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MARKET ACCESS TO SMALL PRIMARY PRODUCERS: A STUDY OF VEGETABLE GROWERS IN THE SUPPLY CHAIN

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MARKET ACCESS TO SMALL PRIMARY PRODUCERS: A STUDY OF VEGETABLE GROWERS IN THE SUPPLY CHAIN

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The paper attempts to examine the issues relating to market access in the case of small and marginal vegetable growers in different locations in five Indian states. It looks at the comparative presence of different modes of sale and brings out the differential prices per unit of produce as well as differential incomes per hectare by taking into account the costs of production, the mode of sale, etc. How do arrangements to tie up sale with the supply of inputs, credit, transport and storage affect costs and benefits to the farmers? Which mode of sale and arrangement for marketing tends to minimise the risks of fluctuation in market demand and prices? This paper seeks to examine these and related questions with a view to developing hypotheses for further research, on the issue of supply chain analysis in the field of horticultural produce in general, and vegetables, in particular.

I. PATTERN OF MARKETING CHANNELS: RECENT DEVELOPMENTS

It is widely known that diversification of farming from food crops to the production of non-food items like vegetables, fruits and other commercial products, leads to an increase in farm income. Such shifts, however, involve risks of various kinds, the most important of which are those relating to marketing. Food production can at least ensure food security to the farming households, even when there is a market failure, but such failure can result in complete loss of income and subsistence in the case of commercial crops (Chand, 1996; Haque, 1996). Therefore, a decision by farming households to devote a substantial part of their farming land to the latter depends greatly on the actual and perceived prospects of the marketing of their produce.

Agricultural commodities move in the marketing chain through different channels. The marketing channels are distinguished from each other on the basis of market functionaries involved in carrying the produce from farmers to the ultimate consumers. Different channels of marketing provide for different degrees of insurance against failure, both in terms of the guarantee to sell and the level of price realisation. Therefore, the pattern of the modes of marketing becomes important. In the era of globalisation, greater commercialisation has emerged and has even penetrated deep into the rural areas. It gets strengthened in areas where market access is easier and marketing channels provide an assured sale of produce at remunerative prices. Traditionally local market or trader intermediaries have been the main channels to whom farmers in India have been selling their produce like vegetables and fruits. While they still continue to play a major role in most rural areas in the country, new institutions such as cooperatives or other form of producers' organisations, farmers' markets, contract farming and large marketing companies have emerged in many areas (Planning Commission, 2007). With marketing of the products getting more organised, particularly in the urban areas, their procurement is also now taking place increasingly on an organised basis.

There are advantages as well as disadvantages for the farmers in marketing their produce through traditional or modern channels. Proverbially, the traditional mechanisms are seen to be

exploitative, offering low prices and even using unfair practices in weighting, etc. But they involve very little transaction costs. Modern channels may be more transparent and offer more remunerative prices, but insist on quality and generally involve some delay in payment due to the formal system of their operations (Reardon, *et al*., 2002; ILO, 2007). The existence of multiple channels, in principle, should imply competition among buyers and as a result, better prices and conditions for the farmers. But it might also result in a disadvantage in terms of a failure to sell, and overall low prices, if one buyer does not buy the entire produce and if for part of the sale, the farmer has to depend on others, particularly the traditional channels.

Further, different marketing channels can offer not only varying conditions of purchase, such as price, place and frequency of purchase, mode and time of payment, commitment on the quantity of purchase, and quality standards, but could also provide services and inputs for production. Such arrangements, no doubt, help the farmer in production, but also involve certain costs. For example, provision of credit by the trader who buys the produce, may also compel the farmer to sell at lower prices. Provision of inputs by a marketing company may also mean compulsion to buy inputs at higher costs. It is the costs and benefits of the entire package that will determine the attractiveness of one or the other marketing channel.

The present paper attempts to examine these issues in the case of vegetable growers in different locations in five Indian states. It looks at the comparative presence of different modes of sale: local trader, commission agents, wholesale market, cooperative, government agency, NGO, private marketing company, etc. It attempts to bring out the differential prices per unit of produce as well differential incomes per hectare by taking into account the costs of production, by the mode of sale. It further attempts to identify the other factors that make one mode more attractive than others, other than the prices. How do arrangements to tie up sale, with the supply of inputs, credit, transport and storage affect costs and benefits to the farmers? Which mode of sale and arrangement for marketing tends to minimise the risks of fluctuation in market demand and prices? This paper seeks to examine these and related questions with a view to developing hypotheses for further research, on the issue of supply chain analysis in the field of horticultural produce in general, and vegetables, in particular.

II. VALUE CHAIN IN VEGETABLE PRODUCTION

Becoming a part of the value chain is generally expected to be beneficial for primary producers who have been selling their produce in the traditional markets. The supply chain link not only provides an alternative to the local agent or trader so as to raise the bargaining power of the producer, but it is often found to offer better terms both in terms of prices and other conditions of exchange. Access to wider markets, locally or globally, results in higher final retail prices and, therefore, increases the capacity of the intermediate link to pay better prices to the producer (World Bank, 2007). And, for sale in these markets, the producers often have to improve the quality of the product for which the buyer often facilitates access to technology and inputs. Thus, there results an upgradation of the product and better prices and incomes for the producer.

