DEVELOPMENT & DIVERSIFICATION: ASPECTS OF RURAL DEVELOPMENT

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RENU PUBLISHERS
New Delhi

First Edition 2016

ISBN:

Renu Publishers
90, Sainik Vihar, Mohan Garden, New Delhi – 110 059
Tel: 011-25372232, 9971676330
E-mail: renupublishers@gmail.com
Website: www.renupublishers.com

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Capital Inflow, Corruption, Wage Distribution and Output Growth - Equivalence between adjusting corruption and endogenous corruption

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Abstract

This paper formulates a specific factor model of trade with skilled and unskilled workers as the specific factors and capital as the mobile factor of production. Production of goods is subjected to intermediation. We then endogenize the intermediation and prove that capital inflow raises the cost of intermediation. It is further explained that wage inequality between skilled and unskilled workers may go up in spite of being saddened by an increase in the cost of intermediation.

Keywords: International Trade, Corruption, Wage-inequality, General Equilibrium.

Introduction

International trade in goods and services helps adjusting and, at the end, equalizing factor prices across nations because mobility of goods and services act as a substitute for factor mobility. Conventionally, goods move from low price to high price region and hence influence the distribution of income among factors, output related growth. This is an age old and almost clichéd idea. The perception of international factor immobility is no longer valid today. This movement also follows the trajectory of goods' flow. Much hyped concern of wage-inequality between skilled and unskilled workers is traditionally explained in these lines of arguments with varied assumptions. Some deserving references are Feenstra (2004), Feenstra and Hanson (1997, 2003), Marjit and Acharyya (2003), Zhu and Trefler (2005), Das (2005), Jones and Marjit (2003), Chao et al (2006) etc. Till the publication of Mandal and Marjit (2010) there was no paper in the literature which attempted to capture the interrelation between

institutional factors like exogenous corruption or intermediation and wage inequality. Following this paper Dobson and Rodriguez (2010), using a panel data methodology, has done an empirical study on Latin America to show that institutional corruption and wage inequality are in fact interrelated.

Corruption literature dates back to the era when corruption was considered as "grease in the wheels of commerce and trade" [Leff, 1964; Huntington, 1968]. Some economists argued that corruption actually acts as signals for firms' competitive efficiency. But grease theory has lost much of its sheen as more and more evidence come to light showing that corruption is in fact like "sand" than "grease". Kaufman and Wei (1999) tested the grease theory, empirically, but found no support in its favor. Subsequently, corruption has been regarded as harmful for trade, in particular and economic development and production of goods, in general.

Therefore, it is by and large recognized that corruption is a major factor hindering the progress of the entire developing world. It is also well known that corruption diverts resources from productive to unproductive, rent-seeking activities. Earlier papers by Krueger (1974), Bhagwati (1982), Hillman and Ursprung (1988, 1996), Shleifer and Vishny (1993), Bardhan (1997) and others have analyzed such concerns in great detail. Nevertheless to the best of our knowledge it has not been attempted by any researcher to focus on the theoretical underpinning of how international factor mobility can persuade the income distribution and outputs if the countries are distorted with corruption. Hence, we precisely attempt to restructure the neo-classical theory of international trade in order to find a link among corruption, wage distribution and outputs under two different scenarios: one, when cost of corruption adjusts due to capital inflow; and the other when cost of corruption is endogenous.

In line of Jones (1971) here we develop a general equilibrium specific factor model of trade. We assume both the sectors to be distorted with corruption related transaction cost[1]. This is not an insensible assumption for a developing economy where bureaucratic red tapism, political control over business ventures, interest motivated administration related extortion are omnipresent[2]. We assume the corruption related cost or the loss in the value of output as an ice-berg type. To start with we further assume that the rate of cost of corruption or corruption-tax is exogenous. Then we try to focus on the cases where the cost of corruption can adjust with capital inflow and next we attempt to endogenize it. In this process of endogenization factor mobility plays a crucial role. This is the most distinguishing feature of the current paper over the existing stuff. More importantly our basic results remain alike irrespective of endogeneity.

Corruption in our framework diverts labor from productive to corruptive activities. This argument is drawn from a reasonable assumption that economic agents often have to comply with the undesired forces of regulation, intervention, rent-seeking and corruption. Such activities lead to the emergence of a sector represented by some productive factors which takes care of such institutional hazards. Greater is institutional deficiency, bigger is the chunk of resources that are there to benefit from the arbitrage opportunities, be it in the tax-office or at customs. These factors

negotiate for political / bureaucratic special favors, arrange to jump the "queue" and engage in many other intermediations. Notwithstanding explicit taxes, tiding over regulatory complexities implies employing resources that will take care of the institutional problems. The lost value of output in each sector due to institutional menace goes towards paying the bill for this non-traded sector which essentially does smoothening act arising out of corruption.

In this set up we prove that consequent upon capital inflow: (when corruption adjusts) the rate of cost of corruption would increase under certain factor intensity assumption; skilled workers benefit; the fortune of unskilled workers are uncertain; and relative wage gap between skilled and unskilled workers is widened under the same condition for which skilled workers' gain. All the sectors, including that one which smoothens the process of corruption surpassing, expand. This result is quite interesting in that capital inflow acts like a technical progress for all segments of the economy. More surprisingly economy must experience growth as consumable goods and services increase in tandem with corruption sector. These results remain valid even if we endogenize corruption.

The arrangement of the paper is as follows. Introduction is followed by the environment and the basic model in section II. Section III discusses in brief the possibility that one of the sectors may vanish consequent upon capital influx. Section IV talks about international capital mobility and its consequences on wage distribution and outputs when corruption can adjust like a shock absorber. Next section introduces the endogeneity of cost of corruption and looks at the same issues. The last section concludes.

Formation of the Basic Model and Solution

Here we have a small open economy where prices of goods are determined from the international market. All markets are perfectly competitive and constant returns to scale helps determining the input-output coefficients. For brevity we normalize all the prices to unity. Two traded goods X and Y are produced by skilled labor (S) and unskilled labor (L) as specific factors, respectively and by inter-sectorally mobile capital (K). Producers of X and Y need to conform to the institutional hazards that we have mentioned in the previous section. In order to combat such perils they have to employ some factors of production that can be drawn from the pool of productive resources. Thus it becomes quite costly to society as a whole since these factors do not produce any consumable goods or services. Total volume of output could have been much greater had there been no such problems. This idea is quite consistent with that of directly unproductive activities (DUP) of Bhagwati (1982). At the same the service provided by these so called unproductive factors is very crucial in that without such an arrangement no goods can see the light of the day. All factors are freely mobile among theses three alternative: production of X, production of Y and corruption related intermediation.

As we have just stated, production of both X and Y are beset with similar extent of corruption related transaction. Each unit cost of such intermediation is denoted by

α. This is covered by a part of the value of per unit of outputs. Thus by definition corruption smoothening intermediation requires all the factors of production. We represent this intermediation sector by Z. So, in a broader sense our model is a three-good and three-factor one. All the markets are competitive, factors are fully employed and production functions are linearly homogenous.

We use the following symbols to describe the set of equations of our model. Note that here $Pj \Rightarrow$ price of the jth commodity ($j = X, Y$); $w_s \Rightarrow$ skilled wage; $w \Rightarrow$ unskilled wage; $r \Rightarrow$ rate of return to K; $\alpha_{ij} \Rightarrow$ input-output coefficient $(i \neq j;\ i = S,L,K$ and $j = X,Y,Z)$; $\alpha \Rightarrow$ per unit corruption smoothening intermediation cost or cost of corruption or the rate of corruption tax per se; $\overline{S} \Rightarrow$ total supply of skilled labor; $\overline{K} \Rightarrow$ total supply of capital; and $\overline{L} \Rightarrow$ total supply of unskilled labor; S_Z, L_Z, $K_Z \Rightarrow$ factors employment in Z; $\wedge \Rightarrow$ proportional changes.

Competitive price conditions entail that,

$$W_S A_{SX} + R A_{KX} = (1 - A) \tag{1}$$

$$W A_{LY} + R A_{KY} = (1 - A) \tag{2}$$

Total value of the goods lost due to corruption related intermediation must be equal to the payments made for factor that are used for corruption smoothening activities. Thus we have equation (3) as follows:

$$W_S S_Z + W L_Z + R K_Z = A (X + Y) \tag{3}$$

In equation (3) $S_Z = \alpha_{SZ}.Z$, $L_Z = \alpha_{lz}.Z$ and $K_z = \alpha_{kz}.Z$. Let us further assume that factors are employed in fixed proportion in Z such as $L_Z = \alpha S_Z$ and $K_Z = bS_Z$. Therefore equation (3) can be re-written as

$$W_S + AW + BR = A \frac{(X + Y)}{S_Z} \quad (WHERE\ A = \frac{(X + Y)}{S_Z}) \tag{3}$$

Define $(X + Y)$ corresponding to (3) as B. Hence $= \dfrac{A}{1/S_Z}$.

From price equations it is apparent that for a given α, r will fall due to an increase in A if Z does not use K much. Subsequently W_S and W will increase leading to an unambiguous increase in S_Z. Under this condition A and B are positively related. This will be portrayed in Figure-1 as AB line. The intuitive explanation behind a positive relation between A and B lies in the possibility of factor substitution. Note that factor substitution is not possible in Z by definition. Total factor requirement in X and Y depend essentially on S and L respectively as these two are the specific factors. Since W_S increases following an increase in A, α_{SZ} must fall indicating a decrease in S_x $(= \alpha_{sx}.\ X)$ for any given level of X. This implies an increase in S_Z. It is interesting to note that an increase in S_Z also ensures an increase in S_Z and S_Z in tandem.

Now lets turn to the full employment conditions. Full employment condition ensures the following equalities:

$$A_{SX}.\ X + S_Z = \overline{S} \tag{4}$$

$$A_{LY}.\ Y + L_Z = L \tag{5}$$

$$A_{KX}.\ X + A_{KY}\ Y + K_Z = K \tag{6}$$

The moment S_Z goes up both X and Y must fall for some given technology. This is obvious from the full employment conditions. Let us call it C, the new set of (X+Y) corresponding to the full employment of factors. Hence here we have a negative relation between A and C. The new (X+Y) i.e. C may not match with the (X+Y) that we got from AB line. This is precisely why we need to put these two curves in a diagram to solve for equilibrium $(X + Y)$ and $\left\{\frac{(X + Y)}{S_Z}\right\}^*$. This is shown in Figure-1. However, we have to solve further for individual X and Y.

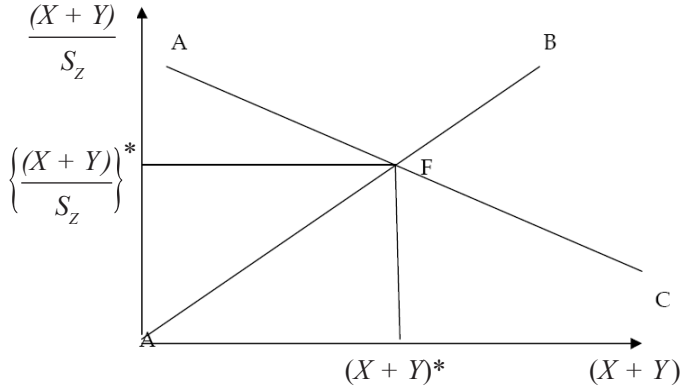

Fig. 1

Therefore, here we have six unknown variables (W_s, r, w, X,Y,Z) as we are assuming α to be given to start with and equilibrium S_Z is already detremined. Linearly homogenous production function helps determining the input-output coefficients in each sector. Therefore we can solve all these unknown variables from equation (1)-(3) and (4)-(6). Thus the model is solved.

Furthermore, equation (3) can be re-interpreted as

$$W_S\, A W_{SZ} + A W_{LZ} + R\, A_{KZ} = A\ \frac{(X + Y)}{S_Z}$$

Here it is worth mentioning that $(X + Y) = Z$. In brief this equality states that, on the one hand, total amount of goods X and Y produced are subject to intermediation without any specific bias. And on the other hand, total units of intermediation service required in the economy are denoted by Z. By definition these two amounts are equal. Thus,

$$W_S\, A_{SZ} + W A_{LZ} + R\, A_{KZ} = A \tag{7}$$

We shall use equation (7) for further exploration of the consequences of an inflow of capital in next sections.

Capital Inflow and Vanishing Sector

mLet us first start with a situation when cost of corruption related intermediation is given and constant. In this condition an inflow of foreign capital depresses *r*. In what follows both w_s and *w* would increase. This is apparent from equation (1) and (2). The rate of rise of w_s and *w* entirely hinges upon factors' share in X and Y, respectively.

Now turn to equation (3). The Left Hand Side (LHS) indicating payment to the factors engaged in intermediation may increase, decrease or remain constant. However, the Right Hand Side (RHS) implying the value of lost output must increase as both w_s and *w* rise. Also note that Z will also increase since (X+Y) is identical with Z. Therefore, using (3') the RHS remains same as α_{sz} is constant. If LHS of (3') turns out to be greater than RHS, the cost of intermediation becomes greater than the value of intermediation in a sense. This leads to non-viability of Z or intermediation sector. Only X and Y would exist and Z would vanish from the structure[3]. For reverse argument there will be no production of X and Y, only Z should ideally exist. But this is not feasible by definition as Z is a byproduct of X and Y and (X+Y)=Z. Now we are left with another possibility where LHS of (3') is equal to the RHS of the same. In that case either X or Y may vanish from the system. X would no longer be produced if $\theta_{kx} > \theta_{ky}$ or $\theta_{sx} < \theta_{ly}$. The reason is that producing X would not be cost-effective as w_s would increase more than *w*. By virtue of full employment condition, simultaneously, all skilled labors would get employment in Z. Again, Y would be vanished if $\theta_{kx} > \theta_{ky}$ and all unskilled workers have to go to the intermediation sector for survival.

Adjusting Cost of Corruption Related Intermediation

We start from a situation where α is exogenous but can act as a shock absorber as and when required. The implication is that consequent upon any exogenous shock the cost of corruption related intermediation can adjust. This should not be, however, confused with endogeneity. The case of endogenous intermediation cost would be discussed in the next section. Despite being non-endogenous the cost of intermediation, here, becomes a variable that can be solved within the system.

If we assume r as constant at some rate (say r^*) we can also solve for α. α can adjust then consequent upon any change in the return to factors. The value of α becomes a function of factor returns. In that case $w_s = w_s(\alpha)$ where $w_s(\alpha) < 0$ and $w = w(\alpha)$ where $w(\alpha) < 0$. Equation (7) turns into

$$w_s(\alpha)\alpha_{sz} + w(\alpha)\alpha_{lz} + r^*\alpha_{kz} = \alpha$$

$$Or,\ \delta(\alpha) + r^*\alpha_{kz} = \alpha;\ where\ \delta(\alpha) = \{w_s(\alpha)\alpha_{sz} + w(\alpha)\alpha_{ls}\} \quad (8)$$

This equation is the first step towards accommodating the issue when corruption

adjusts or can act as a shock absorber. If α goes up both w_s and w must fall for any given r (see equation (1) and (2)). Therefore, $\delta_\alpha(\alpha) < 0$. We can represent equation (8) through the following diagram (Figure 2).

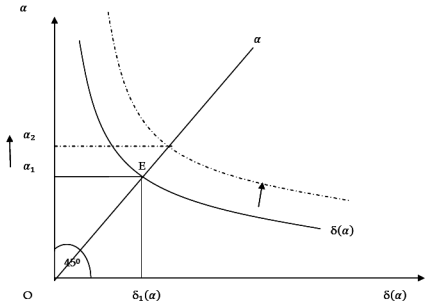

Fig. 2

For any given rate of interest (say r^*) the equilibrium rate of cost of corruption smoothening intermediation α_1. Now, if capital is allowed to come in (from a capital scarce developing economy perspective) r must fall. To maintain equality in (8) $\delta_\alpha(\alpha)$ has to shift up implying an unambiguous increase in α. This is how capital inflow influences the cost of intermediation which in turn should affect factors' income. The desired relationship between capital inflow (a fall in r) and rate of cost of intermediation (RCI; α) is positive. Symbolically, $\alpha\ \alpha\ \frac{1}{R}$.[4]

Internationally mobile capital and wage distribution

In this section we would attempt to do an interesting comparative statics related with the policy issues. While doing this we must keep the post-globalization reality in our mind. We strive to focus on the effects of international mobility of capital. From a developing country perspective r must be higher in the domestic market compared to international scenario. If capital comes in freely r will fall. But the point to be remembered is that α is no longer constant as we have discussed in the previous section. The dependence of α on w_s, w and r makes the analysis interesting and different from the whole lot of other papers.

Totally differentiate equation (1) and (2) to obtain

$$\hat{w}_s = \frac{-\alpha\hat{\alpha} - \hat{r}\theta_{kk}}{\theta_{sx}} \tag{9}$$

$$\hat{w} = \frac{-\alpha\hat{\alpha} - \hat{r}\theta_{ky}}{\theta_{ly}} \tag{10}$$

Note that throughout the paper a caret over any variable represents proportional change and θ_{ij}s are the value share ith factor in jth commodity e.g., $\theta_{sx} = \frac{-w_s\ \alpha_{sx}}{1}$, $\theta_{ky} = \frac{r\alpha_{ky}}{1}$ etc.

Similarly differentiating (7) we find

$$\hat{\alpha} = \hat{w}_s \theta_{sz} + \hat{w}\theta_{lz} + \hat{r}\theta_{kz} \tag{11}$$

Substituting (9) and (10) into (11) yields

$$\hat{\alpha} = \hat{r}\left\{\frac{\theta_{kz}\dfrac{\theta_{kx}\theta_{sz}}{\theta_{sx}} - \dfrac{\theta_{ky}\theta_{lz}}{\theta_{ly}}}{\left(1+\alpha\dfrac{\theta_{sz}}{\theta_{sx}}+\alpha\dfrac{\theta_{lz}}{\theta_{ly}}\right)}\right\} \tag{12}$$

The denominator of equation (12) is positive and r must fall if capital flows in from abroad. Hence, the value of $\hat{\alpha}\hat{\alpha}$ crucially hinges upon the value of the numerator.

$$\hat{\alpha} > 0 \; if \left(\theta_{ly}\theta_{kz} - \theta_{ky}\theta_{lz}\right) < 0$$

$$\frac{\theta_{ky}}{\theta_{ly}} > \frac{\theta_{kz}}{\theta_{lz}} \text{ or, } \frac{\alpha_{ky}}{\alpha_{ly}} > \frac{\alpha_{kz}}{\alpha_{lz}} \tag{13}$$

Inequality (13) is a sufficient condition as $\hat{r} < 0$ and $\theta_{kx}\,\theta_{ly}\,\theta_{sz} > 0$. Above inequality asserts that for α to increase (which we have already discussed) Y has to be capital intensive than Z and Z has to be more unskilled labor using than Y.

Manipulating (12) it can also be shown that due to a fall in r, α will rise if

$$\frac{\theta_{kz}}{\theta_{sz}} < \frac{\theta_{kx}}{\theta_{sx}} \; or, \; \frac{\alpha_{kx}}{\alpha_{sx}} > \frac{\alpha_{kz}}{\alpha_{sz}} \tag{14}$$

Hence if X turns out to be capital intensive than Z or Z uses more skilled workers relative to X the RCI ($\alpha)\alpha)$must increase following capital inflow.

Plugging (13) and (14) into (9) and (10), it is straightforward but tedious to show that

$$\hat{w}_s = (-)\frac{\hat{r}}{\theta_{sx}}\left[\frac{\theta_{sx}\theta_{ly}\left(\theta_{sx}+\alpha\theta_{kz}\right)+\alpha\theta_{sx}\theta_{lz}\left(\theta_{kx}-\theta_{ky}\right)}{\left(\theta_{sx}\theta_{ly}+\alpha\theta_{ly}\theta_{sz}+\alpha\theta_{sx}\theta_{lz}\right)}\right] \tag{15}$$

$$\hat{w} > 0 \; iff \; \theta_{kx} > \theta_{ky} \quad (\text{as } \hat{r} < 0) \tag{16}$$

$$\text{Again, } \hat{w} = (-)\frac{\hat{r}}{\theta ly}\left[\frac{\theta_{sk}\theta_{ly}\left(\theta_{ky}+\alpha\theta_{kz}\right)+\alpha\theta_{ly}\theta_{sz}\left(\theta_{ky}-\theta_{kx}\right)}{\left(\theta_{sx}\theta_{ly}+\alpha\theta_{ly}\theta_{sz}+\alpha\theta_{sx}\theta_{lz}\right)}\right] \tag{17}$$

Here, if $\theta_{kx} > \theta_{ky}$, $\hat{w}$ may take any value depending on the value of the numerator

of equation (17). This should naturally satisfy the equality condition in (11). α has gone up as a result of a fall in r. This ensures an increase in either w_s or w or both.

Therefore, under condition (16)

$$\hat{w} \gtrless 0 \text{ if } \left|\frac{\theta_{sx}\left(\theta ky + \alpha\theta_{kz}\right)}{\theta_{sz}\left(\theta_{ky} - \theta_{kx}\right)}\right| \gtrless \alpha \tag{18}$$

Now let us turn to the relative wage distribution or wage-inequality between skilled-unskilled workers. Using (15) and (17) we obtain

$$\begin{aligned}\left(\hat{w}_s - \hat{w}\right) = \frac{\hat{r}}{\left(\theta_{sx}\theta_{ly} + \alpha\theta_{ly}\theta_{sz} + \alpha\theta_{sx}\theta_{lz}\right)}\{&\left(\theta_{sx}\theta_{ky} - \theta_{kx}\theta_{ly}\right) + \alpha\theta_{kz} \\ &\left(\theta_{sx} - \theta_{ly}\right) + \alpha\left(\theta_{ky} - \theta_{kx}\right)\left(\theta_{sz} + \theta_{lz}\right)\}\end{aligned} \tag{19}$$

If $\theta_{kx} > \theta_{ky}$ ($\Rightarrow \theta_{sx} < \theta_{ly}$)

$\{\alpha(\theta_{ky} - \theta_{kx})\ (\theta_{sz} + \theta_{lz})\}$, $\alpha\ \theta_{kz}\ (\theta_{sx} - \theta_{ly})$, $(\theta_{sx}\theta_{kx} - \theta_{kx}\theta_{ly}) < 0$.

Therefore, $(\hat{w}_s - \hat{w}) > 0$ consequent upon capital inflow as $\hat{r} < 0$. The underlying arguments at the back of the effects on wage distribution are in line with the conventional wisdom. The value share of capital in each commodity will determine the impact on wage of skilled and unskilled workers. However, the value addition of this paper to the accessible writings is that this kind of argument is valid even if the cost of corruption related intermediation is allowed to automatically adjust in a specific factor model of trade. Hence, the following proposition is immediate.

Proposition-I: *An inflow of foreign capital would worsen (widen) the wage inequality between skilled and unskilled workers even in presence of endogenous intermediation if:*

$$\theta_{kx} > \theta_{ky} \text{ and } \frac{\alpha_{kx}}{\alpha_{ly}} > \frac{\alpha_{kz}}{\alpha_{lz}} \text{ or } \frac{\alpha_{kx}}{\alpha_{sx}} > \frac{\alpha_{kz}}{\alpha_{sz}}$$

Outputs with adjusting cost of intermediation

In the previous sub-section we have considered the possibility(ies) under which an increase in capital endowment may tilt the wage distribution in favor of skilled labor. The moment capital comes in, the return to capital goes down in the destination country. The returns to skilled and unskilled labor go up in tandem in some circumstances that we have already pointed out. Interestingly, the factor price ratios i.e. $\frac{w_s}{r}$ and $\frac{w}{r}$ also change inducing the leeway of substitution between labor and capital in X and Y. For simplicity we assume that technology for corruption activity does not change which points to constancy of α_{sz}, α_{lz}, α_{kz}.

