FARMER'S PARTICIPATION IN CONTRACT FARMING IN INDIA: A STUDY OF BIHAR

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Abstract

Promotion of contract farming is to uplift farmers by providing better services while linking with market. Thus, this paper is empirically identifying the factors that influence farmers to participate in the cooperative (producer's organization) led contract farming and their intensity of participation from Bihar in India by surveying 350 contract and 250 non-contract households. By using Logistic model for farmer's decision to engage in contract farming, it is found that participation in contracts is mainly driven by the landholding size, area under irrigation, availability of workforce in the household and distance to market. Surprisingly, it is observed that households with more number of male population are less likely to participate in contract farming while it is opposite when it comes to female labour force.

Keyword: Contract Farming, Bihar, Logistic model, Landholding, Irrigation, Labour force.

Introduction

Contract farming is defined as "a way of organizing agricultural production whereby farmers are obliged to supply their produce to agro-enterprises in accordance with conditions specified in written or oral agreement". The expansion of contract farming has taken place in all regions across the world. It started in Latin America during 1950s, Japan in the last decades of nineteenth century, US firms in Central America in the early decades of the twentieth century, Indonesian government started in 1956, China since 1990 while in India contract farming began in the year 1960 (Prowse, 2012). Due to the efficiency (co-ordination and quality control in a vertical system) and equity (small holder inclusion) benefits of this hybrid system, it has been promoted aggressively in the developing world by various agencies (Glover, 1987).

   The terms of agreement in contract farming depends on the net benefit of the project, where cost includes both production and transaction costs (Simmons et al, 2005). A firm enters into contract in order to ensure the supply of raw materials of desired quality and reduce the production and transaction costs. On the other hand farmers/growers enter into contract in order to access assured market and stable income. Thus, both parties are expected to gain from each other. Because of heterogeneity in the nature of crop and the local institutions, terms of contract vary. Terms of contract also vary across firms1.

   By and large, firms initiate contracts. Therefore, farmer's participation depends more on firms' criteria rather than farmers' choice. Farmers' participation in contract farming also depends upon the nature of crop and local economy. In case of labor intensive crops, firm has

more incentive to enter into contract with the agricultural households with sufficient labor. Dev and Rao (2005) observed that an economy dominated by small farmers might have higher participation. Farmer participation in contract also depends upon the objectives, ownership and the size of firm. Kumar et al. (2007) found that public agencies by and large contract with medium and large farmers. On the other hand, private agencies contract with all categories of farmer, irrespective of their size of holdings and economic condition. Key and Runsten (1999) provided the evidence that foreign processing companies show preference to contract with large-scale growers. Singh (2002) and Simmons et al. (2005) found that processing firms prefer to deal with relatively large producers rather than small producers. However, Birthal et al. (2005) found no discrimination against small farmer. The processing firms do not prefer to contract with small farmers because of high transaction cost associated with providing inputs, credit, extension service, product collection and grading. Large farmers are selected to minimize the probability of default as they usually have better skills and more resources. In other cases, when farmers come together and make cooperative, where the cooperative procures and sells the product to agro-processing firms on behalf of farmers, in this case farmer's participation in this form of contract arrangement depends on farmer's interest.

The recent spate of contract farming in India effectively began with the case of Pepsi Foods Ltd (hereafter PepsiCo) which entered India in 1989 by installing a tomato processing plant at Zahura in Hoshiarpur district of Punjab. Latter, Basmati rice cultivation under Rallis India projects started in Madhya Pradesh, Maharashtra, Karnataka and Haryana. Other examples are Gherkin cultivation by Global green company in Andhra Pradesh and Karnataka and rapid spread of poultry projects in West Bengal, Tamil Nadu, Maharashtra, Andhra Pradesh and Punjab. However, while contract farming in India benefits farmers in some aspects like better income, better access to inputs and new technology, it is not devoid of issues. Some studies show that firms are more likely to have a contract with large farmers (Singh 2002; Dileep et al. 2002; Kumar 2006) to avoid transaction costs involved in dealing with many small farmers. Thus, only a small section of farmers get to participate in this institutional arrangement, adding inequality in the economy. In addition, some studies [(Singh 2002; Kumar 2006; Dileep 2002). Singh (2002) and Kumar (2006)] found the problem of monopoly of firms in a contract as the quality of fertilisers and pesticides provided by these firms are inferior and that their quantity is often inadequate for cultivation.