Vegetable producers in India have, in recent years, seen access to non-traditional modes of sale in many areas. Cooperatives were probably the first; NGOs implementing development projects have also sometimes helped farmers link with larger markets. In these cases, collective marketing has very often been practised. Over the last few years, some well-known private marketing companies such as ITC, Reliance, Tata, Bharati Enterprises, DCM Shriram Consolidated Ltd., etc. have entered the market with or without pre-arranged contracts with the farmers, either to sell the produce finally to the consumers through their own retail outlets or to use it for processing into various food products. There are also farmers' markets wherein they sell their

produce directly to consumers at reasonable prices fixed every day by the market committee (with these prices being higher than the wholesale prices). This type of market intervention is being promoted by some state governments to eliminate middlemen and to increase the farmers' price realisation. Examples of such interventions are *Apni Mandi* in Punjab and Haryana, *Raythu Bazar* in Andhra Pradesh, *Krushak Bazaars* in Orissa, and *Uzhavar Sandies* in Tamil Nadu. Increasingly, a larger number of farmers are also now selling their produce in the wholesale market as a result of improved connectivity and information. These channels have provided alternatives to the traditional local market or agent and hence the chances to realise better prices for their produce.

The supply chain in vegetables is mostly confined to domestic rather then global markets. India ranks second in the world's vegetable production. It produces 11 per cent of the world's vegetables, but only 1.4 per cent of the vegetables produced in India are exported (World Bank, 2007). The domestic supply chain typically consists of the grower (farmer)–collector–wholesale merchant–sub/wholesaler–retailer. The price spread may be 1:4, with the highest margin towards the end. Only a small part of the vegetable produce is utilised for processing for which the supply chain consists of two, viz. farmer–collector–processor, or three, farmer–collector–wholesaler–processor, links. An increasing trend of the processor tying up directly with the grower, through a sale agreement or contract farming, is also being seen.

From the farmers' viewpoint, one may argue, it does not really matter what happens to the produce once he has sold it to one agency or the other. In other words, the supply chain may have little or no relevance for him. However, this is not necessarily true insofar as the supply chain with different actors as links has different implications for price realisation and the other outcomes of exchange, for the farmer. Also, if the price at the end of the chain is several times higher than the one received by the farmer, the questions of equity and the mechanisms for a fairer arrangement in the chain to get a better share for the farmer, become important. Studies (see for example, World Bank, 2007; Raghunath and Ashok, 2004) show that farmers receive a small share of the (domestic) consumer prices—only about 25 per cent in the case of unprocessed vegetables as compared to 40 per cent in developed countries. This is mainly due to fragmented vegetable markets characterised by several actors wherein many of them do not even add to the value of the product.

It is also argued that the linking of farmers in a vertical modern value chain benefits both farmers and consumers as it reduces the number of actors in the value chain. The emerging supermarket chains are also gaining an important share in international markets (Oli, 2005; Gaiha and Thapa, 2007). In contrast with traditional multi-level and fragmented marketing systems, supermarket supply chains are shorter and more condensed, and involve direct delivery to centralised distribution centres. For example, Tops Thailand reduced the number of its fresh produce suppliers from 250 to 60, while eliminating numerous wholesalers who do not perform value addition activities (Gaiha and Thapa, 2007). Supermarket channels are also characterised by specialised logistical facilities and a focus on value added activities, and stringent mechanisms for control and compliance. Although farmers receive 10 to 25 per cent higher prices when they directly sell to modern supply chains like supermarkets, the prices are not high enough to cover the costs and risks that they would have to undertake in order to fulfil the requirements of these chains such as safety and quality standards (Chen, 2005; UNCTAD, 2007). Very often, these markets go beyond mandatory regulations to begin implementing their own private standards (Oli, 2005). With all these practices, supermarkets capture the lion's share of gains from the trade in horticulture produce while passing the risks and costs to farmers (Oli, 2005). An example in this regard is that of the export of fresh vegetables from Kenya to the British market. It was

found that the producers receive merely a 14 per cent share of the eventual sale income, with the much larger share (46 per cent) going to the supermarket, which, in this instance, is in control of the supply chain (ILO, 2007). This sort of division in the value shared reflects a highly iniquitous value chain with major control over market prices being exercised by distribution agents in the supply chain. Yet another example is that of Indian vegetable producers who largely sell their produce in domestic fragmented markets. Farmers get 24 to 58 per cent of the consumer price, whereas the rest of the players in a supply chain get a sizeable share of 76 to 42 per cent (Raghunath and Ashok, 2004). The relative risk for farmers is much larger (which they have to take in the form of selection of the crop to be produced, quality of the seed, weather, wastage and pest attacks for a period of 3-4 months) as compared to the rest of the players in the chain who exhaust their stocks within ten days.

