

Are the relationships between actors in Odisha's vegetable value chains parasitic or symbiotic?

Ben Belton, Sudha Narayanan, Mir Raihanul Islam, Thomas Reardon

Key Findings

This project note identifies the following key findings in answer to the question of whether the relationships between off-farm micro, small and medium enterprises (MSMEs) and commercial small-scale vegetable farmers in Odisha's vegetable value chains are parasitic or symbiotic:

- **Relationships between MSMEs and farms in vegetable value chains in Odisha are predominantly symbiotic, not exploitative.** Contrary to common assumptions, we find little evidence for the existence of parasitic credit relations between traders, input suppliers and small-holder vegetable farmers.
- **Long-term, trust-based relationships dominate trade.** Most exchanges occur between regular partners, with relationships spanning 5-9 years on average, suggesting that repeated interactions underpin market coordination.
- **Value chain credit is relatively uncommon.** More than 90 percent of input suppliers and retailers provide no credit of any kind, and fewer than 2 percent of surveyed enterprises impose exclusive tied-credit obligations on buyers or sellers.
- **Trade credit functions primarily as short-term working capital, not a means of control.** Wholesalers allowed buyers to delay payments for vegetables for several days in almost 40 percent of their most recent sales transactions.
- **Farmers are not heavily credit constrained.** Half of vegetable farmers borrowed money to fund agriculture within the past year, and only 5 percent of non-borrowing vegetable farmers reported that they wished to access agricultural credit but were unable to. Most farmers borrowed from family and friends or self-help groups. Less than 2 percent of loans originated from wholesalers or input suppliers.

- **Input suppliers are an important source of advisory services for farmers.** Nearly half of farmers sought advice from input suppliers during their most recent purchase, and over half received it, largely free of charge.
- **Wholesalers and retailers often provide transport services when sourcing or supplying vegetables.** These services are usually costed into the price of goods received or sold, but are convenient for time- or mobility-constrained farmers and other trading partners. Much of the transport organized by traders is supplied by third-party service providers (transport businesses).
- **Provision of other types of service by wholesalers, retailers, and input suppliers to their suppliers and customers are quite limited,** indicative of an intermediate level of value chain transformation
- **Farmers undertake more product upgrading and value addition activities than wholesalers or retailers.** Many farmers grade, wash, and remove damaged produce prior to sale, enhancing value capture and simultaneously reducing transaction costs for buyers.
- **Market “thickness” and competition moderate exploitative behavior.** Improvements in infrastructure, mobility, communications, and the spatial clustering of farms and MSMEs may limit the ability of marketing intermediaries to create dependencies among farmers, and improve access to information and markets, lowering barriers to entry and giving rise to outcomes that are more symbiotic than exploitative.

Introduction

In this note, we address a key hypothesis of the INCATA project: that the relationships and interactions between MSMEs and commercial small-scale farms in vegetable value chains are more symbiotic than parasitic. This hypothesis runs counter to the common view that agricultural traders and input suppliers often lock farmers into exploitative relationships and extract excessive surpluses from them using tied credit.

We hypothesized that recent improvements in transport, communications, mobility, access to non-farm employment, credit, and information, and increased competition among growing numbers of traders input suppliers, have led to thicker rural markets, reducing the ability of marketing intermediaries to create dependencies among farmers. We further hypothesized that the spatial clustering of commercial small-scale producers and MSMEs may improve access to information and services, lowering barriers to entry and creating competition, inducing MSMEs to provide services to farmers to differentiate themselves and attract customers, with outcomes that are more symbiotic than exploitative.

In this note, we explore these two dimensions of symbiosis. First, the extent and terms of credit linkages between actors along the vegetable value chain. Second, the nature of service provision between actors at different nodes in the chain.

Credit relations in vegetable value chains

Table 1 presents details of credit provision by agricultural input suppliers, vegetable wholesalers and retailers to their suppliers and customers during the preceding 12 months. Most enterprises provided no credit (either cash or in-kind) to suppliers or buyers during the past year. Ninety-five percent of retailers, 92 percent of input suppliers, and 81 percent of wholesalers did not extend loans of any kind.

