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### **Feminization or De-feminization of Indian Agriculture: What do the recent data show?**

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#### **Abstract:**

*Indian agriculture has always played a pivotal role in employing a large portion of the Indian Workforce since the period of Independence. The query here lies regarding the distribution of the workforce from the gender perspective. Precisely, the centripetal and centrifugal forces playing their roles in the absorption of women workers in the Indian agricultural sector is the prima-facie focus of this paper. The discussion has been carried out at a 2-digit level of disaggregation using the unit level employment-unemployment survey data of NSSO both at the All-India and State Level. The analysis indicated the occurrence of de-feminization in Indian agriculture in the rural areas and the second phase of the post-reform period (1999-00 to 2011-12) marked the beginning of such a phenomenon at the all-India level.*

**Keywords: Feminisation, Indian Agriculture, Employment, Women Workers.**

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**Introduction:** Are the women workers moving towards or away from the primary sector of the economy appeared as a major issue of debate among the academicians, policy makers, media persons and researchers in recent years. The debate gained momentum after the Economic Survey 2018 mentioned about feminization of agriculture in its report. The term 'Feminization of agriculture' is seen as a broadening and deepening of the involvement of women in agriculture. Alternatively, it is measured in terms of the increase in the women's work participation in the agricultural sector. In India, rural women dominate various types of operations related to the farm sector since times immemorial. The increase in the rural to urban migration tendencies among the males resulted in women performing multiple roles as cultivators, entrepreneurs and laborers in increasing numbers within the primary sector. In addition to this, mechanization of agriculture has also resulted in confinement of women in low paying traditional farming activities like harvesting, sowing seeds or rearing livestock (Pachauri, 2018). Also, the rise in the suicidal deaths among the farmers (due to crop failure and indebtedness) in recent times compels their wives to work in the farm sector as the responsibility of running the household rests upon their shoulders (Krishijagran, 2017).

However, the market-oriented paradigm of farming belies the phenomenon of feminization of Indian agriculture. Owing to socio-cultural-economic restrictions and educational backwardness rural women have no say in the choice of cultivable crops, fertilizers, the source of credit, the final sell of the produce and in redistribution and utilization of the income earned from the market sale of the final produce (Kuruganti, 2019). All these decision making spaces are dominated by men. Also, approximately 22 million women have left the low productive agricultural sector in the recent years (post 2004-05). Such a large scale withdrawal of women workers may be linked to the pull of the non-agricultural sectors and the push of the technology driven globalization process (Thomas, 2012). Again, since a woman's entry into agricultural activities is distress-driven in nature; so their withdrawal from such farming operations in recent times might be linked to the rising levels of household income (Himangshu, 2011; Neff, Sen and Kling, 2012).

Another aspect to 'feminization' is the explicit visibility of women's involvement and participation in agriculture. Contrary to this, the dairy cooperatives (an integral part of the primary sector) endorse male members in greater proportion compared to the females. Thus, there remains an ambiguity among the scholars and policy makers whether there is indeed a 'feminization' of Indian agriculture or not. This paper, thereby, seeks to explore the changes in the rates of work participation (WPR) in the primary sector for the rural women (disaggregated at 2-digit level of NIC) during the period 1983 to 2011-12.

**Data and Methods:** The main source of data in this study has been the Employment-Unemployment surveys conducted by the National Sample Survey Organisation (NSSO). This study uses the data for four years: 1983 (38<sup>th</sup> round), 1993-94 (50<sup>th</sup> round), 1999-00 (55<sup>th</sup> round) and 2011-12 (68<sup>th</sup> round). The Usual Status (UPSS-PS+SS) approach has been used to determine the activity status of the person.

Further, data on Gross State Domestic Product (GSDP) is obtained from the annual publication of Reserve Bank of India titled 'Handbook of Statistics on Indian States'. Now, data on GSDP for the years 1993-94, 1999-00 and 2011-12 is available at different base years. Thus, to tune the GSDP data series to a single base year (1993-94), the technique of 'splicing' has been implemented.

