Feminization of Agriculture in the semi-arid tropics: micro-level evidences from the Village Dynamics Studies in South Asia

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Agriculture will continue to be critical to the future of India and also to many other developing countries where the population is predominantly rural and whose livelihood is dependent on farming/agriculture. The green revolution technologies and a vigorous smallholder sector have seen Asian agriculture undergoing a major transformation in the last five decades (Viswanathan et.al .,2012). Literature also reveals that this transition has not been uniform across Asia and the future of smallholder agriculture faces several challenges. In India, the structural transformation is a stunted transformation (Binswanger, 2012). One of the driver as well as an outcome of this transformation/transition is feminization of agriculture, though the degree varies across regions and countries. The roles of women in agriculture have increased during the last two decades and women now have broader and deeper responsibilities in agriculture – both in subsistence agriculture as well as in commercial farming. There is also evidence of the blurring of the traditional gender segregation of roles in agriculture.

Feminization of agriculture, in its simplest and broader term, refers to women's increasing participation in the agricultural labor force, whether as producers, as unpaid family workers, or as agricultural wage labor. Depending upon the existing agricultural and livelihoods system, feminisation can mean slightly different things in the context of agriculture in different countries (see box 1 for specific definitions). It is therefore imperative that to understand recent trends in women's work in agriculture, it is useful to locate them within the broader agricultural context (Susana, 2006).

Box 1. Specific definitions for the feminization of agriculture:
1. An increase in women's participation rates in the agricultural sector, either as self-employed or as agricultural wage workers.
2. An increase in the percentage of women in the agricultural labor force relative to men, either because more women are working and/or because fewer men are working in agriculture.
Source: Katz (2003: 33-35) and Deere (2005: 17)

The Village Dynamics Studies in South Asia (VDSA)[1] is a platform which allows for a broader understanding and tracking of poverty, feminization of agriculture, and rural labour dynamics among others. The VDSA attempts to understand the phenomenon of increasing feminization of agriculture and labor by putting social relations at the heart of gender dynamics in agriculture. The VDSA panel data allows for raising the voices of the poor through reliable and timely data on consequences of change on the rural poor such that these voices resonate in agricultural statistics and in decision making on policy. We present below some insights based on the analysis of the micro-level VDSA data and complement the same with analysis/interpretation of the 2011 Census data and the NCAER data.

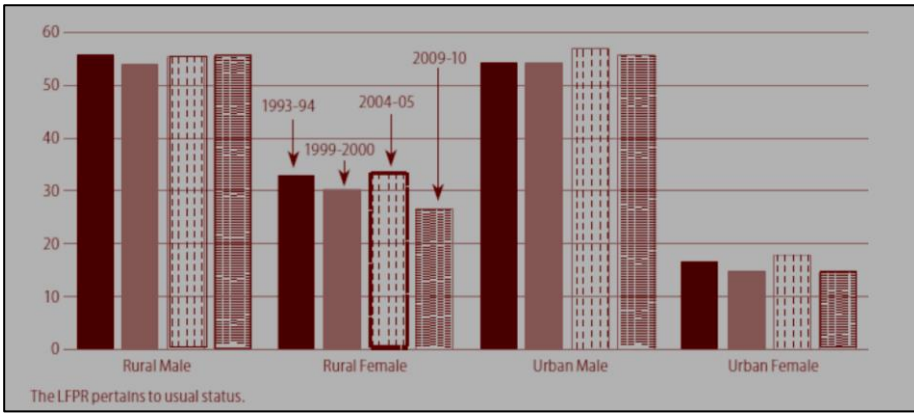
Insight 1: Fluctuating labor force participation rates for rural female workers

Analysis of macro-level data reveals that labor participation rates are fairly similar for both urban and rural males in India (Binswanger–Mkhize, 2012), but the participation rates for rural females were much lower compared to the rural males (figure 1). It can also be discerned from figure 1 that rural female participation rates fluctuated from 1977-78 to 2004-05 with a significant increase during the period 2004-05. Himanshu (2011) interprets this movement of women into the labor forces during the years 1999-2004 as a response to the agrarian crisis. The subsequent sharp drop in participation (2009-10) is interpreted as a withdrawal from the labor markets as economic conditions improved again. Others (e.g. Venkatnarayan and Naik, 2012) indicate that the drop is due to increased participation in education. It is also seen that the share of female marginal workers, account for about 40% of the total female

[1] See http://vdsa.icrisat.ac.in

workforce in 2011, and this is still considerably higher than that of their male counterparts (Venkatnarayan and Naik, 2012).