Table 1: Credit provision to suppliers and buyers by input suppliers, wholesalers and retailers

Item	Input suppliers	Wholesalers	Retailers
No loans (%)	91.7	81.2	95.0
Cash loans (%)	3.8	0.8	0.5
In-kind loans (%)	4.3	17.8	4.2
Respondent gave a loan to a supplier that obligated the supplier to sell only to the respondent (%)	0.5	0.5	0.5
Respondent gave a loan to a buyer that obligated them to buy only from the respondent (%)	0.5	1.3	1.0

Source: INCATA Odisha Trader and Input Supplier Surveys, 2025

Among enterprises that provided loans, only 3.8 percent of input suppliers and less than 1 percent of wholesalers and retailers lent cash. In-kind loans were somewhat more common, given by 4.3 percent of input suppliers and retailers, and 17.8 percent of wholesalers. This pattern is consistent with wholesalers providing short-term trade credit to buyers in the form of vegetables, allowing them to sell produce before paying for it. Between 0.5 and 1.3 percent of enterprises reported that credit they provided obligated recipients to buy from or sell to them exclusively, indicating that rigid tied credit obligations are rare.

Table 2 provides more granular information than the annual recall reported in Table 1, presenting details of advance payments and credit given and received by vegetable wholesalers and retailers during their most recent purchase and sale, and by agricultural input suppliers and vegetable farmers during their most recent sale.

Pure ‘spot’ transactions made with no prior relation are rare. Most vegetable wholesalers and retailers have longstanding business relationships with their suppliers and transact with them regularly. About seventy-three percent of wholesalers and fifty-nine percent of retailers bought from regular suppliers during their most recent transaction, and 26.3 percent and 31.7 percent, respectively, purchased from occasional suppliers. The average duration of the trading relationship between wholesalers and retailers and their most recent supplier was 9.0 and 6.9 years, respectively, suggesting that long-term business relationships built on trust are an important feature of buyer-supplier interactions.

About 14.4 percent of wholesalers and 8.8 percent of retailers had loans outstanding to their most recent supplier. Based on our field observations, we interpret this to mean that it is common for traders to receive in-kind advances (vegetables) from their suppliers that are repaid after the goods are sold. Among respondents receiving loans from suppliers, 6.2 percent of wholesalers and 18.5 percent of retailers reported that they were obligated to buy exclusively from the supplier to whom they were indebted. This equates to less than 1 percent of wholesalers and 2 percent of retailers being debt-tied to a single supplier, confirming the low incidence of tied credit seen in Table 1.

Table 2: Characteristics of trading relationships and credit during the most recent purchase and sale completed by input suppliers, wholesalers and retailers.

Item	Input suppliers	Vegetable farmers	Wholesalers	Retailers
Most recent supplier is a regular supplier (%)	n/a	n/a	72.8	59.5
Most recent supplier is an occasional supplier (%)	n/a	n/a	26.3	31.7
Duration of trading relationship with most recent supplier (years)	n/a	n/a	9.0	6.9
Respondent has an outstanding loan to most recent supplier (%)	n/a	n/a	14.4	8.8
Respondent was obliged to buy only from most recent supplier (conditional on having outstanding loan) (%)	n/a	n/a	6.2	18.5
Most recent sale was to a regular customer (%)	51.4	38.8	58.2	32.2
Most recent sale was to an occasional customer (%)	36.5	26.7	34.5	36.9
Duration of trading relationship with most recent customer (years)	4.3	8.4	6.6	4.5
Buyer advanced money to secure most recent sale (%)	2.5	3.4	6.5	5.5
Buyer paid in full at time of most recent sale (%)	93.9	87.3	54.6	92.3
Buyer will pay for some or all of most recent sale with a delay (%)	3.0	4.5	38.9	2.1
Number of days delay in payment (conditional on delay)	32.7	4.4	6.0	4.5

Source: INCATA Odisha Trader and Input Supplier Surveys, 2025

Similar to their relationship with suppliers, a high proportion of vegetable value chain enterprises have longstanding relationships with buyers. More than half the most recent sales made by input suppliers (51.4 percent) and wholesalers (58.2 percent) were made to regular customers, as were 32.2 percent of sales by retailers and 38.8 percent by farmers. About a third of sales by each type of off-farm enterprise and a quarter by farms were to occasional customers. The average duration of trading relationships with buyers ranged from 4.3 years (input suppliers) to 8.4 years (farmers). These findings again underscore the personalized nature of business transacted in the vegetable value chain, and the importance of repeat interactions in establishing exchange relationships.