Also, three new states Jharkhand, Uttarakhand and Chhattisgarh have been newly created out of Bihar, Himachal Pradesh and Madhya Pradesh respectively, the data for all these states separately was mentioned only in the EUS report of NSSO for the year 2011-12. However, to attain inter-temporal comparability, we have merged Bihar with Jharkhand, Himachal Pradesh with Uttarakhand and Madhya Pradesh with Chhattisgarh. The absolute figures on workers that we worked out for the individual states helped to arrive at the figures for these combined states. Thus, the figures of Bihar, Uttar Pradesh and Madhya Pradesh refer to those of the undivided states for the year 2011-12.

**Results and Discussions:** Clearly, from the tables below (see Tables 1 & 2), it can be stated that the post-reform period (1993-94 to 2011-12) marked the withdrawal of rural persons from farming operations at the all-India level. Also, the annual growth rate of farm

employment for these rural persons has been negative during 1993-94 to 2011-12. This decline in the overall growth rate of the farm workers in the rural areas has been mainly due to the withdrawal of females from agricultural operations during the concerned period. As can be seen from the table, the rate of growth of farm employment for the rural females has been negative (-0.12) in the post-reform period; whereas, the growth rates for the males has remained positive both in the pre- and post-reform periods (0.09 and 0.04 respectively). Thus, the Indian agriculture is witnessing the phenomenon of de-feminization in the rural areas on and from the latter half of the post-reform era (i.e., the period 1999-00 to 2011-12).

Table 1: Proportion of Rural Workers in Farm Sector: All India

Year	M	F	P
1983	77.75	87.74	81.49
1993-94	74.05	86.24	78.43
1999-00	71.40	85.36	76.30
2011-12	59.36	74.94	64.10

Source: Computed using the unit level information of the different rounds of NSSO

Table 2: Changes in WPR of Rural Workers (US-PS+SS) in the Primary Sector: All-India

Year	M	F	P
1983 to 1993-94	0.09	0.05	0.07
1993-94 to 1999-00	0.08	0.07	0.08
1999-00 to 2011-12	-0.04	-0.18	-0.09
1993-94 to 2011-12	0.04	-0.12	-0.02

Source: Same as Table 1

Again, the annual decline in the growth of farm employment for the rural females has occurred across all the sub-sectors within the primary sector during 1993-94 to 2011-12 (tables 3, 4 and 5) – in fact, the second phase of the post-reform period (1999-00 to 2011-12) marked the beginning of the process of de-feminization for the two subsectors - crop, animal production, hunting and forestry and logging; while, in case of fishing operations, such phenomenon of withdrawal of female workers commenced since the pre-reform years (1983 onwards). Further, among the three subsectors within the primary sector, it is the 'forestry and logging' that have shed off female workers at the highest rate throughout the post-reform period (1993-94 to 2011-12) at the all-India level.

Table 3: Changes of WPR of Rural Workers (US-PS+SS) in Crop and Animal Production and Hunting : All-India

Years	M	F	P
1983 to 1993-94	0.09	0.05	0.07
1993-94 to 1999-00	0.09	0.07	0.08

1999-00 to 2011-12	-0.04	-0.18	-0.09
1993-94 to 2011-12	0.04	-0.12	-0.02

Source: Same as Table 1

Table 4: Changes of WPR of Rural Workers (US-PS+SS) in Forestry : All-India

	M	F	P
1983 to 1993-94	0.28	0.15	0.23
1993-94 to 1999-00	-0.10	0.33	0.07
1999-00 to 2011-12	-0.13	-0.73	-0.42
1993-94 to 2011-12	-0.21	-0.64	-0.38

Source: Same as Table 1

Table 5: Changes of WPR of Rural Workers (US-PS+SS) in Fishing : All-India

	M	F	P
1983 to 1993-94	0.45	-0.04	0.36
1993-94 to 1999-00	-0.24	-0.10	-0.23
1999-00 to 2011-12	0.18	-0.04	0.15
1993-94 to 2011-12	-0.11	-0.13	-0.11

Source: Same as Table 1

**State Level Scenarios:** Table 6 observes the movement of the females out of the agricultural sector has also been observed across the various states of India throughout the period of study. During the pre-reform period (1983 to 1993-94), the states where the annual growth of farm employment for the rural females has been negative are Bihar, Haryana, Jammu-Kashmir, Kerala, Punjab and West Bengal. The rate of such withdrawal has been the highest in Jammu-Kashmir (-0.44) and the lowest in Haryana (-0.05) during 1983-94. However, the number of such states where the rate of growth for the female farm employees became negative has increased during the post-reform period.