Figure 1. Trends in labor participation rates, 1993-94 to 2009-10

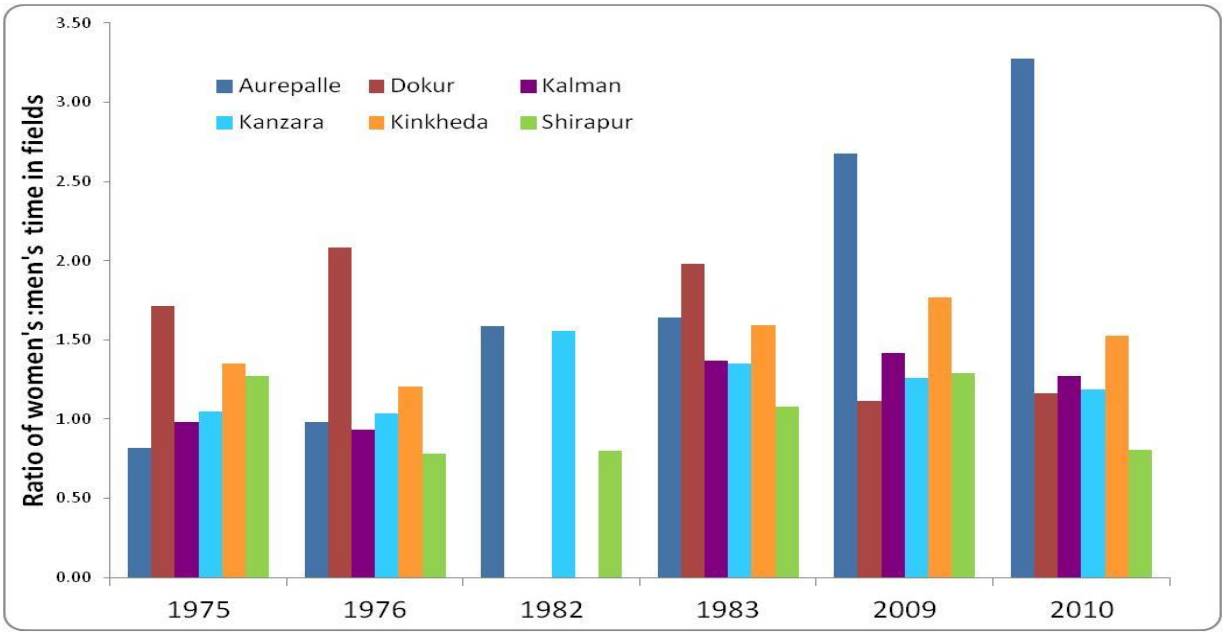


Source: Binswanger-Mkhize, 2012; page 7: figure 2

Insight 2: The micro-level evidences point to a progressive feminization of agriculture in rural areas

As can be seen from figure 2, the long-term panel data from 1975 clearly points to evidence of a progressive feminization of agriculture in the rural areas, although the extent is varying across regions.

Figure 2. Participation of women in agriculture, 1975/76-2010/11



Source: VDSA database (1975-2010). Telangana – Aurepalle and Dokur villages (Mahbubnagar);Maharashtra – Kanzara and Kinkhed (Akola); Shirapur and Kalman (Solapur)

Our analysis and the insights reveal that in regions that have a promise in agriculture (eg. Kanzara), and favour sustained dependence in agriculture, men and women jointly participate in agriculture as they were doing so since the early 70's. The role of women in agriculture increased in these cases but to a

lesser extent. However, in regions which have experienced shocks (such as the Mahabubnagar villages), women have a greater role and engagement in agriculture depending on the coping strategies the household adopts - changing cropping patterns and diversification ; working as paid labor on others farms and lastly male members of the household migrating to towns leaving the women to take care of the farms as well as participate in the care economy. This finding is also echoed by Binswanger-Mkhize (2012) in their analysis of the structural transformation in India (see box 2).

Box 2. Feminization of agriculture is increasing over time significantly

Among rural workers, females have always been more likely to be engaged in the primary sectors, most of which is agriculture, than men, and correspondingly less in the secondary sectors. For example in 1977-78, 88.1 percent of female workers were engaged in primary sectors, compared to 80.6 percent of males. By 2009-10, these percentages had gone down for both males and females as a consequence of the rise of the rural non-farm sector. However, for males engagement in the primary sector had gone down to 62.8 percent, or by 25 percent, while for females they had gone down to 79.3 percent, or by only about 10 percent. Clearly the feminization of agriculture is increasing over time significantly.

