

Who is included in Odisha's vegetable value chains, and on what terms?

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Key Findings

This project note explores inclusion in Odisha's vegetable value chains by asking: (1) Who – in terms of gender, caste, and community – participates in input supply, farming, wholesale, and retail, and; (2) What are the terms of their participation into the value chain —looking at the entry requirements, business characteristics, and the nature of benefits derived. The second half examines retailing, which is the most inclusive off-farm node. It looks at how participation varies by gender, caste, and community across several factors: entry requirements, invested capital, scale of operation, business practices, and incomes earned. This reveals how accessible retailing is to new entrants and how benefits differ across groups. Key findings and recommendations arising are summarized below.

- **Women and members of scheduled castes and tribes are almost completely absent from input supply and wholesaling.** – These are possibly the two most profitable nodes in the vegetable value chain.
- **Farming is the most inclusive node of the vegetable value chain.** Its gender and caste composition is closer to that of the population than any other node.
- **Retailing is the most inclusive non-farm vegetable value chain node,** providing important opportunities for off-farm livelihood diversification for women and marginalized groups.
- **There is a high level of intersection between gender and caste characteristics of inclusion in retailing.** Almost half of scheduled caste and scheduled tribe retailers are women, as compared with only 20 percent of those from non-scheduled castes.
- **Women and members of scheduled castes and tribes engaged in vegetable retailing face substantial disadvantages.** They start their enterprises with lower levels of capital, make smaller average transactions, accumulate less, and earn lower incomes than men and retailers from non-scheduled castes. They also experience a more acute digital divide and exercise less agency in price setting than their male and non-scheduled caste counterparts.

- **Women and scheduled caste and tribe retailers serve more female consumers.** Despite the challenges they face, they see greater opportunities for business expansion than men and members of non-scheduled castes.
- **The retail node is an important site for interventions to support inclusive agricultural transformation.** However, it is often overlooked because most interventions focus on farming.
- **Opportunities exist to design programs that can help ‘level the playing field’** by improve the terms on which women and members of scheduled castes and tribes participate in vegetable retailing and increase the benefits they receive.
- **Identifying suitable interventions will require further applied research.** Areas for investigation may include: establishing dedicated associations to represent women or scheduled tribe retailers, interventions to improve mobile phone access, dedicated financial services tailored to retailer needs, and governance interventions to ensure that retailers from marginalized groups are not excluded from access to market space.

Who participates in the vegetable value chain in Odisha?

Table 1 summarizes the gender and caste characteristics of participants in the farm, input supply, wholesale, and retail segments of the vegetable value chain in Odisha. The terms ‘scheduled caste’ and ‘scheduled tribe’ refer to communities recognized in the Indian constitution as having experienced historical marginalization and social and economic disadvantage. We use the term ‘non-scheduled caste’ to cover all individuals who are not covered by either of these designations.

Per the 2011 national census, 23 percent of Odisha’s population belong to a scheduled tribe and 17 percent to a scheduled caste. The remaining 60 percent belong to non-scheduled caste. Forty-nine percent of the population is female. We compare this distribution with the distribution participants in each node of the vegetable value chain.

The two most remunerative segments of the vegetable value chain, input supply and wholesaling, are dominated almost entirely by non-scheduled caste men. Vegetable retailing is the most accessible off-farm value chain node, although women and members of scheduled tribes are still substantially underrepresented. Farming is the most inclusive node of the vegetable value chain in terms of direct participation, with a gender and caste composition closer to that of the population than any other node.

Women are largely excluded from input supply and vegetable wholesaling activities. Only 2.7 and 1.0 percent these enterprises, respectively, are run by women. Women’s participation in vegetable retailing is higher (27.5 percent), but still well short of their representation in the population.

Members of scheduled tribes experience similar levels of inclusion in off-farm vegetable value chain nodes to women. They make up less than one percent of input suppliers and wholesalers, and 10.1 percent of retailers; the latter rate being about half their representation in the wider population.

Table 1: Gender and caste composition of Odisha population and INCATA survey sample populations.

