

Economics of Contract Farming in Potato Cultivation: Micro Empirical Evidences from Hooghly District of West Bengal (India)

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Abstract

Globalization has opened up several opportunities to the small farmers through organizing commercial mode of cultivation by engaging private sector in the value chain of production. Contract farming can be considered as an appropriate measure for the viable future of the small farmers as they can access input and credit support, technical assistance, assured price, and proper marketing opportunity which otherwise may not be obtainable to them. Under the circumstances, this paper attempts to analyze the potentiality of contract farming as an alternative mode of agricultural production in Hooghly district of West Bengal. Primary survey on a small group of farmers involved in the contract farming with Frito Lays was carried out in a selected region of the Hooghly district of the state of West Bengal. Empirical evidences suggest that contract farming can be an economically viable alternative (i.e. profitable) to large farmers in the study region. However, it has not emerged in a big way to provide means of livelihood to small farmers in the region. Limited participation of small farmers in contract farming can be explained by the stringent restrictions imposed by the contracting agencies.

Keywords: Globalization, Contract Farming, Potato Cultivation, West Bengal

JEL Classification: D86, L33, Q13

Introduction

Globalization of agriculture has opened up some opportunities to the farmers across the countries of the

world and at the same time it has also brought about many challenges for their survival. On the one hand, it also increases the potential for agriculture to increase food security through enlarged multipliers to the massive, employment-intensive, non-tradable rural non-farm sector (Mellor, 2003). Agricultural price increases in response to trade liberalization would impact favourably to small farmers. On the other hand, real income of the small farmers can be adversely affected by increasing the prices of tradable commodities (as they are often net-consumers of food). In addition, inadequate public provisioning (viz. inadequate flow of rural credit, increasing input cost of cultivation, declining public gross capital formation in agriculture) has become an alarming issue to the rural small farmers especially after the introduction of neo-liberal policy. Ultimately, all these features have manifested in the emergence of agrarian crisis on the livelihood of the mass of people dependent on agriculture (Reddy & Mishra, 2012). In the absence of government support measures, a partnership between agribusiness companies and farmers through contract farming can be an alternative 'institutional arrangement that allows firms to participate in and exert control over the production process without owning or operating the farms, (Key & Runsten, 1999). In other words, this 'commercialized version of farming' may be a viable alternative for small farmers as the contract bundled with several support systems may not be accessible to them. The contract usually make a provision for input and credit support, technical assistance, assured price, and proper

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marketing opportunity (Hazzel, 2003; Singh, 2005; Shoja, 2007; Kaur, 2014¹). It is expected that scope of contract farming would improve the condition of marginal and small farmers as it encourages the production of non-food crops (Dev, 2012).

However, empirical evidences suggest that contract farming contracts may involve the risks of abusing these support measures, such as land security, input diversion and risk of extra contractual marketing. Most recently, with the introduction of Model Contract Farming Act, 2018 by the Ministry of Agriculture and Farmers' Welfare Department, the Central Government tightens the interest of small farmers (in form of land ownership, higher productivity, reduced cost, higher price returns) in contract farming practice. The act has been implemented especially with a view to integrate farmers with bulk purchasers including exporters, agro-industries etc. for better price realisation through mitigating of market and price risks to the farmers and ensuring smooth agro raw material supply to the agro industries. Stating the participating small farmers as the weaker of the two parties within contract, and keeping in view the risk of crop failure, the government unveiled the policy of covering contracted produce within crop / livestock insurance. Nullifying the vested interest or right of sponsor on farmers' agricultural land, the act further secures farmers' possession on cropping land. It also provides for a "Registering and Agreement Recording Committee" or an "Officer" at the Village and Panchayat level for online registration of sponsor and recording of agreement. So the chances of violation of contract agreements either by the contracting agencies or by the participating farmers have been ensured to be minimal. The act reserves the exclusive provision for revision of sale and purchase price in case of violent market movements. Through the promotion of Farmer Producer Organization (FPOs) / Farmer Producer Companies (FPCs), this act mobilize small and marginal farmers to expands the chances of acquiring benefit from economies of scale in production.

Under this backdrop, this paper attempts to investigate into the mode of operation of potato contract farming with Frito Lays from a selected village (viz. Bamunpara) of

Hooghly district in West Bengal. In our empirical survey, we have considered both non-contract farmers and a small group of contract farmers as the ultimate sampling units (i.e. 82 farmers). However, this paper is outlined as follows. Section 2 presents the conceptual framework on the relevance of contract farming in the context of institutional change in West Bengal agriculture. Section 3 presents empirical evidence on the changing mode of cultivation in the form of contract farming in a selected region of the state of West Bengal. Lastly, concluding remarks are presented in section 4.

