

Changing Dynamics of Secondhand Tractor Markets in Punjab: An Institutional Innovation Perspective

Sukhpal Singh¹

ABSTRACT

Agricultural inputs and services are crucial for reducing production costs and improving efficiency in Indian agriculture, which is characterized by smallholders. However, since many farm inputs, especially farm machinery and equipment, are costly, they must be made more affordable for such small producers. Though there has been a recent spread of custom hiring centres, farmers still prefer individual ownership of such machines and equipment for various reasons. Here, the role of markets in facilitating such productive assets comes in, and secondhand tractor markets are one such platform. These markets, which can be treated as institutional innovation, result from the locally felt need as they are neither promoted by any stakeholder nor regulated by the state. This paper examines the organization, functioning, and dynamics of secondhand tractor markets in Punjab with the help of a primary interview survey of major stakeholders, i.e., secondhand tractor buying and selling farmers and the commission agents facilitating transactions between them. It tries to understand the nature and dynamics of this market in terms of participants, their motive for participation, and the implications thereof. It profiles the buyer and seller farmers and agents facilitating the transactions and understanding the exact nature of transactions. It examines the effectiveness of these markets for farmers in accessing tractors and other farm machinery, as well as challenges, if any, and explores possible regulatory or enabling policy provisions to promote such institutional innovations in the state and the country.

Keywords: Secondhand tractor markets, institutional innovation, agricultural mechanization, farm machinery

JEL codes: D23, Q12, Q13, O33, R51

1

INTRODUCTION

Agricultural mechanization is a major goal of various public policies in the sector in India at the Union and state government levels. Agricultural mechanization reduces drudgery, improves efficiency, and reduces the cost of production. Though some activities like seedbed preparation are mechanized across crops, others like harvesting, sowing/planting/ transplanting are still not adequately mechanized in most crops (Singh, 2018). One of the reasons for this is that farm machinery and equipment are a high investment farm input. They need to be made more affordable for small producers. There has been a recent spread of custom hiring centres (CHCs), but they are not effectively meeting the demand (Singh, 2017a). Farmers still prefer individual ownership of such machines and equipment for various reasons.

From the farmer's perspective, availability, quality, and price are major issues in the farm machinery sector. There are issues of lack of availability of major farm machines and equipment, especially for small farmers, due to the lack of affordability to buy such large machines at the individual farmer level. This hits the farm production subsector hard as poor access and economics compromise the entire agribusiness sector, especially farmers and output users whose costs rise. This is also important from

¹Centre for Management in Agriculture (CMA), IIM Ahmedabad – 380015.

a farm mechanization perspective as Green Revolution regions in India, especially Punjab, suffer from over-tractorization but under-mechanization of farm operations (Singh, 2018).

It is here that the role of markets in facilitating transactions in such productive assets comes in, and secondhand tractor markets are one such platform. These markets, which can be treated as institutional innovation, result from the locally felt need as they are neither promoted by any stakeholder nor regulated by the state.

The role of institutional innovations, which refer to change in the ways of doing things that involve rules, norms, organizations, and organizing mechanisms, has been recognized, and they are considered as crucial for sustainable growth and development as technological innovations (Gatzweiler, 2016). In the agricultural sector, these innovations could be in the form of new institutional mechanisms for providing farm inputs and services, new platforms for marketing farm produce, or linking farmers with markets or new credit institutions.

Innovation refers to the new way of doing an activity. In fact, “Innovation is the implementation (use) of something new or improved (whether technology or otherwise) in products (goods or services), processes, marketing or organizational methods. In other words, it means applying ideas, knowledge, or practices that are new to a particular context to create positive change that will provide a way to meet needs, take on challenges, or seize opportunities. Such novelties and useful changes could be substantial (a large change or improvement) or cumulative (small changes that together produce a significant improvement)” (IICA, 2014, p.3). A novel idea implemented in a particular way can be considered an innovation if it is new in the context, even though it may not be new to the world (IICA, 2014, p.3; Raffaelli and Glynn, 2014). There have been studies on such institutional innovations in India, mostly franchising innovation (Singh, 2016; Singh, 2018; Singh, 2020) or food production and its marketing (Singh, 2017). However, regarding their role and issues, secondhand tractor markets have not been adequately examined. There have been hardly any studies of the rationale, organisation, and performance of these markets and implications for tractor and farm machinery companies and farmers except one research article (Singh and Rangi, 2008), other than one by the author 25 years ago (Singh, 1999) and a few newspaper articles even though this market emerged some 30 years ago (Mahaprashasta, 2010).

Therefore, the emergence and growth of secondhand tractor markets in Punjab since the mid-1990s is an interesting phenomenon and is both a sign of crisis in the farm sector and an institutional innovation to tackle the problem at the local level.