The distribution of male and female rural employment by sector of the economy

NSS Round	Rural Males			Rural Females		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
32 (July'77-June'78)	80.6	8.8	10.5	88.1	6.7	5.1
38 (Jan-Dec'83)	77.5	10	12.2	87.5	7.4	4.8
43 (July'87-June'88)	74.5	12.1	13.4	84.7	10	5.3
50 (July'93-June'94)	74.1	11.2	14.7	86.2	8.3	5.5
55 (July'99-June'00)	71.4	12.6	16	85.4	8.9	5.7
61 (July'04-June'05)	66.5	15.5	18	83.3	10.2	6.6
64 (July'07-June'08)	66.5	16.2	17.3	83.5	9.7	6.8
66 (July'09-June'10)	62.8	19.3	17.8	79.3	13	7.6

Source: Himanshu, 2011, table 6

Source: Binswanger-Mkhize, 2012; box 3.

The micro-level analysis clearly indicates that the pathways of development vary by village and region. We present a village wise analysis in the next section.

Insight 3: Gendered patterns of time allocation of men and women in agriculture

Time allocation data is one of the ways to understand and measure the amount of time spent by men and women on different tasks/activities/sectors. Our analysis from the time allocation data from the VDSA villages since 1975-2010 reveals an interesting pattern. We present a simple analysis by village and region.

A. Aurepalle village in Telangana, where the pathway of development is through diversification of agriculture and income sources

The time allocation of women and men in Aurepalle clearly shows that women are spending more time in agriculture as measured by the number of hours per hectare (figure 3). The participation is increased three folds for women from 1975, when it was 258 hrs^{-ha} to 840 hrs^{-ha} in 2010. One of the reasons for this increased time of women in agriculture are the changes in the cropping pattern.

Castor and sorghum were the dominant crops in 1975, which needed relatively less labor. However, starting 2001, these crops were gradually replaced by cotton which is a labor intensive crop, with more female labor requirement for harvesting/picking of cotton (Figure 4).

Figure 3. Time allocation of women and men Aurepalle, 1975-2010
Hours per hectare

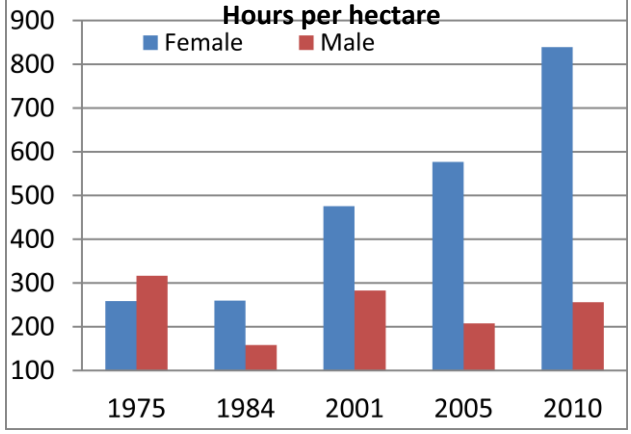
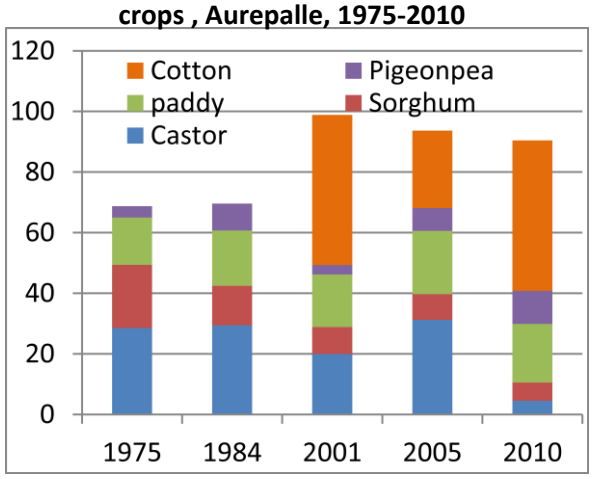


Figure 4. Percentage area to total for major crops , Aurepalle, 1975-2010



B. Dokur village in Telangana, where the pathway of development is through diversification of income sources, namely non-farm occupations including migration

Dokur is a village in Mahbubnagar district which was once upon a time flourishing in agriculture. The village experienced continuous dry spells and drought like conditions for a prolonged time (more than 8 years at a stretch). These conditions have led to farmers shifting from paddy, the dominant crop in the 1970s and 80s, to castor during the dry spell years. Alongside this, the village also has experienced migration of men and women to other towns and cities. The time allocation data and the cropping pattern data illustrate the declining participation of women in agriculture from 1975-2008/09. With good rains and the favourable environment post 2005, the data shows that paddy cultivation is increasing and thereby the roles of men and women in agriculture are also showing an upward trend (Figures 5 and 6).