It is seen that the primary sector of the low income states, like, Jammu-Kashmir, Assam, Himachal Pradesh and Punjab, have not witnessed the incidence of de-feminization in the post-reform period (as the rate of growth of female workers in the farm sector for these states remained positive). Such incidence of withdrawal of females from farming operations has taken place mainly across the high income states during 1993-94 to 2011-12; the rate of decline being the highest in Tamil Nadu followed by Haryana, Bihar, Karnataka, Orissa, Kerala, Gujarat, Madhya Pradesh, West Bengal, Andhra Pradesh, Maharashtra and

Rajasthan. Thus, income effect explains the rapid withdrawal of rural females from agricultural operations across the various states of India during the post-reform era.

Table 6: GSDP and Changes in WPR of Rural Workers (US-PS+SS) in the Primary Sector: State-wise

States	GSDP (base: 1993-94)	1983 TO 1993-94			1993-94 TO 2011-12		
		M	F	P	M	F	P
Andhra Pradesh	17929350	0.08	0.20	0.14	-0.07	-0.07	-0.07
Assam	3182977	0.43	0.74	0.48	0.02	0.02	0.02
Bihar	10999026	0.13	-0.26	0.00	0.22	-0.29	0.09
Gujarat	20633575	0.11	0.08	0.10	0.32	-0.15	0.11
Haryana	8033995	-0.35	-0.05	-0.24	0.26	-0.30	0.02
Himachal Pradesh	4435445	0.12	0.26	0.20	0.47	0.92	0.73
Jammu-Kashmir	1603557	-0.69	-0.44	-0.59	1.52	1.29	1.39
Karnataka	14537817	0.11	0.18	0.14	0.00	-0.26	-0.11
Kerala	8582494	-0.07	-0.36	-0.20	-0.29	-0.25	-0.28
Maharashtra	38876319	0.07	0.10	0.09	0.25	-0.04	0.10
Madhya Pradesh	14186721	0.22	0.09	0.16	0.08	-0.14	-0.01
Orissa	5307299	0.19	0.31	0.23	-0.10	-0.25	-0.16
Punjab	7883487	-0.14	-0.28	-0.19	-0.20	0.08	-0.10
Rajasthan	12081503	-0.06	0.07	0.01	-0.01	-0.04	-0.03
Tamil Nadu	20424873	0.06	0.13	0.10	-0.19	-0.47	-0.33
Uttar Pradesh	20461436	0.13	0.01	0.09	-0.09	0.01	-0.06
West Bengal	17546897	0.05	-0.13	0.00	0.13	-0.10	0.08

Source: Same as Table 1

Changes in Female WPR by levels of Education in Rural India during 1993-94 to 2011-12 : State-wise								
States	Farm	Illiterate	Below Primary	Primary	Middle	Secondary	Above Secondary	Literate
Andhra Pradesh	-0.07	-0.17	0.25	0.92	2.50	7.09	4.40	1.24
Assam	0.02	-0.27	0.52	0.77	1.23	2.06	4.36	0.92
Bihar	-0.29	0.04	2.71	3.32	2.99	5.08	5.69	3.15
Gujarat	-0.15	-0.14	0.65	0.99	1.29	1.12	11.25	0.98
Haryana	-0.30	-0.21	0.26	0.60	2.42	4.58	11.93	1.21
Himachal Pradesh	0.92	0.70	1.11	1.72	3.85	6.65	13.13	2.57
Jammu-Kashmir	1.29	1.91	2.99	3.05	5.75	10.43	22.30	4.59
Karnataka	-0.26	-0.23	0.35	0.49	1.27	4.05	5.53	1.00
Kerala	-0.25	0.10	-0.07	-0.08	0.26	1.13	5.78	0.35
Maharashtra	-0.04	-0.24	0.20	0.43	1.10	4.18	7.07	0.88
Madhya Pradesh	-0.14	-0.21	1.10	3.33	6.50	5.79	13.74	2.39
Orissa	-0.25	-0.27	0.32	1.44	2.54	3.81	5.68	1.21
Punjab	0.08	-0.22	0.13	0.78	0.82	2.13	3.53	0.85
Rajasthan	-0.04	0.01	1.97	4.05	5.88	8.69	13.70	3.38
Tamil Nadu	-0.47	-0.36	0.05	0.09	1.09	2.09	6.17	0.54
Uttar Pradesh	0.01	-0.07	1.00	1.75	2.67	4.07	4.89	1.77
West Bengal	-0.10	-0.16	0.17	1.10	1.63	3.28	2.99	0.85
Same as Table 1								

