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Inclusive Development in Sericulture through Female Empowerment

A Case Study in Malda District, West Bengal

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Abstract

The paper explores the impact of women workers' dominance in sericulture sector upon the process of inclusive development in the rural household sectors of West Bengal. Role of women in this artisanal silk sector has been historically evolved. Her patience, perseverance, caring attitude and adaptability to new technologies have made her activities more dominant in sericulture and silk production. Dominance of female workers in productive workforce is always expected to exert positive influence on all development paradigm including health and education. This research paper specifically delves in intricate relationship between women dominance in sericulture activities and number of women and children existing in the family, household income, household – size, total man-days involved and wage difference between male and female workers. The share of women workers in total labour force in this household industry is inversely being influenced by the hired to domestic female ratios and number of total workers, while numbers of female workers leaves a positive influence.

Keywords: Sericulture, Silk-yarn, Female-labour, Female Empowerment, West Bengal, WEAI (Women's Empowerment in Agricultural Index)

JEL Classification: J-16, J-82, J-23

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I. Introduction

Gender empowerment in rural agro-industrial sector of India has been put special thrust in Indian economy and polity since 1990s as several foreign donor agencies enabled the formation of woman-oriented NGOs. Involvement of women in working force as well as in personal and social decision making process becomes a vital issue as the development arena of globalization started excluding all the marginal sections of the society, including women. The development gap between two strata, two different gendered identities become substantially wider and all these call for an inclusive development where the development impact can be reached to the marginal sections.

Sericulture is one of such activities which open up the scope of inclusive development through promoting the marginal sections, known as 'women'. Here, most of the works are carried out by women alone, both in terms of operations performed and time invested. Thus in a way, women contribute a significant role in different spectrum of work-activities as well as in decision-making. While in general perception, women's role is mostly confined in silkworm rearing, in reality it goes beyond. Leaving the shackles of gender-stereotyping, women in sericulture often take part in mulberry planting, weeding, manuring, irrigating, leaf picking, leaf transporting and storage. In silkworm rearing, they are engaged in leaf-cutting, feeding, bed cleaning, worm spacing, mounting, harvesting and disinfections. Some also participate in decision-making. Thus the dominance of women workers in sericulture is historically evolved. However, despite showing tenacity and persistence, their efforts remained unnoticed and they continued to work as unpaid family workers.

In recent years the role of women received increasing importance. The specific operations she performs as well as the magnitude of her production contribution have started being perceived and acknowledged more recently. The year 1994 had been declared as the 'Year of Women in Sericulture'. Through this special campaign, "women in sericulture" was brought on to the center stage of sericulture development. Later on, the developmental schemes conceived by Central Silk Board, India advocates greater thrust on women empowerment, promotion, awareness generation and support services.

The concept of gender budgeting introduced by the Government of India during Tenth Plan also led the Central Silk Board of the country to assess the adequateness of the allocation of resources for women and ensure that the gender commitment coupled with budgetary commitments are translated into achievements. The Eleventh Five Year Plan made a separate “women development component” mainly to address the social security concern of women associated with the silk industry.

In this paper I make a modest attempt to portray a brief picture of the state of women workers in sericulture sector and investigate the explanatory factors, among others, behind the female dominance of any sericulture farm. Apart from economic situation of the farms, wage differential across gender, hired-domestic female ratios, there exist several other factors which influence the female dominance criteria. Assuming this dominance can be translated into distributive impact, I tried to determine the explanatory factors behind these female dominant farms. This paper would try to shed some light into that region from the primary survey analysis.

II. Literature Review

Female involvement in sericulture activities have been studied by several authors down the line. While some tried to estimate their productivity as whole, some analyzed the distributive impact on welfare of the family from that empowerment. Usha Rani (2007) in one of her studies showed that the establishment of one acre mulberry garden for rearing 300 dfls (disease free layings) of silk worms in two months generates 96.36 man days of employment, of which 72.70 percent are women. Not only this, she has also shown that cocoon cutting and sexing and egg incubation is exclusively done by women labour. According to one statistical analysis submitted at a National Conference on “Women in Sericulture” (held at Mysore on 16th and 17th March, 2007), it can generate employment up to 11 persons of every kg of raw silk produced, out of which more than 6 persons are women. In India, more than 60 lakh persons are employed as full time workers in the production chain out of which 35-40 lakh persons are women. Ever-increasing demand to meet the domestic handloom industry requirements and equally

increasing potentials for exports provide tremendous opportunity for the women to avail sustainable income generating activities.