Using the formulae for elasticity of substitution represented by σ_i ($i = x, y$), and applying the zero profit condition in both X and Y we derive

$$\left.\begin{aligned}
\hat{\alpha}_{sx} &= \frac{\sigma}{1-\alpha}\theta_{kx}\left(\hat{r}-\hat{w}_s\right)\\
\hat{\alpha}_{kx} &= (-)\frac{\sigma_x}{1-\alpha}\theta_{sx}\left(\hat{r}-\hat{w}_s\right)\\
\hat{\alpha}_{ly} &= \frac{\sigma y}{1-\alpha}\theta_{ky}\left(\hat{r}-\hat{w}\right)\\
\hat{\alpha}_{ky} &= (-)\frac{\sigma_y}{1-\alpha}\theta_{ly}\left(\hat{r}-\hat{w}\right)
\end{aligned}\right\} \text{ where, } \left.\begin{aligned}
\sigma_x &= \frac{\hat{\alpha}_{sx}-\hat{\alpha}_{kx}}{\hat{r}-\hat{w}_s}\\
\sigma_x &= \frac{\hat{\alpha}ly-\hat{\alpha}_{ky}}{\hat{r}-\hat{w}}
\end{aligned}\right]$$

The economic intuition behind substitution asserts that producers attempt to economize on the usage of relatively costly factor implying a change in technology of production.[5]

Differentiating full employment conditions and substituting the values of $\hat{\alpha}_{sx}$, $\hat{\alpha}_{kx}$, $\hat{\alpha}_{ly}$, $\hat{\alpha}_{ky}$ we have

$$\hat{X}\lambda_{sx}+\hat{Z}\lambda_{sz}=(-)\frac{\sigma_x}{1-\alpha}\theta_{kx}\lambda_{sx}\left(\hat{r}-\hat{w}_s\right) \tag{20}$$[6]

$$\hat{Y}\lambda_{ly}+\hat{Z}\lambda_{lz}=(-)\frac{\sigma y}{1-\alpha}\theta_{ky}\lambda_{ly}\left(\hat{r}-\hat{w}\right) \tag{21}$$[7]

$$\hat{X}\lambda_{kx}+\hat{Y}\lambda_{ky}+\hat{Z}\lambda_{kz}=\frac{\sigma_x}{1-\alpha}\theta_{sx}\lambda_{kx}\left(\hat{r}-\hat{w}_s\right)+\frac{\sigma_y}{1-\alpha}\theta_{ly}\lambda_{ky}\left(\hat{r}-\hat{w}\right) \tag{22}$$

Since $\hat{r}$, $\hat{w}$ and $\hat{w}_s$ have taken care of the issue of $\hat{K}$ we have ignored such term in equation (22). Note that, λ_{ij}= employment share of ith factor in jth commodity such as $\lambda_{sx}=\frac{\alpha_{sx}X}{S}$, $\lambda_{sz}=\frac{\alpha_{sz}Z}{S}$ etc.

In the above simultaneous equation system Cramer's rule helps us to solve for $\hat{X}$, $\hat{Z}$ and $\hat{Z}$. An increase in outputs of both the goods due to an increase in the endowment of mobile factor can not be guaranteed before hand unlike the standard specific factor model outcome. Existence of corruption activity which also uses K invokes the ambiguity and makes the analysis appealing.

$$\hat{X}=\frac{1}{\Delta}\left[-\frac{\sigma_x}{1-\alpha}\left(\hat{r}-\hat{w}_s\right)\theta_{kx}\lambda_{sx}\left(\lambda_{ly}\lambda_{kz}-\lambda_{ky}\lambda_{lz}\right)-\frac{\sigma_x}{1-\alpha}\left(\hat{r}-\hat{w}_s\right)\theta_{sx}\lambda_{kx}\lambda_{ly}\lambda_{sz}-\left(\hat{r}-\hat{w}\right)\lambda_{ky}\lambda_{ly}\lambda_{sz}\right] \tag{23}$$

Here $\Delta=\lambda_{sx}\left(\lambda_{ly}\lambda_{kz}-\lambda_{ky}\lambda_{lz}\right)-\lambda_{kx}\lambda_{ly}\lambda_{sz}$. And we have already argued earlier that

for $\hat{\alpha} > 0$ due to $\hat{r}$ 0 the sufficient condition is either $\frac{\alpha_{ky}}{\alpha_{ly}} > \frac{\alpha_{kz}}{\alpha_{lz}}$ or $\frac{\alpha_{kx}}{\alpha_{sx}} > \frac{\alpha_{kz}}{\alpha_{sz}}$. Hence $(\lambda_{ly}\lambda_{kz} - \lambda_{ky}\lambda_{lz})$ implying $\Delta > 0$.

$\hat{X}$ would be positive if

$$-\frac{\sigma_x}{\sigma_y}\frac{(\hat{r}-\hat{w}_s)}{\hat{r}-\hat{w}} < (1-\alpha)\frac{\lambda_{ky}\lambda_{ly}\lambda_{sz}}{\theta_{kx}\lambda_{sx}\left(\lambda_{lx}\lambda_{kx}-\lambda_{ky}\lambda_{lz}\right)+\theta_{sx}\lambda_{kx}\lambda_{ly}\lambda_{sz}} \tag{24}$$

From the price equations it is very easy to establish that $\frac{(\hat{r}-\hat{w}_s)}{(\hat{r}-\hat{w})_{ly}} = \frac{\theta_{ly}}{\theta_{sx}}$. The left hand side of (24) is invariably negative. If the right hand side of (24) becomes positive, the inequality of (24) would be satisfied without any further implication. Manipulating (24) and using the arguments just exposited we have

$$\hat{X} > 0 \text{ if } \frac{\theta_{sx}}{\theta_{kx}} > \frac{\lambda_{sx}}{\theta_{sz}}\frac{\left(\lambda_{ky}\lambda_{lz}-\lambda_{ly}\lambda_{kz}\right)}{\lambda_{kx}\lambda_{ly}} \tag{25}$$

Replicating the same procedure we prove that

$$\hat{Y} > 0 \text{ if } \frac{\theta_{ly}}{\theta_{ky}} > \frac{\lambda_{ly}}{\lambda_{lz}}\frac{\left(\lambda_{kx}\lambda_{sz}-\lambda_{sx}\lambda_{kz}\right)}{\lambda_{ky}\lambda_{sx}} \tag{26}$$

An increase in both X and Y automatically indicates and increase in Z. It does not matter as to whether X rises relatively more or less than Y. As long as the sum of X and Y goes up and are subject to intermediation at a symmetric rate Z is bound to increase. Nevertheless one can easily check it with the mathematical stuff that we developed here.

The summary of the analysis can be represented through the following proposition:

Proposition- II: In a corruption ridden economy an inflow of capital will raise the output of

(a) *X if (i)* $\theta_{kx} > \theta_{ky}$ *(ensures* $\hat{w}_s$, $\hat{w}$,$(\hat{w}_s - \hat{w})>0$*); (ii)* $\frac{\alpha_{ky}}{\alpha_{ly}} > \frac{\alpha_{kz}}{\alpha_{lz}}$ or $\frac{\alpha_{kx}}{\alpha_{sx}} > \frac{\alpha_{kz}}{\alpha_{sz}}$ *(ensures* $\hat{\alpha} > 0$*); and (iii);* $\frac{\theta_{sx}}{\theta_{kx}} > \frac{\lambda_{sx}}{\lambda_{sz}}\frac{(\lambda_{ky}\lambda_{lz}-\lambda_{ly}\lambda_{kz}}{\lambda_{kx}\lambda_{ly}}$;

(b) *Y if (i)* $\theta_{kx} > \theta_{ky}$ *(ensures* $\hat{w}_s$, $\hat{w}$,$(\hat{w}_s - \hat{w})>0$*); (ii)* $\frac{\alpha_{ky}}{\alpha_{ly}} > \frac{\alpha_{kz}}{\alpha_{lz}}$ or $\frac{\alpha_{kx}}{\alpha_{sx}} > \frac{\alpha_{kz}}{\alpha_{sz}}$ *(ensures >0); and (iii)* $\frac{\theta_{ly}}{\theta_{ky}} > \frac{\lambda_{ly}}{\lambda_{lz}}\frac{(\lambda_{kx}\lambda_{sz}-\lambda_{sx}\lambda_{kz}}{\lambda_{ky}\lambda_{sx}}$;

Corollary- II.A: Consequent upon an inflow of capital corruption smoothening intermediate service expands unambiguously.

Concluding Remarks

Here we have developed a standard specific factor general equilibrium model of trade with corruption related intermediation. The cost associated with intermediation eats away output from both the sectors without any bias. In this set up we have taken up two different situations: (1) when cost of intermediation is exogenous but adjustment is possible: (2) cost of intermediation is endogenous. It has been shown that under situation (1) if international capital is allowed to come in, skilled workers must gain but the fate of unskilled workers is uncertain. However, relative wage inequality must worsen if skilled labor using good uses relatively higher share of capital and intermediation requires maximum number of skilled workers. In explaining this situation it has also been proved that under the same condition the rate of cost of intermediation is, essentially, a negative function of rate of return to capital. While in situation (2) an inflow of capital reduces the rate of cost of intermediation and increases the factor employment in corruption smoothening service. In spite of a positive relationship between r and α unlike the basic model we get similar kind of results. The interesting policy implication of this paper is that if the scope of technological improvement is limited any country must allow foreign capital to come in. This will do the trick for output growth though corruption activity expands.

This model can be extended through many different avenues. Some modifications can be done by bringing in international labor mobility or institutional reform etc. We leave these issues for further research.

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2

Possibility of cartel between small capital and large capital trader under changing retail and wholesale trade in India

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Abstract

In this paper, we have tried to show that how a strategic move from large capital or corporate traders of agriculture commodities, including food processing firms, retailers, wholesalers affecting and changing the preferences of the small capital regional or local traders of agriculture commodities in the market than before when only small capital traders were present and large capital or corporate traders were not allowed to enter. With these changing preferences of the small capital traders (SCT) and strategic moves or the preferences of the large capital or corporate traders (LCT) here we have tried to show in this paper the possible conditions of a cartel between the SCT and the LCT in the rural wholesale market of agricultural commodities and how that in turn changing the rural wholesale market price of agriculture-food items.

Keywords: Agricultural commodities, Bargaining power, Corporate investment, Farmer, Large capital traders, Risk Preference, Quality constraints, Small capital traders,

Introduction

In this paper, we have tried to show that how a strategic move from large capital or corporate traders of agriculture commodities, including retailers, wholesalers affecting and changing the preferences of small capital regional or local traders of agriculture commodities in the market than before when only small capital traders were present and large capital or corporate traders were not allowed to enter. With these changing preferences of the small capital traders (SCT) and strategic move or the preferences of the large capital or corporate traders (LCT) here we have tried to show in this paper the possible conditions of cartel between the SCT and the LCT. The Indian market reformed for domestic large capital or corporate traders,

including retailers, wholesalers, exporters and importers, food processing firms, etc... 100 percent Foreign Direct Investment (FDI) in cash and carry has been opened since 2006 with automatic route and in the single-brand retail market by 2012. Reforms for Multi-brand retail has not yet been taken, though domestic corporate traders are allowed with collaboration of foreign firms of multi brand in nature. When only small capital traders (SCT) are there, then agriculture sector has to depend only on large competitive traders. As they are competitive firm so farmers are getting less. On the other hand, if there is only a large capital trader (LCT) in the market, then a chance of controlling the price offered to farmers or monopoly and /or oligopoly pricing can be happened. In this paper, we have been proposing some strategic notions regarding the possible condition of a cartel between the SCT and the LCT.

Literature review

In an earlier paper, it has been shown that the large capital based retail traders or the LCT prefers to collect quality or highly graded products from the farmers[1](Das, 2015). Therefore, they usually cannot sell agricultural commodities or food items through their own outlets at lower prices wherever the small capital based retail traders can do so. In addition, large capital, whether single and multi brand retailers are in the market, then small capital retail chain can stay in the market, though the market share must reduce (Das, 2015). The competition among the local small capital and large capital traders are not of oligopolistic, but monopolistic in nature (Das, 2012; Das, Unpublished Ph.D. thesis, 2015). Therefore, to maintain the standard and high market share with high profit margin the corporate traders always collect standard (i.e. quality or graded) produce specified by themselves from the farmers. A study on "High Value Agricultural Commodities" in Indonesia by Toiba et al. (2013) has shown how the traditional food retailers (i.e. so called small capital retailers and /or the SCT) are being used most frequently by the majority of consumers. Although traditional food retailers (or small capital retailers) currently dominate the market for fresh food, modern retailers are gaining market share in the fresh fruit markets. In addition, modern food retailers (large capital retailers or the LCT) are perceived as the best type of outlet to buy food that is safe and provides trustworthy product information (which is nothing but quality information. Feenstra and Romalis (2014) studied in -depth the changing market structure and price behaviour. It has been shown that the unit values of internationally traded goods are heavily influenced by the quality.

We need to understand the original sources of the demand for the quality attributes. The factors which determine the qualities are:- (i) a farm-to-retail marketing margin. This is the difference between the implicit values of an agricultural commodity when sold at the retail level in processed form versus the explicit value of the unprocessed commodity at the farm level. Actually the degree of product differentiation is a determination of the size of the marketing margin. The idea is that a processed firm or LCT that sell a more differentiated product will have more

market power and so will enjoy a higher marketing margin, (Azzam,1999; Dixit and Stiglitz,1977; Keller,1976; Tomek and Robinson,2003; and Wohlgenant,1999,2001); (ii) the Agreement on the Application of Sanitary and Phytosanitary Measures also known as the SPS Agreement, and Traceability in an international treaty of the World Trade Organization; (iii) the US-India knowledge Initiative on Agriculture Education, Research, Services and Commercial Linkages (KIA), and after the three-year "Work Plan" of the KIA ended in 2009 the US-India engagement now goes by the name of "Agriculture Dialogue". Both in terms of their motives as well as their design, the KIA and the "Agriculture Dialogue" threaten to undermine Indian food security and national sovereignty. It has been proposed to train Indian in the drafting of contracts, and even suggested that Indian cultivators on a contract would need to shift to crops that were suitable for processing(Sridhar,2014). The food quality and sanitary and Phytosanitary (SPS) requirements can impede trade, particularly in the case of developing countries (Henson and Loader, 2001). It is widely acknowledged that the SPS measures can act to impede trade in agricultural and food products (Digges,et al., 1997; Hillman, 1997;Jaffee, 1999;National Research Council, 1995; Ndayisenga & Kinsey, 1994; Petrey & Johnson, 1993; Sykes.A.O., 1995;Thilmany & Barrett, 1997;Unnevehr, 1999). The food safety issues are gradually becoming more important in international trade (WHO, 1998). The fresh products are shipped and consumed in the fresh form, so handling at all points of the food chain can influence food safety and quality (Zepp et al., 1998). These fresh commodities are subject to increasing scrutiny and regulation in Developed countries (DCs) as food safety hazards are best understood and most often traced to their sources.Unnevehr (2000); has explained how SPS agreement and traceability conditions are creating a barrier of fresh agricultural food products export from the LDCs to the DCs. Now food safety regulations, labelling requirements, and quality, compositional standards play the important role besides tariff and non-tariff restrictions. Traceability could also reassure food quality and safety and at the same time be used as a tool to control the production process (Chryssochoidis et al., 2006). Traceability alone is not of any value to consumers at least pay a higher price. The quality of a product cannot be guaranteed through traceability, but when bundled with such quality guarantees then, it seems to add more value (Chryssochoidis et al., 2006;Bernues et al., 2003; Hobbs et al., 2005). There are relevant literatures on some important discussion papers of the DIPP (Department of Industrial Policy and Promotion, Government of India) and others on FDI in retail (Shelthi Research Group, 2008). The challenges facing by the small-scale producers engaged in "High Value Agricultural Crops" are the evaluation of supermarkets and retailers as the major buying force, as a result sidelining small-scale producers and traders (Temu and Temu, 2005). A study has shown that, small farmers' participation in the supermarket channel depends largely on education, experience, and skills and these are more important barriers to participation than the size and assets. However, farm size and farm assets too are barriers (Sahara et al.,2013). The participation of small producers in global fruit and vegetable trade is also affected by the increasing attention that food quality and safety are receiving in food trade. Traceability, Phytosanitary infrastructure and

productivity issues will continue to be a barrier for participation in the fruit and vegetable trade for most of the developing world (Weinberger and Lumpkin, 2005). For all High Value Agricultural Products, it has been found in a study in Indonesia that, almost fifty percent of consumers were willing to pay at least 10 per cent more for organic products (Wahida et al., 2013).“Growth in high-value agriculture in Asia and the emergence of vertical links with farmers” (Gulati et al., 2005) explained that, changes in income and consumption patterns along with urbanization affect the consumption of food consumption. The change of food preference towards HVA is related to the greater variety of food available and perhaps the higher opportunity cost of time for the household members. In practice, supermarkets rarely buy directly from small farmers, with or without contracts, but rather procure goods through commissioned agents or assemblers. Thus, modern retail chains have started relying on the consolidator. This new form of vertical linkages, especially in Southeast Asia, is allowing small holders to participate in the supply chain.

In formulating our theoretical model, we have used notion from various theoretical papers; theory related to labour wage bargaining problem, agriculture-commodity and empirical studies, and especially from papers related to individual risk attitude in the market.

Pal and Rathore; (2014), estimated workers’ bargaining power and firms’ mark-up simultaneously using a comprehensive panel data on Indian manufacturing industries for the period of 1981-2007. Literatures on bargaining and markets, economics of risk and information and others are, (Rubinstein, 2011;Avinash K. Dixit, 2009; Arrow, 1970; Macho-Stadler et al., 1995; Nash, 1950a; Osborne and Rubinstein, 2005).

Methodology and data base

Here we have used the theory of the Nash bargaining solution as a theoretical methodology. The field information has been added as a qualitative data in support of the theoretical findings. The paper is based both on field information and secondary data. The field data were collected from a survey in the district of North 24 Pargana and Hooghly district, West Bengal, for getting farm level data. For retail markets data and evidence we dependent on data from various companies, operating in Kolkata. Nonparametric density estimation[2] of Gaussian Kernel and Epanechnikov Kernel density functions have been used for the empirical analysis For the wholesale market data we have used data of Agriculture Marketing Information Network-AGMARKNET[3].

Theoretical analysis

Let there be three agent groups in the market which can be identified viz. N= {123}; where player 1 is the Large capital traders (LCT) including retailers, wholesalers, food processing firms, etc., player 2 is the farmers and player 3 is the Small capital traders (SCT) including retailers, wholesalers, and exporters and importers. The business is like that traders (both LCT & SCT) use to collect food grains and vegetables and pay the wholesale price to the farmers and after adding some margin to wholesale price, i.e. Maximum consumer retail price = (farmer’s margin + margin of intermediaries),

sold to the ultimate consumer. Here it is assumed those farmers are unable to reach all the markets to sell the products to the ultimate consumer, so they have to depend upon traders (viz. wholesaler, retailer and other forms of traders, i.e. intermediaries). The traders are always trying to minimize wholesale price so that their margin can be maximized and on the other hand farmer are trying to increase the wholesale price. For simplicity here we have not mentioned all the intermediaries in between primary producer and ultimate consumer. A study by Global Agri Systems of fruits and vegetables supply chain in four metros in India-Delhi, Mumbai, Bangalore and Kolkata shows that there are at least five to six intermediaries between primary producer and consumer. The intermediaries are, Primary producers, transportation cost, village level trader, aggregator, sub wholesaler, retailer. The study shows that, the total margin by all these intermediaries are, retailers-25-percent, sub wholesaler-6-percent, wholesaler-10-percent, aggregator-8-per cent, village level trader-10-percent, transportation cost-10-percent and primary producer or grower-25-percent respectively.

The study shows that a primary producer gets only 20-percent to 25-percent of the consumer price[4]. In our paper here for simplicity, we denote all these intermediaries' margin into the term "margin of intermediaries" and not segregated in different terms as from the farmers' point of view they use to know only village level traders at the time of the sale of their produce and loose much share of maximum consumer retail price (or MRP). So all these intermediaries try to maximize their margin and try to minimize wholesale price gets by the farmers. Here we assume that if intermediaries be few such that shares of the farmer will be higher. Hence share of farmer is dependent much on the industrial organization among intermediaries i.e. size of intermediaries, competition, market share, market accesses power in the overseas, export capacity etc.

Now we shall discuss about the preferences of the SCT and the LCT. If we can understand about the preferences of the SCT and the LCT then we will be able to answer the question that in the long run cartel between the SCT and the LCT is possible or not and if possible then to what extent. This Question is important because, if in the long run complete cartel is possible, then the farmer must loose share on MRP (maximum retail price). We know from the theory of industrial organization that a cartel is possible when the parties involving in making cartel are under the same preferences domain (Tirole, 2007). If preferences differ by one party then cartel will not be possible. So let first understand about the preferences of LCT's and SCT's preferences.

Preferences of large capital or corporate traders (LCT)

The large capital or corporate traders (both domestic and foreign) including retailers, wholesalers, exporters and importers, food processing firms, etc. and others operate internationally and tried to create a loyal consumer group for themselves. They actually maintain a standard in terms of quality products, efficient consumer service, especially after sale service and others internationally where they are doing their business. So they always try to maintain in collecting quality products from the

farmer and also pay a higher price for that. In West Bengal only one firm of 100 percent FDI in cash carry (wholesale) market operating with other domestic or Indian firms with indirect collaborations of foreign firms. All types of agriculture trading firms try to collect with more preference to the quality produce and collect only quality produce. Farm produce are not always up to the standard specified by these corporate firms. As the corporate firms use to collect only quality or standard produce from the farmer and reluctant to accept non standard or below quality produce, for example, to produce potato chips the chips making firms use a standard size of potato which can be used in machine, this is a technical constraint and push the farmer to use the specified quality seed in producing potato which is very soft and required more caution by the farmer at the time of cultivation, this is quality constraint. Another example is that to maintain the mobility in the world market or to maintain sell worldwide the corporate, retail and wholesale traders maintain an international standard of quality produce. So many times farmers are not being able to meet this technical and / or quality standard set by the corporate traders and farmers able to sell a very quantity of produce. Corporate firms employed some agents to collect the rest through personal interaction with farmers and through participating in the local rural markets. Here local traders including middleman are mainly used as an agent or consolidator. After having collecting the local traders sell to the corporate traders with accepting an agent commission and/ or with some margin. The corporate traders pay a much higher price for the quality produce, but the farmers use to prefer to sell the total produce to one single trader or total produce at a time if they would get a moderate price for the entire produce. So farmers use to sell to the local traders at a moderate price which is higher than before when corporate traders were not present. In North 24 Parganas district, West Bengal, India, four corporate firms, including one 100 percent FDI in cash and carry trade are operating. These are Reliance, Keventer Agro and Metro Cash And Carry, Aditya Birla Group **.** Metro Cash And Carry is the only 100 percent FDI in West Bengal in the wholesale market and others are domestic and collaborated with foreign firms through indirect control. As per information Metro cash and carry only operating through their collection centre at North 24 Parganas districts and for the rest districts they dependent and/ or intervene in the local wholesale markets. The same thing is true for the other two companies, though Keventer Agro also collects from the farmer cooperatives from Nadia and Mursidabad districts and also buys from there (Nadia and Mursidabad districts) wholesale markets also. So there are dual behaviors by the corporate firms, one collecting directly from the farmer without participating or low degree of participation at the local wholesale markets and second, only participates in the local wholesale markets for the collection of agriculture produce.

Preferences of small capital traders (SCT)

Small capital traders on the other hand, are local in nature and hardly involve in the international market. Their main customers are the city competitive retail market for example, in Kolkata Sealdah market, Manictala market, Garia market, Hatibagan market, etc... As the SCT was previously present in the market they have their own market share. As after the presence of LCT they always try to keep their market share

intact. They have always feared of being crowded out from the market. The LCT uses to prefer in collecting bulk and sell in bulk to the large capital retailer and food processing firms and also intervene in the international market.

As we noticed in the previous section that LCT uses to buy only quality or standard produce from the farmer and are paying price accordingly higher than SCT but they reluctant to buy the non standard produce set by them (Basker & Emek, 2007) so farmers are not found profitable to sell them (LCT) only quality products which I have discussed above. Here is the gap which the SCT is trying to grab and now they have become more risk averter and offering little bit higher price (moderate price) than before and as they were previously buying entire produce from the farmer now also they are buying entire produce and paying higher than before when LCT were not present.

So preferences of LCT and SCT are different and the strategic move or preferences by the LCT are affecting the preferences of SCT. The SCT is changing their preferences due to the presence of qualitative and technical constraints set by LCT.

So in brief we can say that LCTs are more risk taker as they are able to fix the qualitative and technical constraints. The SCT now becomes more risk averse than before when LCT was not allowed on the trading market. So in the long run if LCT can remove or being able to abolish their qualitative and technical constraints, then the SCT must exit cartel with the LCT and number will also be reduced. Corporate firms employed some agents to collect the rest through personal interaction with farmers. These agents are nothing but SCTs. So at the present scenario cartel between LCT and SCT are limited to only quality produce.