It is observed that small farmers are unable to take the advantage of modern supply chains as they are unable to meet the demand and quality standards. Also, the scale of operation of small producers is not often sufficient to offset the cost of supermarket practices, such as delayed payments and high rates of rejection (Reardon, *et al*., 2002). The case of contract farming in Punjab in India also shows how small farmers are excluded from contract farming. A recent evaluation of vertical co-ordination in high value food commodities in India (that is, dairy, poultry and vegetables), however, shows a significant level of participation of small holders in contract farming (37 per cent in case of vegetables). Operating through producer associations and cooperatives, contracting firms, especially milk and vegetable firms, provide inputs, technical advice and credit. Also, there is no evidence of monopolistic buying because the prices paid are higher than the prevailing market prices (see Birthal, Joshi and Gulati, 2007).

An attempt is made here to examine some of the above issues and propositions on the basis of surveys conducted among the vegetable-growing farmers in different locations in India. The survey covered 1041 vegetable-growing farmers in selected (23) villages where organised marketing prevails to a smaller or larger extent, spread over five states, viz. Andhra Pradesh, Maharashtra, Punjab, Rajasthan and Uttarakhand. An overwhelming majority (91per cent) own the land they cultivate, only 9 per cent of all, and one-third of those with less than one acre of landholding, had leased in some land. About three-fourths of the farmers have landholdings of up to five acres each. Very few of them belong to the Scheduled Tribe (ST) (2 per cent) and Scheduled Caste (SC) (5 per cent) categories.

III. EXTENT, PRODUCTIVITY AND INCOME IMPACT OF VEGETABLE FARMING

The total population of 1041 farmer households was 6811 persons (3726 males and 3085 females). About 44 per cent of the persons were workers, with the percentage being 57 per cent among men and 25 per cent among women. Of the total, 41 percent workers were self-employed and 43 per cent (76 per cent among women workers) were unpaid family workers. Casual labourers constituted only a small proportion (7 per cent) of the workers in these households. An overwhelming majority (80 per cent) were engaged in farming and fishery: their proportion was the highest (91 per cent) in the areas under study in Punjab and the lowest (68 per cent) among those in Andhra Pradesh.

As the study purposively focused on vegetable-growing farmers, all those in the sample were obviously engaged in vegetable farming. The extent to which they devoted their land to vegetables, however, varied. The overall proportion of land devoted to vegetable production worked out to be around 23 per cent: it was higher at 31 per cent in the villages under study in Maharashtra and low at 5 per cent in Rajasthan. Cereals, on the other land, accounted for as high as 94 per cent in Rajasthan villages and only 37 per cent in Maharashtra, where sugarcane occupied as much land as vegetables.

Productivity, in terms of the value of the crop produce per acre varied very widely from Rs. 28,739 in Maharashtra to Rs. 6553 in Rajasthan. Among the crops, fruits yielded the highest revenue at Rs. 75,500, but the area under fruits was insignificant; it featured only in the case of Maharashtra at 1.5 per cent of the cropped area. The next highest yield was from sugarcane at Rs. 46,000, but it featured significantly only in the case of the Maharashtra villages. The average yield from vegetables was Rs. 28,000; but it varied very widely, being as high as about Rs. 32,000 in Maharashtra and as low as only Rs. 8581 in Rajasthan (Table 1). The per acre net income from vegetable growing, however, varied much less: it averaged to Rs. 8726, with the highest being Rs. 13,128 in Uttarakhand and the lowest Rs. 4948 in Rajasthan (Table 2). Maharashtra has very high productivity, but also has a similarly high cost at Rs. 23,900 per acre. The cost was the lowest at Rs. 4433 in Rajasthan, followed by Rs. 6814 in Uttarakhand. Punjab and Andhra Pradesh were in between both in terms of productivity and costs. Maharashtra with the highest productivity had the second lowest per acre net income. In terms of the income to cost ratio, Uttarakhand came at the top with the income being almost twice (193 per cent) that of the cost, and Maharashtra had the lowest at 33 per cent. Punjab and Rajasthan had an income-cost ratio of 93 per cent and Andhra Pradesh, a relatively low one at 57 per cent.

Table 1
Crop-wise Productivity per Acre (Rs.)

Crop	*Maharashtra*	*Rajasthan*	*Punjab*	*Uttarakhand*	*Andhra Pradesh*	*Total*
Vegetables	31,891	8581	23,859	19,942	18,918	28,030
Fruits	75,507	0	0	0	0	75,507
Major cereals	11,589	2426	13,359	5734	3956	8724
Sugarcane	46,138	0	35,071	0	38,950	46,046
Other cereals	6944	12426	14,352	2443	8335	10,256
Total	28,739	6553	15,516	7758	10,136	19,629

Vegetable growing seems to have made a significant dent on the average per acre income in Uttarakhand, Andhra Pradesh and Punjab with a relatively large part of the cropped area and higher net yield, as compared to other crops. In Maharashtra, in spite of a large percentage of the cropped area being under vegetables, the impact on the average income per acre is less due to a low net income. The Maharashtra villages have the highest net income per hectare, but that is mainly due to the income from sugarcane, which also accounts for a large share of the cropped area.