Women workforce in India has never been truly recognized as substantially significant work force in any productive activity. Macro statistics of women employment always understate the number of women workers in the rural areas. But the actual fact is that without these active (but invisible) role played by the farm-women, it would have been impossible to practice sericulture in India. Moreover, the impact of female dominance in sericulture on the perspective of poverty stricken rural mass is also enormous.

With the increasing rate of participation in work force, women also become a decision-making agent. She can actively participate in decision-making activity without being a passive respondent. Thus the income generated by the rural women can be utilized more judiciously for the socio- economic development of the family. Moreover, in the report of the Working Group on “Empowerment of Women for XIth Plan” (2006), it was emphasized that empowerment of women has two fold benefits:

- (a) *Intrinsic Benefit:* A woman is gaining the benefit for sake of herself by joining in family workforce, other than household activity. It raises her self dignity and self esteem. Her purchasing power and decision making power also rises.
- (b) *Spillover benefit:* Involvement of women workers also raises the welfare of her family members. Education level rises, nutrition level rises and thus the spillover effect helps in a holistic development of all the household members of her family.

Thus the spillover benefits from women-empowerment can broadly be categorized into following major heads:

- Rise in education level of children
- Rise in Nutrition level of family

- Rise in Health Awareness (specially among the girl child)
- Rise in the level of social resilience power against different social crimes like dowry, domestic violence, social abuse, illegal trafficking etc.

A study conducted by CARE (2009) on rural India reveals that economic empowerment via micro finance plan projects of women raises 125% of expenditure on education of their children and now they spend at least more than 43% on health care of their children. Micro surveys conducted by Ray (Ramesha & Sinha, 2009) also supported that women gaining employment from silk-sericulture always take care of their families more than before. They are able to ensure better education for their children on one hand and help their husbands in running their occupation side by side. Previous research activities indicate that economic participation of women in sericulture can augment the level of social welfare in various ways:

(i) The significant presence of women in the work force in quantitative terms – is important not only for lowering the disproportionate levels of poverty among women, but also a significant step forward raising household income and encouraging economic development of the society as a whole.

(ii) Through application of science and technology appropriate to the socio-economic condition of rural areas, rural women can be made economically self-dependent. There exists a preconceived notion that women do not want to learn new skills and techniques because they are seemed to be engaged only in primary household activities. This age-old belief acts as a bias against their inherent capability of adaptation. This notional bias itself contains some inbuilt contradiction and needs to be modified. Sericulture is such a family based occupation where the women can work along with their family responsibilities.

(iii) Empowerment of women always makes a match between economic opportunities and their capabilities. Most of the time due to lack of concern, economic opportunities are lagging behind the capabilities of women in different social sectors. Increased women's participation and earning have not only helped them to raise their self-esteem,

but also it has helped in reduction of poverty and accelerating growth. It also has a favourable impact on education and health outcomes of children.

For working women in lower income groups, it is particularly difficult to find outside labour to substitute for household based tasks, which, therefore tend to devolve upon young girls and aged women within the household or to put further pressure on the work load of the women workers themselves. According to Elson (Ghosh, 2004), it is wrong to assume that unpaid tasks of women would continue regardless of the way resources and incomes are collected. Therefore, “gender neutral” economic policies need to be formulated and stereotyping of gender division of labour needs to be changed.

III. Major Objectives of Study

Census statistics or NSS surveys do not specifically cover the participation rate of women worker in sericulture. Therefore our perspective analysis would be based on our own pilot surveys done on two sericulture rich villages (namely Sujapur and Gayeshbari, in Kaliyachak Block) in Malda district of West Bengal.