Category	Odisha population (%) [*]	Vegetable farmers (%) [‡]	Input suppliers (%) [‡]	Vegetable wholesalers (%) [‡]	Vegetable retailers (%) [‡]
Female	49	42.2 [†]	2.7	1.0	27.5
Scheduled tribe	23	23.8	0.8	0.5	10.1
Scheduled caste	17	19.1	5.3	3.9	15.0
Non-scheduled caste	60	56.9	94.0	95.6	74.9
N	-	2021[‡]	628	384	1,239

Source: ^{*}Population census (2011), [‡]INCATA Odisha Surveys 2025. [†]The total survey N for vegetable farmers is 2021, but households were assigned to subsamples who were administered with different combinations of modules so in subsequent tables the N for vegetable farmers may differ by variable. [‡]Estimated as women's share of family labor days devoted to farming the household's main vegetable crop.

Members of scheduled castes are slightly better represented than women and scheduled tribes in input supply and wholesaling, at 5.3 percent and 3.9 percent respectively, but still heavily underrepresented relative to the state population. However, the level of participation by members of scheduled castes in vegetable retailing (15 percent) comes close to their representation in the wider population.

Participation in vegetable farming is more closely aligned to the composition of Odisha's population, although women are still somewhat underrepresented. Women engage in vegetable cultivation in 81 percent of vegetable farming households, and account for 42.2 percent of the hours (family + hired) worked in vegetable cultivation. Interestingly, the caste composition of vegetable farmers is broadly similar to that of the wider population, with scheduled castes marginally overrepresented in our sample, scheduled tribes almost equal, and non-scheduled castes slightly underrepresented, although comparisons with the census must be treated with caution as our sample is not statistically representative of the entire population of Odisha.

Terms of incorporation into vegetable value chains

In Table 2, we compare the characteristics of participants in vegetable farming, input supply, wholesaling and retailing, with respect to human capital, assets, scale of operations, and business practices, to develop a picture of the terms of incorporation – the conditions under which inclusion occurs, and the outcomes of that inclusion – in each segment. The following points stand out:

The average age of participants – mid- to late-40s – is similar across value chain segments and more than 90% of all input suppliers, wholesalers, retailers and farmers are aged 30 or above, indicating limited youth participation.

Enterprises and farms are long established (averaging around 15-20 years), perhaps reflecting survivor bias as less successful entrants may have dropped out but also suggesting a significant degree of long-term stability for those who remain engaged.

Table 2: Human capital, assets, enterprise scale, and business practices, of vegetable farmers, agricultural input suppliers, wholesalers and retailers

Category	Vegetable farmers	Input suppliers	Wholesalers	Retailers
Age of respondent (years)	47.6	45.2	44.7	47.0
Age of enterprise (years)	23.3 [‡]	14.0	20.6	17.0
No formal education (%)	9.6	0.6	11.5	22.9
Secondary education (%)	47.7	68.8	27.9	9.3
Sole occupation (%)	49.7	61.6	88.5	65.5
Prior occupation was agriculture (%)	n/a	27.7	13.5	37.6
Owns agricultural land (%)	78.8	67.0	28.4	61.2
Area of land owned (ha)	0.89 [†]	1.78	0.89	0.85
Owns own stall (%)	n/a	53.7	34.5	8.6
Enterprise startup capital at 2025 prices (INR)	24,128	191,869	289,233	7,782
Enterprise asset value at 2025 prices (INR)	n/a	783,293	549,619	33,751
Member of traders' association (%)	n/a	4.9	20.1	5.2
Has any type of business license (%)	n/a	94.4	40.6	8.1
Hired any labor in 2024 (%)	38.5 [‡]	14.8	47.4	2.6
Borrowed for enterprise in 2024 (%)	50.4	14.3	17.0	10.6
Owns mobile phone (%)	96.8	83.4	72.4	50.2
Made digital payment for most recent purchase (%)	n/a	n/a	28.4	5.5
Received digital payment (UPI) for most recent sale (%)	1.4	n/a	14.3	1.9
Most recent customer was female (%)	4.0	4.6	7.6	18.0
Respondent set price of most recent sale (%)	17.2	n/a	45.3	49.9
Value of most recent sale (INR)	5,697 [*]	1,742	1,970	115
Median annual vegetable enterprise income (INR)	17,386	n/a	70,800	43,830
Expects to expand enterprise in next 5 years (%)	57.2	82.5	72.4	77.6

Source: INCATA Odisha Surveys, 2025, n/a = information not available. ^{*}Most recent sale of the main vegetable produced by the household. [‡]Number of years since the respondent participated in vegetable farming for the first time. [†]Area of land operated used for farms here instead of land owned, due to stricter definition of 'ownership' in farm questionnaire than other surveys. [‡]Share of vegetable farms hiring labor for production of main vegetable crop.