There are large (4) and small (8) secondhand tractor markets in Punjab with a large number of dealers (Singh and Rangi, 2008), which take place weekly on a fixed day, and hundreds or thousands of tractors are brought for sale and purchase every time. The market comes across as a local institutional innovation that dealt with the felt needs of local farmers. These markets are facilitated by commission agents who specialise in this business. The functioning and performance of these markets need to

be assessed in terms of farmer relevance and benefit as an institution that originated locally and continues to be vibrant without any policy or regulation.

This paper tries to understand the nature and dynamics of secondhand tractor markets regarding participants, their motive for participation, and the implications. It profiles the buyer and seller farmers and agents facilitating the transactions besides understanding the exact nature of transactions. It was also thought fit to examine the nature and effectiveness of these markets for farmers in accessing tractors and other farm machinery, as well as challenges, if any. Besides, the study also explores possible regulatory or enabling policy provisions to promote such institutional innovations in the state and the country.

The study is based on primary data collected from the field, i.e., secondhand tractor markets in Punjab. The state has four major markets (Singh and Rangi, 2008): Moga, Talwandi Sabo, Barnala, and Kotkapura, the first being the largest and some small markets. In the second largest market (Talwandi) and another small market (Barnala), tractor buyers and tractor sellers (all farmers) and those facilitating it (agents) were interviewed, with a structured schedule in 2018. In Talwandi Sabo and Barnala, 50 buyers and 50 sellers were interviewed, besides ten mandi operators (agents) each across two markets, totaling 100 farmers and 20 agents.

Section II profiles the agents and their role in the secondhand tractor market, farmer buyers and sellers of tractors across two mandis. Section III analyses the dynamics of transactions in terms of source of credit, commission charged, and other terms and conditions and reasons for buying and selling tractors and problems faced, if any. Section IV concludes the paper with major findings and policy and practice issues to make these markets perform their role better.

II

TRACTOR MARKET AGENTS AND FARMER BUYERS AND SELLERS

2.1 Profile and Role of Tractor Market Agents

The average operating years for an agent was 19 years across two *mandis* (tractor markets), but it was higher for the smaller (Barnala) market (21 years) than Talwandi Sabo (17 years) as the former market declined more recently but agents were still carrying on the business. Some agents have been operating for more than 20 years in both markets.

All the agents were partnership entities, with the average number of partners being five, though Talwandi had a higher number (6.5) than the Barnala market (5). Many were also landowners, with the average land holding being five acres, though Barnala had a smaller average of four acres compared with Talwandi (6 acres). The average number of tubewells/wells was only one but two for Barnala mandi and only one for Talwandi market.

Each agent, on average, dealt with 12 farmers, with 13 in Barnala and seven in Talwandi. Agents mostly bought secondhand tractors from villages, junk markets, other mandis, or multiple sources. The trailer, reaper, and laser land levellers were other equipment transacted in these markets.

The agents also bought and resold tractors, not just facilitating sales and purchases. The average number of tractors purchased and resold by an agent was three and higher for Talwandi Sabo (5) than for those in Barnala market (3). They also had a stock of old tractors ranging from 25 in Talwandi to as many as 48 in Barnala, with an average of 36. They charged 1 per cent of the transaction value or Rs.100 commission for each transaction from the buyer and the seller, with some charging even 2 per cent, but a fixed fee of Rs. 1000 was more common. The ratio of new to old tractors handled was 1:2, going up to 3:7 also, with the lowest being 0:1. They reported cases of cheating in Talwandi Sabo in the majority of cases, and some reported that sometimes second hand tractors were sold at the same price as the purchase price of these tractors. They found that the evolution of custom hiring centres (CHCs) had led to lower sales of secondhand tractors in most cases/ Majority also reported stagnation or decline of the market in secondhand tractors for various reasons like demonetisation, poor crops, and consequent lower rental rates. This has also led to the decline or disappearance of small markets.

The most common brands that came for sale in these markets were Swaraj, Sonalika, John Deere, and Eicher, or a combination of these was reported by some agents. Swaraj was still supreme, as one popular statement about it was: *Swaraj de tan had vi vickde ne!* (Even bones of Swaraj are in demand). Some brand dealers also displayed their new tractor models in these markets. Some other products like tyres and new equipment were also displayed in these markets.