Literature suggests that there exists a causal relation between “women participation in agricultural (here, applicable for sericulture) work” and ‘incidence of poverty’. It is seen more than often that in lower strata women get involved in work due to dire necessity. Therefore this ‘pressing need’ acts as a driving force for women-workers in participatory role. Ultimately that becomes a tool of exploitation to the employers and services of poor women workers become subject to distress sale.

However, unemployment – poverty link which has been noted for men in developing countries, is not so direct and evident for women. Many women are fully employed and still remain poor in absolute terms and adding to their work load does not necessarily improve their material condition. Work participation often creates double burden upon women whose household obligations still have to be fulfilled. However, involvement of female workers in productive workforces and wage earning activities always work as an

accelerator of social transformation. Dominance of female workers is always expected to exert a positive influence on all development indicators including health and education. This paper will specifically try to shed some light on the issues of female dominance in sericulture.

IV. Reasons for dominance of women workers in sericulture

Sericulture is practiced in villages of India as a family-based occupation and thereby provides women a major role to play with, in various activities of this household-industry. Nearly sixty percent of the labour requirement is met by the women in almost all the traditional sericulture agencies in the world. Women's precision and patience make their presence more invincible in silk- worm handling. Since, traditions and customs of society in Indian rural context do not encourage the majority of rural women to work outdoors; sericulture proves to be a boon. It gives a wide opportunity where women can carry all their contributory work even after attending to their own regular household chores. Thus, sericulture is ideally suited for family women in the rural areas. Farm women have certain unique attributes, which are of special relevance to sericulture development and that these characteristics make the female dominance in sericulture indispensable:

- (i) A farm woman is the sheet anchor of the farm family. She is the foremost member who is concerned all the time about the well being of the family. So when women dominance is seen in any activity that has to be turned out to be a successful one. Poverty in rural India is another key feature that makes the women from lower class more intensive and serious to the work and this also enhances their productivity.
- (ii) Women are proved to be an efficient home-maker from the time immemorial. So whether as an artisan or a household industrial worker, she is supposed to give her best as it is involved with her family. Sericulture is such farm enterprises that have a great share of indoor components and demand enough

tenacity and sufficient attention. Thus female dominances in sericulture become quite natural.

- (iii) According to the analysts, women have proven themselves to be better learners. They are easily adaptable which is important for a dynamic world where better sericulture technologies are about to pay better dividends.

V. Women empowerment: a vehicle of poverty eradication

It has been widely recognized in the Working Group's Report of XIth Plan that a pro-woman growth is the most effective route to poverty alleviation. The concept of gender budgeting had already been introduced by the Government of India in Xth Plan. The Central Silk Board has adopted gender budgeting to assess the adequateness of the allocation of resources for women in sericulture. Experts in this field opined that government should ensure its gender commitments and, accordingly, provide relevant budgetary support so that commitments can then be translated into achievements.

In rural India poverty becomes a natural phenomenon due to irregular monsoon. Frequent draught results into crop failures and that, in turn, increases the debt burden of the farmers to such an extent that even big farmers have been driven below the poverty line. Agriculture itself fails to support such a high population in our country on full time basis. In such a situation sericulture is one such activity, where women carry most of the activities alone. In drought prone areas, where there is no scope of non-agricultural employment generation, sericulture proved to be an enterprise that has the potential to eradicate poverty through creation of employment opportunity for women.

Devaki Jain (2007) in exploring the gendered policy through her experience on Karnataka based activities, stated that women need to become economic and political agents instead of passive recipients of special ladder and safety nets. This she calls a "bubbling up model". Jain (2007) illustrated her points with examples from her work in Karnataka. To demonstrate the gender bias information, she uses the examples of poverty and

sericulture programmes in Karnataka. Poverty programmes were based on data that did not adequately capture the extent of women's work or the double burden they faced in working home and at outside. Therefore, special studies and surveys were conducted to map gender inequalities within home and extent of women's work outside. This led to change in policy where programmes were modified to allow for direct targeting of women.