Input suppliers are a relatively highly educated group (68.8 percent educated to secondary level or above, including 36 percent with graduate level education). In contrast, a substantial share of retailers (22.9 percent) has no formal education and just 9.3 percent have any secondary education. This contrast reflects in part the more highly skilled and regulated nature of input supply, and associated barriers to entry. New applicants for a license to sell pesticides are required to possess science-related degrees or diplomas, or to employ someone who does, although not all sellers meet this requirement. In contrast, retailing is almost entirely informal, requiring no qualifications or application procedure, and is

thus accessible to entrants with more limited capabilities. Wholesale occupies an intermediate position between retail and input supply, with 27.9 percent of wholesalers educated to at least secondary level. Interestingly, farmers are better educated on average than both retailers and wholesalers. The share of vegetable farmers with no formal education is similar to wholesalers' (around 10 percent), but 47.7 percent of farmers are educated to at least secondary level, suggesting that vegetable farmers originate from a broad range of socio-economic classes.

Retailing and input supply provide opportunities for off-farm livelihood diversification. Many retailers (37.6 percent) and input suppliers (27.7 percent) practiced agriculture prior to starting their enterprise. Moreover, 67 percent of input suppliers and 61.2 percent of retailers belong to households that own some agricultural land. Input suppliers own twice as much land on average as retailers (1.8 ha vs 0.9 ha), likely reflecting the higher socioeconomic status of the former prior to establishing their enterprises. The average area of land owned by retailers is similar to that operated by farmers (0.9 ha). Wholesalers are less engaged in agricultural activities and have lower rates of landownership and similar average holdings to retailers. Only 13.5 percent of wholesalers practiced agriculture prior to taking up wholesaling and 28 percent are from landowning households, perhaps because most (77 percent) are from urban areas. More than 60 percent of input suppliers and retailers and almost 90 percent of wholesalers have no other occupation, indicative of a high degree of occupational specialization, that also reflects the time-intensive nature of these activities. Half of vegetable farmers report being entirely dependent of agriculture for their incomes, pointing to low levels of off-farm income diversification within the rural population of Odisha, and highlighting the importance of retailing in particular as an income diversification strategy.

As expected, the startup costs and value of business assets of wholesalers and input suppliers far exceed those of retailers and farmers, representing a substantial barrier to entry. The value of retailers' startup capital, adjusted to 2025 prices, averages ₹7,800 (\$89)¹. The value of wholesalers' and input suppliers' startup capital is 37 and 25 times higher, respectively (₹289,000 or \$3,325, and ₹192,000 or \$2,205). The adjusted value of business assets follows a similar pattern, but with the value of assets from approximately two and four times greater than that of startup capital, indicating that enterprises accumulated assets over time. Startup costs for vegetable farming are moderate, at ₹24,128 (\$277) - about 60 percent more than average annual expenditure of vegetable production costs.

As expected, retailers display the lowest levels of formality among non-farm businesses, with only 5 percent possessing a business license of any kind. In contrast, 94 percent of input suppliers have a license of some type, reflecting regulatory requirements for trading pesticides and other agricultural inputs. Wholesalers are intermediate (41% holding any type of license), but implying quite high levels of informality, perhaps a reflection of many wholesalers operating outside of regulated markets (39% operate in unregulated or private market), or on a relatively small scale.

Rather few of the non-farm value enterprises surveyed are members of trader associations, indicating that these only play a role in the governance of a limited number of markets. Association membership is much more common among wholesalers (20%) than retailers or input suppliers (both 5%).