Vegetable-growing is a predominantly commercial activity: almost 99 per cent of the vegetables produced by the farming households under study are sold. The proportion is lower at 65 per cent in Rajasthan; also in Uttarakhand, about 11 per cent of the production is for self-consumption. In fact, agriculture as a whole appears to be highly commercialised in the areas

Table 2
Per Acre Net Income (Rs.)

Crop	*Maharashtra*	*Rajasthan*	*Punjab*	*Uttarakhand*	*Andhra Pradesh*	*Total*
Vegetables	7988	4148	11,477	13,128	6856	8726
Fruits	43,807	0	0	0	0	43,807
Major cereals	4519	388	8568	5066	-1308	4534
Sugarcane	21,776	0	29,871	0	22,550	21,831
Other cereals	-683	5697	9713	2405	3535	4875
Total	10,811	2606	9628	6092	3587	8481

selected for the study: 98 per cent of all production, of different crops, is sold in the market. This is true not only of vegetables, fruits and sugarcane but also for cereals as 72 per cent of the major cereals and 92 per cent of the other cereals are also marketed. The degree of comercialisation is lower in Uttarakhand and Rajasthan wherein only 64 per cent and 57 per cent, respectively, of the farm produce is sold in the market. Of the major cereals, the respective percentages in the two areas are 27 and 17. Of the other cereals, only 4 per cent is sold by Uttarakhand farmers though the average for all areas put together is 92 per cent.

IV. MARKETING OF VEGETABLES: ROLE OF DIFFERENT AGENCIES

To whom do the farmers sell their vegetables? There are different channels, agencies and arrangements in different areas. In Maharashtra, cooperatives constitute the major agency, in Punjab, a majority of the farmers sell in the wholesale market, in Rajasthan and Andhra Pradesh, the local market dominates among different agencies for sale, and the Uttarakhand farmers use several channels, none dominating. In every area, the local market is one of the agencies. Other agencies are used depending upon their availability, location and terms. The wholesale market is used in all areas except Rajasthan. In Maharashtra, the presence of relatively well-functioning cooperatives makes that agency a more popular mode of sale. It has some presence only in Uttarakhand, among the other states. In Rajasthan and Uttarakhand, the government agency plays a significant role. Private marketing companies seem to have made some inroads in all the areas. They account for 7.5 per cent of the total sale of vegetables in all the areas put together. In Punjab, they buy 24 per cent of the farmers' produce; their share is also noteworthy at 15 per cent in Andhra Pradesh and 13 per cent in Rajasthan, but rather small at 2 per cent in Maharashtra (Table 3).

Table 3
Pattern of Sale of Vegetables across Major Purchasing Agencies (%)

Major agency	Maharashtra	Punjab	Rajasthan	Uttarakhand	Andhra Pradesh	All
Wholesale market	24.65	58.04	0.00	20.27	29.42	28.43
Cooperative	42.74	–	–	12.79	–	33.01
Local market	18.58	3.97	62.78	3.06	49.13	18.35
Private company	2.33	23.75	12.78	13.25	15.63	7.45
Government .agency	–	–	24.43	29.68	–	1.36
NGO	–	–	–	20.50	–	0.26

Farmers thus use more than one channel for selling their produce, yet one or at the most two channels account for a major part of the sale in most areas. Thus, in Maharashtra, cooperatives and the wholesale market account for two-thirds of total sale. In Rajasthan, 63 per cent of the produce is sold in the local market alone, and another 24 per cent is sold to a government agency; in Punjab, the wholesale market (58 per cent), and a private marketing company together buy 82 per cent of the total produce; in Andhra Pradesh, the wholesale and local markets together account for 79 per cent of the sales. It is only in Uttarakhand that the sale is fairly distributed among four different agencies: government agency, NGO, the wholesale market, cooperatives and private companies, with each of them having between 13 to 30 per cent the share and together accounting for 96 per cent of the total produce.

V. PRICE RELATIVES: WHICH AGENCIES PAY BETTER?

Let us now see how these major channels of sale stand in relation to each other in terms of the prices they offer to farmers. This exercise has, of course, to be undertaken in respect of individual products. We have chosen the following major items for the purpose: tomato, cauliflower, cabbage,

capsicum, brinjal, potato, onion, beans and ladyfinger. Not all vegetables are grown in all areas, so the comparison in the case of each vegetable is confined to only the area wherein it is grown (see Annexure Table). In terms of conventional wisdom, one may expect some channels (for example, cooperatives or government agency) to offer better prices than others, but that does not necessarily seem to be the case for each product and each area.

Considering all the areas and all the crops put together, cooperatives and private companies turn out to be better paymasters than the rest, though the wholesale and local markets, which still continue to be major outlets for sale in most cases, are not really very poor payers. Government agencies seem to fare better than the rest where they are present, but their operations are very limited (Table 4). For individual crops, the pattern varies across areas. In the case of tomato, cooperatives offer the best prices while private companies offer the lowest price. Cooperatives offer among the best prices in the case of cauliflower, cabbage, brinjal and ladyfinger. Private companies offer the best prices for potato and beans, and reasonably high prices for cabbage and onions. NGOs, though operating in only one area, offer the highest prices for onion, and government agencies, again with limited operations, for cauliflower.