The agents had to bear some cost of setting up temporary infrastructure or paying rent for using the infrastructure at the market, which was Rs. 1200 per week. Some miscellaneous costs were also incurred while carrying out the operations at the tractor market. The cost incurred in carrying out the transactions was reported to be higher for Talwandi Sabo market (Rs. 1413) than in Barnala market (Rs. 1000). Further, the average working cost was Rs. 825 per agent/mandi day and ranged from Rs. 716 in Barnala to Rs. 1150 in Talwandi Sabo. Thus, agents operating in the Talwandi Sabo market had to bear the higher cost (fixed + operating) than those in Barnala market. The secondhand tractor markets also charged a fee for the member registration, which was reported only in Talwandi Sabo and was Rs. 800. Some in Talwandi Sabo had sub-agents, and some operated in the junk market. Some also facilitated the transfer of ownership and obtaining a no-objection certificate.

Some buying farmers came with the mechanics to properly evaluate and select the tractor. The agents also reported that farmers and traders from neighbouring states of Haryana, Rajasthan, and Uttar Pradesh came to these markets to buy secondhand tractors.

2.2. Profile of Farmer Buyers and Sellers

The education profile of the farmers showed that most of them were either high (34 per cent) or middle school literate (28 per cent), followed by higher secondary level education (20 per cent). Another 13 per cent were illiterate, only two had a graduate degree, and one had a master's degree. Most of them owned one (62 per cent) or two (22 per cent) tubewells, with only 11 per cent owning no tubewells. Most tubewells were electric, including some shared, while a considerable proportion also had diesel engine based tubewells, some of which were shared.

None of the buying farmers reported leased out any land to other farmers. Large farmers had the highest owned land, leased in and operational land holding. The large category buyers had the highest average leased in land, followed by the marginal and the medium farmers, respectively. Farmers have been leasing in land to have economies of scale in agricultural operations (Table 1).

In the case of sellers, the large farmers have been leasing out the land. No other sellers reported to have a major share of land leased out to other farmers. Sellers of all the categories were leasing in the land to expand the farm operations. The large and medium farmers had taken in the highest amount of land on lease (5 acre each), followed by semi-medium (3 acres), small (2.95), and marginal farmers (2.9 acres) (Table 1).

At an aggregate level, large farmers were the only ones leasing out land. On the other hand, all categories of farmers were leasing in the land to scale up the farm operations (Table 1). This mainly shows that secondhand tractor markets make small farmers afford mechanisation, which also helps them expand area with leased in land.

TABLE 1: CATEGORY WISE DISTRIBUTION OF SECONDHAND TRACTOR MARKET PARTICIPATING FARMERS BY LAND OWNERSHIP, LEASING OUT AND OPERATIONAL LAND (AVERAGE IN ACRES)

Category	Owned Land			Leased in land			Leased out land			Operated land		
	Buyer (2)	Seller (3)	All (4)	Buyer (5)	Seller (6)	All (7)	Buyer (8)	Seller (9)	All (10)	Buyer (11)	Seller (12)	All (13)
Marginal	1.55	1.40	1.45	5.25	2.91	3.76	0.00	0.00	0.00	6.80	4.34	5.24
Small	3.69	3.23	3.42	1.50	2.95	2.34	0.00	0.09	0.05	5.19	6.08	5.71
Semi-Med	5.96	6.70	6.39	2.69	3.00	2.87	0.00	0.36	0.21	8.64	9.34	9.05
Med	13.37	14.45	13.75	4.52	5.09	4.72	0.00	0.00	0.00	17.89	19.55	18.48
Large	28.00	29.50	28.86	7.67	5.00	6.14	0.00	7.00	4.00	35.67	27.50	31.00
All	9.46	8.54	8.98	3.71	3.54	3.62	0.00	0.67	0.35	13.17	11.41	12.26

Source: Farmer survey.

All the buyers participating in the secondhand tractor had irrigated land, with just one semi-medium farmer having a small area under a micro-irrigation system (MIS). The seller farmers also had most of the area under irrigation, with only one medium farmer having one acre under micro irrigation. The farmers participating in the secondhand tractor market as buyers and sellers had most of the area under irrigation with only a limited area in case of the mostly medium category being under micro irrigation with overall MIS area being only 2 per cent of the total irrigated area.

Mostly, it was marginal farmers who had unirrigated area, not even one per cent of the total cultivated area.

The buying farmers had almost all of their operated acres in kharif and rabi seasons (11.5 and 12.5 acres, respectively) under paddy or cotton and wheat, respectively, with a very small area allocated to fodder crops (average of one acre per farmer). On the other hand, selling farmers had much lower area cultivated in both seasons than their buying counterparts (9 acres in kharif and 10 acres in rabi and that also showed that they sold tractors as many of them were not finding it viable or were leaving/wanted to quit farming altogether. Overall, there was no major departure across buyers and sellers in the area under the rabi or kharif seasons.