¹ USD 1= ₹87

Very few retailers (2.6 percent) hire any labor, reflecting the small size of these enterprises and their limited contributions of employment generation beyond self-employment. Similarly, few input suppliers (14.8 percent) hire labor. A slightly larger share of wholesalers (47.4 percent) hire workers than vegetable farms (38.5 percent), reflecting the large size of wholesalers relative to other enterprises, and the relatively labor-intensive nature of vegetable cultivation. Most of the workers hired by wholesalers and input suppliers are salaried men, in roles such as book-keeping. These enterprises employ very few women. In contrast, nearly all workers hired for vegetable cultivation by vegetable farms are casual daily wage workers, but 72 percent of households that use hired labor to cultivate vegetables employ women – a similar share to men (75 percent), with women contributing close to 54 percent of total hired labor days worked. However, although many vegetable farms hire labor, the hired workers are engaged mainly for harvesting and account for only 14 percent of the total labor hours used in cultivation of the main vegetable crop.

Rates of business borrowing across retail, input supply and wholesale enterprises are quite low. Between 11 percent and 17 percent of each took a loan for use in their enterprise within the past year, with wholesalers most and retailers least likely to take a loan. These low rates of borrowing suggest that, once established, such businesses are generally able to run by continual cyclical reinvestment of earned income. Borrowing is much more common among vegetable farming households, 50 percent of which borrowed to support agricultural operations during the past 12 months. This number is a reflection of the seasonality and unpredictability of agricultural production, which often cause cashflow problems for farmers. Most borrowed informally from family or friends (54 percent, conditional on borrowing) or from self-help groups (35 percent), reflecting the importance of the former as a source of microfinance. Very few (1 percent) borrowed from agricultural value chain actors, showing that the common image of widespread tied lending by traders to farmers is incorrect.

Mobile phones are important for business coordination and information discovery. Reported levels of mobile phone ownership are somewhat lower than expected across non-farm enterprises, ranging from 50 percent for retailers to 72 percent for wholesalers and 83 percent for input suppliers. In contrast, nearly all households in the farm sample report owning a mobile phone. We interpret this to reflect the different phrasings of the question in the surveys. Non-farm surveys asked about phone ownership by the respondent, whereas the farm survey asked about phone ownership by the respondent's household, thereby including a larger pool of potential owners. This suggests that non-farm business proprietors who do not own a mobile are likely to have access to one at home. Smartphones are much more common than basic mobile phones. For example, 66 percent and 34 percent of traders and retailers, respectively, own a smartphone, as compared to 7 percent and 17 percent who own a basic mobile phone.

Despite widespread mobile phone access and the widespread distribution of the universal payment interface (UPI) digital payment system, that allows users to transfer money between digital wallets by scanning a QR code, use of digital payments in business transactions is somewhat limited. Only 1.9% of retailers and 1.3% of farmers received payment for their most recent sale by UPI (data not available for input suppliers). The share of wholesalers receiving digital payments was somewhat higher (14 percent).

Wholesalers and retailers make more digital payments than they receive, however. Twenty-eight percent and 5 percent of the payments made by wholesalers to the supplier of the most recent lot of vegetables procured were made partially or fully by UPI. We attribute higher use of UPI by wholesalers than retailers to the frequency with which they give and receive trade credit, often making or receiving payments for part or all of the goods they have received after they have been sold. In this case UPI allows

for the transfer of funds to or from suppliers and customers located outside the market that is their trading base.

Retailers are much more likely to sell to with female customers than other vegetable value chain actors (the buyer of 18 percent of most recent sales by retailers was a woman, versus 4-8 percent for other types of enterprise). This finding likely reflects the higher levels of participation by women in food shopping activities and retailing than in other forms of exchange.

We take the size of the most recent sale by the enterprise as an indicator of business scale. The average value of the most recent retail sale was just ₹115 (\$1.30); 17 times smaller than the most recent sale made by wholesalers (₹1,970, \$22.60) and 15 times smaller than that by input suppliers (₹1,742, \$20.00). The relatively low value of sales made by wholesalers reflects most of their sales being made to retailers (accounting for 57 percent of wholesale sales transactions). In contrast, the value of farmers' most recent sale of the main vegetable they produce averages ₹5,984 (\$69), suggesting that the average quantity sold was substantial.

Estimated median annual incomes for farmers, vegetable retailers, wholesalers are ₹17,386 (\$200), ₹43,830 (\$500) and ₹70,800 (\$810) (data not available for input suppliers). Thus, typical wholesaler earnings are around 1.6 times greater than those of retailers, and 4 times greater than those of farmers, and retailers incomes are about 2.5 times higher than those of farmers. The relatively low ratio of wholesaler to retailer and farmer incomes reflects a high degree of concentration in the wholesale segment of the value chain, with large numbers of relatively small wholesalers, and a smaller number of much larger ones, evident from the mean wholesaler income (₹680,436 or \$7,821).