The Model

Based on above findings now we are going to present the matter theoretically with the help of Nash bargaining solution where if we divide the agents like producers and the traders (SCT and LCT) as we have explained above then the Nash bargaining solution between them is ½ to each of them over total gain fulfilling all the axioms given by Nash are, INV (Invariance to equivalent Utility Representations),SYM (Symmetry), IIA (Independence of irrelevant alternatives), PAR (Pareto efficiency),(Nash, 1950a) and the role of risk aversion (Osborne & Rbinstein, 2005).

The model is based on the following assumptions.

Assumptions

1. The model is based on the Nash bargaining solution and the role of risk aversion.
2. The theoretical base of the model is the outcome of the survey in those districts of West Bengal, India, where corporate firms are doing their business and intervene in the rural market.

3. Producers (farmers) always preferred to sell all their produce at a time and not by partly, as partly sells are costly (especially storage and transportation cost) to the farmers.
4. It is the general experience of the producers (farmers) that after selling the quality or high graded products to the LCT, there is a high probability that the remaining low graded products will be unsold.
5. The effect of fluctuations over time in the farmers and intermediaries share or margin due to fluctuations from different price behaviours is ignored here; say for example retail price, international price and other effecting variables.
6. It is assumed that farmers are more risk averse than the SCT and the SCT is more risk averse than the LCT. Therefore, from transitivity rules, farmers are more risk averse than the LCT.
7. Here all types of taxes and subsidies are ignored for simplicity.
8. Inter linkages of land, labour and capital in the rural economy have not considered here.
9. Influences of demand sides in the model are ignored here.
10. Large capital traders maintain a quality standard.
11. Here all types of taxes and subsidies are ignored for simplicity.
12. Inter linkages of land, labour & capital in the rural economy have not considered here.
13. Influences from the demand side was ignored in the model.

Let, FM denotes farmer's margin, MRP denotes maximum consumer retail price, and IM denotes that intermediary's margin. With these terms let Z be the share of farmer on maximum consumer retail price and (1-Z) is denoted the share of traders (or intermediaries) on maximum consumer retail price.

So, $Z = FM/MRP$

Or, $Z = FM/ (FM+IM)$ (Where, $MRP=FM+IM$) (1)

And the share of traders (or intermediaries) on maximum consumer retail price is

$(1-Z) = IM/MRP$

Or, $(1-Z) = IM/ (FM+IM)$ (2)

From equation (1) it can be said that, if the farmer's share FM be close to MRP the degree of Z will be close to or exactly 1,and if FM be close to zero then degree of Z will be close or exact to zero. In the same way rivers are true for intermediaries i.e. if IM is approaching zero or equal to zero, then the degree of (1-z) will be decreasing to or exact to zero and if IM is approaching to or exact MRP then (1-Z) will be approaching to or exact to 1.With this framework we are going to present my paper here by enumerating in detail the strategic move by the policy maker(the

government and local farming bodies) and farmer individually are need to gain more on the increased growth by the farmer. The policy and strategic move which will keep the market with higher bargaining power in the hands of farmer, balanced size of the intermediaries, competition among them and fare division of market share among the producer and the intermediaries. If we divide the agents like producers and the intermediaries as I have explained above, then the Nash bargaining solution between them is ½ to each of them over Z fulfilling all the axioms given by Nash are, INV (Invariance to equivalent Utility Representations),SYM (Symmetry), IIA (Independence of irrelevant alternatives), PAR (Pareto efficiency),(Nash, 1950a). Here in this paper I have tried to show how the solution of farmer is achieving or approaching close to or equal to ½ of Z irrespective of the share of intermediaries (collectively rest share are for intermediaries). In reality, this (Nash solution of share 1/2 to each agent) is not happening. Here I am not giving much importance that are this ½ share on the Z for farmer is justified or not and same augment for intermediaries, but tried to show how the share on Z can reach closer to ½ for farmer, in practice ½ may not happen, but the situation must improve then the present and the share will be very close to ½ on Z and this change of share is due to the change of preferences of SCT after the presence of the LCT in the rural wholesale trading market.

Step: 1

Let the farmers are producing and selling to the competing intermediaries (i.e. SCT) as discussed initially and we denote them as SCT. This is a real life situation in India. As SCT are competing in nature, so let all are under the same risk preference group and farmers are also under same risk preference group but different from the SCT. The SCT is a relatively more risk taker than farmers and farmers are risk averse. Let u_2 be the utility of farmers (F) and u_3 be the utility of SCT and F always try to maximize Z and the SCT will try to maximize (1-Z) where Z defined initially. So the solution Z_u to the problem,

$$max_{0 \le z \le 1}\ u_2(Z)\ u_3\ (1\text{-}Z) \tag{3}$$

Differentiating equation (3) by Z and setting equal to zero we have,

$$\frac{u_2^1\ (Z)}{u_2\ (Z)} = \frac{u_3^1\ (1-z)}{u_3\ (1-z)} \tag{4}$$

The left hand side of the equation (4) is decreasing in Z and the right hand side is increasing in Z. The left hand side term μ_2 is a marginal utility function and μ_2 is the utility function (or total utility function). As Z is rising, the term is also rising, but the marginal utility term is decreasing so the left hand side of the equation (4) is decreasing in Z and the reverse is true for the right hand side. As Z is rising, then (1-Z) is decreasing so the utility term μ_3 (1-Z) is decreasing and marginal utility term μ_3 (1-Z) is increasing so the right hand term is increasing in Z.

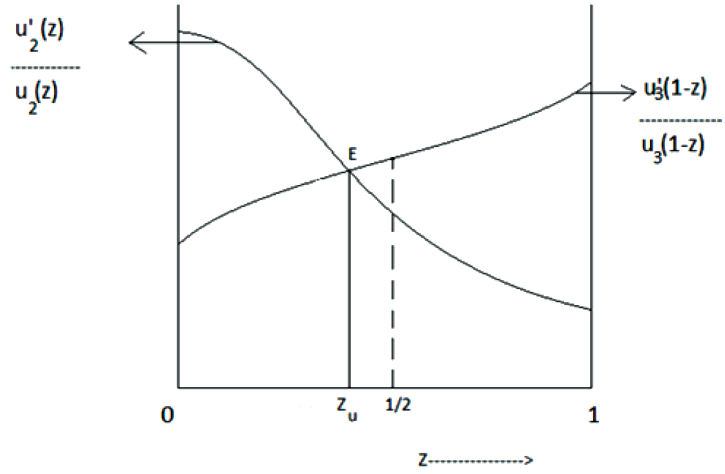

Fig. 1

Hence, from the figure-1 it is clear that the Nash solution satisfying four axioms viz. SYM, PAR, INV, and IIA is at ½ and the solution here is at Z_u and far away to ½ with $Z_u < ½$. According to Nash solution and the role of risk aversion if player 2 becomes more risk-averse, then player 3's share of the (1-Z) in the Nash solution increases and player 2's share of the (Z) in the Nash solution decreases (Osborne & Rubinstein, Bargaining and Markets, 2005). This is why the solution is at $Z_u < ½$ as farmer are more risk averse than the SCT.

Step: 2

Now let this situation the LCT has come into existence in the trading market. As the Government of India have been allowing multi brand retailers and whole sellers of large capital in nature in the trading market. It is clear before that the LCT is a more taker than the SCT and the SCT are relatively more risk taker than farmer (F).So let u_1, be the utility of the LCT and after the presence of them in the market the Nash solution of the bargaining problem between the LCT and F as below.

Let Z_W be the solution of the problem

$$max_{0 \le z \le 1}\ u_2(Z)\ u_1\ (1\text{-}Z) \tag{5}$$

Differentiating equation (24) by Z and setting equal to zero we have,

$$\frac{u_2^1(Z)}{u_2(Z)} = \frac{u_1^1(1-z)}{u_1(1-z)} \tag{6}$$

If equation (5) can be putted into the figure-1 then the new figure would be as in the new figure-2. Hence, from figure-2 it is clear that bargaining between the LCT

and F will lead to the solution to $Z_{W,}$ which is far ahead from ½ and less than Z_u. The risk preference of the SCT and the LCT are different. The LCT uses to collect only specified quality produce and higher price than the SCT and refuse to buy rest non standard produce. They are not regional in nature but international and more is the ability to take risk of collecting only specified quality products worldwide. But the SCT is relatively risk averse than the LCT. As the LCT is monopolistic and in some cases oligopolistic in nature and the SCT are competitive and are regional in nature, so to gain more the SCT need to collect more produce at a lower price and accordingly gain the market share. So the SCT use to collect all the produce without maintaining any standard and pay moderate or price to the farmer. This moderate price is relatively lower than what the LCT offers to the farmer. After the presence of the LCT, the SCT will feel risky as the LCT collects only quality produce and pays a high price in the bumper crop time also so there will be a chance of losing market share due to non having the quality produce as there will be a chance of selling quality produce to the LCT at a higher price by the farmer. To maintain market share the SCT will also try to pay not exact but a

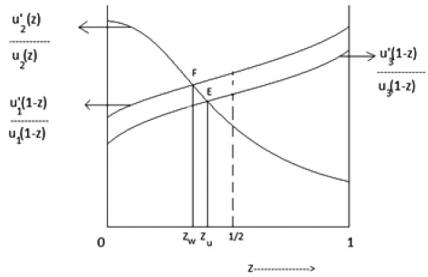

Fig. 2

price close to the price paid by the LCT to the farmer and collects all the produce from the farmer. A study from North-24 Parganas, West Bengal, India, which I have done showed the fact that the firms (LCT) like Reliance, Metro cash and carry Keventer Agro use to collect only quality or a minimum specified standard commodities (fruits and vegetables) at the higher price from farmers and small capital traders (SCT) now paying a higher price to the farmer due to the presence of LCT in that village where these LCT are operating. From the farmers' point of view farmer can sell more to the SCT and less to the LCT as due to the presence of LCT, SCT is paying more than before and collect entire produce from the farmer of farm produce. Hence it is clear that due to the presence of LCT, SCT will become more risk averse than before so that they can collect maximum produce according to their ability and pay higher than before so that farmers will be ready to sell them (SCT) only. As the SCT becomes more risk averse than their preferences, which formerly were represented by u_3, can be represented by v_3= h o u_3 where h: R→R is an increasing concave function with h (0) = 0. Farmers preferences remain unchanged defined as V_2= u_2. Let <s', d'> be the bargaining problem for the new situation, in which the utility function of the players are $V_{2,}$ V_3. If u_2, u_3 and h are differentiable and the Z_v, is the solution of the problem

$$max_{0 \le z \le 1}\ v_2(Z)\ v_3\ (1\text{-}Z) \tag{7}$$

Or,

$$max_{0 \le z \le 1}\ u_2(Z)\ u_3\ (1\text{-}Z) \tag{8}$$

Differentiating equation (27) by Z and setting equal to zero we have,

$$\frac{u_2^1(Z)}{u_2(Z)} = \frac{h_1\,(u_3\,(1-z))u_3\,(1-z)}{h\,(u_3(1-z))} \tag{9}$$

Hence incorporating equation (9) into figure-5 we have modified figure-3

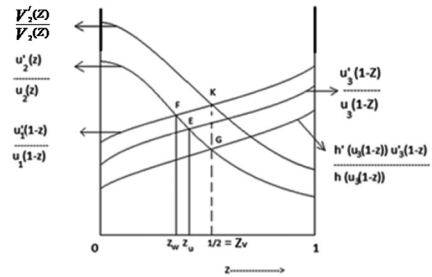

Fig. 3

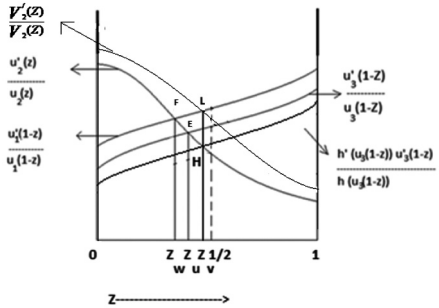

Fig. 4

From the figure-3 it is clear that after the presence of the LCT in the market the SCT will be more risk averse than before and must be shifted rightward any up to ½ point. Let equilibrium is at point G in the bargaining process between farmer (F) and the small capital traders (SCT). At this point the share of the farmer and the SCT are ½ respectively, i.e. Nash solution maintaining four axioms viz. SYM, PAR, ANV, IIA. Now the question is that what would be the bargaining solution between farmer (F) and the LCT?

After the presence of the LCT, the SCT will become more risk averse and competitive with the LCT. So equilibrium in between F and the SCT will be at point G and equilibrium F and the LCT will be at point K. This is so as F will be more risk

taker in the bargaining process with the LCT now when the SCT is paying more and collecting all the produce without maintaining any standard after the presence of the LCT in the market. So let $V_1 = u_1$ and V_2= new utility function of the farmer. Where function V_2 is more risk taker than u_2. Let Z_v, is the solution of the problem

$$max_{0 \le z \le 1}\ v_2(Z)\ v_1\ (1\text{-}Z) \tag{10}$$

Or,

$$max_{0 \le z \le 1}\ v_2(Z)\ v_1\ (1\text{-}Z) \tag{11}$$

Differentiating equation (11) by Z and setting equal to zero we have,

$$\frac{u_2^1(Z)}{u_2(Z)} = \frac{u_1^1(1-z)}{u_1(1-z)} \tag{12}$$

Hence it can be said by the equations (9) and (12) that farmer when bargain with the SCT then act as risk averse and when bargaining with the LCT then act as risk taker in the same way it also can be said that the SCT will act as risk averse and pay more to the farmer and the LCT will act as risk natural as before as they are international in nature and collect less maintaining quality constraints and pay more than the SCT to the farmer as we can be seen from the figure-3 in detail. Hence we can see that figure-3 offering the result that farmer is getting ½ of Z and getting more with the present of both the SCT and the LCT in the market. The main condition for farmer's gain is that both the LCT and the SCT must be in the market and rightly mixed so that farmer's capacity can be enhanced under the changing market. From figure-3 the equilibrium not always be at G but depends on the production level and other externality also (market demand, international shocks etc...). But the equilibrium will vary in between the point E and G but not at E with the presence of LCT i.e. E< (equilibrium point) ≤G, where (equilibrium point) is the solution. The realistic solution as discussed in the figure-4 i.e. the solution or the equilibrium point is not at point E but right ward, of E and also not at exact G but closer to G (or Nash solution point 1/2) here at point say H. Based on the these theoretical analysis it is clear that as interactions among farmers, the SCT and the LCT the farmers must prefer to sell entire produce to the SCT if they will have got a little bit lower but moderate price than the price offered by the LCT. And this moderate price is higher than before when the LCT were not present. Farmers do this as the LCT uses to reluctant to accept all the produce and ready to pay a higher price for standard or quality produce only fix by themselves (LCT) and due to this behavior the SCT also changed their preferences and become more risk averse that before. This theoretical behavior I have discussed below with the empirical evidence.

Empirical evidence

The Indian market reformed for domestic large capital or corporate traders, including retailers, wholesalers, exporters and importers, food processing firms, etc... 100 percent Foreign Direct Investment (FDI) in cash and carry has been opened since

2006 with automatic route and in the single-brand retail market by 2012. Reforms for Multi-brand retail not yet been taken. In North 24 Parganas district, West Bengal, India, three corporate firms, including one 100 percent FDI in cash and carry trade are operating. These are Reliance Fresh, Keventer Agro and Metro Cash and Carry**.**

Table 1: Summary Statistics- Table showing the summary statistics of natural log of weekly wholesale price (LN AWSP) behaviour of potato in the district North 24 Parganas and West Bengal from the year 2006 to 2013

Districts (Variable: Natural log of wholesale price)	Observations (From 2006 to October, 2013)	Mean	Stdard Deviation	Coefficie-nt of variatio-ns (In %)	Min	Max
North-24Parganas	282	6.380438	0.4020353	6.301061	5.501891	7.536364
West Bengal Average	376	6.41262	0.4330483	6.753063	5.520496	7.46398

Source: Agriculture Marketing Information Network-AGMARKNET. The statistics calculated by the author

Calculation of Kernel density function of natural log of weekly wholesale price of potato of North 24 Parganas district and West Bengal from the year 2006 to 2013

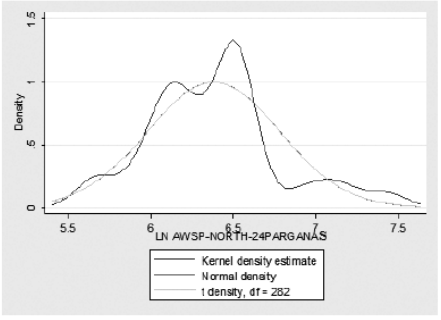

Fig. 5: LN AWSP-NORTH-24PARGANAS (Gaussian kernel)

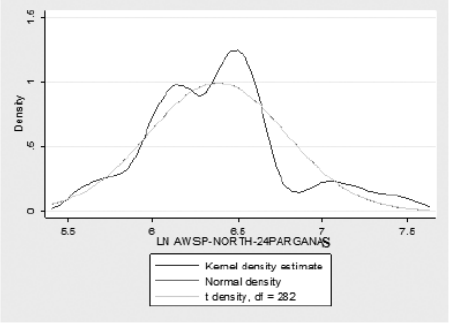

Fig. 6: - LN AWSP-NORTH-24PARGANAS (Epanechnikov Kernel)

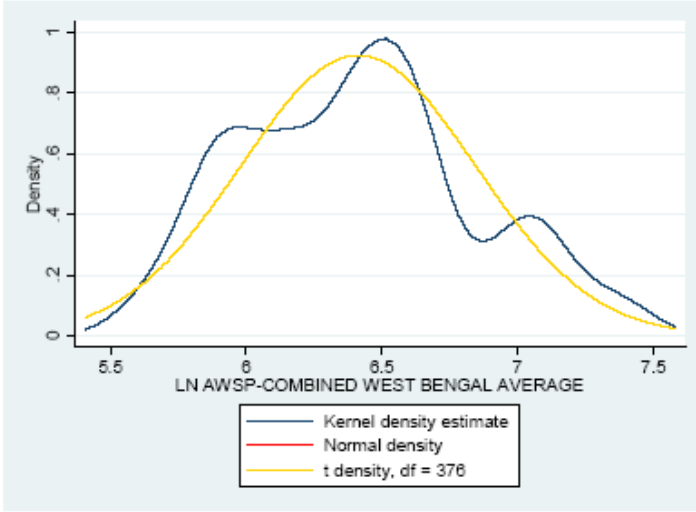

Fig. 7: LN AWSP- Combined West Bengal Average (Gaussian kernel)

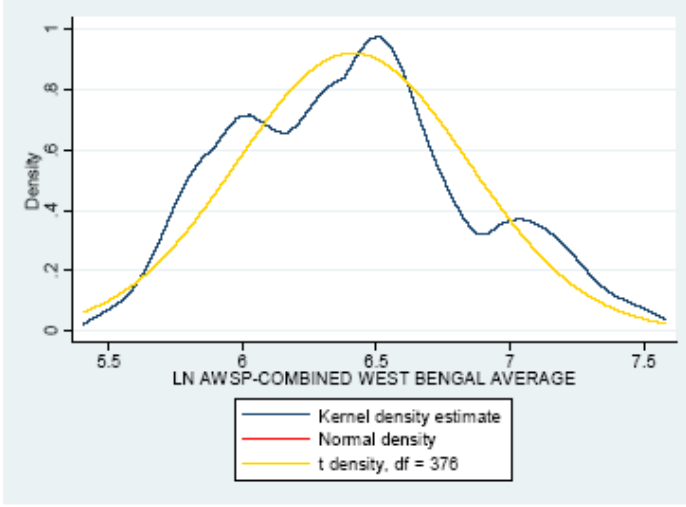

Fig. 8: LN AWSP- Combined West Bengal Average (Epanechnikov Kernel)

Metro Cash And Carry is the only 100 percent FDI in West Bengal in the wholesale market and others are domestic and collaborated with foreign firms through indirect control. In figure-5 and 6, we have derived the kernel density functions of Gaussian type and Epanechnikov Kernel based on the average wholesale price of potato of the North-24 Parganas district after taking the natural logarithm of the average district weekly wholesale price of potato from January, 2006 to October, 2013. To investigate district wise, we have chosen vegetable, potato and have calculated these two types of kernel as two are different in the compact support. From the figures-5&6 it can

be seen that at North-24 Parganas district the kernel density curve though departs significantly at a little bit higher point from 6 and close to 1 but at a price close to mean or little bit higher than mean price point 6.5 is very close to 1.5 and depart highly significantly from the red and gold normal and t curve and for other districts (from figure-7 & 8) the density of point 6.5 is very lower than 1.5 and close to 1 or below. Here normal and t curve is same as for a higher degree of freedom the t distribution approach towards normal distribution. From figure-7 and 8 we can see that if we take combined all the districts in West Bengal then this picture is not present there. So the data also supports that the market wholesale price of potato in North-24 Parganas district has at high density of moderate price point and farmers are selling much produce at the moderate price to the local small capital traders. The kernel density function (black curve from figure-5 and 6) of North 24 Parganas district showing that after point 7 and the curve is also departed significantly from the normal and t curve (the red and gold deep line). So the likelihood of higher price is also there. As per the survey in the North-24 Parganas district, West Bengal, India, farmers is able to sell only high quality or the graded products to the corporate firms and rest are sold to the local small capital traders.

Conclusions

The findings of this paper are mainly dependent on the two important assumptions, viz. (i) the inter linkages of land, labour & capital in the rural economy have not considered here, and (ii) influences from the demand side was ignored in the model. When the LCT is allowed on the trading market it was expected that they would buy in bulk from the farmer and a direct relationship will establish between the LCT and farmer and all the middle men or so called the SCT will be crowding out from the market. This was the fear expecting by the SCT. But in reality as LCT uses to maintain a qualitative and technical constraints in collecting agricultural commodities, though paying much a higher price so the direct relationship is not becoming 100 percent, but depends on the percentage of quality produce.After selling only quality products to the LCT rest becomes unsold so farmer are now searching that traders who will buy entire produce with lower price than the LCT but moderate market price. Now to be in the market the SCT is trying to grab this opportunity and collecting entire produce from the farmer and selling quality products to the LCT and rest to their existing market say retail market of city or town like Kolkata etc. But the price which SCT is paying to farmer is higher than before when the LCT was not allowed in the trading market, that is why data also showing high degree of concentration at the market moderate price in the districts where LCT is operating through their collection centre. From table and figure it is clear that presence of LCT in the rural wholesale market reduced inconsistency .From the above analysis it is clear that the preferences of SCT is dependent upon the preferences of LCT and as there are no chances of a complete cartel between the SCT and the LCT in the short run and in the long run, the cartel depends on the preferences of the LCT regarding the collection constraints (as LCT prefers to collect only a specified standard or quality produce). These sorts of preferences of LCT and SCT are enabling the farmers to reap greater gains than before when LCT was not present.

Research area for the further study

This paper is based on my Ph.D work. Currently, I am engaged myself to search further by examining the assumption made in this paper in detail. If we consider Influences from the demand side in the model, then the picture will be more appropriate. I hope in the near future, I will be able to complete my work with considering and examining all the relevant information related to the changes in the agriculture-food systems.

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Endnotes

1. The meaning of LCT (Large capital traders) and SCT (small capital traders): LCT includes organized corporate single brand and multi-brand – both domestic and/or foreign retailers – and cash and carry (wholesaler) traders, who are operating in the large scale. Organized retailing, in India, refers to trading activities undertaken by licensed retailers, that is, those who are registered for sales tax, income tax, and so forth. These include the publicly traded supermarkets, corporate-backed hypermarkets and retail chains, and the privately owned large retail businesses. On the other hand, SCT includes intermediaries (viz. purveyor, retailers, sub wholesaler, wholesaler, aggregator, village level trader and transportation cost), who has their own storehouse, large number in size (but the lower scale than LCT) and rarely participate in the international trade, but participate in the interstate trade.
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3. Website:http://agmarknet.nic.in/
4. A study by global AgriSystems of fruits and vegetables supply chains in four metros-Delhi, Mumbai, Bangalore and Kolkata, published at the newspaper, The Times 0f India, Kolkata under the article named "Direct sourcing thrives in Bengal", dated, Wednesday, September 11,2013. The study report was published at this newspaper.