Credit taken by the buyers was at the interest rate of 18 per cent per annum and for an average period of about two years. The medium farmer buyers had the largest amount of credit obtained for financing their agricultural activity. These farmer buyers also leased in large amounts of land for crop cultivation. It was followed by semi-medium and marginal buyer farmers. The seller farmers' interest rate was somewhat lower but had a wide range (8-18 per cent per annum). In terms of the amount of credit, the largest loan was borrowed by the large category of farmers, eventually leading them to sell their tractors for loan repayments. The average time period taken for the loan repayment by sellers was one year. Across buyers and sellers, there were not many differences in their credit profile. However, the interest rate decreased with an increase in the land holdings of the farmers. It was also observed that the amount of credit increased with the land owned by the farmers, except for the small farmers. Table 2 gives a comparative profile of buyer and seller farmers across two mandis.

TABLE 2. MANDI WISE COMPARISON OF TRACTOR MANDI FARMER PROFILES

Parameter (all averages in acres) (1)	Barnala (2)	Talwandi (3)	Average (4)
Owned land	9.71	8.31	8.98
Leased in land	3.47	3.95	3.72
Leased out land	0.71	0.09	0.39
Total operated land	12.47	12.17	12.32
Irrigated land	12.26	12.02	12.13
Unirrigated land	0.22	0.15	0.18
Micro irrigated	0.37	0.14	0.25
Paddy area	11.65	7.67	9.59
Cotton area	0.03	3.09	1.62
Others-Kharif	0.00	0.35	0.18
Fodder-Kharif	0.65	0.93	0.80
Wheat area	11.59	11.06	11.31
Mustard area	0.00	0.25	0.13
Fodder-Rabi	0.75	0.73	0.74
Credit Amount (Rs. Lakh)	2.6	1.33	1.59
Credit Period (Years)	2.25	1.65	1.77
Credit Interest Rate (per year)	17.25	17.35	17.32

Source: Farmer survey.

FARMERS'S MANDI EXPERIENCE AND BEHAVIOUR

The buyers were transacting in the secondhand tractor market for two years, less than the period they had been selling their tractors (3.5 years). However, the larger ones were more regular sellers in these markets (Table 3). In the case of the sellers interviewed, the farmers had been selling and buying secondhand tractors for almost six years. The medium and large sellers initially entered the market to sell their used tractors and eventually started purchasing these secondhand tractors. Overall, the average number of years for which the farmers were performing the role of seller (5 years) was higher than that of the buyers (4 years). This signifies that the farmers initially entered the market to sell their secondhand tractors and then purchased used tractors based on their specific requirements and uses. Farmers knew about various mandis in Punjab, with the largest percentage (21 per cent) knowing Talwandi Sabo, 20 per cent Budhlada, 18 per cent Barnala, 17 per cent Moga, and 13 per cent Malout, with only 5 per cent each knowing smaller mandis like Maur or Jhunir. They preferred larger mandis (61 per cent), those closer to their village (26 per cent), or where there were more agents (13 per cent).

TABLE 3: CATEGORY WISE FARMERS AVERAGE YEARS AS BUYERS AND SELLERS IN MANDI

Category	Buyer		Seller		All	
	As Buyer	As Seller	As Buyer	As Seller	As Buyer	As Seller
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Marginal	2.00	0	0	3.0	2.0	3.0
Small	1.33	0	5.5	6.75	3.0	6.75
Semi-Med	2.67	5.00	7.8	5.33	5.88	5.3
Medium	2.80	0	2.0	6.5	2.67	6.5
Large	0	2.00	3.0	4.0	3.0	3.33
All	2.33	3.50	6.11	5.37	3.95	5.19

Source: Farmer survey

The major source of information about the secondhand tractor market were other farmers (51 per cent), relatives (33 per cent), and sometimes friends. However, except for large farmers, almost all farmers in all categories relied on neighbours and relatives for this information (Table 4).

TABLE 4-CATEGORY-WISE SOURCE OF INFORMATION ABOUT SECOND HAND TRACTOR MARKETS
(CATEGORY-WISE FREQUENCY AND SOURCE WISE % OF TOTAL)

Farmers	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
	Friends			Local Market			Media			Neighboring Farmers			Relatives			Grand total					
Marginal	0*	0**	0***	0****	0	0	0	0	0	0	0	0	7	6.6	63.6	13	4	3.8	36.4	11.4	11
Small	2	1.9	11.1	28.6	1	0.9	56	25	0	0	0	0	9	8.5	50	16.7	6	5.6	33.3	17.1	18
Semi-Medium	2	1.9	5.5	28.6	1	0.9	2.8	25	0	0	0	0	21	19.8	38.3	38.9	12	11.3	33.3	34.3	36
Medium	2	1.9	6.9	28.6	1	0.9	3.4	25	0	0	0	0	15	14.1	51.7	27.8	11	10.4	37.9	31.4	29
Large	1	0.9	14.3	14.3	1	0.9	14.3	25	1	0.9	14.3	100	2	1.9	28.6	3.7	2	1.9	28.6	5.7	7
Grand Total	7	6.6	6.9	100	4	3.8	3.9	100	1	0.9	1	100	54	50.9	33.5	100	35	33	34.6	100	101