From the above discussion, it can be said that many more studies have conferred about the importance of contract farming and its benefits to the agricultural sector across states but more confined with specific states like Punjab, Haryana, Karnataka, Gujarat, Andhra Pradesh, and Maharashtra. It indicated that the available studies vary not only in terms of their regional focus but also in terms their approach and method. However, very few studies have discussed about the contract in Eastern India, while none have examined the performance and benefits of contract farming in different major crops in Bihar which is increasing adoption of contract farming. Thus, it becomes necessary to investigate the importance of contract farming in eastern India especially in Bihar in wake of second green revolution in this part of country.

Agricultural Constraint in Bihar and Emergence of Contract Farming

Agriculture is the mainstay of the state's economy. The sector holds the key of the state's economy by contributing more than one-fourth to GDP (i.e. 19.2 per cent of state's GDP) and providing employment to more than 75 percent of workforce in the state. Nearly 92.8 percent of the farmers in Bihar are small and marginal (small holders), which is much higher than the all India average of 83.5 percent and due to population pressure, landholdings are also declining. In

addition, 29% of households don't own any land and the average landholding size is approximately 1 acre. About 60 percent cultivated area are under the rain-fed condition and the remaining under the irrigated condition. The principal agricultural crops are rice, wheat, jute, maize and oil seeds. Cauliflower, cabbage, tomato, radish, carrot, beat etc. are some of the vegetables grown in the state. Sugarcane, potato and barley are some of the non-cereal crops grown. The state is the third largest producer of vegetables and fourth largest producer of fruits in the country. It is the largest producer of Litchi, Makhana, Guava, Lady's finger in India. The state already exports Litchi, Basmati rice and snow pea to other states. It has competitiveness in maize, rice and fruits like banana, mango, litchi and vegetables like onion, tomato, potato and brinjal. The state is also endowed with rich biodiversity. Further, Agriculture provides ample supply of raw materials for the establishment of Agro based industries. High, stable and regular supply of agricultural produce provides adequate opportunity for marketing and food processing industries. The challenge, however, is to effectively exploit the new opportunities by linking primary producers (farmers) and agri-business firms/retailers/processors.

Several committees, working groups and scholars have extensively assessed the agriculture sector of Bihar. Though endowed with good soil, adequate rainfall and good ground water availability, the state has not got realized its full agricultural potentials. The reason for its underperformance includes: (i) high risk due to concurrent twin problems of flood and drought; (ii) small and fragmented landholdings; (iii) week institutions and poor governance; (iv) absence of enabling agri-infrastructure; and (v) poor policy response to changing agriculture. As a result, agricultural productivity in Bihar is one of the lowest in the country, leading to rural poverty, low nutrition and migration of labour.

To overcome the challenges and unleash the opportunities, there is a need to reform agriculture sector, invest in agriculture, reprioritize agricultural research, connect invention and innovations, link farmers with markets, strengthen institutions and improve infrastructure. As Bihar is the first state, which has taken bold step for the reform of marketing by repealing the agricultural produce market committees (APMC) Act that was directed towards allowing private market yards, direct buying and selling, and also to promote and regulate contract farming in high value agriculture2, which was not conducive in modern competitive agriculture. However, there is a need for developing alternative model. The proposal of the Committee headed by Shri R.C.A. Jain has accepted to upgrade marketing of produce. There is need for better institutional mechanism to exploit the gain that is being generated in market economy in one site and higher production from farmers' site. A suitable model of contract farming specific to crops can be adopted to solve the problems of small and marginal farmers. There are some contract farming models prevailing in Bihar like the milk production and marketing by COMFED, vegetable procurement and marketing by Kaushalya Foundation in Nalanda district, seed production in Ara district, Basmati rice cultivation in Mungur district and recent intervention by PepsiCo for Potato cultivation. For the sustainability of these farming models and to expand them across Bihar, there is a need for further scrutiny. The question is whether such models are suitable for Bihar agriculture or not in era of agrarian crisis? Therefore, the present paper empirically analyses the participation in contract farming in Bihar which is expected to provide insights for understating the emerging agrarian dynamics driven by contract farming in Bihar.

Data Sources and Methodology

This study is based on primary data that has been collected from 600 households from the state of Bihar where contract farming is in operation. Multistage sampling techniques have been used.

