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# Impact of Contract Farming on the Capital Formation at the Farm Level: An Empirical Investigation in Karnataka

KEYWORDS: Contract Farming, Capital Assets at rural households

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**ABSTRACT** *Impact of contract farming in hybrid chilly seeds as well as in Gherkin on the capital formation has been assessed by using primary data collected from the farm households. Survey has been conducted during 2014-15 in a cluster of villages from Kudligi taluk of Bellary district as well as from another cluster of villages from Harapanahalli taluk of Davangere district. The results of the survey clearly reveals the significant impact of contract farming on the ownership of capital assets like pesticide sprayers, farm buildings and drip irrigation implements. The percentage of hybrid chilly seeds contract farmers who were having pesticide sprayers, drip irrigation implements as well as farm building was relatively more for the period after the inception of contract farming compared to the period before the period of contract farming.*

**1. Background of the Study**

Indian agricultural production and marketing environment has undergone a phenomenal transformation in the last few decades leading to the new institutional arrangement like contract farming. Contract farming can be defined as an agreement between farmers and processing and or marketing firms for the production and supply of agricultural products under forward agreement, frequently at predetermined price (Singh, 2000). It is a case of bringing the market to the farmers, which is navigated by agribusiness firms. The contractual agreement may encompasses three area, viz. (i) *Market Specification Contract* in which grower and buyer agree for future sale and purchase, (ii) *Resources Providing Contract* in which buyer agrees to supply inputs and technical advice, and (iii) *Management Specifications Contract* in which growers agree to follow the recommended package of practices for crop cultivation (Wright, 1989).

There is an intense feeling that in the era of liberalization and globalization, small farmers are completely neglected and marginalized from high value agribusiness activities and hence unable to derive maximum benefits due to their fragmented and uneconomic size of holdings and inadequate access to external inputs and services (Chengappa, 2009). On the one hand, the small and marginal farmers find it difficult to cultivate lucrative and new processable crops as the scale of economies assume increasing importance for profitable crop production, on the other hand the procurement of raw materials with right quantity and quality, minimum cost and time poses a serious problem for the food processing industries (Asokan and Singh, 2003). Contract farming is considered to be an institutional initiative undertaken in recent years to address the production and marketing problems faced by the farmers and also the procurement problems faced by the processing industries.

Contract farming helps the buyers, normally an agro processing firm, to reduce much of the uncertainty in procuring the needed raw materials. The farmers, on the other hand, are insulated against volatility of market and assured of stable income (Ashokan, 2005). Agribusiness firms, besides providing resources for productive investment, can benefit the locals in employment, technology transfer, and incremental technical knowledge, especially at the farmers level (Goldsmith, 1985). Further, contracts that provide credit, technology, inputs, information, extension services, and risk mitigation help producers to improve production efficiency; develop commercial culture; augment income and employment (Glover and Kusterer, 1990). The Government of India's National Agriculture Policy (2000) envisage that 'Private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured market for crop production.

Farmers face constraints due to lack of investment for adoption of modern technology and management practices as they have little bargaining power with input suppliers and produce markets, inadequate infrastructure and market information, lack of post-harvest management expertise, poor package of produce and inadequate capital to grow quality crops. Contract farming can play a role in addressing these issues with benefits as under (Chengappa, 2009); i) it helps the small farmers to participate in the production of high value crops, ii) it minimize the production risks and ensures remunerative returns to the farmers, iii) through contract farming farmers could get inputs, technological and extension under one-roof, iv) improved access to crop loans at attractive terms v) it encourages farmers to adopt alternate crops system for better returns. vi) It helps the contract sponsoring companies in procuring the required raw material with lesser transaction cost.

Indian Governments, at different levels, have taken several initiatives to promote contract farming in the country. The food processing industry was deregulated and no license was required except in the case of alcoholic beverages. Automatic approval for foreign investment up to 100 per cent equity in food processing industries is available except in few cases (Alagh 1995). Hundred per cent export oriented units are permitted to import raw material and capital goods at free of duty. The excise duty on food processing items was removed in 1991. Center has

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also urged the state Governments to allow exemptions for these products from the sales tax. The concepts of food parks and Agri-Export Zones (AEZ) have also been initiated to encourage agro-processing industries. These policy initiatives have offered impetus for contract farming. In this background a large numbers of food processing companies have been promoting contract farming. At this juncture a critical evaluation of impact of contract farming on capital formation at the farm level could provide right direction to the future policy formulation.