Source: Farmer survey

Note: * denotes number of farmers in each category for that source; ** denotes %age of source farmers in total number of farmers surveyed;

*** denotes %age of farmers in each category to that total in the source; **** denotes farmer %age in total farmers in this source

3.1 Dynamics of Mandi Transactions

Most of the farmers who sold tractors in the secondhand markets were semi-medium (40 per cent), medium (23 per cent), or small (26 per cent), with large farmers being only less than 2 per cent of such sellers. For buying tractors from such mandis, these same categories dominated the transactions, with only 16 per cent of all buyers being large farmers and some marginal farmers (9 per cent of all) also buying such tractors. This shows that this market caters to those who can't afford a new tractor, which plays a valuable role in these markets. There was a significant purchase and sale of other farm equipment wherein mostly medium, semi-medium, and marginal farmers (27 per cent each) sold such equipment. These categories also bought such equipment without large farmers buying it, and only 9 per cent of such sellers were large farmers (Table 5).

Sixty-nine per cent of farmers reported that advance payment and total payment are received within a week altogether, and another 31 per cent reported advance amount first and then final payment in one go. The mode of payment mainly was cash (81 per cent) and cash and cheque in other cases. The agent was the guarantor for payment for the tractor sold by the buyer in 98 per cent of cases and another farmer in only 2 per cent. The written affidavit mandated payment either in a week (52 per cent), a month (22 per cent), or on the spot (26 per cent). The control of sold tractor was given on the spot (81 per cent) or after full payment (19 per cent).

TABLE 5: PROFILE OF FARMERS BUYING AND SELLING TRACTORS AND EQUIPMENT IN TRACTOR MANDI

Parameter	TABLE 5: PROFILE OF FARMERS BUYING AND SELLING TRACTORS AND EQUIPMENT IN TRACTOR MANDI																
>	Tractors sold				Equipments sold				Tractors bought				Equipments bought				
Farmers (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	
Marginal	11	4.1	40.7	9.4	3	1.1	11.1	27.3	11	4.1	40.7	8.5	2	0.0	0.07	15.38	
Small	30	11.1	46.2	25.6	1	0.4	1.5	9.1	32	11.9	49.2	24.8	2	0.7	3.1	15.4	
Semi-Medium	47	17.4	48.5	40.2	3	1.1	3.1	27.3	40	14.8	41.2	31.0	7	2.6	7.2	53.9	
Medium	27	10	47.4	23.1	3	1.1	5.3	27.3	25	9.3	43.9	19.4	2	0.7	3.5	15.4	
Large	2	0.7	8.3	1.7	1	0.4	4.2	9.1	21	7.8	87.5	16.3	0	0.0	0.0	0.0	
Grand Total	117	43.3	43.3	100	11	4.1	4.1	100	129	47.8	47.8	100	13	4.8	4.8	100	

Note: As in above table; Source: Farmer survey

3.11 Sources of Credit and Collateral

Arthiya (commission agent in grain markets) locks in produce, and the credit market merged as the single largest source of credit for tractor purchases, with 50 per cent of farmers reporting it as the source, followed by their own funds (35 per cent) and others as banks (7 per cent) and relative and private banks (1 per cent each). More marginal and small farmers tended to rely on *Arthiyas* for such loans (Table 6). The *arthiya* took the crop produce as the collateral to recover the loans, which was reported by 62 per cent of farmers, and it was followed by mortgage of land (27 per cent case) and mortgage of tractor itself or other household items (4 per cent cases) (Table 7).

TABLE 6: CATEGORY WISE AND SOURCE OF CREDIT FOR TRACTOR PURCHASE

Source> Farmers	Arthiva		Banks	Others	Own	Private Banks	Relatives	Total																		
Marginal	2	3.6	66.6	7.1	0	0%	0	0	1.8	33.3	5	0	0	0	0	0	0	3								
Small	5	8.9	62.5	17.8	1	1.8	12.5	25	0	0	0%	0	2	3.6	25	10	0	0	0	0	0	8				
Semi-Med	13	23.2	59	46.4	1	1.8	4.5	25	1	1.8	4.53%	50	6	10.7	27.3	30	0	0	0	0	1	1.8	4.5	100	22	
Med	7	12.5	35	25	2	3.6	10	50	1	1.8	5%	50	10	17.8	50	50	0	0	0	0	0	0	0	0	0	20
Large	1	1.7	33.3	3.6	0	0	0	0	0	0%	0	1	1.8	33.3	5	1	1.8	33.3	100	0	0	0	0	0	0	3
All	28	50	50	100	4	7.1	7.1	100	2	3.6	3.6%	10	20	35.7	35.7	100	1	1.8	1.8	100	1	1.8	1.8	1.8	100	56