Rural women work participation is always assumed as a function of poverty, landlessness and few other non-economic factors (Nayar, 1987). Women belonging to landless, marginal and small agricultural families are forced to seek employment. Thus poverty is considered to be a single most important factor of female participation. Landlessness is often synonymous with poverty and hence the line of argument is that greater poverty induces greater female participation in productive work.

Hence, we can infer that higher participation in sericulture is also considered as an indicative phenomenon that poverty is acute in Indian status. We have already analyzed in the previous section that there lies a class differential among participating women in sericulture. However, the percentage of household women involvement also rises along with hired women. This confirms that sericulture not only augments welfare of impoverished section of people but it also works in gender promoting activity in rural India.

VI. Women worker in sericulture: A case study of two GPs of Malda district

In order to have a grass root level understanding of the gender issues in sericulture sector, a primary survey was done in two Gram Panchayats of Kaliachak-I Block (Malda), which is prominent for concentration of artisans in sericulture. A list of questions was asked to all respondents randomly chosen from these two GPs. Feedback received from the respondents helped us to construct few tables and carry forward our analysis in the desired direction. Our basic objective was to make a situational analysis of women

workers in Malda. Female dominance in household farm can be the chief objective for accelerating the gender promoting role of sericulture and the influencing factors can be summarized as follows:

- (i) Wage differential between male and female (WD_MF): Lower the wage differential between male and female, higher is the chance of female dominance in household farms. So the difference between male and female wage is expected to exert a negative influence on gender dominance of the sericulture farms.
- (ii) Ratio between hired female workers to domestic female workers (HF_DF) : A general hypothesis is that as the ratio of domestic female worker rises, hired workers also rises (due to rise in comfort zone in work place[#]) and that combined effect would have a positive impact on female dominance in sericulture- farm. We will examine whether this hypothesis is true based on our primary survey.
- (iii) Economic situation (income): Economic situation of a farm may also influence the female dominance of the farm. Richer farms can afford to employ costly male labours instead of its cheaper female substitute. Whether richer farms are affected by Veblen effect and may prefer costly male labour as better productive labour is subject to queries. Therefore, economic situation of a farm can be expected to exert a negative influence on female dominance status of the farm.
- (iv) Household Size (hh_size): The household size may have a greater influence in controlling the degrees of female dominance in household industry like sericulture. Therefore, whether a smaller household has a greater or lesser degree of influence on female dominance in sericulture is an interesting point of study. It depends upon different psycho-socio parameters too. Women in large households are often observed as captivated where her freedom is restricted by many social inhibiting factors.
- (v) Number of Female in Household (female): Higher numbers of females in household always act as a liberating factor for women. Therefore higher degrees of female dominance should be visible in those household.

[#] A hired female worker always feels comfortable if she finds her coworker- employer is also the female member of the household.

- (vi) Number of Sericulture Workers in Household (workrs): The total workforce is also an interesting point of study for influencing female dominance in sericulture.
- (vii) Hired Female Workers (cwrkrs_f): Number of hired female workers may have a degree of influence in determining dominance of women workers in sericulture.
- (viii) Credit Access (credit): Credit access of household firm may create an income effect on sericulture farm, for which they may prefer to purchase costly substitute of labour force, i.e., male labour. Therefore credit access of sericulture farm may have an inverse impact on female dominance of sericulture farms.

With the primary level data survey, an attempt has been made to identify the statistically significant factors behind the extent of female dominance in sericulture farms. For this purpose we have worked with eight explanatory variables as stated above.

Female dominance has been specified in this section in two ways and two separate regression equation have been framed for running the regression test under OLS.

In **model-1**, female to male ratio in sericulture workers have been assumed as a parameter of female dominance and we indicate that as **fdomf_m**.

In the **second model**, we assume the percentage of female workers in a sericulture farm as a parameter of female dominance and interpret that dependent variable as **f_wrkpc**.