3

ICDS Programme at Bandhgora Mouja of Bolpur- Sriniketan Block: A Survey

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Abstract

ICDS is one of the largest childcare programme in the world and has been in operation for more than three decades. ICDS scheme integrates several aspects of early childhood development and provides supplementary nutrition , immunization, health check – up and referral services to children below six years of age as well as expecting and nursing mothers. Additionally, it offers non – formal pre-school education to children in the 3-6 age group and nutrition education to women in the 15-45 age group. In India malnutrition is responsible for more than 50 percent of child deaths. In Birbhum also malnutrition is found in the children usually belong to below poverty level. In terms of indicators of human development, Birbhum turns out to be one of the backward didtricts of West Bengal, as it ranked 14 among 17 districts, according to Human Development Report , 2004.

There are 3805 Anganwari Centres (AWCs) functioning across 19 blocks of Birbhum. The average population of children of age-group 0-6 years covered per AWC is about 120 in Birbhum district as a whole. There are six blocks which are densely populated, where the average number of children covered per AWC is more than 140. Bolpur-Sriniketan Block is one of such densely populated blocks where this average is 178. I survey three Anganwari Centres, running at Bandhgora Mouja , Natunpukur Para, Ward no. – 7,under Bolpur – Sriniketan Block. These are –centre no.- 186,187,349.

The centres face some specific problems. Each centre covers population over 1000 of the area, which is far above than the ideal number should be i.e. 500. Undernourished and semi- undernourished children are found in a seizeable number in the area. Though , ANM workers are working sincerely the under –aged mothers are not unavailable in the area. The major inhabitants of this area are Muslims. My conclusion is that the Muslim Theme : Rural Development Programmes and Social Security Scheme of Government of India and their Effectiveness. We should fight honestly to overcome these problems.

Keywords: ICDS, Under-Aged Mother, Children (0-6) Years, AWCs, ANM

ICDS programme was launched in India on 2nd October, 1975. Today, ICDS scheme represents one of the world's largest and most unique programme for early childhood development. Indian government announces that ICDS is the foremost symbol of

India's commitment to her children- India's response to the challenge of providing pre-school education on one hand and bearing of the vicious cycle of mal-nutrition and morbidity, reduced learning capacity and mortality, on the other.

The Integrated Child Development Services (ICDS) scheme is a globally recognized community based early child care programme which addresses health, education and nutrition needs of children, expectant, nursing mothers and adolescent girls across the life-cycle in a holistic manner(IFMR:2005).

ICDS is India's response to the challenge of breaking a vicious cycle of mal-nutrition, impaired development, morbidity and mortality in children. Development of children is at the centre of 11th plan with the commitment to ensure that children do not loose their childhood because of work, disease or despair. The 11th plan aims to universalize ICDS with quality within an explicit timeframe and improved norms. In conformity with this aims rapid expansion of ICDS has been made in the last few years to reach to unreached ones. There are two parts of it – 1. Objectives 2. Services.(RNTCP status report:2004)

Objectives

1. To improve the nutritional and health status of children in the age group 0-6 years.
2. To lay foundation for proper psychological, physical and social development of the child.
3. To reduce the incidence of mortality, morbidity, mal-nutrition and school drop out.
4. To achieve effective co – ordination of policy and implementation amongst the various departments to promote child development.

To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

2. Services: The above objectives are sought to be achieved through a package of services. To achieve these objectives, the scheme aims at providing a package of following inter related services:

Beneficiaries	Services
1. Expectant & Nursing Mothers	i. Health check up ii. Immunization of expectant mothers against Tetanus iii. Referral Services iv. Supplementary Nutrition v. Nutrition and Health Education
2. Other Women	i. Nutrition and Health Education
3. Children less than 3 years	i. Supplementary Nutrition ii. Immunization iii. Health Check up iv. Referral Services

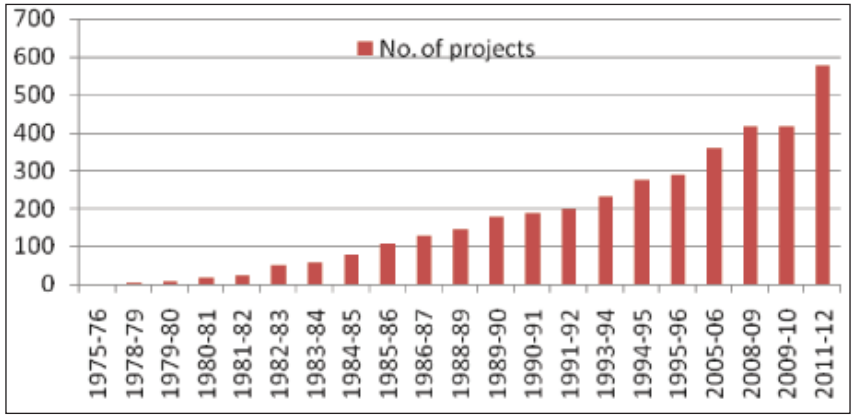
4. Children between 3 – 6 years	i. Supplementary Nutrition ii. Immunization iii. Health Check up iv. Referral Services v. Non formal Pre-school education

History of the ICDS in the state

ICDS began it's journey in West Bengal with just two projects one each in Purulia(rural) and Kolkata(urban) with a total of 281 AWCs.

Since then the programme has evolved with time and rapid expansion was undertaken from 2005-'06. In 2011-'12, 159 big ICDS projects have been bifurcated which takes the total number of ICDS projects in the state to 575 of which 573 are operational, of the 573 functional, 18 projects are run by the NGOs located in 8 districts. On March, 2012 there are 423 rural, 75 urban and 75 tribal ICDS projects in the state. Follow the table:

Growth Rate of ICDS in West Bengal



All six services viz. supplementary nutrition, pre-school education, Health check-up, Immunization, Nutrition Health Education and Refferal Services are provided through a network of 1,12,432 AWC s throughout the state (ICDS MPR, March 2012).

State's Financial Contribution to ICDS Implementation

ICDS in the state is implemented by Government of West Bengal on a cost sharing basis of 90:10 of central share:state share for meeting administrative expenses. For SNP the cost is shared on a 50:50 ratio. Follow the table:

Categories of Beneficiaries	Share of Govt. of India	Share of State Govt*.	Total
Severe Malnourished children (6-72 months)	₹ 3.00	₹ 3.00	₹ 6.00
Pregnant & lactating mother	₹ 2.50	₹ 2.50	₹ 5.00
Other children	₹ 2.00	₹ 2.00	₹ 4.00

Delivery of Services of AWCs

Supplementary Nutrition: Following IYCP norms, adequate complementary feeding is recommended for initiation immediately after six months along with breastfeeding and quantity improved to meet the increased calorie requirement of child. It has been observed that feeding at average household is not able to meet the calorie requirement of the children leaving a gap at least 500 kcal in 6 – 72 months of age group. Hence, a nutritionally dense food is supplemented from AWCs to bridge this gap which constitutes one of the most important services of ICDS known as Supplementary Nutrition Programme (SNP). For severely undernourished requirement is more and hence 800 kcal is being supplemented through SNP under ICDS(Chakravarty *et al.* 2007).

Table: Trend in increase of SNP coverage of children 0-6 years

Year	Total child population	SNP beneficiary	%
March, 2008	8320154	5116734	61.50
March, 2009	8122293	5276979	64.97
March, 2010	8295149	6274272	75.64
March, 2011	7967272	6855487	86.05
March, 2012	7650696	6640775	86.80

Type of Supplementary Nutrition Provided

Rice, lentils, vegetables and soya chunks are used to provide hot cooked meal as SNP to the pregnant and lactating women and children from six months to six years who constitute the major target groups of ICDS. One full boiled egg is given to each severely mal-nourished children and half – boiled egg is given to each of the other children. Pregnant women and lactating mothers also partake the hot, cooked food at the centre along with one half-boiled egg, everyday. There is no system of take home ration at present. Follow the table:

Sl. no.	Target group	Calories (Kcal)	Protein
1	Children (6-72 months)	500	12 -15
2	Severely malnourished children (6-72 months)	800	20-25
3	Pregnant women and Nursing women	600	18-20

Cost of SNP is divided at 50:50 ratio between central and state government. The expenditure cost towards fuel, transport, storage etc. are bourne by state government.

To introduce variety in SNP the state government has issued the circular to provide rice and one full egg curry for three days and rice,dal,vegetables and soya curry for three days on alternate days in a week to target beneficiaries. The new SNP has come into effect from 1st June, 2012(Chakrovarty *et al.*:2005).

Growth Monitoring and Promotion

WHO growth standards are being rolled out in all the projects of the state . AWW training and printing of growth charts from ready to print cd supplied by UNICEF was done by State Nutrition and Monitoring Unit (SNSMU). Technical support to adopt new WHO child growth standard was provided to the department of UNICEF,W.B including translation and adoption of new WHO growth charts and Mother and Child Protection Cards in Bengali, Nepali and Urdu. Village health and Nutrition Day organized at AWCs will be used as a forum to provide growth promotion services to the left out/ drop out children, specially from hard to reach pockets. Identification of severely and moderate underweight children will be done referral to health facilities for further assessment and management, if necessary.

Pre- School Education(PSE)

Non – formal pre –school education is aimed at for physical, social, cognitive , creative and linguistic and creative developments in children in the age group of 3 – 6 years. It is also intended to make the children ready for school and reduce school drop out rate. To support PSE, TLM are provided to the AWWs, which are produced at project level. TLMs which are supplied to the AWWs include:

- Flash card for story telling
- Models on pictures, picture book on animals, fruits, vegetables, parts of the body etc.
- Building blocks plastic or card board or wood stuffed toys.
- Dolls for role play.
- Colours, numbers, alphabet – matching cards.
- Stacking rings / shape towers.
- Balls.
- Threading Board/ beads and wires.
- Sample puzzle etc.

However, to improve quality of PSE and overall services of ICDS, state has initiated the revision of ECCE curriculum in collaboration with Department of School Education(primary), Paschimbanga Sarba Siksha Mission(PBSSM)and UNICEF, state level consultation has been held including workshop on finalization of revision of the curriculum. The revised ECCE curriculum is under preparation which would

be rolled out in the state. In the Financial Year 2012 – 2013 state plans to conduct workshop for district / selected block functionaries to acquaint them with the new curriculum. TLMs would also be standardized and it is expected that the quality PSE would be provided to the target population from ICDS network. Follow the table:

Pre-school Education

No. of AWCs providing Pre-school Education	No. of 3-6 Years children enrolled for Pre-school Education	No. of 3-6 Years Children attended PSE for at least 16 days in the month	Target for the FY 2012-13
112432	3261018	3251941	3261018

Nutrition and Health Education

Mother's meeting and home visits are major tools for regular monitoring of the health and nutritional status of beneficiaries. AWWs meet with mothers regularly and make them aware of healthy nutrition. The breast feeding and social issues such as Child Marriage Prohibition Act and anti trafficking measures are discussed. Apart from mother's meeting, home visits are conducted by AWWs on relevant topics like maternal care including diet, preparedness, essential new born care, early and exclusive breast feeding, age appropriate feeding practices including feeding during and after illness, dietary diversification for age groups, diarrheal diseases, ARI personal hygiene, household sanitation, HIV/AIDS etc.

Strategy to Improve Nutrition and Health Education through Positive Deviance Programme

Under-nutrition in India, as studies revealed, is not mainly due to absolute scarcity of food rather feeding practices and a host of interwoven issues including immunization and hygiene. Therefore, it requires concerted by the line departments associated with child nutrition and health to combat the problem. Positive Deviance (PD), more popularly known as keno parbo na (why can't we do it?) in West Bengal, provides one such opportunity which not only aims at addressing child under-nutrition through household level behavior change of caregivers on child feeding and care-giving practices but brings in convergence among stakeholders in dealing with the issue of under-nutrition. Anganwari workers here act as a catalyst who uses community mobilization technique to empower community in management of child under-nutrition. Important here is to note that the early childhood presents a critical window of opportunity to prevent under-nutrition and break the inter generational cycle of under-nutrition, which if not intervened properly on time, closes completely for life.

Till March 2012, 17912 AWCs in 126 blocks/ ICDS projects of 1114 Gram Panchayats in 9 districts have been brought under the intervention with financial support of NHRM. Department of Health and FW, GOWB and implementation by Department of WCD AND SW with technical and monitoring support by UNICEF.12241 AWCs started AWC based counseling and giving sessions along with

active feeding of 6months – 3years. It will be further continued in the backward districts and in the farthest blocks of South 24 Parganas.

Immunization

NFHS-3 reported that full immunization of children (12- 23months) in 2005-06 was 64.3%. In the same age group, coverage of BCG was 90% DPT-3 coverage 71.5% and measles 74.7%. The scenario has much improved as of state health in 2010- 2011 indicates that 97.07%, 86.15% and 83.54% children received BCG, DPT and measles respectively in the year. In absolute measures , coverage of immunization of women and children in the year 2010- 2011 was as follows:

TT(PW)	DPT	POLIO	BCG	MEASLES
1526529	1468044	1462452	1654042	1423533

Health Check – Ups

At the Anganwari centres children, adolescent girls and pregnant women and nursing mothers are examined at regular intervals by the ANMs who also diagnose minor ailments and distribute simple medicines. During health check – up following activities are carried out:

- Recording of weight
- Immunization
- Management of mal-nutrition.
- Treatment of Dirrhoea.
- De –worming and distribution of simple medicines for minor ailments
- Providing IFA tablets.

Refferal Services and Follow up at Community Level

During health check –ups and monitoring the identified sick or malnourished children in need of prompt medical attention are referred to PHC. Funds are allocated for management of under-nutrition or referred children. In addition, the AWWs have also been oriented to defects, disabilities in young children and refer them to the PHC.

Referral services, particularly for the severely mal-nourished, who need institutional care and intervention is being strengthened through community based SAM management implemented jointly by the department along with DH and FW, GOWB.

Overall scenario in India

India ranks among the worst performing countries with respect to the prevalence of child under-nutrition. The high prevalence of under-nutrition, close to 46 percent, is particularly foreboding for India's large child population. According to 2001 census,

India is home to approximately 160 million children making it one of the world's largest populations of malnourished children. Countries with comparable per capita GDP like the Philippines and Egypt have made better progress towards at reducing child mortality. In fact, Bangladesh and Eritrea, which have approximately half and quarter of India's per capita GDP, respectively and had higher infant mortality rates to start with have made commendable progress between 1990 and 2006(Gregnolati.M *et al*: 2005).

State Performance

Despite the fact that ICDS has been in operation for more than three decades, states have made limited progress in tackling under-nutrition. There is a large inter-state variation with the phenomenon being concentrated in a few states ; Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh account for more than 80 percent of the cases of child malnutrition. In 2005 ,Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh accounted for 43 percent of all under-weight children in India. To focus additional resources on the worst performing states the GOVERNMENT of INDIA is partnering with the World Bank to increase ICDS programming in 158 high- burden districts from eight states including Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Rajasthan, Bihar, Jharkhand and Maharashtra (Report, Registrar General of India:2007)

ICDS Programme in Birbhum

Birbhum turns out to be one of the backward districts of West Bengal, as it ranked 14 among the 19 districts, according to WBHDR,2004.The pressure of a significant number of people belonging to scheduled castes, scheduled tribes and the Muslim community in the district who are generally disadvantageous than others makes the place important(Rana *et al*.:2005)

There are 3805 AWCs operational across 19 blocks of Birbhum. Except in one block(NALHATI- 1), all AWCs are run by the government. It is expected that the quality of service is adversely affected when an AWC has to provide services to a large number of children and pregnant mothers. There are six blocks where the average number of children covered by per AWC is more than 140. These blocks are Bolpur-Sriniketan(178),Dubrajpur(170),Illambazar(141),Khayrasole(144),Sainthia(141) and Suri2 (150).

In Birbhum the percentage of AWCs that function in their own buildings is rather low. Having it's own building is crucial for an AWC as it helps smooth and continuous service to children and pregnant mothers. In Birbhum ,as a whole, only 14 percent of the AWCs operate in their own buildings. There are 9 blocks where the percentage of AWC running in their own buildings is less than 10. These are Rampurhat1 and2, Mayureswar, Nalhati 1 and 2, Murarai1 and 2(Report, Government of West Bengal, Health on the March: 2006).

As per as providing the basic facilities like drinking water and sanitation at AWCs are concerned, the record is rather unimpressive. The percentages of AWCs having drinking water and sanitation facilities are 28 and 5 respectively. Although, in

seven blocks the percentage of AWCs having drinking water facility is higher than 50,there are four blocks where none of the AWC has any drinking water facility. These blocks are Khoyrasole, Murarai1 and Murarai2 and Nalhati. All these four blocks are backward blocks in terms of higher concentration of socio-economically disadvantaged population. Data on toilet or sanitation facilities at AWC reveal similar shocking stories. Out of 19 blocks in 12 blocks, none of the AWCs having sanitary facilities. Out of the remaining 7 blocks , 4 blocks have less 5 percent of it's AWCs having sanitation facility (Government of West Bengal, Paschimbanga: 2006).

Based on the four indicators mentioned above, an ICDS infrastructure (composite) index has been constructed at the block level. The blocks are ranked according to their values of composite index. Rajnagar is on the top of the list, followed by Nanoor, Illambazar and Bolpur. The bottom five blocks are Murarai 2, Sainthia, Khoyrasole, Nalhati1 and Murarai2. We have observed elsewhere that Murarai 1 and 2, Nalhati1 are among the backward blocks of Birbhum, in terms of concentration of socio-economically disadvantaged population(Report, Pratichi Research Team:2005).

Monitoring the health status of children, identifying the malnourished children and providing supplementary nutrition to the needy children and pregnant mothers are among the major responsibilities of AWCs. Since the Anganwari workers and helpers are more or less same across the AWCs, the quality and quantity of service delivered by a AWC definitely gets affected where it has to serve higher number of children and pregnant mothers. For example, simple service like weighing of children(which is probably the first step of monitoring the health status of children) may get affected if there are higher number of children than what can be managed at an AWC given the human resource (i.e. Anganwari workers and helpers) and other complementary inputs. The available data also confirms our apprehension. Data show that about 70-72 percent of the children are weighed at the AWCs which is almost 30 percent lower than the full coverage. If we plot the percentage of weighed children (age group 3-6 years) against child population per AWC, we find a clear negative relationship(IFMR,Report:2009).

A survey on the ICDS programme of Bandhgora Mouja, Bolpur

I survey Bandhgora Mouja, namely-Upper Bandhgora and Lower Bandhgora, on both sides of Kashipur Bypass at Bolpur. There are three centres.

1. Kalikrishna Pal Primary School Centre (centre no. 187) at Upper Bandhgora.
2. Bandhgora Sabujpally Centre (centre no. 186) at Lower Bandhgora.
3. khas Para Community Hall Centre (centre no. 349) at Lower Badhgora.

The routine work done in the centre is to open the centre at 7.30 A.M. it continues upto 10.30 A.M. One ANM and under her supervision two helpers are working. They serve KHICHRI for three days and plain rice with potato curry for another three days. the service goes to children aging 0-6 years and pregnant and nourishing mothers. The children of 3-6 years get pre – school education at the centres. There are rationing quotas for the mothers and children concerned. See the table-

Rationing for three days (plain rice)

	Rice	Salt	Oil	Egg	Potato	Spice
Pregnant Mothers & Nourishing Mothers	100 gm	03gm	01gm	1	30 p.	10p.
Children 6 months-6years	60gm	03gm	01gm	1/2	10p.	8p.

Rationing for three days (khichri)

	rice	pulse	oil	salt	egg	vegetables
Pregnant Mothers and nourishing mothers	90gm	30gm	01gm	09 gm	1/2	46p.
Children 06m0nths - 06 years	50 gm	20gm	.65gm	1.80gm	1/2	18p.

Each centre covers a large number of population. Follow the table

	male	female	total
Bandhgora Kalikrishna Pal Primary school centre	619	702	1321
Bandhgora Sabujpally Primary School centre	520	482	1002
Bandhgora khas para community hall centre	530	493	1023

This is mainly a Muslim dominated area. The Bandhgora Kalikrishna Primary School centre includes 80% Muslim population and 10% Hindu population. The Bandhgora Khas Para Community Hall Centre includes 90% Muslim population and 10% Hindu population. The Bandhgora Sabujpalli Centre includes 70% Muslim population and 30% Hindu population.

If we try to find out the rate of literacy among the concerned mothers, we see 90% mothers are literate, so that they can put signature on the mother's meeting attendance book. But , that does not mean that they are quite conscious enogh about taking care of their babies and families. The two centres (centre no.187 and 349) have some semi mal-nutrient children under these, while another centre has both mal-nutrient and semi mal- nutrient children under it.

At first, we show and analyse the data collected from the centre no. 187.this centre has been running from the year 2007. At present, 11 children are semi mal – nutrient out of 75. follow the table:

Semi mal-nutrient and over weight children

Gender/age	Hindu/general	Hindu/S.C.	Muslim
Male (0-3yr.)		2	
Female (0-3yr.)	1		1
Male (3-6yr.)		1	2
Female (3-6yr.)		2	2
Male/4yr./over weight	1		

Causes of mal-nutrition is that the mothers of three children belong to B.P.L. category. They work as maid- servants to others houses and cannot take proper care of their children. One mother is mentally retarded also. Two Muslim mothers are under-aged mothers. Others are not conscious about the nutritional values of the food. They provide their children with Lays, Kurkure and other kind of fast foods, which they should not. There are 14 pregnant mothers and 8 lactating mothers. The mothers get immunized and vaccinated on a regular basis at the local health centres. The khichri for them is prepared with soya chuncks and vegetables.

Mal-nutrient babies

Gender/ age	Hindu	Muslim	cause
Boy(0-3yr.)	1		Mother belongs to B.P.L. CATEGORY, works as a maid servant, cannot take care properly
Girl(0-3yr.)		2	Mother is under-aged.
Boy(3-6yr.)	1		Mother works as maid-servant
Girl(3-6yr.)		1	Mother is under-aged
Boy(0-1yr.)over weight	2		Referred to Bolpur Health Centre

Semi mal-nutrient babies

Gender/category	Hindu	causes	Muslim	causes
Boy(1yr.-2yr.)				
Girl(1yr.-2yr.)	1	Mother belongs to B.P.L category	2	Under-aged mothers
Boy(2yr.-3yr.)				
Girl(2yr.-3yr.)	1	Mother is not literate, belongs to B.P.L. category	7	Under-aged mothers

Now, we analyse the performance of Bandhgora Sabujpally Primary School Centre. Here, the lactating mothers are 9 in number and pregnant mothers are 6 in number. Here, mother's Meeting is being held at every month, but mothers cannot be

present in sufficient number as large number of them are engaged in some unorganised sectors. The work of ANM is then becomes very tough. In this centre there are both nutrient and mal-nutrient babies. Follow the table:

Out of eleven mal-nutrient children nine are Muslim girl children. We apprehend that in Muslim families girl-children are often neglected, mothers are also many a time under-aged mothers.

The last centre to be discussed is centre no. 349. There are 90% Muslim population and 91 children are enrolled. The number of pregnant mothers is 06. There is no lactating mother. In 2013, there was one boy(Muslim) and one girl(Muslim) in mal-nutrient group, but now they become normal children. There are some semi mal-nutrient children. Follow the table:

Semi mal-nutrient children

Gender/age	Hindu	Muslim	causes
Boy(1yr.-2yr.)		2	un
Girl(1yr.-2yr.)			der
Boy(2yr.-3yr.)		1	aged
Girl(2yr.-3yr.)		1	mo
Boy(3yr.-5yr.)		4	th
Girl(3yr.-5yr.)			er
Girl(3yr.-5yr.)		1	s.

So, in my findings it appears that:

1. Muslim mothers are generally under-aged mothers when they give birth to mal-nutrient or semi mal-nutrient children.
2. When mothers go for work at some un-organised sector ,they cannot take care of their children properly. The baby often becomes mal-nutrient one.
3. The ANM workers also report that the lack of caring is acute among the Muslim mothers.
4. The girl children are neglected than the baby boys.
5. The babies and mothers do not want to take meal at the centre.
6. The birth control pills are distributed from the PHC, but mothers would be much beneficient if the pills would be distributed by the ANM workers.
7. No centre has it's own building.
8. All mothers cannot attend mother's meeting regularly as they are engaged in works at some unorganised sectors.
9. ANM workers are insufficient in number, that pose threats to their routine works.

10. ANM workers are ill-paid, but over-loaded with works, that generates great commotions among them.
11. the mal-nutrient children gets a supplementary food, named- nutrimax, on a regular basis.