Note: As in above tables; Source: Farmer survey

TABLE 7: CREDIT SOURCE WISE AND FARMER CATEGORY WISE NATURE OF COLLATERAL GIVEN FOR LOANS (FREQUENCY AND % IN EACH SOURCE AND CATEGORY)

Collateral> Farmer category	Crop sale to Arthiva	Mortgage of household items	Mortgage of land	Mortgage of tractor	Relatives	Total																				
Marginal	1	3.85	50	6.25	0	0	0	0	1	3.8	50	14.3	0	0	0	0	0	0	0	0	0	0	0	0	2	
Small	4	15.4	100	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Semi-Med	7	26.9	70	43.7	1	3.8	10	100	1	3.8	10	14.3	0	0	0	1	3.8	10	100	0	0	0	0	0	10	
Med	4	15.4	44.4	25	0	0	0	0	4	15.4	44.4	57.1	1	3.8	11	100	0	0	0	0	0	0	0	0	9	
Large	0	0	0	0	0	0	0	0	1	3.8	10	14.3	0	0	0	0	0	0	0	0	0	0	0	0	1	
Total	16	61.5	61.5	100	1	3.8	3.8	100	7	26.9	26.9	10	1	3.8	3.8	100	1	3.8	3.8	100	1	3.8	3.8	3.8	100	26

Note: As in above tables

Source: Farmer survey

Activ
Costs

3.2 Reasons for Buying Secondhand Tractor

The most common reason for secondhand tractor purchase was to upgrade to a higher horsepower tractor (50 per cent), followed by cheaper price (23 per cent) and more economical machine (10 per cent). Some other reasons included lower HP (6 per cent) and more as a business proposition to buy a secondhand tractor for further sale. Surprisingly, even marginal and small farmers bought it to upgrade to higher HP, though predominantly this was the reason for semi-medium and medium category farmers (Table 8). On the other hand, reasons for sale included change in HP(45 per cent), giving up farming activity (24 per cent), change of model (8 per cent), and financial constraint, with only 2 per cent doing it as a part of the business proposition (Table 9).

TABLE 8: CATEGORY-WISE REASONS FOR BUYING A SECONDHAND TRACTOR (FREQUENCY AND % AGE IN CATEGORY AND REASONS WISE)

Reason>	Business Proposition				Cheaper				higher HP			
Farmer category												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Marginal	0	0	0	0	0	0	0	0	3	6.25	75	12.5
Small	0	0	00	0	1	2.1	12.5	9.1	3	6.2	37.5	12.5
Semi-Medium	1	2.1	6.7	100	4	8.3	26.7	36.3	7	14.6	46.7	29
Medium	0	0	0	0	5	10.4	27.8	45.4	10	20.8	55.6	41.7
Large	0	0	0	0	1	2.1	33.3	9.1	1	2.1	33.3	4.2
Total	1	2.1	2.1	100	11	22.9	22.9	100	24	50	50	100

lower HP				More economical				Newer Model				Total
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
1	2.1	25	33.3	0	0	0	0	0	0	0	0	4
0	0	0	0	3	6.25	37.5	60	1	2.1	12.5	25	8
1	2.1	6.7	33.3	2	4.17	13.3	40	0	0	0	0	15
1	2.1	5.5	33.3	0	0	0	0	2	4.2	11.1	50	18
0	0	0	0	0	0	0	0	1	2.1	33.3	25	3
3	6.2	6.2	100	5	10.4	10.4	100	4	8.3	8.3	100	48

Note: As in above tables; Source: Farmer survey.

3.2.1 Reasons for Not Buying From Local Farmers

The farmers did not prefer to buy from local farmers as there was a lack of product variety and choice in villages (53 per cent). The price was not discovered competitively, unlike in the mandi (19 per cent) and, therefore, was higher than the mandi price (21 per cent), with 7 per cent also citing information asymmetry in terms of product and price in local areas (Table 10).

3.2.2 Problems in Mandi

Major problems reported by farmers in the secondhand tractor market included lack of adequate space (40 per cent), lack of convenience facilities like water, toilets, and sanitation (43 per cent), high agent margins (9 per cent), and lack of proper mediation for sale and purchase between farmers (4 per cent). Only 4 per cent of farmers reported no problem with the mandis (Table 11).