Relevance of Contract Farming in West Bengal: A Conceptual Framework

Small farmers, especially in the rain fed areas, are faced with constraints in the production process, in access to inputs and credit, marketing and value addition. Their production level is limited by the small size of their holdings, weaknesses in the land tenure system and unequal access to irrigation water. They often encounter difficulty with the winds of liberalization blowing and removal of trade barriers under the new World Trade Order. There is a major shift from production-driven agriculture to a market-driven one. Contract farming is a means of accessing market driven inputs and ensuring price stability in an uncertain environment. The large majority of small and marginal farmers, who are not yet organized enough to take advantage of the world markets, perceive the new order as a threat to their livelihood. In the given circumstances, 'reverse tenancy' is inevitable, whereby small and marginal farmers have leased out land in favor of medium and large farmers. The new system of contract farming is more inclined towards medium and large farmers to avoid the problem of dealing with too many small farmers (Kumar, 2006). This paper focuses the case of West Bengal which has experienced with successful implementation of land reform, which results in the marginalization of landholdings. Moreover, the emergence of liberalization regime creates a new market-driven agrarian environment in West Bengal which along with the growing marginalization of landholdings has invited new challenges in agricultural growth in the state. In this context, contract farming facilitates in transforming West Bengal agriculture from traditional to commercial mode of cultivation. The central theme of the paper can be conceptualized by means of the following flow-chart.

¹ In Punjab, contract potato farmers (with PEPSICO) were benefitted through their involvement into contractual farming practice as represented by their higher proportions of land under contractual farming method (Kaur, 2014).

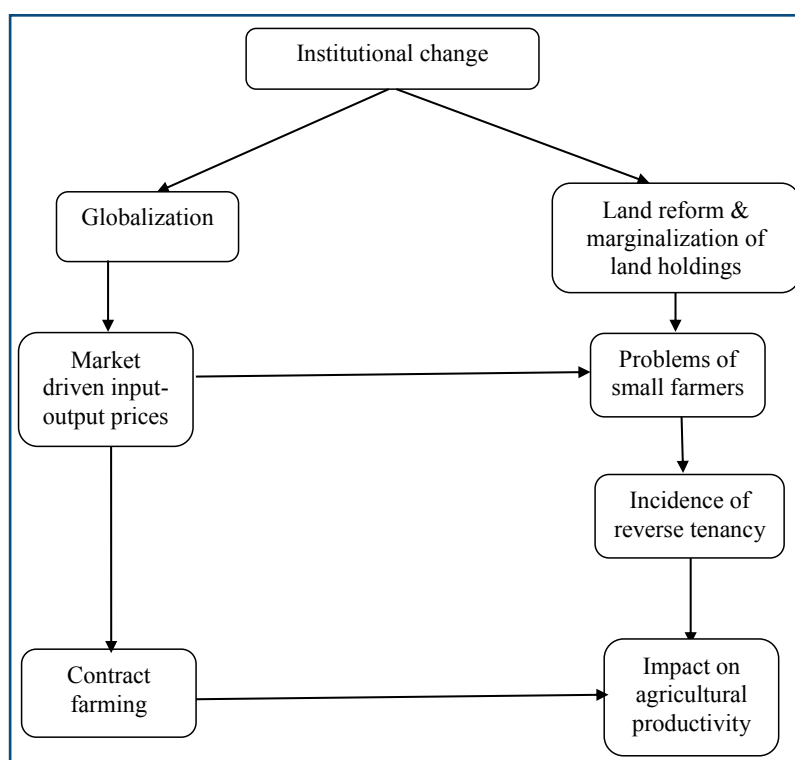


Fig. 1: Relevance of Contract Farming in the Context of Institutional Change of West Bengal Agriculture

In order to ensure a better price of agricultural products to the farmers under contractual farming agreement, the state government of West Bengal has amended its existing policy of Agricultural Produce Marketing (Regulation) Act (1972) in March 2017 by allowing the private trade bodies to enter into agricultural trade through a single license. The Government, in its amendment, clearly stated that securing only a single license will allow any company to do trade in agriculture produces in contrast to the earlier one where it needed more than three hundred licenses separately from different regulated markets in the state. This effort of the state government has made both the contractual agencies and rural small farmers to reap the benefits of the contractual mode of farming in form of secure and easy trade and price assurance. If managed well, most importantly if the risk of extra contractual affairs is countered, then this move can offer promising opportunities for the rural small farmers and can reward them with higher agricultural return.