Non-farm enterprises in the vegetable value chain have a largely positive outlook in terms of business sentiment. Between 72 percent (wholesalers) and 83.5 percent (input suppliers) of these enterprises expressed the expectation that their business would expand over the next five years. Farmers have a somewhat lower expectation that they will increase the area under vegetable cultivation over the next five years (57 percent), but this exceeds the number who anticipate a contraction (17 percent), indicating a favorable outlook overall.

Who is included in vegetable retailing, and on what terms?

Retail is the most inclusive off-farm vegetable value chain segment in terms of direct participation. This is because it has lower barriers to entry relative to wholesaling and input supply, which require larger investments and higher levels of human and social capital. As a result, very few women and members of scheduled castes and tribes participate in vegetable wholesaling and input supply.

We therefore focus on vegetable retailing to explore how inclusion in retail activity and its outcomes are differentiated along lines of gender, caste and community. Results are presented in Table 3. The following points are apparent:

Gender and caste strongly intersect in determining who participates in retailing. Nearly half of scheduled caste and scheduled tribe retailers are women, compared with only 20 percent of retailers from non-scheduled castes. This may reflect, on the one hand, higher levels of mobility among tribal women due to differences in gender norms. On the other hand, relatively high levels of inclusion of women from disadvantaged groups might also indicate that retailing serves as a last resort of occupation. Women may enter retailing when difficult circumstances force them into the workforce on their own.

Table 3: Human capital, assets, enterprise scale, and business practices, of vegetable retailers, by gender and caste

Category	Male retailers	Female retailers	Non-scheduled caste retailers	Scheduled caste retailers	Scheduled tribe retailers
Retailer is female	0.0	100	20.4	49.5	48.0
Age of respondent (years)	46.9	47.4	46.9	46.3	49.3
No formal education (%)	12.8	65.1	18.4	53.8	52.8
Secondary education (%)	12.6	0.9	10.9	6.5	2.4
Sole occupation (%)	65.1	66.6	65.9	76.3	46.6
Prior occupation was agriculture (%)	37.5	37.8	37.5	28.0	52.8
Owns agricultural land (%)	63.0	56.3	63.0	41.4	76.8
Area of land owned (ha)	0.89	0.73	0.85	0.69	1.05
Owns own stall (%)	11.5	0.9	10.4	3.8	1.6
Enterprise startup capital at 2025 prices (INR)	8,354	6,275	8,279	6,791	5,609
Enterprise asset value at 2025 prices (INR)	39,324	19,076	36,986	22,953	25,802
Member of traders' association (%)	12.6	0.9	11.3	5.9	0.0
Has trading license (%)	9.8	3.5	9.7	3.8	2.4
Hired any labor in 2024 (%)	3.3	0.6	3.2	1.1	0.0
Borrowed for enterprise in 2024 (%)	10.5	9.4	11.6	7.5	3.2
Owns mobile phone (%)	61.1	21.4	55.3	40.3	27.2
Made digital payment for most recent purchase (%)	6.7	1.8	6.5	2.5	2.6
Received digital payment for most recent sale (%)	2.4	0.6	2.4	1.1	0.0
Most recent customer was female (%)	11.7	34.6	14.2	29.0	29.6
Respondent set the price of most recent sale (%)	52.6	42.8	55.1	28.0	44.0
Value of most recent sale (INR)	137.8	56.4	128.0	61.0	102.6
Annual vegetable income (INR)	235,587	145,443	240,718	155,218	74,744
Expects to expand enterprise in next 5 years (%)	74.1	86.8	73.3	93.0	86.4

Source: INCATA Odisha Surveys 2025.

All categories of retailers have extremely low levels of education on average, but these are sharply differentiated by gender and caste. Only 12.6 percent of male retailers have completed secondary education, but this number falls to 0.9 percent for female retailers and 2.4 percent for members of scheduled tribes. Conversely, 65.1 percent of women retailers and more than half of scheduled tribe and scheduled caste retailers have no formal education, as compared to only 12.8 percent of male retailers. In addition to reflecting their generally low socioeconomic status, retailers' extremely low education levels

reflect their relatively high average age, with many having grown up at a time when public schooling was not universal.