TABLE 9: FARMER CATEGORY WISE REASONS FOR SALE OF TRACTOR (FREQUENCY AND %AGE IN EACH CATEGORY AND TOTAL)

Reasons> Farmer category (1)	Business Proposition (2) (3) (4) (5) (6)	Change HP (7) (8) (9)	Change model (10) (11) (12) (13)	Gave up farming (14) (15) (16) (17)	Needed money (18) (19) (20) (21)	Total (22)
Marginal	0 0 0 0 5	9.8 71.4 21.7	0 0 0	1 1.9 14.3 8.33	1 1.9 14.3 8.33	7
Small	0 0 0 0 3	5.9 30 13 3	5.9 30 33.3	1 1.9 10 8.3 3	5.9 30 50	10
Semi-Med	0 0 0 0 11	21.6 57.9 47.8 2	3.92 10.5 22.2 5	9.8 26.3 41.7 1	1.9 5.2 16.7 19	19
Med	0 0 0 0 3	5.9 27.3 13 3	5.9 27.3 33.3 4	7.84 36.3 33.3 1	1.96 9.1 16.6 11	11
Large	1 1.9 25 100 1	1.9 25 4.3 1	1.9 25 11.1 1	1.9 25 8.33 0	0 0 0 4	4
Total	1 1.9 1.9 100 23	45.1 100 9 17.6	17.6 100 12 23.5	23.5 100 6 11.7	11.7 100 51	51

Note: As in above tables; Source: Farmer survey

TABLE 10: CATEGORY WISE REASONS FOR NOT BUYING SECOND HAND TRACTOR FROM LOCAL FARMERS AT VILLAGE LEVEL (FREQUENCY AND PERCENTAGE IN CATEGORY AND TOTAL)

Reasons> Farmer category (1)	Information Asymmetry (2) (3) (4) (5)	Lack of Choice (6) (7) (8)	Manid gives right price (9) (10) (11) (12)	No fair price (13) (14) (15) (16)	Total (17) (18)
Marginal	0 0 0 0	6 7.4 75	13.9 2 2.5	25 13.3 0	0 0 0 8
Small	0 0 0 0	8 9.9 57.1	18.6 1 1.2	7.1 6.7 5	6.3 35.7 29.4 14
Semi-Medium	5 6.2 17.2 83.3	12 14.8 41.4	27.9 6 7.4	20.7 40 6	7.4 20.7 35.3 29
Medium	1 1.2 4.2 16.7	14 17.3 58.3	32.6 5 6.2	20.8 33.3 4	4.9 16.7 23.5 24
Large	0 0 0 0	3 3.7 50 7	1 1.2 16.7	6.7 2 2.5	33.3 11.7 6
Total	6 7.4 7.4 100	43 53.1 100	15 18.5 100	17 21 21.9 100	81 100 81

Source: Farmer survey

TABLE 11: FARMER CATEGORY WISE MAJOR PROBLEMS IN SECOND HAND TRACTOR MARKETS (CATEGORY AND PROBLEM WISE FREQUENCY AND PERCENTAGE IN CATEGORY AND TOTAL)

Problem> Farmer category (1)	Display Space (2) (3) (4) (5)	High Dealer Margin (6) (7) (8)	None (9) (10) (11) (12)	Proper Mediation (13) (14) (15) (16)	Water, Rest & Convenience (17) (18) (19) (20)	Total (21) (22)
Marginal	3 4.3 30 10.7	1 1.4 10 16.7	0 0 0	0 0 0	0 0 0	6 8.6 60 20 10
Small	5 7.14 41.7 17.8	1 1.4 8.3 16.7	0 0 0	1 1.4 8.3 33.3	5 7.1 41.7 16.7	12 16.7 12 12
Semi-Medium	7 10 28 25	4 5.7 16 66.7	2 2.8 8 66.7	1 1.4 4 33.3	11 15.7 44 36.7	25 33.3 25 25
Medium	12 17.1 63.2 42.8	0 0 0 0	0 0 0	0 0 0	7 10 36.8 23.3	19 25.3 19 19
Large	1 1.4 25 3.6	0 0 0 1	1.4 25 33.3	1 1.4 2.5 33.3	1 1.43 2.5 3.3	4 5.3 4 4
Total	28 40 40 100	6 8.6 100 3 4.3	4.9 100 3 4.3	3 4.3 100 3 4.3	30 42.8 42.8 100	70 100 70 70

Source: Primary survey

Note: As in above tables

IV

CONCLUSIONS

The above primary data-based analysis of the secondhand tractor market shows that these markets are very dynamic and reflect the state of the local agrarian economy and its farm sector mechanisation in terms of leasing in of land and, therefore, mobilisation of farm machinery and equipment to make the farm viable given the cereals-based cropping pattern of the state. The farmers want to reduce the cost of production and, therefore, resort to buying secondhand tractors. These markets are facilitative in helping farmers acquire machines and equipment at competitive rates. Tractors are bought for changes in HP and models, and that, too, in an economical manner. On the other hand, tractors are sold for reasons of changing HP or models or because farmers want to move out of their farming occupation.