The first stage involved a purposive sampling of choosing Junedi Farmers Producer Company Limited on the basis of area covered for farming. The second stage involved stratified random sampling method. Under this company, six villages (Nanad, Bhagwanpur, Dariyasarai, Junedi, Kadamtar and Gorma) are registered. To select the villages, a pilot survey has been conducted on different parameters such as Household head, Gender, Total Land, Cultivated Land and crops grown. Amongst the six villages, three villages namely Nanad (having large area and population in Nalanda District), Junedi and Gorma are those villages where majority of farmers are associated with the firm. It has been seen that these villages grew multiple crops such as Rice, Wheat, Groundnut, Chilly, Potato, Cucumber, Masur, Pulse, Mung Dal, Maize and green vegetables but only Groundnut and Green Chilly are the two crops cultivated under contract farming.

For the purpose of the study, amongst three villages, 350 households of contract farmers and remaining 250 households of non-contract farmers were chosen. Data was collected through a well-structured questionnaire designed for collecting information from the farmers. Farmers were asked to provide information like Head of the household, family members, age, gender, caste, their assets and services, water access like irrigation, market access like distance and mode of transportation, type and size of land, agricultural assets etc. Data on prices of different crops and cost in different heads were collected on seeds, fertilizers, irrigation, bullocks, cartage, manure, machinery, labor, labor for land preparation, and labor for harvesting and threshing. Questions regarding inputs provided by firms to farmer and information regarding experience of farming for two crops were also gathered. Each qualitative information has been assigned different codes to quantify the data. SPSS software has been used for compiling, cleaning and formatting the data.

Logistic regression model is considered in this paper to test the hypothesis that farmer's decision to engage in contract farming can be affected by different behaviour and economic factors. There were two distinct objectives behind the analysis of determinants of farmers' participation in contract farming. One was to recognise the two categories of farmers (contract and non-contract) to be distinct in terms of certain characteristics such as age, education of the farmers, family size, size of landholding and such others. The other was to identify the attributes of farmers who were likely to be in either the contract or non-contract category.

Model Specification

Farm households choose to participate in contract farming depending on the following explanatory variables: (1) farm households' characteristics (Z) that are reflected by the education level, age, and members of farm households: (2) households assets and income (I) which will be captured by the landholding, and non-farm income: (3) production strategies (P), represented by amount of irrigated land and total investment and (4) market attributes and information (C) represented by the place for selling of crop, access to credit market and extension service. The general model takes the form:

$$A_i = F(Z_i, I_i, P_i, C_i) + \varepsilon I. \qquad \text{……………………………… (1)}$$

The above specification fits the range of binary Logistic model and Ai is binary choice in which 1 denotes participation in contract farming and 0 denotes not participation in contract farming (Maddala, 1983). Such models are specification that can be linear, logistic alternatively or probit models. In comparing the above three models, the linear probability model suffers from three problems. First, the estimated probabilities do not lie between 0 and 1. Second, the variance of the error term is not constant but depends upon the explanatory variables. Third, the model

suffers from Heteroscedasticity problem. Because of such problems linear probability model is not recommended for such kind of discrete choice models (Maddala, 1983). To overcome such problems, logit and probit have been designed to model the choice between two discrete alternatives. Because the cumulative normal distribution and logistic distributions are very close to each other, except at the tail, the result of these models would not be different, unless the samples are large. So a researcher could select one of the two arbitrarily. Hence, in order to observe households' decision to participate in contract farming, logistic distribution (Logit) model was selected. Specification of the logit model is given in equation 2.

$$\ln\left(\frac{P(y_i = 1)}{P(y_i = 0)}\right) = C_i = \beta_1 + \beta_2 x_i + \ldots\ldots + \beta_k x_{k-i} + u_i \quad \ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Here C_i is the dummy taking value of 1 if the farmer participates in contract, and 0 other wise. X_i is a vector of independent variables, which includes variables like age head of households, year of schooling of head households etc. β_1, β_2,.. β_k are the estimated parameters, while u_i is the error term which captures exogenous variables that influences the model.