Vegetable retailing is the sole occupation of around two-thirds of men, women and non-scheduled caste retailers, indicating a fairly high degree of occupational specialization and higher still for scheduled caste retailers (76.3 percent), perhaps signifying their dependence on retailing in the absence of other occupations. Fewer scheduled tribe retailers have vegetable retailing as their sole occupation (46.6 percent).

Conversely, 52.8 percent of scheduled tribe retailers reported that their occupation prior to vegetable retailing was agriculture, suggesting that retailing served as an important pathway to off-farm income diversification for them. Few scheduled caste and non-scheduled caste retailers (28 and 37.5 percent, respectively) reported agriculture as their prior occupation. The area of land owned by retailers mirrors this pattern, with scheduled tribe retailers owning most land (1.05 ha) and scheduled caste retailers least (0.69 ha). Women retailers originate from households with slightly less land than male retailers (0.73 vs 0.89 ha).

Gender and caste differentiation is evident in the volume of startup capital used by retailers, and the value of business assets they own. The average volume of male retailers' startup capital (₹8,354 or \$96) was one-third higher than female retailers' (₹6,275 or \$72), while the value of male retailers' business assets (₹39,324 or \$452) is approximately double that of women's (₹19,076 or \$219), possibly suggesting that male retailers accumulate assets at faster rates than women. The value of scheduled caste retailers' startup capital and business assets are 22 percent and 61 percent lower, respectively, than those of non-scheduled caste retailers. The value of scheduled tribe retailers' startup capital and business assets is 48 percent and 44 percent lower than non-scheduled caste retailers'. These figures suggest that, on average, members of marginalized groups enter retailing at a financial disadvantage relative to less marginalized groups, and that size of the relative financial disadvantage is maintained and perhaps increased over the lifecycle of the business.

Male and non-scheduled caste retailers have higher rates of trader association membership and business license possession than women, scheduled castes and scheduled tribes. These figures indicate higher average levels of social capital, formality, and business scale among male run businesses than those operated by other groups. Nevertheless, average rates are low even for men, among whom 12.6 percent are trader association members and 9.8 percent have a business license.

The prevalence of borrowing to fund vegetable retailing enterprise operating costs during the past year was low overall, and similar for men and women (both around 10 percent), but lower among scheduled tribe (3.2 percent) and scheduled caste retailers (7.5 percent) than among retailers from non-scheduled castes (11.6 percent). This result might reflect more restricted access to credit among marginalized communities and/or differences in business scale, with larger businesses perhaps more likely to need or be able to access credit. Similar levels of credit access among men and women retailers may reflect the widespread presence of women's self-help groups in rural areas, which are a widely used source of micro loans.

There are sharp digital divides in levels of mobile phone ownership along lines of gender and community. Remarkably, only 21.4 percent of female retailers own their own mobile phone, as compared to 61 percent of male retailers. Similarly, rates of mobile phone ownership among scheduled tribe and scheduled caste retailers are 27.2 percent and 40.3 percent, respectively, as compared to 55.3 percent for

non-scheduled caste retailers. Although these figures do not necessarily imply a complete lack of access to mobile phones among those who do not own them, as nearly all households own at least one phone (as seen in the farm survey above), they do suggest that women and scheduled tribe retailers may be especially disadvantaged in terms of their ability to obtain information, communicate with others, and coordinate business activities remotely. Low levels of phone ownership among these groups may also be linked to very low average levels of education, with illiteracy becoming a potential barrier to mobile phone use.

Use of digital payment (UPI) by retailers is surprisingly limited and reflects the digital divide in mobile phone access. No scheduled tribe retailer and only 0.6 percent of scheduled caste retailers received payment by UPI for their most recent vegetable sale, versus 2.4 percent of male and non-scheduled caste retailers. Slightly higher numbers made payment by UPI for their most recent vegetable purchase, ranging from 1.8 percent of female retailers to 6.7 percent male retailers. These figures seem to suggest a continuing preference among retailers and their customers for transacting business in cash, with slightly more application in paying suppliers remotely for goods advanced on credit (i.e. for business to business use) than in receiving payment from customers (business to consumer use).