Finally, there is no doubt that these markets help small farmers manage their farm mechanisation cost effectively on an individual basis. Still, they depend on high interest credit from private lenders for such a purchase. That is where government agencies like NABARD can come in to provide lower cost loans for purchasing such machines and equipment so that these secondhand machines and equipment become more affordable and viable. There could even be joint liability group loans for secondhand tractors and large equipment. Even some Custom Hiring Centres (CHCs) run by Farmer Producer Organisations can be provided grants for acquiring secondhand machines and equipment, which can lead to better availability of such machines and equipment locally and reduce the need for individual ownership of costly machines and equipment.

The draft national Policy on FPOs (GoI, 2024), which aims to promote/consolidate 50000 FPOs by 2029 involving 17 per cent of all farmers, specifically mentions machinery and equipment services as one of the key activities of the Tier -1 FPOs (at the primary village/cluster level) and recognises the need for allotment of a piece of land by the state government for such an integrated custom hiring centres (ICHCs) or Common agribusiness centres-cum market place (CACMP). These FPOs can participate in secondhand tractor markets to purchase more affordable machines and equipment.

Similarly, the new National Co-operative Policy (2023) focuses on PACS by increasing its numbers substantially and its scope as a multi-purpose agency to make it a vibrant business entity, besides assigning it the task of promoting new FPOs. PACS is already engaged in many states in running CHCs, which can be strengthened with support to purchase secondhand machines and equipment from secondhand tractor markets.

These two types of local institutions (farmer collectives, i.e., PACS and other FPOs and secondhand tractor markets) will be two types of local institutions supporting each other and supported by the above two national policies. It will be a win-win for

all involved as both agencies help resolve local constraints to agricultural mechanisation.

Further, such markets are emerging in other states like Haryana, Rajasthan, and Gujarat. Therefore, state governments need to make space and other facilities available to such markets more formally. Some large FPOs- state level federated ones or district and taluka level ones -can be encouraged to manage these markets as franchisees or independent businesses on their own.

REFERENCES

- Gatzweiler, F. W. (2016). Institutional and technological innovations in polycentric systems: pathways for escaping marginality. *Technological and Institutional Innovations for Marginalized Smallholders in Agricultural Development*, 25-40.
- Government of India. (2023). *Draft New National Co-operation Policy 2023*. Ministry of Co-operation, New Delhi, India.
- Government of India. (2024). *National Policy on Farmer Producer Organisations (FPOs) (Draft)*. Department of Agriculture and Farmer Welfare, Ministry of Agriculture and Farmer Welfare, New Delhi, India.
- Inter-American Institute for Cooperation on Agriculture (IICA). (2014). *Innovation in agriculture: A key process for sustainable development*. Institutional position paper, San Jose, Costa Rica.
- Mahaprashasta, A. A. (2010). Tractors for sale. *Frontline*, 27(15), July 17-30.
- Raffaelli, R., & Glynn, M. A. (2015). Institutional innovation: Novel, useful. In *The Oxford Handbook of creativity, innovation, and entrepreneurship* (pp. 407-420). Oxford Univ. Press.
- Singh, K., & Rangi, P. S. (2008). Marketing System and Market Structure for Secondhand Tractors in Punjab. *Agricultural Economics Research Review*, 21(1), 30-36.
- Singh, S. (1999). Institutional innovations in Indian agriculture: a case of input markets. *Institutional Development*, 6(2), 3-9.
- Singh, S. (2016). Institutional Innovations for Smallholder Development: A Case Study of Agri-Franchising in Bilhar. *Indian Journal of Agricultural Economics*, 71(3), 264-284.
- Singh, S. (2017). Institutional Innovations in Rice Production and Marketing in India: Experience and Strategies. In *The future rice strategy for India* (pp. 335-357). Academic Press.
- Singh, S. (2017). How inclusive and effective are farm machinery rental services in India? Case studies from Punjab. *Indian Journal of Agricultural Economics*, 72(3), 230-250.
- Singh, S., Singh, S., & Ghosh. (2018). *Institutional Innovations in the Delivery of Farm Services in India* (Vol. 246). Springer.
- Singh, S. (2019). Institutional innovations for inclusive agricultural development: A case of franchising in India. In *Agriculture Innovation Systems in Asia* (pp. 183-205). Routledge India.