Estimation and Discussion

Logistic regression is generally prone to the biasing effect of collinearity and it is essential to test for collinearity. It is observed that when there is a perfect linear relationship between the regressor, the estimates for a regression model cannot be uniquely computed. The primary concern is that as the degree of multi-collinearity increases, the regression model estimates of the coefficients become unstable and the standard errors for the coefficients can be inflated. Here, SPSS data command has been used that can detect multi-collinearity problem. Observing the value of tolerance and VIF (Variance Inflation Factor) tests gives idea about the problem of multi-collinearity. As a rule, a variable whose VIF values are greater than 10 and tolerance value are less than 0.1 may merit further investigation. It is observed that VIF values are greater than 10 and tolerance values are less then 0.1.

Tab. 1. *Farmer and household's characteristics t-test of means of variables: farmers with contract and non-contract*

Variables	Means of Response			Separate Variance Estimated	
	Total	CF	Non-CF	t-value	P-value
Age of the Household Head*	52.31	53.63	50.45	3.52	0.00
Caste of Household*	3.18	3.33	2.98	3.724	0.00
Working Population Male (15-59)	2.16	2.13	2.20	0.950	0.34
Female Working Population (15-59) *	1.58	1.51	2.20	2.789	0.01
Total Working Population (15-59)	3.71	3.64	3.81	1.52	0.12
Mobile (0-no; yes-1)	0.99	0.99	0.98	1.91	0.57

Having plough	0.99	0.99	1.00	2.00	0.45
Having tractor/power tiller	0.05	0.06	0.04	1.24	0.21
Having pump set***	0.99	0.98	1.00	1.64	0.10
Having Bore well*	0.28	0.41	0.10	9.73	0.00
Having sprayer*	0.13	0.19	0.04	5.89	0.00
Distance to access to water point for irrigation*	3.58	4.10	2.86	10.57	0.00
Distance to crop input market*	5.72	5.50	6.01	3.34	0.00
Distance to crop output market*	5.23	4.67	6.01	7.25	0.00
Irrigated land [ac] ***	2.86	2.47	3.38	1.64	0.10
Total land	2.55	2.48	2.65	1.55	0.12
Credit access*	0.03	0.054	0.00	-0.47	0.00
Access to technology *	0.59	0.97	0.00	114.65	0.00

Source: Author's calculation from Field data
Note: CF = Contract farmer, Non-CF = Non-contract farmer
      *Statistically significant difference in means at the 1 % level, ** at the 5 % level, and *** at the 10 % level

Separate variance estimated means of selected variables on characteristics of contract and non-contract farmers are shown in Table 1. The results show that there are some differences in characteristics of the households between the contract and non-contract farmers.

The descriptive statistics indicated that contract farmers are older in age than the non-contact farmers. The average age of household head is around 53.06 years in case of contract farmers whereas it is 50.00 years in case of non-contract farmer. It is interesting to know that the non-contract farmers have higher number of working populations in their household compared to contract farmers. Number of members in household between age of fifteen to sixty years, it is observed that among contract farmers it is 3.64 years while 3.81 years in case of non-contract farmers. However, higher number of contract farmers have mobile phone compared to non-contract one. Similarly, higher number of contract farmers have bore well, tractor or power tiller which helps in cultivation process compared to non-contract farmers. Coming to irrigation facilities, it is observed that a contract farmer has to travel more distance to access water to irrigate to their field compared to non-contact farmers –distance to irrigation source is 4.10 KM in case of contract farmers while it 2.86 KM for non-contract farmers. However, distance to output market where farmers can sell their agricultural produce is less in case of contract farmers (5.50 KM) while it is 6.01 Km in case of non-contract farmers. It is also observed that contract farmers have lower average irrigated land compared to non-contract farmers. Average landholding size is higher among non-contract farmers compared to contract farmers. It is important to note that contract farmers have better access to credit and modern technology compared to non-contract farmers. For examples, higher numbers of contract farmers have access to credit and technology, while it is negligible in case non-contract farmers.

To determine certain characteristics that influence farm households to join in contract farming, logit model has been used. The results of estimated logistic regression on the likelihood of farmers' participation in contract farming are reported in Table 2.