I conclude with these opinion that Muslim –populated areas are backward regarding many parameters like health, nutrition, education etc. Our government should be more careful about the remissions.

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4

Pluralistic extension in new age India - enhancing efficiencies of krishi vigyan kendras (KVKs)

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Abstract

Indian agriculture has an impressive long-term record of taking the country out of serious food shortages, given heavy reliance on its pluralistic extension system. In India, extension has a mixed record. At one side, it shows role in promoting productivity, sustainable resources use, and agricultural development (Singh, 1999). On other side, public extension has fallen short of expectations. Planning Commission (2008) narrated that the links between research, extension, and farmers are seen to be inadequate and uncoordinated. Extension has grown over last six decades and is traditionally funded, managed and delivered by the public sector. It is supported and funded by the national government—through its Ministry of Agriculture (MoA) and other allied ministries. The main responsibility for extension activities rests with state governments, since agriculture is the state subject. The central government also implements several technology transfer plans through state governments. Indian agriculture is becoming more pluralistic in nature, where a large number of private sector firms and civil society extension service providers co-exist with this public extension system.

Presently, ICAR runs 639 Krishi Vigyan Kendras (KVKs) across the country. KVKs assess, refine and transfer the agricultural technologies to the farmers in diverse farming systems. Also develop the capacity of farmers to update their knowledge and skills in modern agricultural technologies. Trainings are also imparted for extension personnel to orient them in the frontier areas of technology development. More recently, KVKs are working as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sector for imparting the agricultural economy of the district. Most KVKs have less than 20 staff with the limited reach.

Keywords: Krishi Vigyan Kendras (KVKs), Extension System, Farming System.

Indian agriculture has an impressive long-term record of taking the country out of serious food shortages, given heavy reliance on its pluralistic extension system. In India, extension has a mixed record. At one side, it shows role in promoting productivity, sustainable resources use, and agricultural development (Singh, 1999). On other side, public extension has fallen short of expectations. Planning Commission (2008) narrated that the links between research, extension, and farmers are seen to be inadequate and uncoordinated. Extension has grown over last six decades and is traditionally funded, managed and delivered by the public sector. It is supported and funded by the national government—through its Ministry of Agriculture (MoA) and other allied ministries. The main responsibility for extension activities rests with state governments, since agriculture is the state subject. The central government also implements several technology transfer plans through state governments. Indian agriculture is becoming more pluralistic in nature, where a large number of private sector firms and civil society extension service providers co-exist with this public extension system.

Constraints Faced by the Indian Extension System

In current scenario, where a numbers of stakeholders are involving in agricultural extension, hence, opportunity to reach a greater number of farmers is increasing. Hence, existing constraints identified by the researchers over a period of time are mentioned below.

A. XIth. Five Year Plan recommendations shows the major constraints as (i) Lack of convergence in operationalization of extension reforms (ii) Lack of provision for dedicated manpower at various levels (iii) Inadequacy of funds (iv) Lack of infrastructural support below district level, and (v) Inadequate support for promotion of farmers' organizations and their federation.

B. Birner and Anderson (2007) narrated the constraints as high staff vacancy rates, low social status, low rank in the administrative system, lack of operational funds for effective field work and high turnover.

C. There are insufficient funds for operational costs, training, and capacity development, which limits the activities and continual development of the extension staff (Swanson, 2006). However, it was experienced that there are about 90,000 on the job, which is an adequate number of extension workers for the number of farmers (about 130 million).

D. Various line departments at the state and district levels have been criticized for working in isolation, with weak linkages and rare partnerships. The research–extension link has been criticized for not absorbing or using feedback from farmers and extension staff. Extension personnel and farmers are passive actors, and scientists have limited exposure to field realities.

E. Swanson and Mathur (2003) reviewed agricultural extension system constraints as; (i) Multiplicity of public extension systems (ii) Narrow focus of agricultural extension system (iii) Co-mingling of government schemes and extension activities

(iv) Lack of farmers involvement in extension program planning (v) Supply rather than market driven extension (vi) Lack of transparency and accountability (vii) Inadequate technical capacity (viii) Lack of local capacity to validate and refine technologies (ix) Lack of emphasis on farmers training (x) Weak research-extension linkage (xi) Weak public sector linkages with private sector firms (xii) Inadequate communication capacity (xiii) Inadequate operating resources and financial sustainability.

In this back ground, trying to revamp the Indian Extension System, India has had success in re-orienting its extension system through the Agricultural Technology Management Agency (ATMA) and further strengthened by Krishi Vigyan Kendra (KVK) under Indian Council of Agricultural Research (ICAR). The private sector and Non-Governmental Organizations (NGOs) have increased their role in providing extension services. These experiences and new approaches are expected to have relevance for other developing countries as they work to increase agricultural productivity. Accordingly, the agricultural extension management training will be based on successful Indian experiences in public and private sector that have increased agricultural productivity through pluralistic and modern extension systems.

District Level Extension System in India

The major activities of agricultural extension at the district level are the assessment, refinement and demonstration of technology/products through a network of Krishi Vigyan Kendras (KVKs), the departments of agriculture, animal husbandry, horticulture, fisheries, etc. and the Agricultural Technology Management Agency (ATMA).

Krishi Vigyan Kendra (KVKs)

Presently, ICAR runs 639 KVKs across the country. KVKs assess, refine and transfer the agricultural technologies to the farmers in diverse farming systems. Also develop the capacity of farmers to update their knowledge and skills in modern agricultural technologies. Trainings are also imparted for extension personnel to orient them in the frontier areas of technology development. More recently, KVKs are working as resource and knowledge centre of agricultural technology for supporting initiatives of public, private and voluntary sector for imparting the agricultural economy of the district. Most KVKs have less than 20 staff with the limited reach.

India has made considerable progress in improving its food security. The agricultural development strategy pursued in the country, particularly since the mid-sixties, is recognized and appreciated world over. The integration of agricultural research with quality education and a properly planned extension education system has been one of the fundamental foundations of this developmental strategy, which also led to revolutions in many other sectors of agriculture and allied enterprises. As a part of this strategy, several programmes of transfer of technology from research stations to farmers' fields were launched in the country. These included National Demonstration Project, Lab to Land Programme, Operational Research Project and Krishi Vigyan Kendras (Farm Science Centers). The programmes were continuously

reviewed from time to time and reformulated for their effectiveness. Presently the Krishi Vigyan Kendras (KVKs) have been recognized as an effective link between agricultural research and extension system in the country.

Conceptualization of Farm Science Centres or Krishi Vigyan Kendras (KVKs)

The KVKs have witnessed several changes in their functions over the years. Accordingly their functional definition also has radically got refined so as to meet the new challenges in agriculture.

The most recent definition of a KVK is as follows:

"KVKs are grass root level organizations meant for application of technology through assessment, refinement and demonstration of proven technologies under different 'micro farming' situations in a district" **(ICAR).**

It should be clearly understood that transfer of technology is not a primary function of KVKs and the same is the responsibility of State departments. The KVKs on the other hand will assess and refine (if needed) the newly released technologies, demonstrate the proven ones and train farmers and Extension functionaries on the same.

Role of KVKs in the Present Context of Agricultural Extension Scenario in India

Agricultural extension in India is largely deployed by government, implemented mainly through government institutions and to some extent through non-government agencies. Krishi Vigyan Kendras (KVKs) or Farm Science Centres as institutes of inducing behavioural change, are being managed by both government and non-government organizations. Literally, Krishi Vigyan Kendras have to serve as repository of scientific knowledge that is useful to the entire district, which is its jurisdiction.

In India, agricultural extension and extension education are interchangeably used with the same connotation as used in American tradition, meaning "Extending Information" as a means of educating people to solve their problems. As a result, agricultural extension in India is more of "Informative Extension" than "Emancipatory Extension". The National Agricultural Research System (NARS) is playing a pivotal role in enabling food security by continuous generation of technologies in agriculture and allied sectors in the country. The Indian farming mostly characterized with diversified agro-ecologies, water scarcity, unpredicted rains due to vagaries of monsoon and high cost of technological inputs. Based on the changing scenario of agriculture year by year, it requires promotion of proper management of natural resources like soil, water and micro environment, besides wellbeing of all stakeholders involved in the food production and consumption chain. This is primarily possible by technological empowerment of farmers.

As part of such a strategy, the Indian Council of Agricultural Research (ICAR) is playing a crucial role in providing technologies generated by NARS after its assessment, refinement, demonstration in the micro farming situations, in addition to updating the knowledge and skill of farmers and extension personnel by taking up innovative approaches through its network of 639 Krishi Vigyan Kendras (KVKs), which act as knowledge and resource centres for empowering all the partners in the agricultural development process.

Over the years, there is a change in agrarian structure, though 80% of farmers are operating small and marginal land holdings and having a weak access to critical production resources. It is expected that India will have the largest agricultural manpower dominated by youths under 30 years of age by 2020. Majority of the Indian youth live in villages and are engaged in agricultural activities. Keeping in view such a situation, the KVKs are effectively addressing the felt needs of farming community especially rural youth by following plough to plate approach and creating an enterprising environment. In order to reach the farmers efficiently, a number of activities are carried out by the entire KVK system to bring out location specific technology modules and appropriate extension approaches. It is therefore very important to review and analyze the input, output, outcome and impact of technological interventions implemented by KVKs by documenting the success achieved and to reorient the strategies for effective functioning of KVKs for fulfilling its mandate. In this direction, the Division of Agricultural Extension of ICAR has made a critical review of success stories emerged from KVKs through a rigorous process followed by the Programme Coordinators at district level, the Zonal Project Directorates at Zonal level and by the Division at national level. All together 101 salient technological interventions which proved success have been chosen as a testimony of hard work put in by KVK system and are presented in the form of this document.

There is no denying the fact that until the full potential of technology modules tested and demonstrated by KVKs are harvested by the millions of farmers in the country, success cannot be truly translated into production gains at the field level. It is hoped that this attempt may direct the KVKs and the farming community for up-scaling and replication of successful enterprising interventions for teaching the untaught and reaching the unreached.

Observations on Interaction with KVKs

KVKs should have production unit for minor millets in minor millet grown areas, nutritional security should be looked into by KVKs, farmers innovative funds may be established for the benefit of innovative farmers and low cost technology for black pepper processing to be developed. One working day should be kept for interaction among the Programme Coordinators in a state, all the KVKs should have Soil and Water Testing Laboratory (SWTL) for analyzing more samples, National Agricultural Research System (NARS) should regularly supply newly developed technologies.

Contingency grant for the KVKs should be enhanced, changing of designation of Programme Coordinators may be considered, option of regional language(s) should be

kept in mobile SMS software, timely supply of newly released high yielding varieties to KVK may be ensured. Mini processing unit and agro- processing unit should be equipped in KVKs, the problem of availing fund from ATMA should be looked into, and technical programme of KVK should reflect the agricultural development plan of the KVK. Best KVK should make presentation in the National Conference, KVKs to help in ascertaining nutritional security and training unit for the SHGs, uniform guidelines for linkage with ATMA to be prepared and mechanism for monitoring the NGO KVKs should be developed.

Major Action Points

The Fifth National Conference on KVK in Udaipur in 2010 envisaged the following action path to be charted for the better functioning of the KVKs

1. District wise technological intervention prepared at state level by the DEE to be provided to the KVKs.
2. Backstopping to the KVKs by the DEEs to be improved.
3. Agro- advisory services to the district to be provided by KVKs.
4. KVKs to stick to its mandated activities.
5. Agri-intelligence services to be given priority by KVKs.
6. District level database to be developed by KVKs.
7. End to end service to the farming community to be provided.
8. Technology available with research institutes to be provided to the KVKs.
9. Supply of seeds of newly released varieties to the KVKs for FLD to be ensured.
10. The KVKs to work in farming systems mode.
11. Development of infrastructure and its efficient utilization to be ensured.
12. Filling up of vacant posts in the KVKs needs urgent attention.
13. Participation of district line department officials in the SAC meeting of KVKs to be ensured.
14. Provision for equal service and retirement benefit for NGO/University/ICAR run KVKs needs consideration.
15. Proceedings of the state level review meeting of KVKs conducted by the DEEs along with action to be taken report to be submitted to the ICAR and Zonal Project Directorate.

Enhancing Efficiency in KVK Operations – Some Suggestions

The following strategic points must be considered by the competent authority while trying to enhance the efficiency of the KVKs established and operating on a nationwide scale.

A. Issues of Convergence between KVKs and ATMA

- ATMA-KVK convergence is essential for developing each village into Knowledge Centre. As the number of farmers and area to be covered in each district is huge, farmer-to-farmer extension needs to be institutionalized through ATMA-KVK convergence.
- Feed forward provided by the KVK to ATMA and the utility of feedback received from ATMA in preparation of action plan of KVK has been a major gain of the convergence and needs to be harnessed appropriately.
- Fund flow from ATMA to KVKs is highly skewed and varies from district to district and hence there is a need for uniformity in fund flow to all the KVKs and must be provided to KVKs directly.
- There is a need for revisiting the joint circular on convergence to make the convergence process more operationally feasible. Some of the proposed changes include quarterly meetings, earmarking of funds to KVKs, visit of ATMA staff to the cluster villages of KVKs and ATMA sponsorship for Technology Weeks being organized by KVKs.

B. Issues of Interface between SAUs, DAC and KVKs

- Pre-seasonal interfaces between ICAR and DAC must include Vice-Chancellors of SAUs so that issues related to convergence can be discussed.
- Technical backstopping of KVK and ATMA by the ICAR institutes and SAUs needs special attention.
- The Directors of Extension Education (DEEs) of all the SAUs must consult the SREPs and DAAPs of all the districts and guide the KVKs in developing their action plans.
- KVKs should be guided by DEEs and ZPDs and be given operational freedom and flexibility for managing and conducting Research-Extension-Farmer (R-E-F) linkage activities under ATMA without diluting the mandated activities of KVKs.
- Vice Chancellors (VCs) of AUs should be in constant touch with the DEEs for effective functioning of KVKs. A quarterly review meeting of all KVKs should be held under the chairmanship of VCs to review the functioning of KVKs.
- DEEs should play active role in KVK monitoring and technological inventory prepared by SAUs need to be updated regularly.

C. Issues of Linkage of KVKs with other Institutes

- The KVK has emerged as institutional innovation for carrying out adaptive research like technology assessment, refinement and its

demonstration in farmer's field. The KVK system should partner with global organization like FAO for mutual benefit and replicating KVK like institutions in other countries keeping in view their needs and requirements.

- ❖ The ICAR institutes and agricultural universities should ensure technology flow to KVKs to reduce the time lag in application of frontier technologies related crop science; horticulture; farm machinery implements and agro-processing; livestock; fisheries; and aquaculture and other suitable enterprise.
- ❖ National level repository of technologies and best practices may be prepared and circulated among KVKs for better utilization and up-scaling.
- ❖ There is a need to minimize the time lag between technology generation and dissemination by devising suitable means and mechanisms for continuous flow of knowledge, techniques and technologies from research institutes and universities to KVKs. There is a wide gap between scientific know-how and field levels do-how. This knowledge deficit should be overcome to enhance the productivity and profitability especially of small farms.

D. Issues of Administrative Parameters of ZPD and KVKs

- ❖ There is a need for regular capacity building of administrative and account staff of KVKs and ZPDs on office procedures and financial management.
- ❖ Criteria for Zonal KVK Awards may be re-looked as it is not only based on the documentation, hence, ZPDs may be involved in short listing the KVKs.
- ❖ Based on the experience of three Sensitization Workshops on Process of Knowledge Management at the KVK for Programme Coordinators, more such workshops are organized for capacity building of the KVK for integration of concepts and issuing farm advisories.
- ❖ Custom hiring, IFS, rain water harvesting structures may be extended to more number of KVKs.

E. Issues of ICT and E-Connectivity with the KVKs

- ❖ Central Data Centre being established by the ICAR is to be linked with e-KVK hub so that e- connected KVKs and ZPDs can improve their efficiency in agricultural knowledge creation, aggregation, and sharing.
- ❖ The e-connectivity to KVKs and ZPDs are to be strengthened while remaining KVKs are to be provided with e-connectivity.
- ❖ Modern tools and technology such as ICT is going to play a vital role in technology transfer and extension system for which the KVKs need to

be equipped with such facilities. KVK should be a hub of all knowledge related to agriculture and therefore there is need for efficient knowledge management through proper use of ICT. Necessary expertise needs to be developed by making use of information available from various sources including that available on web and develop strategies for long range forecasting of weather and the likely incidence of pest and disease.

F. Operational and Managerial Issues with the KVKs

- ❖ The Timely flow of funds from host organizations to KVKs may be given priority.
- ❖ The Programme Coordinators of KVKs should be given/delegated administrative and financial powers equivalent to Heads of Departments/ Divisions in AUs and ICAR Institutes.
- ❖ Timely submission of Actual Expenditure Statement as well as Audited Utilization Certificate by the host organizations for further release of funds and effective implementation of technical programme must be ensured by KVKs.
- ❖ Lacunae are being observed in the proposals of condemnation of KVK vehicles and these should be screened thoroughly by the host organizations to avoid delay in the process and therefore, it is suggested that condemnation of vehicles should be proposed based on the approved rules of ICAR (GFRs).
- ❖ Diversion of funds must be stopped i.e. the funds allocated for capital assets should not be used in revenue head and vice-versa. Re-appropriation of budget must be approved from the ICAR. The expenditure should not exceed the approved budget.
- ❖ Vacant posts in KVKs should be filled-up as soon as possible as per the latest qualifications and in consultation with Zonal Project Directors.
- ❖ The revolving fund provided to KVKs must be returned to ICAR within 05 years.
- ❖ Motivation in terms of remote area allowance/ difficult area allowance may be paid to the KVK staff as per the existing rules to avoid the frequent transfers.
- ❖ Refreshment charges for trainings need to be enhanced as per provisions equal to other schemes of Government of India.
- ❖ Provision of TA/DA may be made for innovative farmers and Farm Innovators' Meets should be organized at least once in a year.
- ❖ The pay scale of the SMSs should be at par with Assistant Professors of SAUs and Scientists of ICAR Institute and gratuity may be extended to KVK staff irrespective of host organizations.

- ❖ Guidelines with respect to administration and financial matters of KVKs may be circulated to all host organizations as well as KVKs.

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In view of increasing expectations from Krishi Vigyan Kendra, its Vision be now defined as "Science and technology-led growth leading to enhanced productivity, profitability and sustainability of agriculture", where as the Mission should be "Farmer-centric growth in agriculture and allied sectors through the application of appropriate technologies in specific agro-eco system perspective". Also, the Mandate should be "Technology Assessment and Demonstration for its wider Application and Capacity Development".

Source: Report of the High Power Committee for Management of Krishi Vigyan Kendra (KVK) for suggesting Measures to improve relevance, efficiency and guidelines for implementation, Agricultural Extension Division, Indian Council of Agricultural Research, Krishi Anusandhan Bhavan, Pusa, New Delhi - 110 012, January, 2014.

Concluding Remarks

The following points must be kept and operationalized by the respective Authorities so that the KVKs can cope up with the challenges of the new economic order of India:

- ❖ Agro processing units to be provided to KVKs.
- ❖ Guidelines to be developed for obtaining ATMA fund to be provided to KVK.
- ❖ Farm Innovation fund to be provided to the KVKs.
- ❖ Major focus should be on rain fed farming or conservation and collection

of rain water in rain fed areas.

- ❖ Integrated farming system approach also be developed at KVKs instructional farm.
- ❖ To improve the soil health, soil test based application of nutrients through fertilizers should be implemented.
- ❖ KVKs should stick to mandatory activities and there is a need of recruitment policy for KVK personnel.
- ❖ Impact studies to be conducted regularly.
- ❖ Resource generation at KVK level should given due importance.

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Organic farming – the challenges ahead

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Abstract

Green Revolution (GR) technologies, supported by policies, and fuelled by agrochemicals, mechanization and irrigation, are well known to have enhanced agricultural production and productivity. While these technologies have greatly helped developing countries to address their food-security needs, farmers using these technologies, have to depend on external inputs which constitute the major cost of production, thereby eroding their profits. The manufacture of fertilizers and pesticides, the two major inputs of GR technologies, needs fossil fuels and/or expensive energy, and is associated with serious environmental and health issues.

The days are gone when we scientists educated/trained to grow crops with agrochemicals, were acknowledged as 'final authority' on a given subject. Today, lakhs of farmers across the globe grow crops without these inputs and are registered with accredited companies as practitioners of organic farming (OF). They and several non-governmental organizations (NGO's) working on similar lines now differ from several aspects of mainstream agriculture.

Organic farming (OF) involves a holistic system of farming which optimizes productivity in a sustainable manner through creation of interdependent agri-eco systems where annual crop plants such as sorghum, perennial trees e.g. horticultural trees and animals (including fishes where relevant) are integrated and intricately linked on a given field or property.

Although India has traditionally been a country of organic agriculture, but the growth of modern scientific, input intensive agriculture has pushed it to wall. But with the increasing awareness about the safety and quality of foods, long-term sustainability of the system and only hope for rain fed – resource poor farmers, organic farming has emerged as an alternative system of farming which not only addresses the quality and sustainability concerns, but also ensures a debt free, profitable livelihood option. Within a short span of five years, organic agriculture has grown from a controversial niche subject to a mainstream agriculture.

But to keep the hopes of these farmers, efforts are necessary to link them to market. For this efforts need to be made on the same scale, as has been initiated for increasing the area.

Keywords: Organic Farming (OF), Green Revolution (GR), Technologies

Introduction

Green Revolution (GR) technologies, supported by policies, and fuelled by agrochemicals, mechanization and irrigation, are well known to have enhanced

agricultural production and productivity. While these technologies have greatly helped developing countries to address their food-security needs, farmers using these technologies, have to depend on external inputs which constitute the major cost of production, thereby eroding their profits. The manufacture of fertilizers and pesticides, the two major inputs of GR technologies, needs fossil fuels and/or expensive energy, and is associated with serious environmental and health issues.

It is perhaps owing to these inputs and their negative impacts that the Intergovernmental Panel on Climate Change (IPCC) has noted that agriculture as practiced today (conventional, modern or GR agriculture) accounts for about one-fifth of the projected anthropogenic greenhouse gasses, producing about 50 per cent and 70 per cent, respectively, of anthropogenic methane (CH_4) and nitrous oxide (N_2O) emissions (www.gcrio.org/ipcc/techrepI/agriculture.html). It is therefore time to identify and promote use of agro-technologies that are environmentally benign, empower farmers even while resulting in sustainable high yields.

The days are gone when we scientists educated/trained to grow crops with agrochemicals, were acknowledged as 'final authority' on a given subject. Today, lakhs of farmers across the globe grow crops without these inputs and are registered with accredited companies as practitioners of organic farming (OF). They and several non-governmental organizations (NGO's) working on similar lines now differ from several aspects of mainstream agriculture.

Organic farming (OF) involves a holistic system of farming which optimizes productivity in a sustainable manner through creation of interdependent agri-eco systems where annual crop plants such as sorghum, perennial trees e.g. horticultural trees and animals (including fishes where relevant) are integrated and intricately linked on a given field or property.

Agricultural scientists, however, do not believe that crop yields without fertilizers can be high unless large quantities of compost that supplies nutrients (nitrogen, phosphorus and potash – NPK in particular), equivalent or close to the recommended levels are applied. It is then argued that large quantities of compost are not available to farmers particularly when farmers are shifting from cattle-based farming to mechanization. Use of composts, green manure etc. is considered as good practices and is widely recommended along with chemical fertilizers as "Integrated Nutrient Management" or INM. Crops are potentially attacked by several different crop pests, both diseases and insect pests.

In the past, our emphasis has been mostly on synthetic pesticides that are nervous system or respiratory poisons to control such pests, and are potentially toxic to environment and operators. Most scientists are trained only in these options. Use of botanicals and entomo pathogenic microorganisms for plant protection are regarded as good practices and came into prominence after it was becoming difficult to manage several insect-pests that had developed resistance to several different types of synthetic pesticide molecules (Kranthi *et al.,*2005). Most scientists (Entomologists in particular) appreciate the importance of soft options of crop protection but promote

them along with chemicals as part of integrated pest management (IPM), because their belief is that the soft options on their own would fail to protect crops. In the whole scheme of crop protection from insect-pests in real world, natural enemies of insect pests do not find a place except the recognition in the form of lip service that they are important. And few may survive in the field with regular use of synthetic pesticides.