In Karnataka, contract farming is being practicing in sugar Industry for many decades. In recent decades changing nature of demand for food products as well as the policy environment has given impetus to the contract farming. Agrarian structure of Karnataka state is very conducive for the promotion of contract farming. Increasing demand for high value processed food products and Globalisation initiatives have attracted the good number of Multi-Nation companies to sponsor the contract farming in Karnataka state. Contract farming is being practicing in high value agriculture products like Marigold, Gherkin, cotton and etcetera. Seeds production is another key area in which a good number of companies are being sponsoring the contract farming. In this backdrop, in this study an attempt has been made to analyse the impact of contract farming in Gherkin and Chilly hybrid seeds production in Karnataka on the capital formation at the farm level.

Gherkin, small Cucumber, is one of the high value agriculture products with huge export potentiality. It is a much sought after delicacy in the US and in Europe. Karnataka has more than 3/4$^{th}$ share in India's gherkin exports. Gherkin is being produced in Hassan, Tumkur, Haveri, Bellary and Bagalkot district of Karnataka state. A cluster of Villages from Kudligi taluk of Bellary district has been selected for analysing the impact of Contract farming in Gherkin on Capital formation at the level of farm households. Similarly of parts of Haveri, Koppal and Davangere district are popular in hybrid seeds production. Therefore, a cluster of Villages from Harpanhalli taluk has been selected to analyse the impact of contract farming in hybrid seeds production on capital formation.

**2. Methodology**

In consultation with the technical staff of the Blossom Showers Agro, one of the Gherkin Contract sponsoring companies, a cluster of the villages where contract farming in Gherkin is being widely practicing in Kudligi taluk has been identified. List of farmers of Amlapura, Kyasanakere and Siddanahatti villages of Kudligi taluk of Bellary district, who have undertaken contract farming in Gherkin has been prepared. Random sampling method has been used to select 40 farmers from that list. Same numbers of farmers who were not involved in contract farming have been randomly selected form the same cluster of villages. Similarly Arasikere, Keregudihalli and Hosakote villages in Harapanahalli taluk of Davangere district has been identified as one of the clusters of villages extensively involved in hybrid chilly seeds production. From these villages, a list of 130 farmers who are involved in contract farming of hybrid chilly seeds production has been prepared. And from that list 40 farmers have been randomly selected and equal number of non-contract farmers have been randomly selected from the same cluster of villages. Primary data has been collected from the randomly selected farmers by using pre-tested well-structured schedule. Survey has been carried out during the month of November and December, 2014. Results of the survey have been presented in the tabular form and chi-square test has also been used to draw the inference.

**3. Results**

Research studies conducted across the globe reported that the contract farming increase the agriculture productivity as well as increase in the net earnings of the farmers. Increase in net agriculture earnings through contract farming is expected to increase the capital formation at the farm level. Investment in agriculture helps in improving the stock of equipment, tools and productivity of natural resources, which, in turn, enables the farmers to use their resources particularly land and labour more productively. Information on possession of capital assets by the Gherkin Contract Farmers (GCF) and Non-Contract farmers (NCF) from three villages of Kudaligi taluk as well as capital assets by hybrid chilly Seeds Contract Farmers (SCF) and NCF from three villages of Harapanahalli taluk has been elicited through the survey and results are consolidated in table-1 Eighteen capital assets given in the table were considered for this purpose. The percentage of farmers owning the capital assets is relatively more among the Seeds as well as Gherkin contract farmers compared to their counterpart non-contract farmers for almost all the capital assets given in the table except harvesting yard, harvester, bullock pairs and bullock operated implements like ploughs, harrows and seed drills.