Few buyers paid an advance to guarantee access to a product. Payment for the most recent sale was received in full at the time of sale by 93.9 percent of input suppliers and 92.3 percent of retailers. Moreover, few sellers extended any in-kind credit: only 3 percent of input suppliers allowed customers to pay for all or part of the most recent sale with a delay. These very low levels of in-kind credit provision may reflect the risky nature of lending to households. These figures are confirmed by our farm survey: only 2.4 percent of farmers reported that the seed or seedlings used to produce their main vegetable crop were received partially or wholly on credit, and 3.1 percent received fertilizers, pesticides or other agricultural inputs partly or fully on credit.

Only 2.1 percent of retailers allowed payment for their most recent sale with a delay, indicating a low incidence of selling vegetables to consumers on credit. In contrast, 38.9 percent of wholesalers allowed the customer in their most recent sales transaction to pay for all or part of the goods with a delay, averaging 6 days. This finding is consistent with wholesalers providing revolving trade credit to some regular buyers, where goods are obtained partially or fully on credit and the outstanding balance is repaid when the buyer procures more goods. This arrangement can be understood as a mutually beneficial

service provided by wholesalers to their customers, enabling trade credit recipients to operate with limited working capital while credit providers benefit from the regular custom. Few farmers (five percent) received payment with a delay for part or all of their goods, with an average delay of 4 days, conditional on payment being delayed, while 87.3 percent received payment in full on the day of the sale.

Table 3 presents characteristics of credit use by vegetable farmers. Half of vegetable farmers borrowed within the past 12 months to support their farming activities. Farmers who did not borrow generally chose not to do so, reporting that they had sufficient funds (67 percent, conditional on not borrowing) or did not want to take on debt (28 percent). Just 5 percent of vegetable farmers who did not borrow indicated that they had wished to but been unable to do so, suggesting that access to credit is not a major constraint for most farmers.

Table 3: Characteristics of credit use by vegetable farmers

Item	Vegetable farmers
Borrowed for farming during past 12 months (%)	50.4
Wanted agricultural loan but unable to access (conditional on not borrowing) (%)	4.6
Most recent agricultural loan was from input supplier or vegetable trader (%)	1.4
Most recent agricultural loan was from friend/relative (%)	53.0
Most recent agricultural loan was from bank (%)	5.9
Most recent agricultural loan was from self-help group or microfinance institution (%)	35.3
Most recent agricultural loan was from informal moneylender (%)	12.7
Value of most recent agricultural loan (conditional on taking loan) (%)	22,605

Source: INCATA Odisha Farmer Survey 2025

Among farmers who borrowed to support their agricultural activities, only 1.4 percent took loans from off-farm enterprises in the vegetable value chain, corresponding with the low rates of credit provision reported by enterprises in Table 1. Family and friends are by far the most common source of agricultural loans, accounting for 53 percent. Self-help groups are the second largest source of agricultural credit (35 percent of all loans taken), suggesting that they play an important role in facilitating small-holder commercialization. Informal money lenders account for 12.7 percent of loans, and banks only 5.9 percent. The average value of loans taken by farmers (₹22,600 or \$260) is substantial, and in a similar size to the average annual expenditure on vegetable production by surveyed farmers. Together these numbers paint a picture of farmers who are not heavily credit constrained and are thus not driven to accept loans with exploitative conditions in large numbers.

Provision of services by actors in vegetable value chains

Off-farm enterprises in the vegetable value chain may provide a variety of services to suppliers or clients that exceed the basic business functions of selling products and purchasing goods. In this section of the project note we examine the types of services provided and received by actors at each value chain node. We focus first on services provided by input suppliers to farmers (Table 4).