During the last two decades, there has been a significant sensitization of the global community on environmental conservation and safe food. Organic Agriculture (OA) is now becoming main stream all over the world. While OA has a long history, the modern organic movement is radically different from its original form. Now it has environmental sustainability at its core in addition to the concerns for healthy soil and healthy food. In India, organic farming has started simultaneously from two streams. While the commercial growers of spices, basmati rice and cotton adopted organic for premium prices in export market, resource-poor farmers in rain fed marginal lands adopted it as an alternative livelihood approach, which not only promises clean environment and healthy food but also ensures soil fertility, long-term sustainability and freedom form debt and market forces. What is unique with this growing concept of organic farming in India is that, it holds the last hope to the farmers.

Organic Agriculture in India

Since January 1994 "Sevagram Declaration" for promotion of organic agriculture in India, the organic farming has grown many folds and number of initiatives at Government and Non-Government level have given it a clear direction. While National Programme on Organic Production (NPOP) defined its regulatory framework, the National Project on Organic Farming (NPOF) has defined the promotion strategies and provides necessary support for area expansion under certified organic farming. Nine states have formulated organic promotion programmes and are trying to formulate the organic policies. Three years ago states, like Uttarakhand moved to make organic farming a thrust area for agricultural development. States of Mizoram and Sikkim declared their intention to go totally organic. In March 2007, the Government of Nagaland has also declared its intension to work for total organic and defined organic pathway and policies.

Status of Organic Farming in India

The task force of GOI under the chairmanship of Shri.Kunwarji Bhai Jadav of Rajkot and Commissioner of Agriculture GOI as member secretary suggested, need for alternative to modern conventional agriculture.

- The task force also, gave brief account of practices of organic farming and other systems viz. Bio-dynamic, Rishi Kheti etc. being practiced in India.
- Ministry of Commerce, GOI has launched National Programme for Organic Production (NPOP) and National Standards on Organic Production (NSOP) in March, 2000.

- ❖ National standards for organic products have been standardized during May 2001 and could be sold under the logo India organic.
- ❖ National Accreditation Policy and Programmes (NAPP) has been formulated with accreditation regulations announced in May 2001.
- ❖ This makes it mandatory for all certification bodies engaged in inspection and certification of organic crops and products to be accredited by an accreditation agency.
- ❖ Foreign certification bodies operating in the country must also be accredited.

Growing Certified Area

Before the implementation of NPOP during 2001, and introduction of accreditation process for certification agencies, there was no institutional arrangement for assessment of organically certified area. Initial estimates during 2003-04 suggested that approximately 42,000 ha of cultivated land were certified organic. By 2005, India had brought more than 2.5 million ha of land under certification. Out of this, while cultivable land was approximately 76,000 ha, remaining area was forest land for wild collection. Growing awareness, increasing market demand, increasing inclination of farmers to go organic and growing institutional support have resulted into more than 200% growth in certified area during the last two years.

Decreasing Cost of Certification

High cost of certification had always been a matter of concern for small and marginal farmers. But with the increasing competition, increasing number of producers and introduction of Grower Group Certification (GGC) system, per farmer costs have come down drastically. The costs which were ranging from Rs.1.5 to 2.0 lakh per individual project and Rs.500 to 2500 per farmer in groups have come down to Rs.45,000.00 to 75,000 in case of individual projects and Rs.100 to 150 per farmer in groups. Recently, the initiatives taken up by Government of India to promote State Government bodies as certification agencies has further reduced the prices. The Uttaranchal State Organic Certification agency is offering certification at a price of Rs.10,000 to 15,000 per project.

Role of National Project on Organic Farming in Promotion of Organic Farming

Department of Agriculture and Cooperation, Ministry of Agriculture, Govt. of India has launched a Central Sector Scheme "National Project on Organic Farming" during Xth. five year plan w.e.f. 1st October, 2004. Main objectives of this scheme are as follows:

1. Capacity building through service providers.
2. Financial support to different production units engaged in production of bio-fertilizers, compost and vermi-compost etc.

3. Human resource development through organizing training on Certification and Inspection. Production and Quality Control of Organic Inputs, Training of Extension Officer / Field Functionaries, Farmers Training on Organic Farming etc.
4. Field demonstration on organic inputs and enriched biogas slurry.
5. Setting up of Model Organic Farms.
6. Market development for organic produce.
7. Development of Domestic Standards
8. Support to new initiatives on technology related to organic farming.
9. Awareness programmes etc.
10. Quality control of various bio-fertilizers and organic fertilizers as per Fertilizers Control Order.

Growing Organic Food Market

During the last seven years, there have been many estimates on the size of the organic food market in India: some say "organic foods are the super rich man's food and have negligible or no market, while some have speculated to be a market of about 2-3 million consumers with estimated potential of Rs.96 billion based on a modest spending of Rs.4,000/- per month. Recently, International Competence Centre for Organic Agriculture (ICCOA) conducted a survey in top 8 metro cities of India (which comprise about 5.3 % of the households) to assess the organic food market potential and consumer's inclination and behavior towards the organic food. The market study estimates the accessible market potential for organic foods in 2006 in top 8 metros of the country at Rs.562 crores taking into account the current purchase patterns of consumer in modern retail format. The overall market potential is estimated to be around Rs.1452 crores, the availability will however be a function of distribution, retail penetration and making the product available to the customer.

Focus on Niche Areas and Commodities

Rain fed areas are reported to have relative advantage to go for organic farming primarily due to i) low level of input use, ii) shorter conversion period and iii) smaller yield reductions compared to irrigated areas, but no one can suggest any large scale conversion in view of the limitations referred above.

Moreover, following WTO agreement, and expected free trade of commodities both within and outside the country, the cost of production is sure to play a major role in the profitability. Hence, rain fed farmers producing same commodity as in irrigated areas need to realize high yields in order to remain competitive. Moreover, large yield gaps still exist between research station productivity and farmers fields. Therefore, it is necessary that farmers have to increase the quantum and efficiency of input use and achieve higher productivity. However, the inherent advantages of rain fed areas should be capitalized by encouraging organic farming in highly selected

areas and commodities with edapho-climatic and price advantages. The primary focus should be on commodities which have export potential with price premiums. Having selected the commodities, a two pronged strategy need to be followed for popularizing organic farming. Firstly, areas where relatively low or no inputs are used and which are climatically well endowed with reasonable productivity levels may be identified. Farmers in contiguous areas can be encouraged to adopt farm management practices that are required in organic production. Yield levels in such areas may be further enhanced by using permitted inputs. A commodity and area oriented group certification system may be possible with the support of the Government agencies and service providers.

As a second strategy, areas where farmers are already realizing higher yields but using chemical inputs need to be identified and a systematic conversion protocols need to be introduced based on research data. Besides training and capacity building of farmers on production of inputs required for organic farming at farm level, the availability of other bio inputs like bio fertilizers and bio pesticides need to be increased in selected areas by encouraging the setting up of bio resource centers. Forward linkages with certifying agencies and markets will be essential to sustain the initiative.

Constraints in Scaling Up

Besides the well known limitation of the availability of FYM and other organic forms of nutrients in desired quantities as highlighted by Chhonkar (2004), water availability also is an important constraint for adoption of organic farming, particularly in arid and dry semi-arid tropics. Absence of surplus rainwater for harvesting and long periods of low soil moisture can limit the overall biomass production for recycling, green leaf manuring and on-farm composting. Application of 5- 10 t FYM/ha is required in most crops to produce on par yields with recommended chemical fertilizers. Such level of inputs use can only be possible in limited areas for specific crops. However, biomass production during the off season (without competition with the kharif crop) through a legume cover cropping and its incorporation in the soil can be another strategy to overcome the limitation of organic matter availability (Venkateswarlu *et al.,* 2007). Since the overall biomass production is linked to rainfall, using crop biomass either by composting or through recycling should be a major strategy in relatively high rainfall receiving areas in moist semi-arid and dry sub humid regions (750 - 1200 mm of annual precipitation) while the dry semi-arid and arid areas (300 - 750 mm of annual precipitation) may depend on use of FYM as the principal source, since live stock is a strong component in these regions.

Considering the low organic matter and fertility status of Indian soils, the yield decline during conversion period could be sharp in the absence of external inputs. In view of the limited biomass and organic resources available for use in rain fed areas, organic production either for domestic or export markets should be encouraged in highly selected areas and commodities. This strategy alone can sustain the production and marketing of organic food on a long term basis.

Analyzing the Myths

Are crop yields low in Organic Farming (OF)?

Reduced yields in the initial years when a field is converted from conventional agriculture (CA) to OF is a widely observed phenomenon, including in tropics, and OF cannot be quoted as a low-yielder on this basis. A few years are initially needed to build the agriculturally beneficial microorganisms in soil that would have been adversely affected by long years of agrochemical inputs used in CA. With scientific understanding of OF as a soil building process rich in microbial-activity, it will be possible to reduce this period to less than one year and the author has seen such farms. Overall, it can be argued that sustainable high yields are possible with OF (Rupela *et al.,* 2005), but scientists have not explored it enough in a farming system perspective where trees, crops and animals are intricately linked on a given farm. For most scientists, it is indeed difficult to believe that high yields are possible without synthetic agro-chemicals. Therefore they would like to verify the claims of several OF practitioners. All the 31 million ha (including forest produce) in the world presently growing crops through OF practices are certified, implying that it is possible to obtain names and addresses of the producers/farmers from accredited certification agencies in a given country. It is the duty of the well meaning research institutes to access these names, visit these fields/crops and verify the claims by actual measurements.

Admittedly the evidences to indicate that high yields are possible with OF are limited, but this is due to the fact that most agricultural research institutes have not worked on it. Therefore the onus is on these institutes to generate more data, including surveying the OF practitioners to verify their claims of high yields.

The proponents of OF in India state historical evidences in support of high crop yields prior to 1835 when modern agro-chemicals were not on the scene. For example, the average yield of rice is quoted as around 3 t/ha. This mean yield of rice was based on a survey from over 1000 localities in two independent records/studies: the first, writings on palm-leaves in Tamil Nadu (still available) and the second, survey reports of Thomas Bernard of East India Company. Mean paddy yields of well performing localities were over 6 t/ha in one and over 9 t/ha in the other study. Mean yields of conventional rice these days in India (see www.dacnet.nic.in, 10 Aug 2007, a website of Government of India), ranges from <1.0 t/ha (labeled as very low productivity states, e.g. Madhya Pradesh) to >2.5 t/ha (labeled as high productivity states (e.g. Andhra Pradesh and Punjab). The average yield of Punjab in the recent past was about 4 t/ha.

It is opined that these evidences should force agricultural scientists to think and explore how high yields were harvested in the past without agrochemicals and develop those technologies for wider use. Yield advantages due to application of both fertilizers and pesticides are not in doubt and have been researched and widely published. The major weakness of research on fertilizer recommendations is that these are crop focused and have generally been developed without considering the cropping system perspective of a given area and availability of natural resources of that area.

In the light of the historical evidences stated above, it is proposed that the agriculture of post 1900 without interventions of modern inputs of agrochemicals be termed as 'Traditional Agriculture or TA', the modern agriculture with agro-inputs as conventional agriculture or CA, and the interventions to TA by biological options as OF and the OF when certified be called COF. OF is a knowledge intensive system and has been developed by practitioners themselves over the years. There are essentially no external inputs and therefore it is a low-cost system. This knowledge, expertise and experience is largely held with the practitioners of OF and yet to be documented professionally.

Efforts have been made by some research institutes in India to document this knowledge as ITK (indigenous/traditional knowledge) but that largely remains in books and needs to be applied. Available research data from the mainstream system in the area of biological options of crop nutrients and crop protection, without agro-chemicals, seem to explain some aspects. All the documented ITK and available research data need to be packaged into low-cost farmer-empowering agro-technologies.

Over the years, OF has not spread enough because the mainstream research institutes and Departments of Agriculture in different South Asian countries do not support it. Additionally, some practices of OF remain laborious in the absence of research and development investments by the governments globally.

Road Map to be followed

While rain fed regions undoubtedly offer good scope for organic production at least in niche areas and commodities, a number of research, development and policy issues need to be addressed before realizing the potential. The following road map may be followed for establishing the Organic Farming on a strong footing in India:

1. Prepare an enlarged list of crops, herbs and livestock products which can be sourced from rain fed regions considering the international trade in organic food and allied products.
2. Carry out a country wide survey/ inventorisation of areas in arid, semi-arid and dry sub humid regions about the level of chemical input use, productivity in selected commodities which have potential to fetch price premiums in international markets.
3. Identify contiguous blocks of areas with little or no chemical input use and where productivity can be enhanced by using permitted inputs to enable group certification to farmers.
4. To develop protocols for organic production of important commodities through farmers participatory network research. These protocols should be based on the entire cropping system approach and not on individual seasonal crops.
5. To create awareness and capacity building of different stakeholders on different aspects of organic production like cultivation, harvesting, certification and marketing.

6. Develop preferential policy instruments for rain fed farmers particularly in terms of providing market information, subsidized supply of inputs and group certification.

Conclusion

Although India has traditionally been a country of organic agriculture, but the growth of modern scientific, input intensive agriculture has pushed it to wall. But with the increasing awareness about the safety and quality of foods, long-term sustainability of the system and only hope for rain fed – resource poor farmers, organic farming has emerged as an alternative system of farming which not only addresses the quality and sustainability concerns, but also ensures a debt free, profitable livelihood option. Within a short span of five years, organic agriculture has grown from a controversial niche subject to a mainstream agriculture.

It has grown at a rate of nearly 200% in the last two years and is likely to grow by more than 100% in the next five years to come. Institutional mechanisms and Governmental support has ensured its sustained growth during the 11th Five Year Plan Period.

But to keep the hopes of these farmers, efforts are necessary to link them to market. For this efforts need to be made on the same scale, as has been initiated for increasing the area.

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6

Is female employment status in rural India an indication of women's empowerment? A study of NSS 68th round data

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Abstract

This paper examines the relation between socio-economicand socio-religious determinants of the employment status of female workers in rural India. The interrelationshipof the two dimensions is studied for the period 2011-12, using data from the 68thquinquennial round of Employment-Unemployment Survey(EUS) of National Sample Survey Office(NSSO) and focuses on the variations in female employment patterns. The concept of inter-sectionality has been introduced in the study. Working with the unit level data of the 68th(2011-12) round, logistic regression methods have been used, as in such cases the model does not always make distributional assumptions on the predictors which can be both continuous and discrete. Results show that female workers across land-ownership classes of the socio-religious groups are participating in self-employment or casual employment. Under both the statuses the distress push element is very strong which is detrimental to women's empowerment.

Keywords: Employment, Rural, Landownership, Socio-Religious groups, Intersectionality, Female Work-Force Participation, Gender Empowerment, Cross-section analysis.

Introduction

Women can be engaged directly in the development process and they can experience the benefits of growth more equitably by generating increasingly productive employment opportunities (*Behrman and Zhang, 1995*). There is no country in the world where women's quality of life is equal to that of men ; quality of life being measured in terms of longevity, health status, educational opportunity, employment rights, autonomy (decision making power) and political rights (*UNDP Human*

Development Report, 1993). In developing countries the situation is not only uneven but also distressing (*Nussbaum and Glover,1995*). In several such countries, including India, the work participation rates of women are substantially lower than that of men. It is observed that women have to put in long hours of unpaid household labour. Biases against girls/women lead to their inaccessibility to education and health which results in poor human capital development and a low labour force participation rate among women. This in turn affects the future human capital formation and female labour productivity (*Mitra, 2010*). Women also face issues of intra-household inequality in terms of asset ownership and participation in decision making process; a fact that prompted this study to look into the relationship of land-ownership and types of work in which women engage.A major gap in the existing literature is the limited attention paid to the question of ownership of wealth (proxied by land-ownership in this study) as a socio-economic determinant and of socio-religious determinants. The overlap of these factors are not dealt with in economic literature. The novelty of this study is that it has tried to bring in the concept of intersectionality in determining the effect of the socio-economic and socio-religious factors on the status of female employment and thus looked into the overlap of these determinants.

Research Objective

An attempt has been made in the present study

(i) To determine the relation of female work-participation with land-ownership of households of the respective socio-religious groups.

(ii) To identify the category of employment which evokes greatest participation from female workers.

(iii) To assess the impact of the interaction of land-ownership classes and socio-religious groups on female work participation.

Women's employment may be driven by necessity or it may be the result of increasing educational attainment, changing societal norms or available employment opportunities. In general when women do work, they tend to be engaged in low-paid and low-productivity jobs (*ILO,2011*). Moreover, in the developing world, women's work is overlooked, undervalued and under-reported because they are often home-based and contributing to non-market activities, such as caregiving, which have economic benefits for household (*Beneria,1982; Boserup, 1970; Donahue, 1999*). The picture that emerges from a study of the work profile of women in rural India in recent years strengthens this conjecture. Thus, the puzzling decline in participation rates of women workers in India, inspite of having a decent rate of growth, is worth delving into.

Literature Review

The literature on female labour supply or participation can be reviewed in terms of both theoretical predictions and empirical findings.Workforce participation is usually regarded as an issue of labour supply, highlighting the decision to participate in paid

labour market activities or to remain inactive (*Chaudhary, Verick, 2014*). Research that studies the causes of and variables affecting female work participation rates have recently become popular.This study also tries to establish a causal relationship of female work-force participation with socio-economic and socio-religious variables in rural India.

In the basic static labour supply model, labour markets are assumed to be competitive (which may not always be true in developing countries like India) and labour supply decisions depend on the relative strength of the income and substitution effects. The expected wage of a woman worker is the opportunity cost of her time, once she is in paid employment. A higher wage has a substitution effect and also a countervailing income effect (if it outweighs the substitution effect).On the other hand, increased unearned income (for example, by the spouse or through social transfers) will only exercise an income effect on women's labour supply decisions, resulting in a potential withdrawal from the labour market (*Mammen and Paxson, 2000*).

Beyond the basic labour supply model, the 'collective' household models and the 'unitary' household models also explain the labour supply behaviour of households and its implications for women's participation in economic activities. The 'collective' household labour supply model, is explicitly based on individual preferences and control over resources influences the bargaining within the household *(Chiappori,1992*). This model implies that women's increased control over household resources may increase their welfare by enhancing their bargaining power. But empirical evidence on 'collective model' in developing countries have hinted that women receive fewer productive resources within the households and therefore have less bargaining power (*Mammen and Paxson, 2000*). So, we have done an empirical analysis using micro level NSSO Employment data, structured on the standard 'unitary' model where the household is considered as the decision-making unit {the model assumes that there exists a single utility function for the household and it does not take into account the underlying preferences of the household members. Pooled household income plays a role in the decision-making process, while its distribution across household members does not matter (*Becker, 1965*)}.

Dataand Methodology

Unit level Employment-Unemployment Survey data (68th Round, 2011-12) of National Sample Survey Office has been used for the determination of the categories of employment of female workers. The main objective of the employment and unemployment surveys conducted by NSSO at periodic interval is to get estimates of level parameters of various employment and unemployment characteristics at national and State/UT level.The survey covered the whole of the Indian Union except: (i) interior villages of Nagaland situated beyond five kilometres of the bus route and (ii) villages in Andaman and Nicobar Islands which remained inaccessible throughout the year.In the employment and unemployment surveys of NSSO, information regarding theactivity status of a person is collected in three different approaches viz. usual

status approach (usual principal and usual principal+subsidiary), current weekly status approach and current daily status approach. In the usual status approach, the broad activity status of a person viz. employed, unemployed and 'not in labour force' is decided by major time criterion. In current weekly status and current daily status approach, the broad activity status of a person is decided by priority-cum-major time criterion where work activity gets priority over unemployment which in turn gets priority over 'not in labour force activities'.The analysis in this paper is based mainly on usual principal status (UPS) data. NSSO surveys implicitly recognise the fact that UPS data provide information on a wider range of employment-related characteristics of persons. However, one drawback of this data is that it may not always be completely accurate as the recall period for the respondents is too long. Participation rates based on Usual Principal Status generally tend to be higher than weekly or daily statuses.

A total of 12,737 First Stage Units (7,469 villages and 5,268 urban blocks) were surveyed by NSSO at the all-India level for canvassing the Employment and Unemployment Schedule; Schedule 10 (based on which we have structured the model). The number of households surveyed was 1,01,724 (59,700 in rural areas and 42,024 in urban areas) and number of persons surveyed was 4,56,999 (2,80,763 in rural areas and 1,76,236 in urban areas).For considering Work-Participation of Female Workers (in the age group of 15-59 years) in the Usual Principal Activity Status we have arranged the data in the following manner :

a) Usual Principal Activity Status code 81(as per NSSO schedule) has not been taken into consideration as that will give us the Labour Force estimate but we are considering Work-Force participation only.

b) Usual Principal Activity Status code 91(attending educational institutions) has been considered 'out of labour force'(as per NSSO directive),

c) Usual Principal Activity Status codes 21,92,93,94,95,97,99 have not been taken into consideration as they do not enable us to define work-participation as gainful employment. {These codes describe activities which are not remunerable or done for gainful purposes}

So Work-Participation= Usual Principal Activity Status (11+12+31+41+51), where we have defined the categories of employment in the following manner:

Self Employment = UPA(11+12); *Worked in h.h. enterprise (self-employed): own account worker -Upa11, Employer-Upa12,*

Regular Employment = UPA31*; Worked as regular salaried/ wage employee -Upa31,* and Casual Employment = UPA(41+51); *Worked as casual wage labour: in public works -Upa41, In other types of work -Upa51.*

So the dataset which we explored consists of 1,70,440 individuals. Over this data set Multinomial Probit Regression(MPR) is applied for describing and testing

hypothesis about relationships between a categorical dependant variable and one or more categorical or continuous explanatory variables, after taking care of Importance of Irrelevant Alternative(IIA). We have specifically chosen MPR to answer the research question for two specific reasons. First, MPR provides an effective and reliable way to obtain the estimated probability of belonging to a specific population (e.g self-employment, i.e principal activity status 11+12) and the estimate of the individuals' characteristic on their employment status. Second, MPR is a procedure by which estimates of the net effects of a set of explanatory variables on the dependant can be obtained (Morgan&Teachman 1998).

Different Determining Dimensions: exploratory Analysis

Land-Ownership and Female Work-Force Participation

The marked decline in female labour force participation exhibited in the latest EUS (68th Round, 2011-12) of NSSO is a disturbing fact warranting closer introspection. The labour force participation rate for women aged 15 years and above fell by 10.1 percentage points as compared with the previous round, corresponding to 22.6 million fewer women in labour force in 2010 than in 2005 (*ILO research Paper No.10, 2014*).*Rangarajan et al (2014)* mention in their study of the 68th round of NSSO (2011-12), that for the first time in the history of the Indian Labour market, the share of employment in the farm sector fell to below 50%. There was a change in the sectoral composition of employment and withdrawal of workers from the farm sector at 1.7% p.a between 2004-05 and 2009-10 accelerated to 3.0% p.a between 2009-10 and 2011-12. In rural India both males and females showed a tendency to withdraw from the agricultural sector and move to industry and services. This tendency found more prominence among women workers. Around 29 million female workers withdrew from agriculture between 2004-05 and 2011-12.*Hirway (2012),*on the other hand, while assessing the 68th Round, is of the view that the missing labour force may not actually be missing or moving out, rather, it may have merely moved to low-productivity and subsistence-employment sectors which are difficult to measure through NSSO surveys. Based on this observation we have made an attempt to study theprobability of participation of women workers, of different socio-religious groups belonging to landless (0.000hectares), marginal landowning (0.001-0.40 hectares), small landowning (0..41-2.00 hectares) and large landowning (>2.00 hectares) households in the three categories of employment (viz. self employment, regular employment and casual employment). We would like to see if there is a double burden of socio-religious and socio-economic disadvantage for women workers.

From Table 1 we see that more than half of the women workers belong to households whichown marginal amounts of land and a majority of them are self employed.

Table 1: Distribution of female workers across land ownership classes and type of employment

	Land Ownership	
	No of female workers	**% share in total workers**
Landless (0.000 ha)	700	0.76
Marginal (0.001-0.40 ha)	52,978	57.56
Small (0.41-2.00 ha)	19,014	20.66
Large (>2.00 ha)	19,352	21.02
Total	92,044	100
	Type of Employment	
Self-Employment	40,421	43.91
Regular Employment	28,968	31.47
Casual Employment	22,655	24.61
Total	92,044	100

Source: NSSO Employment & Unemployment Survey 68th round (2011-12). Authors' Calculation

The trend of female employment across land ownership classes is brought out more explicitly by Figure 1 below.