**'Table-1: About here'**

Majority of the contract farmers in hybrid seeds as well as Gherkin are having bore-wells and all the contract farmers are having the pesticide sprayers. The percentage farmers having bore-wells and sprayers is considerably low among the NCF compared to their counterparts with contract farming. Majority of the SCF farmers (95%) are having Drip/sprinkler irrigation implements whereas it is only 5 percent among their counterparts. Though the percentage of farmers having such implements is more among the GCF (17.5%) compared to their counterpart NCF (0 %) the magnitude of difference is not as much as in contract farming in hybrid seeds. Bore-wells and pesticide sprayers are very essential for contract farming in Seeds as well as Gherkin. Majority of the SCF are using drip irrigation implements but they are not compulsory for Gherkin.

Information on the separate building for the storage of agriculture products or agriculture implements or even for the cattle shed has been collected and results given in the table. The percentage of farmers having farm building is considerably more among SCF as well as GCF compared to the NCF. Ownership of tractors is also relatively more among the contract farmers compared to the non-contract farmers. The table reveals the close association between the ownership of the bullock pairs and bullock operated implements like ploughs, harrows, seed drills and also bullock cart. The ownership of these implements is considerably more among the GCF compared to their NCF whereas such difference could not be found between SCF and their NCF. The table clearly reveals the fact that the capital assets are relatively more among contract farmers compared to Non-contract farmers barring few exceptions.

Impact of contract farming on the capital formation has been assessed by comparing the ownership of important capital assets before and after the beginning of contract farming. Only few important capital assets about which farmers could easily recall the previous information have been considered. It requires minimum 2 to 3 years of con-

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tinuous practice of contract farming to reveal its impact on the capital formation at the farm household level. Recall lapses may increase with increase in the time space. Therefore, contract farmers who have been practicing contract farming for the last 3 to 6 years have been considered for this purpose. Out of 40 contract farmers in each crop, 31 GCF and 28 SCF have been practicing contract farming for the last 3 to 6 years. Information on ownership five of capital assets before and after the beginning of contract farming has been collected and results are given in the table-2.

**'Table-2: About here'**

Possession of capital assets is found to be relatively more for the period 'After beginning of CF' compared to the period 'before beginning of CF' for all the assets given in the table except bullock pairs. Only about 1/3rd of the contract farmers were having pesticide sprayers before they take up the contract farming. After the beginning of CF almost all the contract farmers have purchased the pesticide sprayers. The chi-square test reveals the significant association between the onsets of contract farming and possession of pesticide sprayer. Contract farming in hybrid seeds found to be having significant influence on the purchase of drip/sprinkler irrigation implements and construction of farm buildings. The calculated chi-square value was statistically significant at 1 percent probability level for drip irrigation implements and at 5 percent probability level for the construction of farm buildings. Though the percentage of farmers possessing farm buildings and drip irrigation implements is more for period 'after' compared to 'before' beginning of contract farming in Gherkin they are not statistically significant. Majority of the farmers were having bore-wells before they take up the contract farming in Gherkin as well as hybrid seeds. It is because irrigation facility is a must to take up contract farming in Gherkin and seeds. Few farmers who have started contract farming with hired irrigation facility have invested on bore wells after they started contract farming and average number of bore wells in the possession of contract farmers has increased after they took up contract farming.

**4. Conclusion**

Contract farming is found to have significant influence on the capital formation at the farm household level. Possession of capital assets like pesticide sprayers, farm buildings, bore wells and drip/sprinkler irrigation implements is found to be significantly more among contract farmers of hybrid chilly seeds as well as gherkin compared to their counterparts with non-contract farming. Ownership of harvesting yard and harvesters are not influenced by contract farming. Comparison of capital assets' ownership for the period before and after the onset of contract farming reveals that the SCF is having significant impact on the acquisition of pesticide sprayers, drip irrigation implements and farm buildings. Same is applicable for GCF with respect to pesticide sprayers.