Model-1

The econometric results of Model-1 of Female Dominance are furnished below. The estimated F-ratio of the model is statistically significant (see the appendix-1), which ensures the goodness of fit of the regressors. The VIF ratios are indicating that there is no multicollinearity problem in the model and low standard errors are also indicators of good specificity of the model. The R^2 and Adjusted R^2 are 0.538 and 0.450, which implies even after taking into account the number of predictor variables in the model 45 % variability of the dependent variable (i.e., fdomf_m) is explained by the explanatory variables of the model.

Model 1	Coefficients					
	Unstandardized Coefficient	Std. Error	Standardized Coefficient	T	Sig.	Collinearity Statistics
Variables	B		Beta			Tolerance VIF
(Constant)	1.899	.626		3.032	.004**	
HF_DF	-.108	.477	-.053	-.227	.822	.233 4.293
COST_TO L	-1.034E-04	.000	-.207	-1.782	.083	.931 1.075
YRS_SCH O	-1.375E-02	.028	-.057	-.485	.630	.905 1.106
CWRKRS_ F	.315	.198	.324	1.588	.121	.301 3.325
HH_SIZE	-.454	.100	-.820	-4.520	.000**	.379 2.637
FEMALE	.747	.184	.870	4.055	.000**	.272 3.680
WDM_F	-1.237E-03	.005	-.032	-.267	.791	.844 1.185

a. Dependent Variable: FDOMF_M ; ** significant at .01 level

The estimated equation of this model is:

$$fdomf_m = 1.899 - 0.454*hh_size + 0.747*female$$

(0.626) (0.100) (0.870) ($Adj R^2 = 0.45$)

A one unit rise in the size of household will reduce the female to male ratios in the domestic work-sphere by 0.45. This unequivocally reinforces the traditional myth and feminist claim that in a large household woman carry the domestic burden, while responsibility of economic work is being shouldered by male member of the household, which corners the chance of emancipation of women members of the household as such. Therefore the result is not surprising in rural sericulture too. On the other hand, rise in number of females in household by 1 unit rises the chance of female dominance by 0.75. This result is also fairly logical, as female dominated households are always expected to exert their dominance in work-sphere too.

Besides the significant explanatory factors, the “sign” of the insignificant variables are also important indicators to explain the model. Female dominance is inversely affected by several explanatory variables, e.g., hired female to domestic female ratio, cost of tool, average years of schooling of the household, wage difference between male to female. Although, the regression coefficients of these variables are not significant, it is important

to explain the inverse relation and the rational logic behind them. A higher ratio of hired to domestic female reduces the female dominance. This explains that female dominance is being governed by the domestic female members and not the hired females. Similarly rise in cost of tools used in sericulture also reduces the female dominance in sericulture farm, which explains women in Rural Bengal are still not equipped in handling costly tools. Rise in average yrs of schooling indicates rise in average education level of household reduces female dominance. This can be interpreted as a female student of the household is getting involved in education, she can contribute very little in family-work. Similarly, rise in wage difference between male to female workers reduces female dominance which is totally logically justified. More lower wage payment made to the hired female worker, more they would try to find alternative work for sustenance, since they are not committed to any specific household for contributing their workforce.

Model-2

In our second model, we assume percentage of female workers as a determinant of ‘female dominance’ in sericulture farm and using simple regression technique on the relevant explanatory variables (as stated before) we derived the following result. The econometric exercises have been summarily expressed in the following estimated coefficients table.

Model 2	Unstandardized Coefficients		Standardized Coefficients		T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
(Constant)	61.095	6.407			9.536	.000		
HF_DF	-8.117	4.043	-.247		-2.008	.050	.547	1.827
WORKRS	-3.630	.711	-.622		-5.104	.000	.559	1.788
CWRKRS_	17.322	2.461	1.083		7.038	.000	.351	2.852
F								
INCOME	-3.164E-04	.000	-.136		-1.445	.155	.941	1.063
WDM_F	-2.961E-02	.061	-.048		-.486	.629	.838	1.194

a Dependent Variable: **F_WRKPC** ; ** sig at 0.01 level, * sig at 0.05 level;