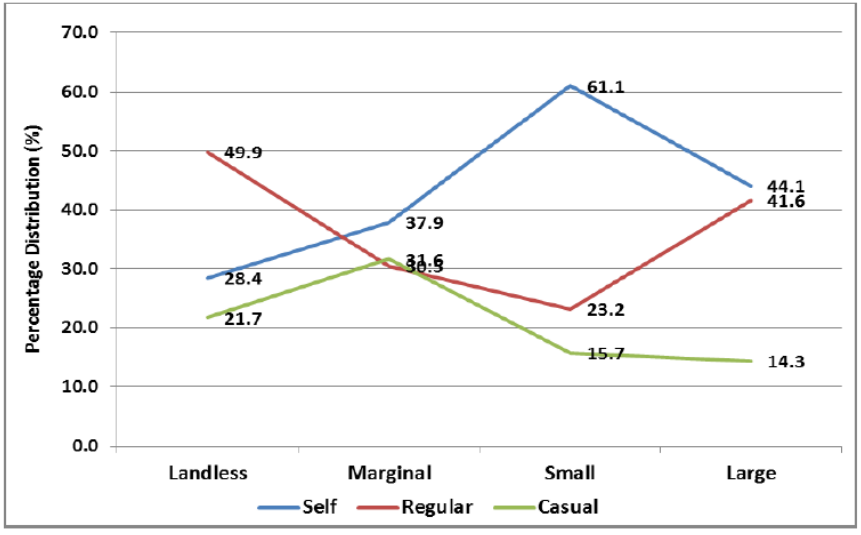

Fig. 1: Trend in female employment across land ownership classes

Source: As per table 1

There are three curves in Figure 1, depicting participation in Self Employment, Regular Employment and Casual Employment across land ownership.

Self Employment (SE) curve increases consistently till the level of small land-ownership households. After reaching peak at small-landownership household level it starts declining. Around 29% of women workers from landless households are self-employed. Participation in self-employment is advantageous for women workers as it fits in seamlessly with household work. So, there is an increase in self-employment with an increase in land-ownership at the lower levels. Such work maybe in own farms (agricultural work) or maybe in own household enterprises (non-agricultural work). It may either be as an employee (usual principal activity status 11) or as an employer (usual principal activity status 12). As asset or wealth ownership of the household increases in the form of a higher availability of land, SE curve turns downward. So for households having land greater than 2.00 hectares there is a fall in the participation of women workers in self-employment. Households having higher levels of land-ownership can afford to employ workers and so the women workers involved in own household enterprise work are withdrawn thus reducing their participation. A deeper insight can be provided by disaggregating the activity statuses considered by NSSO data under Self-Employment category.

Regular Employment curve, on the other hand follows a U shaped curve. The Feminisation U-Hypothesis can be invoked for an explanation of the behaviour of this category of employment. At lower levels of wealth or asset ownership there is a high level of participation of women workers which is due to a distress push. Women workers from landless households are most likely to take part in regular work, as we see the representation is almost 50%. Unavailability of any asset to fall back on maybe the reason for the high participation of women workers from such householdsin regular-salaried work. As prosperity increases in the form of higher ownerships of land, there is a steady fall in participation as women workers withdraw from the labour market due to the stigma effect. The threshold for regular employment is reached at small land-ownership level. Households beyond this level, owning 2.00 hectares or more of land, can invest in the education of their girl children which in turn translates to higher participation due to the substitution effect.

The Casual Employment (CE) curve behaves in a similar manner as the SE curve, except that it reaches its highest level of participation rate at the level of marginal land-owning households (0.001-0.40 hectares). Beyond this level it starts declining sharply till the level of small-land-ownership households and becomes more flatter for households owning higher amounts of land. Share of casual employment is around 22% for women workers belonging to landless households, increasing to almost 32% for marginal land-owning households (highest among the classes). As land-ownership size further increases to 0.41 hectares and above, participation of women workers in casual employment also declines depicting an inverted U shaped curve similar to the SE curve. The rising part of the curve shows a distress push at lower levels of asset ownership. The consistent decline thereafter is something specific to the 68th round (*Rangarajan et al, 2014*). Women workers belonging to households beyond this level having greater amounts of land are withdrawing from this category of work. This fall in participation can be explained by the 'stigma effect' (*Goldin,1995*). The decline is

steeper when the land ownership is increasing from marginal levels to small holdings beyond which it flattens out. A plausible explanation may be in the fact that as self-employment is declining for the higher land ownership households so the fact that more labour is being hired from outside may be causing the curve to fall less steeply.

Socio-Religious Groups and Female Work-Force Participation:

The extent of female participation in the labour market is determined in India by a nexus of class/caste hierarchy and norms of patriarchal ideology. In a hierarchical society based on patrilineal-patrilocal families, the location of the family in the caste/class hierarchy would determine the level and forms of female work participation (*Bardhan, 1985*). This observation led us to another interesting aspect, and that is the behaviour of female work-participation of the different socio-religious groups in India. These groups have been constructed on the basis of NSSO classification, which gives us the position of the household in the socio-religious ladder.The need for such a study was felt as there are differences in land inheritance and ownership legislations among the various social and religious groups in India.

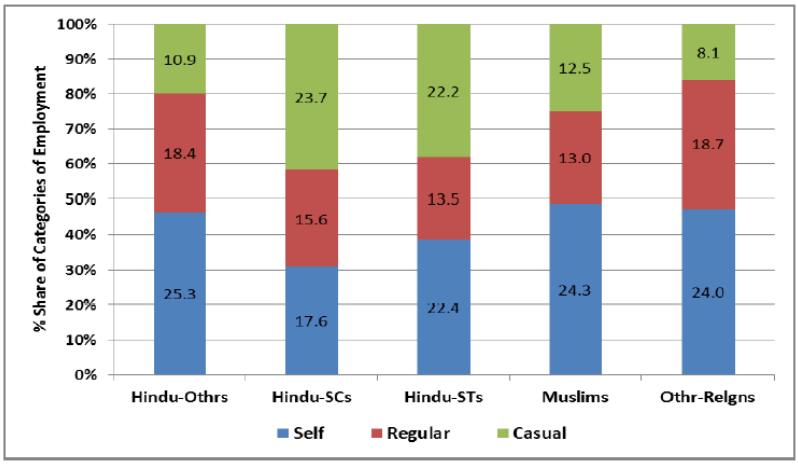

Fig. 2: Percentage share of employment across Socio- Religious Groups

Source: As per table 1

Figure 2 showsthe share of employment of female workers among the various socio-religious groups in India.We see that self employment plays the most important role among all the groups except Hindu-SCs who participate most in casual employment. Being a minority community, who are socially disadvantaged; educational, financial restraints may be effective in explaining the reason forsuch a phenomena. Social disadvantage is also responsible for economic disadvantage thus relegating women workers to casual employment which has no certainty and is not well paid. However, self employment by no means implies a better-off situation until and unless it is as an employer. Regular employment is the second most important category of work for Hindu-Others, Muslims and Other-Religions. For Hindu-STs, participation in casual employment is almost as high as in self employment.

Intersection of Land-Ownership and Socio-Religious Groups

The pattern of female work participation emerging from the different land-ownership classes of households and from different socio-religious groups has been depicted exclusively in the previous section. It's a one dimensional analysis that we have carried so far. Hence we have not yet been able to identify the kind of participatory work that emerges from the four categories of land-ownership classes of the different socio-religious groups. For this purpose we have created interaction terms of land-ownership and socio-religious groups. As concerns decisions regarding participation of women workers in a family there are myriad factors at play which are intertwined in a complex intersectional manner. To capture the impact of such other factors we need to bring 'intersectionality' (*Crenshaw 1989*) into the picture. Thus we have under consideration three axes: socio-religious groups, land-ownership and interaction of landownership and socio-religious groups, determining their effect on female work-participation.Land inheritence and ownership laws are widely variant among the social-castes and religions in the different regions of India. Affiliation to a particular caste and religion plays a crucial role in determining the amount of land-ownership of households and the amount of land owned by families in turn determines the social strata to which they belong. Thus if we look at the impact of land-ownership of particular socio-religious groups (constructed from NSSO data) on female work participation decision then that may provide us with a greater insight into the kind of employment being generated from the various land-ownership classes of the different socio-religious groups. Whether such employment is actually empowering for women or depicts an element of distress will be brought forth. It can be seen if socially disadvantaged groups are economically disadvantaged too. Table 2 shows the trend in female employment among socio-religious groups across land ownership classes.

Table 2: Trend in Female Employment among Socio Religious Groups across Land Ownership Classes

	Self Employment	**Regular Employment**	**Casual Employment**
	Hindu-Others		
Landless (0.000 ha)	32.14	53.06	14.8
Marginal (0.001-0.40 ha)	40.99	33.23	25.79
Small (0.41-2.00 ha)	62.5	23.47	14.03
Large (>2.00 ha)	44.98	43.18	11.84
	Hindu-SC		
Landless (0.000 ha)	16.81	51.33	31.86
Marginal (0.001-0.40 ha)	27.3	25.58	47.12
Small (0.41-2.00 ha)	50.52	20.18	29.29
Large (>2.00 ha)	28.54	42.73	28.74

	Hindu-ST		
Landless (0.000 ha)	6.45	48.39	45.16
Marginal (0.001-0.40 ha)	24.03	21.09	54.07
Small (0.41-2.00 ha)	56.3	18.67	25.02
Large (>2.00 ha)	45.72	35.7	18.58
	Muslims		
Landless (0.000 ha)	31.25	30	38.75
Marginal (0.001-0.40 ha)	46.08	24.88	29.04
Small (0.41-2.00 ha)	66.4	21.05	12.55
Large (>2.00 ha)	44.84	35.92	19.24
	Other-Religions		
Landless (0.000 ha)	32.14	52.38	15.48
Marginal (0.001-0.40 ha)	36.81	39.03	24.16
Small (0.41-2.00 ha)	64.17	29.36	6.46
Large (>2.00 ha)	51.17	39.73	9.1

Source: As per table 1

From Table 2 we see that for Hindu-Others there is a specific pattern in work participation of female workers, irrespective of the land class to which they belong. Highest volume of participation is in self employment, followed by regular employment work and then casual employment. Women workers belonging to landless households participate most in regular employment.

For Hindu-SCs, women workers belonging to the lowest economic strata (landless households) and the highest economic strata (large land owning households) are participating most into regular employment followed by casual employment and least in self employment. Those from marginal landowning households are participating most into casual employment followed by self-employment and least in regular employment. For those belonging to small land owning households participation is highest in self employment, followed by casual employment and regular employment. There isn't any definite pattern exhibited on the basis of land ownership classes.

For Hindu-STs women workers from landless households participate most in regular employment followed by casual employment and least in self employment. Those from marginal land owning households are participating most in casual employment, followed by self-employment and least in regular employment. For Women workers from small land owning households participation is highest in self employment followed by casual employment and least in regular employment. Large land-owning households are most probable to engage their women workers in self-employment, followed by regular employment and least in casual employment.

For Muslims we see that women workers belonging to landless households are participating most in casual employment, followed by self employment and regular employment. For those belonging to marginal, small as well as large land owning households highest participation is in self-employment followed by casual employment and least in regular employment.

For Other-Religions we see that women workers from landless households and marginal land owning households are participating most in regular employment which is followed by self employment and finally casual employment. Those from small and large land owning households are participating most in self employment, followed by regular wage work and then casual work.

The pattern of participation of female workers in the three different categories of employment is same with respect to land ownership only and with respect to the landownership of the socio-religious groups. Self and Casual Employment show an inverse U shaped curve whereas Regular employment shows a U shaped curve.

Analysis and Discussion

We now analyse the results of the micro decision making process as evident from the multiple choice model. Our model uses land (categorised as landless, marginal, small and large), socio-religious groups (categorised as Hindu-Others, Hindu-SC, Hindu-ST, Muslims and Other Religions) , interaction terms of land and socio-religious groups, sector (categorised as rural and urban) and gender (categorised as male and female) as the causal variables. Table 3 gives us the proportion of the key independent variables in the sample set and their variations in the distribution.

From the values of the marginal effects of probit regressions in Table 4 we see that there is a greater probability of participation of women workers from all the landowning households in self employment. So participation in self employment is positively related to size class of land-ownership. Regular and Casual employment show a negative relationship with size class of land-ownership. In the rural sector there is a greater probability that women workers will engage in self employment or in casual work. Considering Hindu-Others as the reference category among socio-religious groups, the results depict that probability of participation in self employment and regular employment is less for women workers of all the socio-religious groups. For casual employment there is a greater probability of participation except among the group Other-religions. In the rural sector women workers are more likely to take up self and casual employment but less of regular employment.

Table 3: Proportions of the key independent variables

Independent Variable	Mean	Std. Dev.
Land-Ownership		
Landless (0.000 ha)	0.01	0.08
Marginal (0.001-0.40 ha)	0.57	0.50
Small (0.41-2.00 ha)	0.22	0.41

Large (>2.00 ha)	0.21	0.41
Socio-Religious Groups		
Hindu-Others	0.54	0.50
Hindu-SCs	0.14	0.35
Hindu-STs	0.06	0.24
Muslims	0.14	0.34
Other-Religions	0.12	0.33
Interaction Terms		
Hindu-Others landless	0.00	0.06
Hindu-SCs Landless	0.00	0.03
Hindu-STs Landless	0.00	0.02
Muslims Landless	0.00	0.03
Other-Religions Landless	0.00	0.03
Hindu-Others Marginal landowners	0.29	0.45
Hindu-SCs Marginal landowners	0.10	0.30
Hindu-STs Marginal landowners	0.03	0.17
Muslims Marginal landowners	0.09	0.29
Other-Religions Marginal landowners	0.06	0.24
Hindu-Others Small landowners	0.12	0.32
Hindu-SCs Small landowners	0.02	0.15
Hindu-STs Small landowners	0.02	0.15
Muslims Small landowners	0.02	0.15
Other-Religions Small landowners	0.03	0.18
Hindu-Others Large landowners	0.13	0.33
Hindu-SCs Large landowners	0.02	0.14
Hindu-STs Large landowners	0.01	0.11
Muslims Large landowners	0.02	0.14
Other-Religions Large landowners	0.03	0.17
Sector		
Rural	0.59	0.49
Urban	0.41	0.49
Gender		
Male	0.52	0.50
Female	0.48	0.50

Source: As per table 1

As regards the interaction terms, landless households of every socio-religious group is our reference category. For Hindu-Others, we see that probability of participating in self-employment decreases as land ownership size increases. So there is an inverse relationship. There is lower probability of participation in regular employment among women workers belonging to marginal and small landownership households but it increases in case of large landowners. So there is a U shape followed by regular wage work employment according to land size. There is a greater probability of participation in casual employment among women workers irrespective of their landownership classes. Results, however are not significant. For Hindu-SCs, we see that women workers from small landownership households have a greater probability of participating in self employment and casual employment as well. This highlights the extreme distress situation of women workers belonging to households in the lower echelons of wealth ownership levels. There is a double burden of work for women in such cases, where the qualitative and quantitative aspects of such work are questionable. Among all the land-ownership classes there is a lower probability of women workers towards participating in regular employment. Self employment shows an inverted U shape whereas regular employment shows a downward slope. Casual employment shows a U shaped curve. Results are not significant though. For Hindu-STs, we see that women workers have a greater probability of participating in self-employment and a lower probability of participating in regular or casual employment, irrespective of the landownership class to which they belong. There is a positive relation of land ownership classes with self employment and a negative relation with regular and casual employment. For Muslims, we see that women workers from all the land categories have a greater probability of participating in self employment and regular employment and a lower probability of participating in casual work. Results are not significant though. In the Rural sector there is a greater probability of women workers taking part in self employment and casual employment. But the gender dummy has a significant negative marginal effect showing that women workers (belonging to the age group 15-59) have a lower probability of working, compared to male workers. This is true for paid work as we have considered only 'paid work' in our study. The reasons maybe that rural women are opting more for educational attainment and hence staying out of work force. Another reason maybe; increase in the income of the household is acting as a pull factor, taking them out of the work force. The stigma effect can explain such a withdrawal of women from work force. This is the reason for Female Work-Force Participation Rate being much lower than Male Work-Force Participation Rate.

Table 4: Marginal Effects of Multinomial Probit Model for Women Workers

Causal Variables	Women workers(15-59years)		
	Self-Employment	Regular Employment	Casual Employment
Land-Ownership Classes			
Marginal (0.001-0.40 ha)[1]	0.00(0.03)	(-)0.04(0.02)	0.01(0.02)
Small (0.41-2.00ha)	0.12(0.04)***	(-)0.05(0.02)**	(-)0.11(0.01)***
Large (>2.00ha)	0.07(0.04)*	(-)0.03(0.02)	(-)0.08(0.02)***

Socio-Religious Groups			
Hindu-SCs[2]	(-)0.08(0.03)**	(-)0.03(0.03)	0.16(0.03)***
Hindu-STs	(-)0.05(0.00)***	(-)0.04(0.05)	0.27(0.07)***
Muslims	(-)0.06(0.03)*	(-)0.11(0.01)***	0.10(0.03)***
Other-Religions	(-)0.01(0.03)	0.00(0.03)	(-)0.00(0.03)
Interaction Terms			
Hindu-Others			
Marginal LandOwners[3]	0.02(0.04)	(-)0.01(0.02)	0.01(0.03)
Small Landowners	(-)0.02(0.03)	(-)0.02(0.02)	0.08(0.04)*
Large Landowners	(-)0.02(0.03)	0.01(0.03)	0.04(0.04)
Hindu SCs			
Marginal Landowners	0.02(0.05)	(-)0.06(0.02)**	(-)0.02(0.03)
Small Landowners	0.00(0.05)	(-)0.06(0.02)***	0.03(0.04)
Large Landowners	(-)0.03(0.05)	(-)0.03(0.03)	0.03(0.04)
Hindu STs			
Marginal Landowners	0.17(0.13)	(-)0.08(0.03)**	(-)0.06(0.03)*
Small Landowners	0.19(0.13)	(-)0.09(0.03)***	(-)0.05(0.03)
Large Landowners	0.18(0.13)	(-)0.08(0.03)**	(-)0.08(0.02)***
Muslims			
Marginal Landowners	0.08(0.05)	0.06(0.04)	(-)0.06(0.02)***
Small Landowners	(-)0.00(0.05)	0.09(0.05)*	(-)0.04(0.02)
Large Landowners	0.01(0.05)	0.11(0.05)**	0.00(0.04)
Other-Religions			
Marginal Landowners	dropped due to MC	dropped due to MC	dropped due to MC
Small Landowners	dropped due to MC	dropped due to MC	dropped due to MC
Large Landowners	dropped due to MC	dropped due to MC	dropped due to MC
Sector			
Rural[4]	0.05(0.00)***	(-)0.13(0.00)***	0.08(0.00)***
Gender			
Female[5]	0.00(0.00)	(-)0.01(0.00)***	(-)0.01(0.00)***

Note: (a) 1: Reference category Landless (0.000 ha); 2: Reference category Hindu-Others; 3: Reference category Landless Hindu-Others, Landless Hindu-SCs, Landless Hindu STs, Landless Muslims & Landless Other-Religions; 4: Reference category Urban; 5: Reference category Male

(b) *** implies significance at 1%, ** implies significance at 5% ,* implies significance at 10% level. The figures given in the parenthesis are the robust standard errors.

Source: Authors' Estimation

We have run a separate regression for the interaction terms only to see if that gives us a definite pattern and trend of the categories of employment for women workers. Table 5 shows the results. Therein, we see a clear pattern emerging in favour of self employment for Hindu-Others. Results show a significantly high probability of participation in self employment and low probability of participation in regular and casual employment, irrespective of the land ownership classes. For Hindu-SCs we see that there is significant negative relation of land ownership classes with regular wage work but no such definite relation with self employment or casual employment. For Hindu-STs the results are almost same (as shown in Table 3) with an improvement in the significance levels. For Muslims, we see a clear pattern emerging which shows a favourable trend towards self employment. There is a strong positive relation of land ownership classes with self employment whereas a negative relation with regular and casual employment.

For the Other-Religions also, we see that the trend is in favour of self employment because women workers have a significantly greater probability of participating in self employment and a lower probability of participating in regular wage work or casual employment. So we see that there is a definite bias towards self employment. Women from most of the socio-religious groups across socio-economic classes are taking up self employment to sustain themselves. Further disaggregation of this category of employment can provide a deeper insight into whether it's an empowering situation or a distressing situation for women workers. Results are highly significant, proving the importance of multi-dimensionality.

Table 5: Marginal Effects of Multinomial Probit Model for Intersection of Landownership and Socio-Religious Groups for Women in Rural India

Interaction Terms	Women Workers(15-59 years)		
	Self Employment	Regular Employment	Casual Employment
	Hindu-Others		
Small Landowners[1]	0.05(0.01)***	(-)0.04(0.00)***	(-)0.01(0.00)
Marginal Landowners	0.13(0.01)***	(-)0.05(0.00)***	(-)0.08(0.00)***
Large Landowners	0.08(0.01)***	(-)0.00(0.00)	(-)0.07(0.00)***
	Hindu SCs		
Marginal Landowners[1]	(-)0.02(0.01)*	(-)0.05(0.00)***	0.08(0.01)***
Small Landowners	0.09(0.01)***	(-)0.06(0.00)***	(-)0.02(0.00)***
Large Landowners	(-)0.01(0.01)	(-)0.01(0.01)	0.02(0.01)*
	Hindu STs		
Marginal Landowners[1]	(-)0.03(0.01)***	(-)0.04(0.00)***	0.12(0.01)***
Small Landowners	0.12(0.01)***	(-)0.06(0.00)***	(-)0.04(0.00)***
Large Landowners	0.06(0.01)***	(-)0.02(0.01)**	(-)0.05(0.00)***

	Muslims		
Marginal Landowners[1]	0.05(0.01)***	(-)0.09(0.00)***	(-)0.01(0.00)
Small Landowners	0.09(0.01)***	(-)0.08(0.00)***	(-)0.09(0.00)***
Large Landowners	0.08(0.01)***	(-)0.05(0.00)***	(-)0.03(0.00)***
	Other-Relgions		
Marginal Landowners[1]	0.01(0.01)	(-)0.02(0.00)***	(-)0.02(0.00)***
Small Landowners	0.12(0.01)***	(-)0.04(0.00)***	(-)0.10(0.00)***
Large Landowners	0.07(0.01)***	(-)0.02(0.00)**	(-)0.09(0.00)***
	Sector		
Rural	0.05(0.00)***	(-)0.13(0.00)***	0.08(0.00)***
Gender			
Female	0.00(0.00)	(-)0.01(0.00)***	(-)0.01(0.00)***

Note: (a) 1: Reference category Landless Hindu-Others, Landless Hindu-SCs, Landless Hindu STs, Landless Muslims & Landless Other-Religions; 2: Reference category Urban; 3: Reference category Male

(b) *** implies significance at 1%, ** implies significance at 5% ,* implies significance at 10% level. The figures given in the parenthesis are the robust standard errors.

Source: Authors' Estimation

Conclusion

Our study tries to provide a glimpse of the female labour supply process as chronicled in the latest employment-unemployment survey of the NSSO (2011-12). Clear and significant results are obtained when we consider the interaction between landownership categories and socio-religious groups. The multi dimensionality of the data provides us with a definite pattern of the categories of employment for women workers. All the three questions which we had sought to verify while introducing 'interrelationship' have been clearly answered. Unambiguous and strong results are obtained when we consider the interaction terms exclusively. Sector plays a very significant role in the analysis as role of land ownership is important in rural areas but not so in urban regions. Affiliation to socio-religious groups affect female work participation significantly, irrespective of the place of residence. Wealth index of the household does not play a significant role in determining the labour supply decisions of the female workers. This maybe due to the fact that ownership rights of land holdings are not assigned to women in Indian society.

A major gap in the existing literature is the limited attention paid to the question of landownership as a wealth determinant and of the overlap of class, caste, religion and gender. Class considerations have been incorporated in certain studies in the form of analysis of the impact of technological change, but there is no similar attention given to the question of caste or religion. Caste is important because of the increasing heterogeneity of the agricultural labour class. The lack of specific attention is not a

limitation of only studies on women but it is a general problem with much of the literature on agrarian relations in India. So, it's very essential that we integrate these three elements of class, caste and gender, otherwise our understanding will remain partial *(Duvvury, 1989*).