Table 4
Farmers' Response to Price Differences

State	*Agency with best price*	*% share of produce sold*
Maharashtra	1. Cooperatives	43 .0
	2. Private company	2.3
	3. Local market	19.0
	4. Wholesale market	2.3
Punjab	1. Private company	24.0
	2. Wholesale market	58.0
Andhra Pradesh	1. Private company	16.0
	2. Local market	29.0
	3. Wholesale market	49.0
Uttarakhand	1. Cooperatives	13.0
	2. Government agency	30.0
	3. Private company	13.0
	4. NGO	21.0
	5. Wholesale market	20.0
Rajasthan	1. Government agency	24.0
	2. Private company	13.0
	3. Local market	63.0

VI. DO FARMERS OPT FOR BETTER PAYING AGENCIES?

Area-wise, cooperatives followed by private companies score the best in offering prices for most crops to the farmers in the selected villages in Maharashtra. In Punjab, the local and wholesale market still offers best prices for some crops while private companies have now emerged as better payers for most of the crops. In Andhra Pradesh, for five out of six crops, the private companies offer the best prices, while in the case of one crop, a cooperative scores better. Uttarakhand offers a mixed bag, with cooperatives offering best prices in three crops, government agency, NGO and a private company in the case of one each, and the wholesale market in the case of one crop. In Rajasthan, where only two crops, viz. onion and ladyfinger are marketed in the surveyed villages, a private company pays the best for onion and the local market for ladyfinger.

Are the farmers in different areas selling to the agency that offers the best prices? We do not have details of the share of sale to each channel for different products, but a comparison of such shares in the total sales with the pattern of agencies offering the best prices can give

some idea in this regard. Let us attempt such a comparison in the case of various areas in each state. In Maharashtra, 43 per cent of the produce is sold to cooperatives which also offer the best prices in the case of most of the crops (Table 4). The wholesale market is the next largest buyer, accounting for 25 per cent of the sales; it offers the best prices only in the case of beans. The local market takes about 19 per cent of the produce, but does not offer the highest prices for any of the vegetables. Private companies pay prices comparable to those offered by cooperatives, in fact higher in some cases, but account for only 2.3 per cent of all the sales. In the case of Punjab, 58 per cent of the vegetables in the selected villages are sold in the wholesale market; the state also offers the highest prices in the case of brinjals and beans; a private company that pays the highest in the case of three other vegetables accounts for a sizeable 24 per cent of the sales. In the selected villages in Andhra Pradesh, the farmers still depend for the sale of almost half of the vegetables on the local market and for another 29 per cent on the wholesale market though neither of them offers the best prices for any of the products. Private companies, which offer the best prices for most products, on the other hand, account for only 16 per cent of the total sales.

As noted earlier, the Uttarakhand villages have the most diversified pattern of marketing agencies: with government agency, NGOs, private companies, the wholesale market and cooperatives, each having a significant share. Each of them also features as the best payer for different products. Yet the two features do not show a consistent relationship: cooperatives are reported to offer best prices in the case of the largest number of products, yet account for only 13 per cent of the sales; the government agency is the next best agency paying better prices, and accounts for the proportion of 30 per cent of the total sales; private companies pay the best only in the case of beans, but account for 13 per cent of the total sale of all the six marketed vegetables; and, NGOs pay the best prices in the case of only one product, and account for 21 per cent of all sales. The wholesale market, accounting for 20 per cent, pays the highest prices for potato only. In Rajasthan, data are available for only two vegetables that are marketed— onion and ladyfinger; for the former, the largest buyers are is a government agency and a private company, and for the latter, the local market offers the best prices: the three account for 24, 13 and 63 per cent of the total sales, respectively.

By and large, farmers seem to be opting for channels that offer better prices. Their choice, however, depends on the degree of development of different marketing channels. For example, in some areas while the farmers find some channels attractive these are not well developed enough to absorb all the produce of the farmers and so they have to turn to less attractive options for the sale of part of their produce, which often places them at a disadvantage in bargaining with the latter. This seems to be happening in some areas in respect of marketing companies. For example, in a village in Pune district in Maharashtra, it was found that most of the farmers want their produce to be sold to ITC. But the company is not yet ready for large-scale procurement. Marketing companies also resort to strict grading and quality control, resulting in rejection of a substantial part of the produce. In such cases, the farmers have to go back for selling their produce to the local traders, who take advantage of the situation and often act vengefully against the farmers who abandoned them in favour of the company. Fearing such consequences, farmers often decide to sell all their produce to local traders,, even though the latter offer lower prices than the companies. Complete dependence on one source for their sale, on the other hand, jeopardises the farmers' position insofar as they may not be able to benefit from competition among buyers. This fear was expressed by several farmers in the villages under study.