Mode of Cultivation Under Contract Farming: Experiences from Hooghly District of West Bengal

West Bengal, the second largest producer of potato in the country², accounts for 30 per cent of the total production. However, the agricultural policy of the state officially does not recognize the participation of corporate sector in the marketing of agricultural produce, and thereby no effort has been initiated in amending Agriculture Produce Marketing Companies Act (APMC) in this direction. In fact, contract farming was recommended for the state of West Bengal in the advisory report prepared by the McKinsey during the tenure of the Left Front. As an

² Uttar Pradesh is considered as the largest producer of the potato in India. In fact, three of the major producing states are Uttar Pradesh, West Bengal and Bihar, accounting for about 72 percent of the national production (Punjabi, 2015).

alternative for all practical purpose, the state promotes collaborative or participatory farming, which is gaining popularity among farmers in West Bengal. It has been reported that collaborative farming program of M/s Frito Lays, a beverage subsidiary of multinational company Pepsi Co. Ltd.³, currently operates in six districts (viz. Burdwan, Hooghly, Bankura, Birbhum, Howrah and West Medinipore) of West Bengal and procures around 60000 metric tons of commodity from about 10000 farmers in the state in 2012 (Business Standard, 2012). Generally, Frito Lays design a contract with the local farmers for the production of a special variety of potato called *Atlantic*⁴. It is mainly used as an input in the value chain for making potato chips for the production unit located at Sankrail of Howrah district⁵.

Survey evidences at the grass root level indicated that the contracting agency employ some representatives (known as extension agents), who are working as intermediaries between contracted farmers and contracting agency. In an effort in reducing pricing risk, the contract fixed a-priori price of the harvested produce at the beginning of the crop cycle. Following the rules of the contract, the future transaction will take place at predetermined price. However, sharing experience with farmers reveals that the contract price is generally found to be little higher than the market price of potato at the time of harvest. In fact, price premium acts as an incentive for the farmers to enter into the contract. The contract company generally provides seed, fertilizer and pesticides to the contract farmers. Bundling of the contract prohibits the farmers to use any other pesticides supplied by the market. Some farmers even thought this mechanism as one of push

selling strategy of the contracting agency. The contract agency also delivers technical guidance on the process of farming and proportional allocation of pesticides and water. After the harvesting of the crop, the contract agency usually collect potato from the farmers at the stipulated price mentioned in the contract. Thus the 'production management contract' in potato cultivation is essentially a bi-partite contract, whereby the central company supplies inputs, credit, and technical advice through extension agents (Fig. 2).

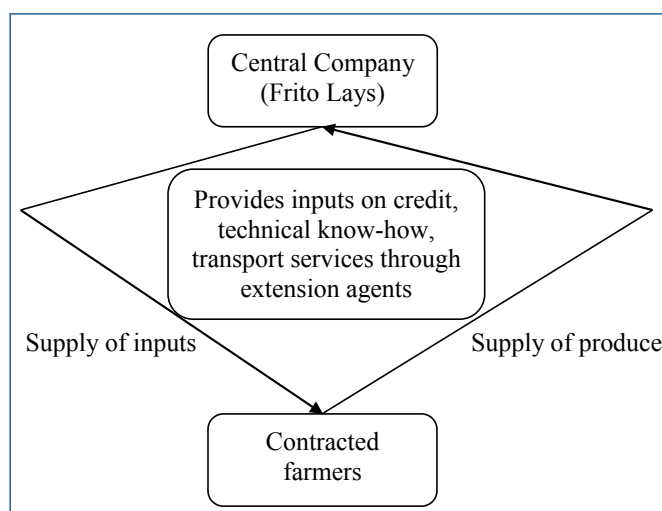


Fig 2: A bi-partite Contract Farming Model in Potato Cultivation

This paper presents a brief overview on the salient characteristics of two groups of farmer households in our survey area, viz. contract farmers and non-contract farmers (Table 1). For the sake of simplicity, farmers have been classified into two categories viz. small (below 1 hectare), large (1 hectare and above) farmers depending on their operated land. It is evident that relatively large farmers are participating in potato contract farming. Inequality in the distribution of owned landholding is not narrowed down by the practice of leasing in or leasing out land. Rather reverse tenancy results in greater inequality in the distribution of operated landholding. Contract farmers are cultivating their land more intensively than non-contract farmers. Also these contract farmers are a little bit more diversified⁶ to commercial crop cultivation than the non-contract ones.