Provision of advisory services by input suppliers is extremely common, with advice frequently both solicited and offered. Just under half (47.9 percent) of input suppliers reported that customers sought advice from them during this most recent sale, while just over half (52.4 percent) reported giving advice. These advisory services are free. Less than 1% of respondents charged a fee for giving advice.

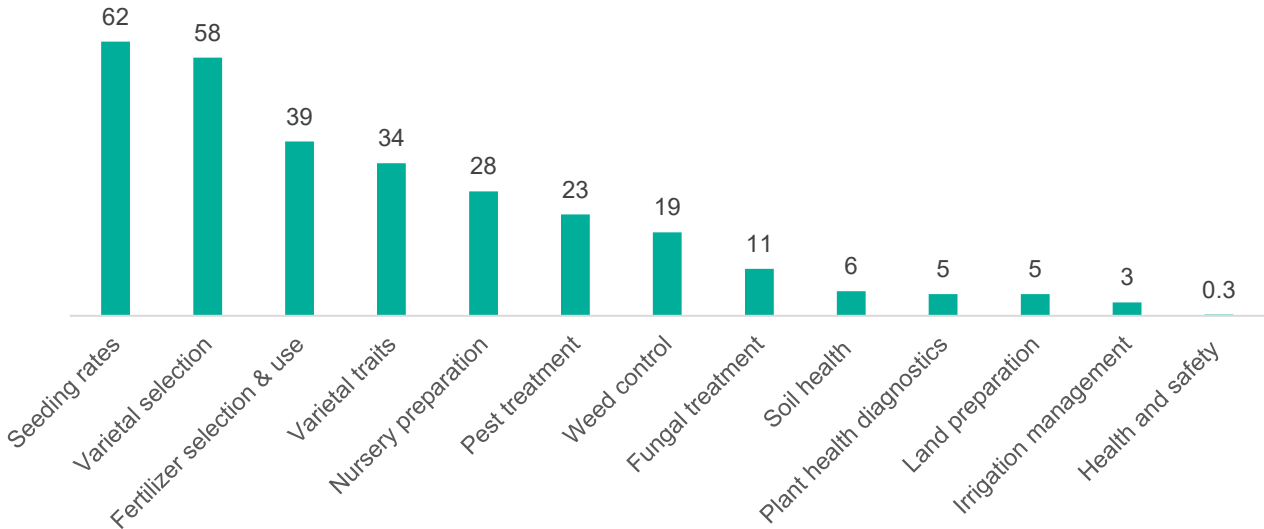
Table 4: Services provided to vegetable farmers by input suppliers

Services	Input suppliers
Was asked for advice by customer during most recent sale (%)	47.9
Offered advice to customer during most recent sale (%)	52.4
Charged a fee for providing advice (%)	0.8
Ever provided equipment-related services, for a fee, conditional on selling equipment (%)	22.7
Ever given referrals to other service providers, conditional on selling equipment (%)	4.5
Ever participated in a farmer fair in 2024 (%)	36.9
Ever used retail customer as distributor (%)	6.1

Source: INCATA Odisha Input Supplier Survey, 2025

Figure 1 presents the types of advice and information that input suppliers gave to customers during their most recent sale. Topics relating to seed selection and use are particularly common. More than half of input suppliers gave information on seeding rates and/or varietal selection. Around one-third provided information on varietal traits, and about one-quarter on nursery preparation. Advice on fertilizer selection and use was also common (provided in 39 percent of cases), followed by advice on plant protection - treatment of pests, weeds and fungi. This distribution of topics roughly tracks the composition of products sold by input suppliers: vegetable seed and paddy seed are each sold in about one-third of transactions, fertilizer in a further third, and plant protection products in about 10 percent.

Figure 1: Type of information provided by input suppliers to customers during most recent transaction (percentage of suppliers who gave advice on subject, conditional on giving advice).