VII. COMPETITION: NARROWING PRICE DIFFERENCE AND ROLE OF NON-PRICE FACTORS—TWO CASE STUDIES

The emerging competition among different buying agencies and a decline in dependence on the local traders, seem to have, however, narrowed down the variations in prices offered by different agencies. A preliminary examination of the relative prices of different channels of sale reveals that such differences are very low, in the range of only 5 to 10 per cent. Cooperatives, on the whole, pay 5 per cent and a marketing company, 10 per cent higher than the merchant in the wholesale market. And the local trader also pays 2 per cent higher than the wholesale market! NGOs and government agencies seem to pay better, at 8 and 16 per cent higher than the others, respectively, but their operations are limited. These figures relate to averages for all the products for all areas; but detailed figures for each of the different crops for different areas also tell the same story (see Annexure Table). This implies that the farmers have benefited from the diversified pattern of sales, even if they still continue to sell a major part of their produce to the local traders and agents.

If the prices paid by different agencies are no longer very different from each other, the decision to sell to one agency or the other would depend on other conditions of sale, and the services and inputs that the buying agency might offer. The conditions of sale may include the commitment to buy whole or part of the produce, quality requirements, mode and time of payment, place of sale, etc. The inputs and services may include the supply of technology, fertiliser, chemicals, credit, storage facility, market information, etc. These may be provided at an extra cost or as part of the procurement package, or even independent of the purchase agreement. The following two cases illustrate how these arrangements operate and influence the decision of the farmer to select a particular agency to sell his produce to.

Case 1 relates to village Nandini in the Kolhapur district of Maharashtra. It is primarily a sugarcane-producing village, but about 34 per cent of its area under cultivation is devoted to vegetables. Farmers used to sell their entire vegetable produce to local and outside traders and their agents, until a cooperative, Nandini Fruit and Vegetable Producers' Cooperative Society Ltd., was formed. Subsequently, another society for processing and marketing was established, which constructed a storage godown and finally, a cooperative bank was established to cater to the credit needs of the farmers.

The cooperative is a membership-based organisation and its membership is open to all farmers within the village who are growing fruits and vegetables. It operates more as an agency rather than as a buyer and seller. The society has established direct marketing contacts with the major markets in the country through a network of it's the cooperative's agents operating in these markets. These agents provide information to the cooperative about the prices and place their orders on a day-to-day basis. Consignments of vegetable produce are sent accordingly to various markets. The cooperative works as a collection centre of the farmers' produce as it maintains a record of the quantity of produce of each farmer that is dispatched to various markets. The cooperative has also made arrangements (not a contract) for the sale of vegetables to export agents. These export agents offer better prices to the farmers but insist on high quality standards, which many farmers fail to comply with. As a result, a very few farmers sell their produce to export agents and the cooperative has thus lost interest in the export of vegetables. It also contacts and brings vegetable merchants to the village and helps farmers in their negotiations. It guarantees payment to the farmers and also arranges loading and unloading as well as transportation of the produce. For all this, it charges commission, brokerage and the actual cost. Prices are disclosed two to three days after lifting of the produce, and realisation of the payment takes another few days, with the final payment being made to farmers in about a week. The society deducts its commission, brokerage

and costs before making the final payment. Farmers are free to sell in the local market, but the prices there are lower than what the society arranges, and therefore, the farmers resort to this mode of sale only when they have an immediate need for cash. Some farmers also sell in the wholesale market through agents, in which case the price is negotiated on the spot, and is lower than that realised through the cooperative.

The storage facility that the society has constructed helps the farmer withhold sale when the prices are low. Linkages with processing units have also been facilitated. For credit, farmers are largely dependent on the cooperative society. Half of the credit is advanced in the form of inputs such as fertilisers, pesticides, seeds and micro-nutrients. The farmers' produce acts as a collateral and loan amount is deducted from the sales realisation. The interest rate charged ranges between 14 and 17 per cent. The cooperative also organises training for its members by inviting farm experts and agricultural extension workers, both from the government and private organisations. It also arranges periodic extension training visits of selected farmers to various other parts of the country.

The farmers are generally satisfied with the marketing arrangements and other services provided by the cooperative. Although the society charges for its services, it still seems to bring the farmers a higher price realisation than the local market and the wholesale market, as sales in these two markets are reported to be limited and occasional. Yet, ITC, a marketing company, was reported to have initiated the process of starting operations in the village some months before the study. What has ITC to offer to wean the farmers away from the cooperative? The intention of the company is to link the farmers in a supply chain. To begin with, it has started training and extension work for improved practices and better quality production. It appears that ITC may not be able to replace the cooperative, but should be able to become a buyer of a differentiated quality product with a niche market!