The statistically significant F-Ratio of the model shows that model is a good fit model. The Adjusted R² tells us that 55% variations of the model can be explained by the

explanatory variables. The coefficient table highlights that no problem of multicollinearity is present in the model. Low standard errors also ensure good specificity of the model. The significant explanatory variables in this model are *hf_df*, *cwrkrs_f*, *workrs*. The estimated regression equation is

$$f_wrkpc = 61.095 - 8.117*(hf_df) + 17.322*(cwrkrs_f) - 3.630*(workrs)$$

(6.407) (4.043) (2.461) (0.711)

$$Adj R^2 = 0.542$$

If hired female- domestic female ratio increases by one unit, the female workers' percentage declines by 8.12 percent. This means that the female dominance is influenced by the number of domestic females in greater proportion than the hired females. However, the degrees of influence by the female co-workers (or hired female) are also not less significant. Rise in co-workers by one unit can raise the female dominance by 17.32 %. This is fully consistent with our previous claim which state that domestic to hired female ratio raises the female dominance. When a female worker in sericulture is hired, it means that sericulture farm is actually governed by women forces. However, the total rise in number of workers may have a negative impact on female dominance. According to the above regression equation, unit rise in number of workers may reduce the female workers percentage by 3.6 percent. This claim is also consistent with our previous claim in model-1, where it has been stated that number of household size may reduce the female dominance. In this model, the claim is more specific, i.e., if there is rise in workers level, obviously that reduces the female dominance. If higher returns attract the household to expand the business, obviously the male workers crowd out the female workers from the field. This is also verified by the inverse relation between income and percentage of female workers. When income of a household rises, more and more male workers concentrate on this household industry. This is what Charseley (1976) pointed out and Nayyar iterated.

On the other hand, the gender based wage differential may not be a significant explanatory variable in this model, but the inverse relation between wage differential and female dominance implies something vital. As wage differential between male to female

worker increases (i.e., the female worker is becoming cheaper), the female dominance in the farm declines. Substantial wage difference between male and female actually confirms the difference in their respective productivities too. Higher productive factor then dominates. This is what we see in case of large farms.

When the wage difference between male and female worker declines that raises the level of dominance by female workers. This indirectly indicates a preference bias towards female firms by the domestic household, when wage differential diminishes.

In reality, the poorer sericulture farms are always seen to be more female dominant, as their offered wage range between male and female are quite low compared to their counterparts. Therefore a policy in favour of female dominant farm can also help the society to combat with poverty.

VII. Conclusion

Sericulture is ideally suited for land and labour abundant economy like India, not only because it is low capital intensive but also because it is female labour intensive. Gender promotion and thereby social transformation along with poverty eradication is another major feature of this particular sector, through which inclusive development can be translated to these ignored sections of the society. Higher percentage of female labour can raise the gender dominance of the sericulture farms and gender dominance is associated with higher level of domestic female than hired female. But if the size of household rises and greater amount of workers are being attracted to join the sericulture farms, possibly due to higher returns, they crowd out the female workers. But the welfare impact of a female dominated farm is always redistributed to different sections of the society and a gross level of up-gradation in nutrition and education level is possible only through the spillover effect of this female employment generation. Therefore, holistic level of development is possible via gender promotion only. Development of women workers in this sector actually encompasses all those marginal poorer section where special thrust is urgently required. Gender discrimination against women worker in wage payment has to be legally banned. More incentive scheme (like concession in taxation etc.) should be provided to the employer in order to raise the involvement of women worker in

sericulture farms. Women workers intensive sericulture also needs some primary institutional support and initiatives so that sole-women (like widows, separated/ divorcee, single) household members can survive. However, there always exists a major gap between policy resolution and policy implementation. Therefore restructuring the process of implementation is also at once required. Then only the gender promotion and inclusive development will be possible. Drastic change in mind set will be a necessity while implementing equal wage payment and ensuring female dominance in farms. Impact of inclusive development will then be felt, when at all activity level of sericulture, voice of working women can be clearly heard of.

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