Source: INCATA Odisha Input Supplier Survey, 2025

Few input suppliers (seven percent) sell any farm equipment. Sprayers are by far the most common item of equipment sold. Only a handful of input suppliers sell other items such as plastic mulch, tubing for drip irrigation, greenhouses, irrigation pumps, solar panels, or electrical fences. This observation suggests that these are sold by specialized stores, and that few input suppliers serve as 'one-stop-shops' for all items, reflecting the small average scale of operations. Around a quarter of input suppliers that sold equipment helped customers to set up items such as sprayers and plastic mulch.

Equipment-selling input suppliers were asked whether they provided outsource services to farmers for a fee (e.g. borewell installation, laser land levelling, agricultural machinery hiring, soil testing, crop marketing). Only a handful (between 1 and 3) reported doing so in each case. Supplying vegetable seedlings to order, providing crop spraying services and land preparation services, and linking farmers traders were the main services offered. Only one respondent reported referring customers to another enterprise when unable to supply vegetable seedlings, suggesting limited cooperation among different types of input supply and service provision enterprises.

Table 5 presents information on wholesaler and retailer actions when procuring and selling vegetables. These actions may be considered as services to suppliers (farmers, wholesalers) and buyers (wholesalers, retailers). Corresponding information on the services received by farmers from their buyers (wholesalers and retailers) is presented for triangulation. All responses refer to respondents' most recent linked sale and procurement transactions.

Wholesalers and retailers arranged the transport used to procure vegetables from suppliers during roughly half of transactions. The cost of transport provided to suppliers is often explicitly costed into the price offered. Although not free, this form of transport provision can be considered as a service. For example, based on our field observations, many farmers choose to sell vegetables to traders at the farm-gate despite receiving a lower price than they would if selling at a market, because doing so is convenient and saves time needed for vegetable cultivation activities. Conversely, in roughly 40 percent of procurement transactions, sellers provided transport. This can be considered a service to the buyer, for similar reasons. Brokers or transporters organized the transport used in about 10 percent of the most recent purchases by wholesalers, constituting a form of outsourced delivery service. Farmers arranged transport of vegetables to the buyer during 44 percent of their most recent sales while buyers organized transport in 37 percent of cases, which may be interpreted as a form of service to farmers.

Third-party logistics providers play important roles in enabling trade in vegetables. Although wholesalers organized the transport used to procure vegetables in 47 percent of their most recent purchases, they owned the transport used in only 18 percent of these transactions. Vehicles used by wholesalers for product procurement in thirty-two percent of transactions were rented from third parties (e.g. truck rental businesses, tuk-tuks). Retailers relied on transport rental services to procure vegetables, in 22 percent, while farmers used them in 18 percent of most recent sales.

Most wholesalers and retailers (78.6 and 81.3 percent) do not engage in any form of value addition or product quality upgrading after receiving vegetables from their suppliers. The most common action taken is removal of damaged items, practiced by 15.7 percent and 10.6 percent of wholesalers and retailers, respectively. Washing vegetables is the second most common action, practiced by 4.2 percent of wholesalers and 7.3 percent of retailers, usually for root vegetables. Very few wholesalers (2 percent) and retailers (1 percent) hold vegetables in storage prior to sale, reflecting the high turnover of product, which is sold out quickly to avoid quality deterioration. Very few traders grade, repack or process the vegetables received.

In contrast, many farmers engaged proactively in upgrading and value addition activities prior to their most recent sale. Forty-five percent practiced grading, 29.5 percent removed damaged items, 28.1 percent washed vegetables, 8.9 percent repacked them and 5.4 percent removed trimmings. These actions can be interpreted as efforts by farmers to maximize value capture from their product, but also benefit buyers as they reduce the amount of effort required to prepare products for sale.