Figure 5. Time allocation of women and men Dokur, 1975-2010
Hours per hectare

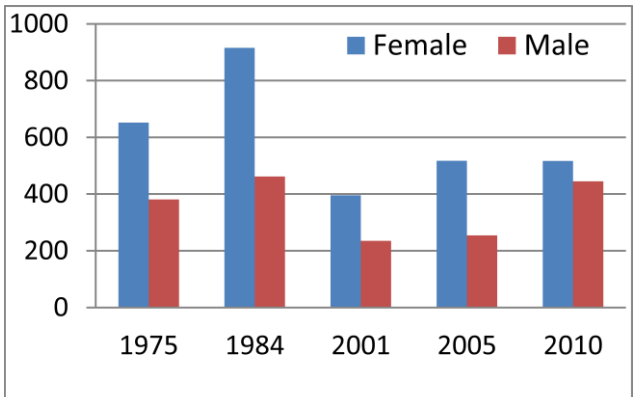
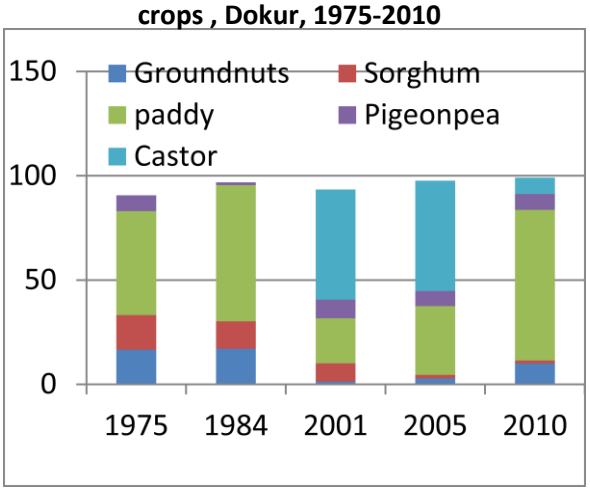


Figure 6. Percentage area to total for major crops , Dokur, 1975-2010



C. Kanzara village in rainfall assured Akola, where the pathway of development is through intensification of agriculture

In Kanzara, which shows a promise in agriculture through intensification, the analysis clearly shows that both men and women participate equally in agriculture. This trend is observed in the time allocation of men and women during 1975-1984/85 (figure 7). During this period, diversification of agriculture is also seen (figure 8). Cotton which is grown from centuries in this region, is the dominant crop and the area under this was increasing till upto 2003/04. During this period the time use patterns of women show an increased share in agricultural work. Starting 2007, Soybean has started gradually replacing cotton. Soybean uses less labor and hence there is a drop in the time allocation of men and women (figures 7 and 8). Kanzara is also a village that uses more mechanization, which reflects more or less equal participation of men and women in agriculture (figure 9.).