Another important aspect to be noted is that, textbook labour supply model assumes that labour markets are competitive. However, it is quite plausible that labour markets do not function competitively in developing countries like India, especially for women (*Mammen and Paxson, 2000*). There may be costs associated with women working outside the family farm or non-farm family enterprise. There maybe social norms and laws restricting women from working outside the home or from accepting paid employment, especially in manual jobs. The amount of land and other productive assets owned by her family and the numbers and skills of family members who are available to work on a family enterprise will influence her labour supply decisions. Furthermore, as men move out of agriculture and into paid employment as a result of migration and increased pace of urbanisation, family farms and enterprises are left for women workers to take care. This can be an explanatory factor behind their increasing participation in self employment. Thus, it is essential that policy makers move beyond the standard labour supply models and the set determinants of labour-force participation rates for women. It should be of more concern that women are able to access better quality of work and take advantage of the new labour market opportunities. Policy initiatives should be undertaken for reducing inequality in the the labour market which will in turn help in enhancing the generation of human capital and empowering women's participation in household-decision making process. Among the various mechanisms of reducing the inequality, one very important form is 'increased and easy access to institutional credit' and 'property rights' to women which can result in women's empowerment in decision making process (*Agarwal, 1994*).

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7

Self help group (SHG): A change agent of women empowerment in India

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Designation missing

Abstract

Women empowerment is a global issue**.** Empowerment is a process by which women can control the ownership of their choice. A process of awareness and capacity building leading to greater participation to develop decision making power, control and transformation action. Empowerment of women signifies harnessing women power by their fabulous potential and encouraging them to work towards attaining a dignified and satisfying way to life through confidence and competence as person with self respect, rights and responsibilities. Without empowering women the development process will not be successful as the 50% of the population is women. In words of Gandhi "One step for women ten step for nation." Government and Non Government organizations have taken a lot of development programme for empowering women economically, socially, politically by enhancing capacity building, knowledge enhancing, economic development through microcredit programme by income generation. An attempt has been made in this paper to study the role of SHG in the process of women empowerment. This paper reviews various empirical studies carried out in India to study the Role of SHG in the development process. This study concludes that all the development programme like NABARD Bank linkage programme throughout the India, SGSY, SREE SAKTI have reached the goal through SHG. SHG movement is a successful intervention worldwide to empower the women and poor.

Keywords: empowerment, women power, microcredit

Introduction

India is predominantly rural and village based society. Women who form an integral part of rural India the most vulnerable groups of this society. Development of the rural area as well as women development is vital and important in the development process of our society. Without the upliftment of the women the process of development of the society as well as any development of the country is not possible. India needs to give importance to women empowerment in order to have a sustainable development.

Status of Indian Women

As per the Indian statistics, In India, there are large scales of people those who are living in a marginalization sector. Women are the main and major part among them.

A life of dignity is the right of every citizens and poverty is an obstruction to a dignified life . A large group of 1.3 billion people who lived in poverty level around the globe of what about 70% are the women. Women the half of human resources of the society but not recognized and regarded Therefore Women are living in inferior position in the society.(Poddar.K.K) .According to the report of the United Nations Millenium Campaign to half world poverty by the year of 2015. Two third of the adult world wide cannot read and write. Workers of two third of the of the worlds working hours, earns only 10 percent of the worlds income and own less than one percent of the worlds property. This is the main reason to enforce of women empowerment and the basic human rights .International conference on population and development (ICPD) held at Chairo in 1994, took in the notice on women empowerment as a central focus and declared that if women development is not engender ,it is the endanger. Millenium Development goal also stressed on this matter. Powerless people can realize their situation, try to improve their position and to access all the societal opportunities and gradually the women take control of their own lives , set their own agenda , gain skills, can solve their problems and develop self reliance and internal strength.

Women Empowerment

The empowerment is a process by which women can control the ownership of their choice. A process of awareness and capacity building leading to greater participation to develop decision making power, control and transformation action. Empowerment of women signifies harnessing women power by their fabulous potential and encouraging them to work towards attaining a dignified and satisfying way to life through confidence and competence as person with self respect, rights and responsibilities. The core component of Women empowerment have been define as ability to define one's goal and act upon them. Awareness of gendered power structured, self esteem and self confidence were the concept of empowerment introduced at the International Women's Conference at Nirobi in 1985. Empowerment defined as "it is a multifaceted process which includes many aspect like enhancing awareness increase access to resources of economic, social, and political.(Dr. Uma Tarang, 2012In the year of 2001 it had been declared by the Govt of India as "Women Empowerment Year " to focus on a vision where equality of men and women as the Constitution of India grants the equality to women in various fields of life. In the past year, the women were not ready to take the assignment with great responsibility due to shyness, less confidence, male dominance, in the society and "Purda" system. But in modern society the women have become smart, confidence and they are always ready to come forward and take more economic independence, they have own identity, achievement, and equality in the society as well as the family. GOI (Govt of India) has provided a lot of programme collaborated with NGO, Public Sector etc. which are all lead womens to achieve their expected goal.

Current approaches to women empowerment

Number of areas of activity in development has become closely associated with the promotion of women.s empowerment, such as microcredit, political participation and reproductive health and much innovative work has been done in these areas. Implementation of an empowerment approach in the context of hierarchically organised development organisations may prove difficult, where organisational cultures are biased against the participation and autonomy in decision-making of beneficiaries. This suggests that not just activities and policy frameworks but also organisational structures and processes need to be examined in promoting .empowerment. and that personnel may need to alter their style of working.

UNICEF has adopted the Women.s Empowerment Framework, developed by Sara Longwe, as an appropriate approach to be used in mainstreaming gender. The framework states that women.s development can be viewed in terms of five levels of equality, of which empowerment is an essential element at each level. The levels are:

i) Welfare

ii) Access

iii) Awareness-raising

iv) Participation iv) Control

Social culture, life style, language, human nature of respective sector, potentiality, adaptation power related with empowerment process of women.

SHG (Self help group)

SHG is an instrument of Women Empowerment as well as economical development of our society.

SHG (Self Help Group) an organization with fundamental principals like democratic approach and common discussion making, transparency, self helping, repayment of loans and group development. The credibility of the goups is depends on their principles. Intermediary committee basically a voluntary association of poor people, usually composed of 10- 20 local women or men from homogenious social and economical background having a common interest and to overcome a common problems or overcome the common situation facing by them. It is a self govern, peer control, small and informal association. There are large number of SHGs in India . SHGs also can be found in other countries especially in South Asia .

Members make regular savings contribution over a few months until there make a enough capital in the group begin lending within the members for any any purpose. Many SHGs link with banks for the delivery of microcredit. These SHG's may be registered or non registered.

Self help groups have go back at least to the 1930s when Alchoholic Anoymous started in USA ,While Self help groups have distinct characteristic , the philosophy of the self help group movement overlap within various other way of working .Community development become as a discipline in the late 1980s , shares the

concept of empowerment. The past two decades the self help group movement has mashroomed (Dutta &Panda 2014).

Self help groups have developed to enhance power and inner strength of the group members, to enhance the knowledge of a new and contemporary technology, organizational base, managing the organization, enhance the leadership quality, proper use of large resource, access of modern technology, leading proper employment and income generation process .SHG movement among the rural poor in different parts of the country is emerging as a very reliable and efficient mode for technology transfer.

Prof . Mohammad Yunus of Bangladesh started womens group in Bangladesh in 1976. He devoted thrift and saving among the poorest, now it has developed in to Bangladesh Grameen Bank (BGB). The concept of microcredit gained momentum in India. Many NGOs are taking a vital role to organize SHG and linking with Bank.

Economic empowerment through credit programmes

Microcredit programmes, many targeting women and claiming to empower them, have become extremely popular among donors and NGOs in recent years. The change in development policies from the focus on women.s active role in production as a means to more efficient development, to the approach of women.s empowerment for greater self-reliance, has also meant a change in policies for upliftment of women.s economic role. The focus has changed from providing grants to financial assistance to women through the establishment of special credit schemes. Credit schemes are seen as having the potential to link women with the formal banking sector and thereby integrating women in mainstream development (Von Bülow et al, 1995).

In India, for example, microfinance is typically defined as the provision of thrift, credit and other financial services and products of very small amounts to the poor in rural, semi-urban or urban areas for enabling them to raise their income levels and improve living standards (NABARD, 2004). Now a day, the SHG-bank linkage model is one of the world's largest microfinance initiatives in terms of outreach (Kropp & Suran, 2002). NABARD is the pioneering agency of the SHG-Bank Linkage Model. . NABARD also provides capacity building support to bank officials, NGO staff, government officials and SHG members.

Archana Preete Voola (2013)

Informed the global microfinance sector has experienced phenomenal growth since its early days in the 1970s. For instance, by the end of 2002, there were 2,572 MFIs servicing around 41,594,778 million poorest people globally. Of those receiving microfinance services, 79 per cent were women. At the end of 2007, these numbers rose to 3,552 MFI sreaching 106,584,679 million poorest people of which 84.3 per cent were women (Daley-Harris, 2002, 2009). More recent statistics show consistent growth. As at the end of 2010, there existed 3,652 MFIs reaching 137,547,441 million poorest people of which 82.3 per cent were women (Maes & Reed, 2012, p. 3. Longstanding examples of credit programs world over such as The Badan Kredit

Kecamatan in Indonesia, The Fundacion Carvajal in Colombia, Fredecredito in El Salvador, Accion Comunitaria in Peru, and the Grameen Bank in Bangladesh included high proportion of women, even when women were not specifically targeted (Berger, 1989). This association between women and microfinance has become central to the justification for funding microfinance projects. The UN draft resolution on the role of microfinance in eradicating poverty repeatedly notes the benefits accrued to women, especially the"achievement of their empowerment", "productive self-employment" and participation in "mainstream economic and political processes of society" (United Nations, 2006, p. 1).

International development agencies have often suggested that women are better credit risks generating higher repayment rates.6 For instance, the World Bank asserts "(e)xperience has shown that repayment is higher among female borrowers, mostly due to more conservative investments and lower moral hazard risk" (2007, p. 124).

Government of India (GOI) of India has launched and planned a large number of rural development programmes to improve the quality of life of the rural people such as Mahatma Gandhi National Rural Employment Guarantee Act(MGNREGA), Indria Ayas yojana (IAY). Swarnajayanti Gram Swarojgar Yojana (SGSY (Dutta &Panda 2014). India cannot go ahead leaving behind this unprivileged minority sector. To upliftment of this sector required help and collective effort of the civil society to this initiative to bridging the gap. This community, NGO, various private sectors, finally those people who needs the upliftment.

Number of SHGS in India (2005-06 TO 2009-10)

YEAR	Number of SHGs	Growth Rate
2005-06	2238565 2924973	109.47
2006-07	5009794 6121147	30.66
2007-08	6959250	71.28
2008-09		22.2
2009-10		13.6

Source: NABARD Reports 2005-06 to 2009-10 (Dr.Uma Tarang 2012)

In rural India SHG is playing a vital role for poverty alleviation, a large numbers of womens joins in SHG and actively working with saving, credit. Besides this income generation they are working with natural resource management, literacy, child care, nutrition.

In the movement of SHG NABARD and SGSY (Sarnajyanti Swarojgar Yjojona) were the main programme to forming SHG, Functioning and nourishing them. SHGs were more actively participate on those income generation programme CARE also took a effective venture for forming SHGs, involving them into social programme, community health programme, income generation programme a which helps the women empowerment silently. Group forming, group savings inter lending, social mobility were the main function or criteria for bank or loan sanctioning. (Report, West Bengal, July 200)

Progess of SHG in India under NABARD Bank linkage programme. 2010- 2011.

		2010-11		2011-12		2012-13	
SHG Savings with Banks as on 31March		No of SHGs (lakh)	Amount	No of SHG s (lakh)	Amount	No of SHG s (lakh)	Amount
	Total SHG	74.62	7016.30	79.60	6551.41	73.18	8217.25
	All Women SHGs	60.98	5298.65	62.99	5104.33	59.38	6514.86
	% of Women Group to Total	81.7	75.5	79.1	77.9	81.1	79.3
Loan disbursed toSHGs During the year	Total SHG	11.96	14547.73	11.48	16534.77	12.20	20585.36
	All Women SHGs	10.17	12622.33	9.23	14132.02	10.37	17854.31
	% of Women Group to Total	85	86.8	80.4	85.5	85.1	86.7

Source: NABARD: Status of microfinance in India 2012-13

Objective of the SHG

To sensitize women for the need of SHG and to make aware about the societal status of women in India, to help them to realize their inner potentiality, creativity, to create group feeling among women, to enhance the confidence and capabilities of the women, to develop the collective decision making attitude among women which helps to take family discussion, to encourage the habit of savings among the groups .to motivate for taking the responsibility for self development as well as social development.

Every development programme has a big goal and SHG plays a vital role and have some functions which will help to meet the goal of the development programme. Such as

i) Forming a group with a name with 10- 12 women from localities ,

ii) Opening a bank account

iii) Create common fund by them through their regular savings.

iv) Periodical meeting and discussion making through regular group meeting by the members.

v) Create opportunities to earn through small but sustainable business venture.

vi) Linkage, facilitation, livelihood, planning.

vii) Involvement in various social activities and political participation.

All the activities or functions give the women a different era of their life. It helps to enhance social status by enhancing the economic development, political participation

Objective of the study

To study the role of SHG in the process of women Empowerment

Review of Literature

Madheswaran, S; Dharmadhikary, Amita, (2001) analysed the past history of micro credit such as DWAKRA, IRDP,TRYSEM and then comes MRCP in Maharastra, described the present economical status of women through MRCP in Maharastra, Author describe the strategy of bank lending scheme and peer monitoring process, impact of MRCP which affects the women empowerment, impact of SHGs and focused on SHG Bank linkage model. For poverty alleviation, intervention should be a continuous process.

The Technical Assistance Team, Second Revision October 2003, "Haryana Community Forestry Project"

Haryana Forest Department

Through this article the authors has given a total knowledge of SHG such as regarding What is SHG, How a SHG formed, what is the criteria, training of SHG members on leadership, fund generate, inter lending process, bank linkage, utilization of common fund, social responsibility of SHGs, how can SHG become an vehicle of social development. Network in SHGs, established the linkage in SHGs. by laws of the groups. Cluster and federation of the SHGs which leads a sustainable group and mediator or facilitator of sustainable societal changes.

A report of West Bengal, July 2006, this report reflects the scenario of SHG movement through NABARD and SGSY then CARE, SHGs were more actively participate on those income generation programme and CARE also took a effective venture for forming SHGs, involving them into social programme, community health programme, income generation programme a which helps the women empowerment silently.

Prof. Anuppalle, R. Reddy (2008), author concluded that SHG played a important role in Adhra Pradesh and established an example of our country. Govt has taken various development schemes for social development and SHG play a real role of a catalyst. After this study the author found that the SHGs are doing meeting regularly, taking loan and repayment is 95%. SHGs are linked with Bank , doing savings regularly. Family household had improved due to easy availability of group fund, Immunization status has been very good. Family income increased and money spend more for children education and nutration.

Dr. Uma Tarang (2012), auther defined women empowerment as a process by which women can control and ownership of their choices. It is a process of awareness and capacity building leading to greater participation, to greater decision making power and control and transformative action. It signifies harnessing women power by conscientising their fabulous potential and encouraging them to work towards attaining a dignified and satisfying way of life through confidence and competence as person with self-respect, rights and responsibilities. The core elements of empowerment have been defined as agency of awareness of gendered power structures, self-esteem, and self-confidence.

Author also stated that SHG is a way to alleviate poverty and a great instrument which can change the status of women empowerment in India. It shows that the no of SHGs are increasing gradually and the participation of women also being increased, so women empowerment process is going on slowly.

To reduce poverty by enabling the poor household to access gainful self employment and skilled wage employment opportunities, resulting in appreciable improvement in their livelihood on a sustainable basis, through building strong grass-root institutions of the poor (SHGs) is now the main motive of the most of the employment schemes. Self-help groups (SHGs) movement has generated off a silent revolution in the rural credit delivery system in India. SHGs have proved as an effective medium for delivering credit to rural poor for their socioeconomic empowerment.

Neeta Tapan (2013) the study was made in order to find that self help groups functional role takes a important part in the process of economical development by micro lending process. This study was made in Ujjain district in Madhyapradesh. As per authors point of view ,SHG was evolved as a blend of financial and social intermediation where social consistency and group lending are ensured through joint liability to bridge the gaps created by poverty, illiteracy, gender and remoteness which is the symbol of women empowerment. Authors examined the actual functions of SHGs in the economic development process of the society through various development scheme of Govt and non Govt such as SGSY. SHG was a important instrument to implement this programme. All the functions of SHG has a vital role to carry the groups in a right steps for Bank linkage programme such as group formations, group savings, group meetings, no of meeting, interlining, social mobility, loan credit, loan repayment . The stages of the groups which was very important for sanctioning loan from bank are totally depends on all the functions of SHG.

Debadutta Kumar Panda1(2009), the study made in order to examine the socioeconomic impact of SHG in Odisha AND Jharkhand States based on income, household, literacy, migration, discussion making, group savings and participation in PRI. Auther examine and came into a conclusion The SHGs have acted as tools for poverty alleviation and socio economic development of rural poor, especially under-privileged rural women. The SHG is a model for credit-lending like Village Banking or Rotating Saving and Credit Associations (ROSCA) of Latin America and Grameen Joint Liability Group (JLG) of Bangladesh. but it has wide applicability in addressing

various socio-economic characteristics of people apart from credit and saving like empowerment, literacy and enterprise development (Panda, 2009). He established a positive impact of SHG dealing the economical development process and social development also. Auther proved that the period of participation in the group give an effect on the members development.

Thomas Aind @ Dr. Sukhi Oraon (2013) this study based on tribal community of Jharkhhand and their women empowerment . Author discussed regarding tribal women that The tribal women are economically poor and socially backward live at a low level of scale of the quality life.Thus the tribal women often face the problems of food insecurity, malnutrition, lack of access to health care services and education and the victim of domestic violence and rape.

Auther explain that Amartya Sen has advocated "human capabilities approach to the development process. The human capabilities include social, economic, cultural and political capabilities of the human beings. Sen (2001) has identified the following seven types of gender inequalities in his public lecture delivered at Radcliffe Institute at Harvard University in 2001. They are: (i) Mortality inequality; (ii) Nasality inequality; (iii) Basic facilities inequality; (iv) Special opportunity inequality; (v) Professional inequality; (vi) Ownership inequality; and (vii) Household inequality.

Mieke Verloo (2005) argued that Gender Mainstreaming is a recent strategy, several national governments announced that Gender Mainstreaming will be adopted as part of their continuous efforts to achieve gender equality. Gender Mainstreaming in practice is just the reinforcing of positive discrimination policies. This paper proposes such a methodology for the comparative analysis of the framing of gender inequality as a policy problem.

Augusto Lopez-Claros, World Economic Forum

Saadia Zahidi, World Economic Forum (2005). Authors described in their study as Economic opportunity of women concerns the quality of women's economic involvement, beyond their mere presence as workers. This is a particularly serious problem in developed countries, where women may gain employment with relative ease, but where their employment is either concentrated in poorly paid or unskilled job "ghettos," characterized by the absence of upward mobility and opportunity. This is most commonly the result of negative or obstructive attitudes, and of legal and social systems which use maternity laws and benefits to penalize women economically for childbirth and child care responsibilities, and discourage—or actively prevent—men from sharing family responsibilities. Internationally, women are most often concentrated in "feminized".

Jyotiprakash Basu (2006) focused on safer investment of women project can linked to her desire. He analyse the status of control over income, loans, purchasing capacity. He has given the status of SHG in the year of 2006 in India. He concluded the status of women regarding handling the loan, women who had taken loan for income generating among them only 5% having total autonomous control over the money, 565 having share control with husband and 38 % having sole control over the loan

Swain and Wallentin (2007). They concluded in their literature survey that in Orissa, Tamil Nadu, Andhra Pradesh, Uttar Pradesh and Maharashtra, there is significant increase in the level of women empowerment over a period of time (2000-2003) and it does not mean that every woman has been empowered to the same degree, but on the average, the Self Help Group members were empowered over this period.

Jyotirmayee (2008) found that Odisha Experience of SHGs in Orissa reveals that most of the groups are not able to do so purposively or compulsively. This aspect of the linkage programme has received little attention.

Tripathy and Jain (2008) found that Haryana and Orissa Micro finance has a negligible income impact on assetless rural poor, deprived and disadvantaged.

Mohapatra (2012) found in Odisha SHGs contributed to socioeconomic empowerment of women at household level.

K. Rajendran (2012) He declared that NABARD has defined micro finance as follows: "Micro finance is all about provision of thrift, credit and other financial services and products of very small amount to the poor in rural, semi urban and urban areas for enabling them to raise their standard of living." UN declared the year 2005 as year of micro credit since the policy makers of UN supported the view that micro finance is an instrument to fight against poverty. According to Nobel Committee, micro finance can help the people to break poverty, which in turn is seen as an important prerequisite to establish long last peace

Archana Preete Voola (2013) .She argued that the representations of women within the field of development continue to essentialise women. Portrayals of women as nurturers, cares, less corrupt than men, inherently peaceful, closer to the earth and the like; have inadvertently constrained possibilities for women. She explains that sometimes activities like tree planting, soil conservation, fruit tree agro forestry without remuneration have no direct benefit to women, providing a Gambian example where women worked on fruit orchards but it was the men (husbands) who had control over the fruit commodities (Leach, 2008, pp.71-72). Reductive understandings of gender and gender based inequalities have had negative implications at policy and practice level. Firstly, gender has become conflated with women.

Empowerment of rural women through SHG: A study in Trichurapally District. Described elaborately the theoretical perspective and functioning of Self Help Group. He has related the theory of SHGs with the SHG in Tamilnadu. He discussed Women empowerment is giving power to women; is a process of acquiring power for women in order to understand her rights and to perform her responsibilities towards oneself and others in a most effective way. Empowerment also means equal status to women. He described component of the empowerment, process of women empowerment, qualitative and quantitave indicator and measurement of empowerment.

Sangram Charan Panigrahi (2014): Studied in Odisha , Ganjam district. He focused the definition and analyze regarding women empowerment and told in the feminist paradigm, empowerment goes beyond economic betterment and wellbeing

to strategic gender interests. It is a process of internal change, or power within, augmentation of capabilities, or power to, and collective mobilization of women, and when possible men, or power with, for the purpose of questioning and changing the subordination connected with gender, or power over (Mayoux, 1998).

Ashwin G. Modi1, Mr. Kiran J. Patel*2, Mr. Kundan M. Patel3 (2014). They found that Samanta (2009) submitted that women have no control over credit which is the failure of microfinance to empower women. Greater financial independence for rural women increases their bargaining capacity, reduces violence against women and enables them to gain more influence over decision-making in the family (Hadi, 1997). Comparable components of empowerment are included in the eight indicators by Hashemi et al (1996): mobility, economic security, ability to make small purchases, ability to make larger purchases.

Findings

In India at Maharastra , the MRCP project was successful and in this programme SHG played important role for alleviating poverty.

In Hariyana, "Haryana Community Forestry Project" was got a successful result and could reached the goal through the SHG.

In Jharkhand and Odisha SHGs promoted by Known Non Government Organization had a positive impact on employment, income, literacy position, house hold decision making.

In West Bengal, the scenario of SHG movement through NABARD and SGSY then CARE, SHGs were more actively participate on those income generation programme and CARE also took a effective venture for forming SHGs, involving them into social programme, community health programme, income generation programme which helps the women empowerment silently.

In Chhattisgarh, Dantewada district, the SHG proved as a helpful instrument for empowerment especially in rural area and interiar tribal villages. Women perceived changes in their identity towards work collectively to improve their socio economic status.

Trichurapally District, Tamilndu SHG proved that Women empowerment through SHG is giving power to women; It is a process of acquiring power for women in order to understand her rights.

Conclusion

It can be concluded that SHG system has already proven in India, to be very relevant and effective in offering women the possibility to break away from exploitation and isolation. In our country the pioneer in this field is self Employed Women's Associations (SEWA).

Taking a important role in control over the capital, women are now involved in family decision making, child care , child education, family size , rights in family

property, human rights etc and also helps to develop their self confidence, self respect, enhance their social and political involvement and status.

The effectiveness of the self help groups has been documented theoretically and empirically in global context. (Dutta &Panda 2014).

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Theme

Women Empowerment

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