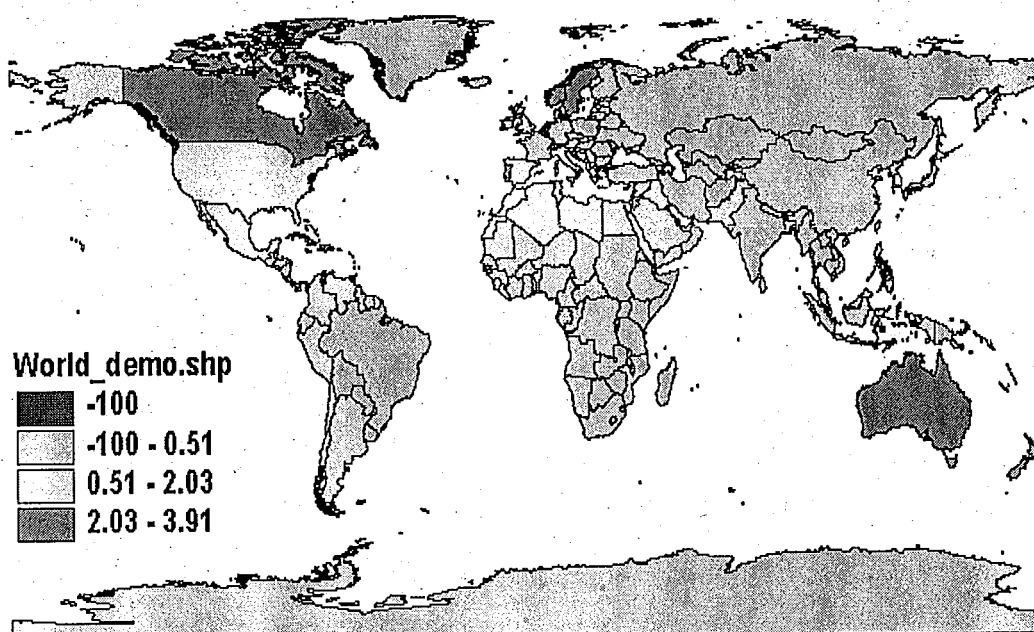
Analyses: Author Data Source: Aquastat, FAO

5.0 IMPLICATION FOR FUTURE RESEARCH

The major question that arises out of this analysis is - "Do changes in gender composition of agrarian population have any impact on farming and if yes, in what ways? Though this research did not cover an in-depth review of literature on this topic, the limited review undertaken shows that not much thought has been put to it. The studies on impact of male out-migration on women in farming is the only exception (Palmer, 1978). However, in these studies the focus has been mostly on outlining the problems faced by women as farmers - such as arranging for labor, poor knowledge of the market, lack of bargaining skills resulting in their not getting fair deals etc (Palmer, 1978). Thelma Paris (2005) also reported that there was little difference in productivity of crops among migrant and non-migrant families. One reason for this is that men adapt their migration schedules as per the requirements of the farm. Tasks like ploughing and irrigation have always been considered to be a man's job. The sharp gender division of labor on farm forces an adaptive farming where the heavier tasks are performed by men and women are left to take care of the fields, supervise lighter activities, and take care of livestock. However, the case of female farmers in face of male out-migration is not illustrative enough because of the temporary nature of the phenomena.

It is important to understand whether changes in gender composition of agrarian population have any permanent impact on the nature of farming itself. Does increase in women farmer population drive demand for mechanization? Or for machines which are friendlier to women. Does increase in women farmer population go with increase in softer components of farming where livestock production like piggery, poultry etc. dominate over crop farming. It is also important to understand in what ways the role of women rather the gender division of labor on the farm changes as men slowly withdraw from agriculture.

Figure 5: Growth in Relative Proportion of Women Farming



Analyses: Author Data Source: Aquastat, FAO

REFERENCES

Aquastat, Food and Agriculture Organization

David Griggs, 1982; *Dynamics of Agricultural Change*, Hutchinson and Co. (Publishers) Ltd.

Palmer, Ingrid, 1985; *The impact of male out-migration on women in farming*, Kumarian Press

Women in farming: The New Land Girls, Economist, December 2nd, 2004

Paris Thelma, 2005, SSD conference on labor out-migration and gender issues at IRRI