**Table-1: Possession of Capital Assets among Contract and Non-Contract Farmers**

| Sl No | Capital Assets | GCF (n=40) | NCF (n=40) | SCF (n=40) | NCF (n=40) |
|---|---|---|---|---|---|
| 1 | Households Having Farm Buildings | 13 (32.5) | 06 (15.0) | 20 (50.0) | 11 (27.5) |
| 2 | Households Having Harvesting Yard | 05 (12.5) | 07 (17.5) | 08 (20.0) | 04 (10.0) |
| 3 | Households Having Tractor | 03 (7.5) | 02 (5.0) | 04 (10.0) | 01 (2.5) |
| 4 | Households Having Sprayers | 40 (100) | 08 (20.0) | 40 (100) | 06 (15.0) |
| 5 | Households Having Harvester | 01 (2.5) | 00 (0.0) | 00 (0.0) | 01 (2.5) |
| 6 | Households Having bore-wells | 35 (87.5) | 03 (7.5) | 38 (95.0) | 06 (15.0) |
| 7 | Total Number of Bore Wells | 38 | 04 | 44 | 09 |
| 8 | Households Having Drip/Sprinkler | 07 (17.5) | 00 (0.0) | 38 (95.0) | 02 (5.0) |
| 9 | Area Covered under Drip/Sprinkler | 11 | 00 | 42 | 03 |
| 10 | Households Having Bullock Pairs | 26 (65.0) | 14 (35.0) | 17 (42.5) | 18 (45.0) |
| 11 | Total Bullock Pairs | 27 | 14 | 18 | 19 |
| 12 | Households Having Cows/Buffaloes | 17 (42.5) | 14 (35.0) | 24 (60.0) | 20 (50.0) |
| 13 | Total Cows/Buffaloes | 50 | 38 | 70 | 51 |
| 14 | Households Having Bullock Cart | 20 (50.0) | 11 (27.5) | 17 (42.5) | 16 (40.0) |
| 15 | Households Having Iron Ploughs | 23 (57.5) | 07 (17.5) | 15 (37.5) | 16 (40.0) |
| 16 | Households Having Wooden Plough | 26 (65.0) | 14 (35.0) | 17 (42.5) | 18 (45.5) |
| 17 | Households Having Harrows | 26 (65.0) | 14 (35.0) | 17 (42.5) | 18 (45.5) |
| 18 | Households Having Seed Drills | 24 (60.0) | 11 (27.5) | 15 (37.5) | 14 (35.0) |

**Table-2: Possession of Capital Assets Before and After Beginning of Contract Farming**

| Capital Assets & Possession Status | | Gherkin Contract Farmers (n=31) | | | Chilly Seeds Contract Farmers (n = 28) | | |
|---|---|---|---|---|---|---|---|
| Before | | After | Chi-square Value | Before | After | Chi-square Value | |
| Farm Building | Households Having | 05 (16.1) | 10 (32.3) | 2.199 | 07 (25.0) | 15 (53.6) | 4.791** |
| | Households Not Having | 26 (83.9) | 21 (67.7) | | 21 (75.0) | 13 (46.4) | |
| | Total | 31 (100) | 31 (100) | | 28 (100) | 28 (100) | |
| Sprayers | Households Having | 09 (29.0) | 31 (100) | 34.100* | 11 (39.3) | 28 (100) | 24.410* |
| | Households Not Having | 22 (71.0) | 0 (0.0) | | 17 (60.7) | 00 (0.0) | |
| | Total | 31 (100) | 31 (100) | | 28 (100) | 28 (100) | |
| Bore-well | Households Having | 24 (77.4) | 28 (90.3) | 1.908 | 26 (92.9) | 28 (100.0) | 2.074 |
| | Households Not Having | 07 (22.6) | 03 (9.7) | | 2 (7.1) | 0 (0.0) | |
| | Total | 31 (100) | 31 (100) | | 28 (100) | 28 (100) | |

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|---|---|---|---|---|---|---|---|
| Drip /Sprinkler | House-holds Having | 02 (6.5) | 6 (19.4) | 2.296 | 04 (14.3) | 28 (100) | 42.000* |
| | House-holds Not Having | 29 (93.5) | 25 (80.6) | | 24 (85.7) | 00 (0.0) | |
| | Total | 31 (100) | 31 (100) | | 28 (100) | 28 (100) | |
| Bullock Pairs | House-holds Having | 21 (67.7) | 21 (67.7) | 0.00 | 13 (46.4) | 11 (39.3) | 0.292 |
| | House-holds Not Having | 10 (32.3) | 10 (32.3) | | 15 (53.6) | 17 (60.7) | |
| | Total | 31 (100) | 31 (100) | | 28 (100) | 28 (100) | |

**Note: Figures in parenthesis indicate percentage to the total respondents of respective strata**
*** and ** indicate significance at 1 and 5 percent probability level respectively**

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