³ PepsiCo is one of the pioneers of contract farming in India since 2001. Their experience in contract farming covered many crops: potato, basmati rice, tomato, chili, peanut, oranges and more recently sea weed. Potato is the largest crop under contract farming to produce potato chips for Frito Lay (Punjabi, 2015).

⁴ *Atlantic* variety is locally known as *Pepsi Potato*. It is characterized by processable grade potato with low sugar content.

⁵ PepsiCo has three potato processing plants in India located in Punjab (Sangrur), West Bengal (Sankrail near Kolkata) and Maharashtra (Ranjangaon near Pune). The production capacity at these three plants is approximately 10,000 tonnes for in Punjab, 18,000 tonnes for Pune and 7,500 tonnes for Kolkata (Punjabi, 2015).

⁶ We have used Transformed Herfindahl Index to measure crop diversification of farmer households.

Table 1: Profile of Contract and Non-contract Potato Cultivators in the Study Area

Particulars	Non-contract farmers	Contract farmer
No of farmers	74	8
Average owned landholding (in hectare)	0.63	1.02
Average operated landholding (in hectare)	0.7	1.23
Cropping intensity	217.16%	260.01%
Crop diversification	0.673	0.693

Source: Field Survey 2013

To evaluate the net returns to cultivation of contract farming vis-à-vis non-contract farming, a comparison of yield rate of different varieties of potato, cost of cultivation and the harvest price of potato are considered in table 2. It is evident that proportion of gross cropped area allocated for potato cultivation does not differ significantly in between contract (35.12%) and non-contract farmers (34.44%). The farm productivity increases in case of contractual mode of farming as the yield rate of contract variety potato (223.6 qt per hectare) is comparatively higher than non-contract variety (220.8 qt per hectare). The cost of cultivation in relating to *Atlanta* variety is also significantly higher (approximately Rs. 4000 per hectares) than the traditional *Jyoti* variety. The difference in the cost of cultivation is mainly due to the irrigation cost, labour charges and pest control costs. Even though the cost of cultivation is higher in *Atlanta* variety, but contract farmers incur a significantly higher net return of cultivation (by the extent of Rs. 12000 more per hectare) in comparison to non-contract farmers in our survey area.

Table 2: Production Characteristics of Contract and Non-contract Potato Cultivators

Particulars	Non-contract farmers	Contract farmer
Percent of potato area to gross cropped area	34.44	35.12
Average yield (qt/ha)	220.86	223.6
Cost of cultivation (Rs./ha.)	82588.14	86621.89
Harvest price (Rs./ qtl)	515	580
Net return (Rs./ha)	31188.98	43066.19

Source: Field Survey 2013

However, this mode of cultivation practice is not so popular in the surveyed villages in spite of practicing such mode of participatory cultivation since the last five years. The major problem is that contract farmers do not exercise any decision the process of farming process. In fact, decision on allocation of fertilizer, pesticides is undertaken by the contracting agency. Sometimes their instruction of cultivation may not ensure profitability in cultivation. For instance, one such instruction in this contract farming process is that the gap between rows of sown seeds in contract variety should be at least 22 inches, which is more than their traditional practice of sowing potato seeds (18 inches). It results in over-nourished and larger size of potato but the total output is reduces by at least 29 percent to 30 percent! In addition, the contract agency prefers only a specified size of potato, suitable for the processing of manufacturing potato chips. Farmers usually sell the rest of the potatoes in the open market at a very low price.

Conclusion

Commercial cultivation through contract farming can benefit simultaneously the farmers, contractual agencies, and the consumers (the ultimate recipient of agro-products). While the practice can be used as a useful tool to access inputs, new production techniques and improved agricultural infrastructures, it can also safe guard the interest of farmers in mitigating price risk and crop failure. On the other hand, the interest of contractual agencies is protected through production consistency, greater market control and reduced cost of production. Recently amended rules and regulation by the central and state governments facilitates in the transition towards subsistence farming to commercial mode of cultivation through the practice of contract farming.

To understand the operation of contract farming practice in potato cultivation, a micro empirical field survey was conducted in a selected region of the Hooghly district of West Bengal. Empirical evidences suggest that large farmers involved in potato cultivation, in general, derive higher rate of return than their traditional farming practice. But eventually it has not emerged in a big way to provide means of livelihood to small farmers due to the stringent restrictions imposed by the contracting agencies.

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