Tab. 2. *Probability of Farmers' Participation in Contract Mode of Production of Groundnut and Green Chilly*

Variables			Co-efficient	Wald Chi-Square	P-Value	Odds ratio
Intercept*			2.17	13.68	0.00	8.70
Farmer characteristics	**AGE**	≥ 46 Years	-0.060	0.80	0.77	0.94
Household characteristics	**Caste**	SC*	-1.08	9.34	0.00	0.341
		ST	0.36	0.024	0.877	1.03
		OBC	20.71	0.01	0.999	99.11
	WMP	≥ 3 Member* * *	-0.425	2.64	0.10	0.65
	WFP	≥2 Member*	1.59	43.41	0.00	4.90
	Mobile Phone	Yes	-0.91	1.15	0.29	0.33
Farm characteristics	**LAND**	≥2.6 Acre*	0.67	10.65	0.00	1.95
	ILAND	Continuous	-0.22	1.02	0.31	0.98
	Bore well	Yes*	-2.20	63.11	0.00	0.11
	Tractor/power tiller	Yes	-064	1.48	0.22	0.52
Others	**Distance to Market**	≥6 KM***	-0.42	0.20	0.04	8.76
Hosmer and Lemeshow Tests			94.26 (0.00)			
Chi-Square value			164.95 (0.00)			
Negelkerke R^2			0.45			
			Actual non-contractor		**Actual contract farmer**	
Predicted non-contract farmer			180		67	
Predicted contract farmer			66		262	
Percent correct			72.9 %		79.9%	
Total percent correct			76.9 %			

Source: Author's Calculation from Field data

Note: *, **, and *** indicates the variables are significant at 1, 5 and 10% level.

N = 575, Contract farmer (N1) = 328, Non-contract farmer (N2) = 247

Logistic regression represents the marginal contribution of each variable, evaluated at the sample mean, associated with t-value and the odds ratio. The results of this study are in line with the broad argument that the decision to participate or not is influenced by the simultaneous interaction of various demographic, socio-economic and institutional factors. Of the 10 regressors, seven are found to be statistically significant. In the case of rice seed, five out of 10 independent variables are found to be statistically significant. The value of Wald χ^2 indicates the

goodness of fit test for the fitted model. The probability exceeds the χ^2 critical value. Though sign and the significance level of coefficients are the simplest way to interpret a logit model, the most useful way is an interpretation of odds and its ratio. The estimated coefficients measure the change in predicted log odds of participation in contract production for a unit change in independent variables. A positive coefficient means that the odds of observing a higher participation in contract production rises with a higher value for the independent variable. A negative coefficient has an exponential value between 0 and 1, which decreases the odds.

In earlier studies like Singh 2002; Dileep et al. 2002; Kumar 2006, size of landholding was found to be an important factor that induced farmers to participate in contract farming. Farmer's having large landholdings are more likely to participate in the contract farming so as to avoid transaction costs involved in dealing with farmers. In our study it is observed farmers those have more than 2.5 acres of land are more likely to cultivate the crop for supplying to Producer's Cooperative/contract firm. The odds ratio indicated that 1 unit increase in landholding size, farmers having more than 2.5 acres of land would like to participate in contract by 1.95 times more compared to the farmers having less 2.5 acres of land. This outcome is in the line with Singh (2002) and Kumar (2006) that states that farmers participating in contract farming are mostly large. Land under irrigation is found to be another important factor that influences the farmers' decision on contract participation. The estimated odds ratio indicates the existence of a non-linear relationship between land under irrigation and contract participation. This particular result is in contrast to our hypothesis that with an increase in size of irrigated land, the probability of a farmer's participation in contract will be higher. The result thus indicates that while a greater area of irrigated land increases the probability of participation, this effect diminishes.

The variables related to farmers' characteristics are found to be insignificant in both gherkin and rice seed contract production. This could be the result of the same pattern prevailing across contract and non-contract farmers. However, the odds ratio of farmer's age shows that older farmers are less likely to participate in contract farming compared to young ones. The cropping pattern of a farm depends not only on resource endowments but also on the labour component of a particular household [Key and Rusten (1999), Singh (2002), Dev and Rao, (2005) and Swain (2011)]. The results indicated that independent variables like CASTE, WMP and WFP significantly influenced farmers' participation in the contract mode of production. The odds ratio of WMP suggests that households having higher male working population (more than 2 members) are less likely to participate in the contract farming, while it is opposite in case of Working female population. This could be because other opportunities are available for the male working population compared to contract farming (Swain, 2011). The Odds ratio indicates that households having more than 1 female working population are 4.5 times more likely to participate in contract farming than the households having only one female working population. The odds ratio of CASTE tells us that farmers from lower castes are less likely to participate in the contract. It could be the case that households from SC category have resource constraints.