Parallel to this, it is seen that the females of the better educated states are keeping themselves confined to agricultural activities during 1993-2012 (see table 7). As seen, Rajasthan, the state where the rate of withdrawal of females from agricultural activities has been the lowest in the rural areas, among all other states, have secured the second place in terms of increase in female literacy during the period 1993-94 to 2011-12. On the other hand, Tamil Nadu, as seen previously, have shed off females from farming operations at the highest rate have shown the least growth of educated women during 1993-2012. Thus, the severity of the phenomenon of de-feminization of Indian agriculture for a state reduces as its rural female residents move up the ladder of education.

Is the non-farm sector responsible for de-feminization in Indian agriculture?

As opined by several scholars, the withdrawal of women from farming operations in the recent years is linked to the pull of the non-agricultural sectors. It would be interesting for us to know the true picture in this regard. For this, we compare the rate of growth of rural female workers between the farm and non-farm sector for the post-reform period (see table 8) across the various states of India.

Table 8:  
Growth Rate of Rural Female Workers during 1993-94 to 2011-12: State-wise

States	Farm	Non-Farm
Andhra Pradesh	-0.07	0.45
Assam	0.02	0.30
Bihar	-0.29	0.90
Gujarat	-0.15	0.39
Haryana	-0.30	0.61
Himachal Pradesh	0.92	4.43
Jammu-Kashmir	1.29	6.32
Karnataka	-0.26	0.08
Kerala	-0.25	1.01
Madhya Pradesh	-0.14	1.48
Maharashtra	-0.04	0.22
Orissa	-0.25	0.89
Punjab	0.08	3.52
Rajasthan	-0.04	2.72
Tamil Nadu	-0.47	0.87
Uttar Pradesh	0.01	0.92
West Bengal	-0.10	0.85
Same as Table 1		

It is seen that the rate of growth of female non-farm workers in the states where de-feminization in agricultural operations has not taken place is higher compared to the ones suffering from such de-feminization phenomenon during the post-reform period (the rate of growth for majority of these de-feminized states remained below one). For instance, Jammu-Kashmir has recorded the highest growth (6.32) of female workers in rural non-farm sectors during 1993-94 to 2011-12; however, the rural women of this hilly state of North India have not withdrawn themselves from agriculture. Thus, the phenomenon of de-feminization of Indian agriculture across the states is not taking place due to the pull of the non-farm sectors in the rural areas.

**Conclusion:** Thus, our analysis indicated the occurrence of de-feminization in Indian agriculture in the rural areas and the second phase of the post-reform period (1999-00 to 2011-12) marked the beginning of such a phenomenon at the all-India level. The rate of withdrawal of rural women from activities related to 'forestry and logging' has been the highest within the primary sector during 1993-94 to 2011-12. Further, rural women of few states, namely, Bihar, Haryana, Jammu-Kashmir, Kerala and West Bengal have started leaving the farm sector since 1983; while the decline in the growth of farm employment for

female workers in the rural areas was noticed in majority of the states post-1993-94 onwards.

Further, the movement of these rural females away from the low productive farm sector would have been appreciable if they would get absorbed in the non-farm sector. However, the NSSO data clearly rejected such an argument and concluded that the rate of growth of rural women workers in the non-farm sectors has been higher in those states which have witnessed feminization in agriculture in recent years. In addition to this, it is also seen that the severity of the phenomenon of de-feminization of Indian agriculture for a state reduces as its rural female residents move up the ladder of education.

It is the income effect that explains the rapid withdrawal of rural females from agricultural operations across the various states of India during the post-reform era. In the rural areas, the female workers of the high income states are leaving the farm sector at a faster rate compared to their peers of the low income ones throughout the period 1993-94 to 2011-12. Thus, rural women, across the major states of India, confine themselves in activities within the domestic spheres of the household in times of prosperity and returns back to the farm fields to assist their father and spouse only during the period of distress.

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