Case 2 relates to village Kalawadi in the Pune district of Maharashtra. Farmers here produce and sell vegetables of different varieties through three different channels: (i) *mandi*/local markets/ merchants, (ii) agents, and (iii) ITC. The first mode dominates as the farmers take their produce to the three nearby *mandi*s for sale. Prices do not vary among different merchants in these *mandi*s. They seem to have formed a cartel to keep the prices low. The farmers are also often cheated in weighting of the produce. Farmers are also offered low prices on the pretext of poor quality of their produce. Sale through agents/brokers, on the other hand, seems to offer a somewhat better deal. These agents are mostly from among the farming households themselves; they collect vegetables from groups of farmers, and take them to the *mandi*s and outside markets. As they are accompanied by the farmers' representative, they are not in a position to mislead the farmers on prices. So far, only a limited amount of vegetables are marketed through ITC. ITC procures vegetables from farm gates or pre-determined spots that are announced two to three days in advance. The company buys only as much as it requires on the particular day. ITC prices are similar to those prevailing in the *mandi* and remain stable for a few days whereas the *mandi* price changes on a daily basis. By selling to ITC, the farmers do not have to incur transportation costs or waste time in travelling to the *mandi*, while they are also assured of a stable price for a few days. Also, they find weighting and grading by ITC more transparent. Therefore, they prefer to sell to ITC, in spite of the fact that the company makes the payment only after three to four days. At the moment, only a small number of farmers are selling to ITC and they also do not sell all their produce to it. They want to sell more to ITC, but it is not yet ready for larger procurement.

VIII. CONCLUSION: NEED FOR COLLECTIVE ACTION BY FARMERS

Indian agriculture is witnessing a growing diversification from food crops to the production of horticultural crops like vegetable and fruits. The market for agricultural produce including

vegetables is highly fragmented and dominated by middlemen, resulting in low realisation of prices for the primary producers in a supply chain. The modern supply chains in vegetable produce are generally shorter and benefit the producers in terms of better price realisation. Farmers generally opt for market channels offering better prices and input services. It is found that producers' cooperatives and private companies offer relatively better prices to farmers. However, the procurement by such channels is limited and farmers have to rely on different channels. This underscores the need for improving the modern markets for better price realisation to farmers as well as consumers.

There is considerable evidence from the present as well as other studies (see for example, ICRIER, 2008) that the new marketing channels such as cooperatives and marketing companies provide better terms to the farmers. And marketing companies seem to score better among them. Two concerns are raised in connection with the emergence of companies as the major agencies to market farm produce. One, of course, relates to the likely loss of livelihoods and employment in case of the small traders at the procurement as well as the distribution ends once the large companies procure as well as sell the produce. This issue has not been adequately addressed and needs to be studied, particularly in view of the evidence in some studies that organised procurement and retail by corporate agencies benefits both the farmers and the consumers. The second issue relates to the terms that the farmers may be able to negotiate with the large corporate entities, once they become primarily dependent on them for the sale of their produce. In this context, the role of cooperatives, not simply as buyers and sellers as such, but as an agency of farmers, as seen in the case of the Nandini village described earlier in this paper, can become very important.

As of now, the supply/value chain in respect of vegetable marketing seems to be rather short and mostly confined to the sale of fresh vegetables in the domestic market. There is evidence including some thrown up in the present study that linkages with processing units and with the export market could result in more advantages to the farmers. The quality of the produce seems to be the most serious constraint in exporting the produce or even in securing assured sale and remuneration prices from retail companies selling in the domestic market. Companies themselves are often engaged in providing the necessary conditions, inputs, technology and training to ensure quality improvement. But that also further increases the dependence of farmers on these companies. Here again, cooperatives and producers' collective organisations can play an important role in organising training and technology to their farmer members and also in acting as a buffer in the exchange relations between the farmers and marketing companies.

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Annexure Tables

Agency-wise Prices and Relative Price Difference for Selected Crops

Table 1
Tomato

Agency	*(Rs, per quintal)*				*Relative difference*			
	Maharashtra	*Punjab*	*Uttarakhand*	*Andhra Pradesh*	*Maharashtra*	*Punjab*	*Uttarakhand*	*Andhra Pradesh*
Wholesale market	520	530	529	366	100.0	100.0	100.0	100.0
Local market	517	525	512	400	99.4	99.1	96.7	109.2
Villagers (directly)	515	–	533	–	99.0	–	100.7	–
Cooperative	544	–	610	–	104.6	–	115.2	–
Government agencies	0	550	550	–	0.0	103.8	103.9	–
Sold to merchant against debt/advance	517	530	530	300	99.4	100.0	100.1	82.0
Pre-arranged contract	0	–	–	–	0.0	–	–	–
NGOs	0	–	540	–	0.0	–	102.0	–
Private company	560	545	–	428	107.7	102.8	0.0	116.8
Others	473	450	–	339	91.0	84.9		92.6

Table 2
Cauliflower

	(Rs, per quintal)			*Relative difference*		
Agency	*Maharashtra*	*Punjab*	*Uttarakhand*	*Maharashtra*	*Punjab*	*Uttarakhand*
Wholesale market	553	436	900	100.0	100.0	100.0
Local market	572	550	–	103.4	126.1	
Villagers (directly)	–	–	–			
Cooperative	653	–	1030	118.2		114.4
Government agencies	–	–	950			105.6
Sold to merchant against debt/advance	574	–	490	103.8		54.4
Pre-arranged contract		–	–	0.0		
NGOs	–	–	700			77.8
Private company	650	497	–	117.6	114.0	
Others	600	–	–	108.5		