Table 5: Services provided by wholesalers and retailers to suppliers and buyers

Item	Wholesalers	Retailers	Vegetable farmers
<i>Who organized transport when procuring most recently sold lot of vegetables?</i>		<i>Who organized transport when selling most recent lot of vegetables?</i>	
Self (%)	46.5	52.8	44.1
Seller (%)	41.0	38.9	n/a
Buyer (%)	n/a	n/a	36.7
Broker (%)	6.0	0.2	1.1
Transporter (%)	3.9	0.4	0.4
<i>Who owned vehicle used to procure the most recently sold lot of vegetables?</i>		<i>Who owned vehicle used to sell the most recently sold lot of vegetables?</i>	
Self (%)	17.9	31.9	38.3
Seller (%)	25.7	37.9	n/a
Buyer (%)	n/a	n/a	43.4
Broker (%)	1.1	1.3	1.2
Transport rental business (%)	31.9	21.9	15.9
<i>What quality upgrading or value addition activities were performed before selling the vegetables?</i>			
Did nothing (%)	78.6	81.3	32.1
Hold in storage (%)	2.1	1.4	7.7
Trimming/removing leaves (%)	0.8	1.0	5.4
Remove damaged items (%)	15.7	10.6	29.5
Cutting/deseeding/husking (%)	0.3	0.1	0.0
Grade (%)	0.0	0.1	45.3
Repack (%)	1.0	0.0	8.9
Wash (%)	4.2	7.3	28.1
<i>What type of logistical support was provided to the buyer without an explicit fee?</i>		<i>What type of free logistical support was received from the buyer?</i>	
None (%)	76.0	95.5	87.0
Loading (%)	3.9	0.3	5.9
Transporting (%)	0.8	0.1	4.9
Packing (%)	19.1	4.0	4.6
Returnable crates (%)	1.0	0.0	0.0

Source: INCATA Odisha Farmer and Trader Surveys, 2025

Wholesalers (76 percent) and retailers (95.5 percent) provided limited logistical support to customers during their most recent purchase for which they did not charge an explicit fee. The most common free service provided was packing, offered by 19.1 percent of wholesalers, and 4 percent of retailers, followed by loading (4 percent of wholesalers) and supplying returnable crates (reported by 1 percent of wholesalers). Correspondingly, 87 percent of farmers reported receiving no free logistical support from buyers, while roughly 5 percent reported receiving free support for each of packing, loading, and transporting.

ABOUT THE AUTHORS

Ben Belton (Ben.Belton@cgiar.org) is a Research Fellow in the Development Strategies and Governance (DSG) Unit at IFPRI.

Sudha Narayanan (S.Narayanan@cgiar.org) is a Senior Research Fellow in the Development Strategies and Governance (DSG) Unit at IFPRI.

Mir Raihanul Islam (Mir.Islam@cgiar.org) is a Research Analyst in the Poverty, Gender Inclusion Unit at IFPRI.

Thomas Reardon (reardon@msu.edu) is a Professor in the Department of Agriculture, Food, and Rural Development at Michigan State University

ACKNOWLEDGMENTS

The INCATA project was implemented under a Memorandum of Understanding between the International Food Policy Research Institute and the Government of Odisha. We gratefully acknowledge the guidance and strategic direction provided by Dr. Arabinda Kumar Padhee (IAS), Additional Chief Secretary to the Government, Department of Agriculture & Farmers' Empowerment (DA&FE), Government of Odisha. We also extend our sincere appreciation to Sri. Pawan Kalyan (IAS), Director of Horticulture, Government of Odisha, Smt. Dharitree Mishra, Managing Director, Odisha State Agricultural Marketing Board (OSAMB), Sri Shubhranshu Mishra (OAS), Additional Secretary to the Government, DA&FE, Government of Odisha, Dr. Sangram Kesari Pattanaik, Joint Director of Agriculture, DA&FE, Sri Nagenendra Kumar Mallik, Dy. Director of Agriculture, DA&FE and other officials and staff of the Government of Odisha for their valuable advice, inputs, and support in facilitating field-level activities.

This work was supported by the Gates Foundation GRANT INV-066950, awarded to RIMISP and has not been independently peer-reviewed.

Any opinions expressed here belong to the authors and are not necessarily representative of or endorsed by IFPRI or CGIAR. The conclusions and opinions expressed in this work are those of the authors alone and shall not be attributed to the Foundation. This work is a contribution to the CGAIR Science Program on Policy Innovations.

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