Figure 7. Time allocation of women and men Kanzara, 1975-2010, Hours per hectare

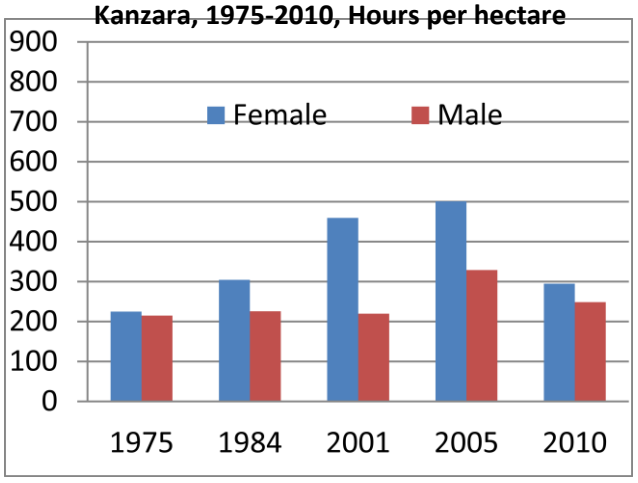


Figure 8. Total area under different crops , Kanzara, 1975-2010

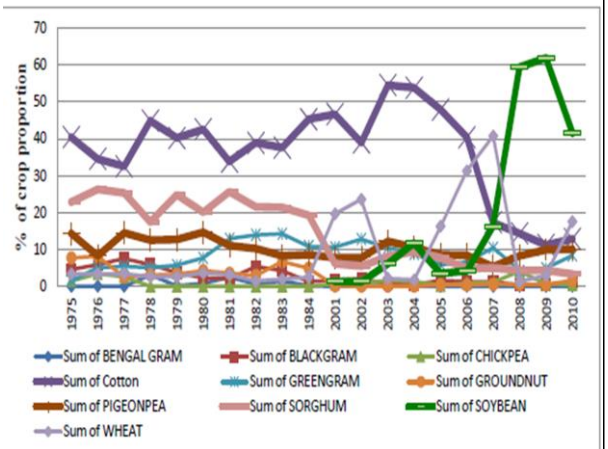


Figure 9. Use of mechanization (total hours), 2008

	Aurepalle	Dokur	Shirapur	Kalman	Kanzara	Kinkheda
Tractor	137	2661	788	57	1671	1137
Thresher	12	8	642	172	1029	1111
Harvester	0	0	0	0	19	6
Herbicide	9	0	16	0	1378	344

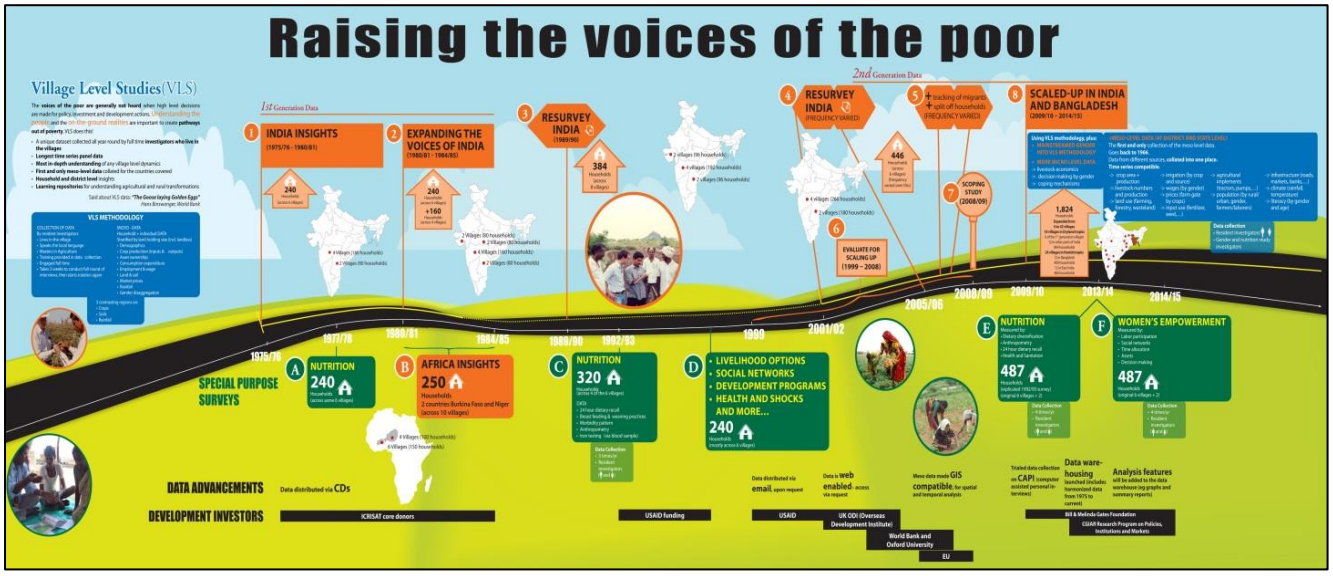
Source: Palacois, 2011

Conclusions

The analysis of time use patterns of women and men in the villages of Telangana and Maharashtra highlight two findings: a. the share of women's employment in agriculture varies from crop to crop, and from activity to activity (planting, for instance, is more frequently practiced by women, picking of cotton is done by women whereas ploughing is an activity generally performed by men); and b. from age group to age group : the younger female age cohorts, for example, join off-farm employment in greater numbers, whereas relatively older women (beyond the age of 35) tend to remain in agriculture in the rural areas even as rural-to-urban migratory patterns develop (Pang et al. 2004; Zhang et al. 2004).

The long-term panel data from 1975 onwards clearly points evidence to a progressive feminization of labor and agriculture in the rural areas, but the patterns are varying. There is empirical evidence from the micro-level data that women have much poorer access, control and ownership of land and other productive resources. They also have inadequate access to public services, such as training, extension and credit. In such cases, the coming together of women and strengthened collective action through the formation of informal groups and networks is seen as empowering the women. The key message then is that in regions like the Semi-Arid Tropics which are characterised by harsh, fragile environments, and experience a bias in terms of policy and investment; for women who continue to stay in agriculture in such rural areas, informal social networks need to be recognised, strengthened and facilitated for empowering them, to ultimately bring about an inclusive market oriented development.

The voices of the poor therefore have to be heard through data. The VDSA attempts to do this.



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