Table 3
Cabbage

	(Rs, per quintal)			*Relative difference*		
Agency	*Maharashtra*	*Uttarakhand*	*Andhra Pradesh*	*Maharashtra*	*Uttarakhand*	*Andhra Pradesh*
Wholesale market	450	–	467	100.0		100.0
Local market	560	–	450	124.4		96.4
Villagers (directly)	–	–	–			
Cooperative	572	425	–	127.1	100.0	
Government agencies	–	560	–		131.8	
Sold to merchant against debt/advance	400	–	–	88.9		
Pre-arranged contract	–	–	–			
NGOs	–	400			94.1	0.0
Private company	568	–	520	126.2		111.3
Others	500	–	–	111.1		

Table 4
Capsicum

	(Rs, per quintal)			*Relative difference*		
Agency	*Maharashtra*	*Punjab*	*Uttarakhand*	*Maharashtra*	*Punjab*	*Uttarakhand*
Wholesale market	1000	636	1000	100.0	100.0	100.0
Local market	950	–	800	95.0		80.0
Villagers (directly)	–	–	–			
Cooperative	827	–	821	82.7		82.1
Government agencies	–	–	1050			105.0
Sold to merchant against debt/advance	–	–	–			
Pre-arranged contract	–	–	–			
NGOs	–		1025		0.0	102.5
Private company	1100	665	–	110.0	104.6	
Others	–	–	–			

Table 5
Brinjal

Agency	(Rs, per quintal)				Relative difference			
	Maha-rashtra	*Punjab*	*Uttara-khand*	*Andhra Pradesh*	*Maha-rashtra*	*Punjab*	*Uttara-khand*	*Andhra Pradesh*
Wholesale market	733	456	–	518	100.0	100.0		100.0
Local market	610	–	–	478	83.2			92.3
Villagers (directly)	690	–	–	–	94.1			
Cooperative	773	–	600	–	105.4			
Government agencies	–	400	600	–		87.6	100.0	
Sold to merchant against debt/advance	–	–	–	475				91.7
Pre-arranged contract		–	–	–	0.0			
NGOs	–	–	–	–				
Private company	764	442	–	523	104.2	96.8		101.0
Others		–	–	–	0.0			

Table 6
Potato

Agency	(Rs, per quintal)		Relative difference	
	Maharashtra	*Uttarakhand*	*Maharashtra*	*Uttarakhand*
Wholesale market	591	700	100.0	100.0
Local market	528	650	89.3	92.9
Villagers (directly)	–	650		92.9
Cooperative	–	–		
Government agencies	–	680		97.1
Sold to merchant against debt/advance	546	–	92.5	
Pre-arranged contract	600	–	101.6	
NGOs	–	517		73.8
Private company	692	–	117.1	
Others	400	–	67.7	

Table 7
Onion

Agency	(Rs, per quintal)			Relative difference		
	Maharashtra	*Rajasthan*	*Punjab*	*Maharashtra*	*Rajasthan*	*Punjab*
Wholesale market	346	0	635	100.0		100.0
Local market	386	610	556	111.7	100.0	87.6
Villagers (directly)	350	–	–	101.3		
Cooperative	–	–	–			
Government agencies	–	–	–			
Sold to merchant against debt/advance	337	–	–	97.6		
Pre-arranged contract	–	–	–			
NGOs	–		–			
Private company	470	650	668	136.0	106.6	105.2
Others	350	712.5	511	101.3	116.8	80.4

Table 8
French/Soya Beans

Agency	*(Rs, per quintal)*				*Relative Difference*			
	Maha-rashtra	*Punjab*	*Uttara-khand*	*Andhra Pradesh*	*Maha-rashtra*	*Punjab*	*Uttara-khand*	*Andhra Pradesh*
Wholesale market	1091	1056	2175	925	100.0	100.0	100.0	100.0
Local market	1041	–	–	1029	95.4			111.3
Villagers (directly)		–	–	–	0.0			
Cooperative	1100	–	900	–	100.8		41.4	
Government agencies	–	–	–	–				
Sold to merchant against debt/advance	1040	1000	–	–	95.3	94.7		
Pre-arranged contract		–	–	–	0.0			
NGOs	–	–	855	–			39.3	
Private company	1075	1000	2200	–	98.5	94.7	101.1	
Others	1000	–	–	–	91.7			

Table 9
Ladyfinger

Agency	*(Rs, per quintal)*			*Relative difference*		
	Rajasthan	*Punjab*	*Andhra Pradesh*	*Rajasthan*	*Punjab*	*Andhra Pradesh*
Wholesale market	0	779	–		100.0	
Local market	433	–	875	100.0		100.0
Villagers (directly)	–	–	–			
Cooperative	–	–	–			
Government agencies	200	769	–	46.2		
Sold to merchant against debt/advance	–	–	–			
Pre-arranged contract	–	–	–			
NGOs	–	–	–			
Private company	200	857	967	46.2	110.0	110.5
Others	–	833	–		107.0	