The Odds ratio of bore well shows that households having bore-well are less likely to participate in the contract mode of production compared to households not having bore-well. This outcome is in contrast to our hypothesis. It is interesting to note that households with longer distance to market are more likely to enter into a contract compared to the households that are at a shorter distance to the market. This could be because longer distance from the market imply more transaction cost (time and transportation cost) thus inducing farmers to enter into contract for easy selling of output.

Conclusion

From the above discussions, it can be said that Bihar that repealed the APMC act by adopting contract farming has seen an alternative institutional arrangement to uplift farmers by providing better services while linking with market. The result suggests that participation in contract farming depends on different factors i.e. landholdings, family labour, access to credit, access to technology and such others. It is more

likely that firm under contract farming offers many benefits for farmers including access to technology, financial resource, specialized input market, a new market for the output and reduced price variability. Thus, to access these facilities farmers are interested to participate in contract mode of production. It is also observed that participation in contracts is mainly driven by the landholding size, area under irrigation, availability of workforce in the household and distance to market. Surprisingly, it is observed that households with more number of male populations are less likely to participate in contract farming while it is opposite when it comes to female labour force. The comparison of farm's and farmer's characteristics shows that contract farmers are better educated, hold more production assets, adopt better production strategy and have better access to market than the non-contract farmers. The result of intensity of land allocation for the contract crop it is observed small farmers are allocating proportionately more land compared to large farmers. Small farmers with better education may intensively participate in contract farming as it provides better facilities.

References

Birthal, P.S., P. K. Joshi, and A. Gulati., 2005, Vertical Coordination in High-Value Food Commodities: Implications for Smallholders. International Food Policy Research Institute, MTID Discussion Paper No. 85.

Dev, S. M., and N. C. Rao. 2005., Food Processing and Contract Farming in Andhra Pradesh: A Small Farmer Perspective. Economic and Political Weekly, 40(26), 2705-2713.

Dileep, B. K., R. K. Glover, and K. N. Rai., 2002. Contract Farming in Tomato: An Economic Analysis. Indian Journal of Agricultural Economics, 57 (2), 197-210.

Glover, D. 1987., Increasing the Benefits to Smallholders from Contract Farming: Problems for Farmers' Organisations and Policy Makers.World Development, 15(4), 441-448.

Key, N. and Rusten, D., 1999. Contract farming smallholders, and rural development in Latin America: The organization of agro-processing firms and the scale of out grower Production. World Development, 27(2), 381-401.

Kumar, P., 2006., Contract Farming through Agribusiness Firms and State Corporation: A Case Study in Punjab. Economic and Political Weekly, 41 (52), 5367-5375.

Maddala, G. S. 1983., Limited Dependent and Qualitative Variables in Econometrics (Cambridge University Press: United Kingdom).

Prowse, Martin. 2012., Contract Farming in Developing Countries - A Review. Institute of Development Policy and Management, University of Antwerp, February.

Simmons, P., P. Winters, and I. Patrick. 2005., An Analysis of Contract Farming in East Java, Bali, and Lombok, Indonesia. Agricultural Economics, 33 (3), 513-525.

Singh, S. 2002., Contracting out Solutions: Political Economy of Contract Farming in Indian Punjab. World Development, 30(9), 1621-1638.

Swain, B.B. 2011., Contract Farming in Andhra Pradesh: A Case of Rice seed and Gherkin Cultivation. Economic and Political Weekly, 46(42), 60-68.

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[1] Take an instance of PepsiCo model of contract farming, which is different from Appachi Model of Integrated Cotton Farming. Pepsi model of contract farming is a two party contract model. The stakeholders are company and firm only. Price fixation in this model is done directly between farmer and company. There was informal agreement to manage production with input provision and ties loans/advances. In Appachi Model of Integrated Cotton Farming

is a multipartite model. In this model, the Appachi Care Foundation acts as the acts as the coordinating agency between small farmers and other stakeholders such as input suppliers, service providers and actual user of cotton. In this model the price of the commodity is not pre-determined and depends on the market price. Further, farmer has the option not the obligation to sell his produce to the contracting agency. For more details see Kumar et al, (2007).

[2] The model Act encouraged the establishment of private markets, direct purchase centers and the promotion of consumers/farmers markets for direct sale through public-private partnerships