Female retailers were three times more likely to have served female customers during their most recent sale than male retailers. The most recent customer was reported to be female by 34.6 percent and 11.7 percent of female and male retailers, respectively. Scheduled caste and scheduled tribe retailers were approximately twice as likely to serve female customers as non-scheduled caste retailers (29 percent vs 14.2 percent). This finding may reflect a preference among female shoppers to buy from women retailers, and thus an important dimension of inclusion for women consumers. The findings also reflect the intersection of gender and caste, as female retailers are more likely to belong to a scheduled tribe or caste than male retailers. The social identities of retailers may also correspond to those of their customers (e.g., scheduled caste retailers may be more likely to serve scheduled caste consumers), though this cannot be confirmed from the survey data.

Male and non-scheduled caste retailers appear to have a greater ability to determine the price at which they sell vegetables than other groups. Respondents were asked how the selling price in their most recent sale was determined. Women respondents were 10 percentage points less likely than men to state that they had set the selling price unilaterally (reported by 42.8 percent and 52.6 percent of women and men, respectively). Scheduled caste retailers were half as likely as non-scheduled caste retailers to report that they set the selling price unilaterally (28 percent vs 55 percent). These figures suggest that women and scheduled caste retailers may exercise less agency in their negotiations with customers than men and non-scheduled caste retailers.

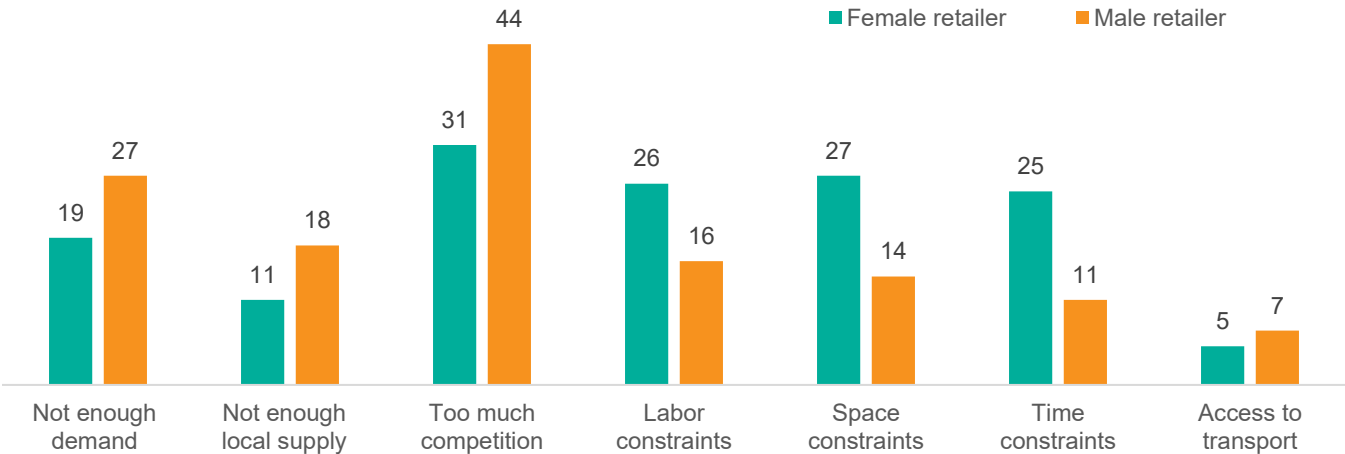
The average value of the most recent sale completed by male retailers is about 2.5 times greater than that made by female retailers (₹138 or \$1.60, vs ₹56 or \$0.65). The average value of most recently completed sales by non-scheduled caste retailers is 2 times greater than that of scheduled caste retailers and 1.2 times that of those from scheduled tribes. This observation is consistent with the differences noted above with respect to business scale. Average annual incomes follow a somewhat similar pattern: 1.6 times higher for men than women, and 1.5 times and 3.2 times higher for non-scheduled caste retailers, compared to scheduled caste and scheduled tribe retailers.

Finally, despite the relative disadvantages they face, women retailers express more positive business sentiment on average than men. Eighty-seven percent of women reported that they expected to expand their vegetable retailing enterprise within the next five years, compared to 74 percent of men. Similarly, the shares of scheduled caste (93 percent) and scheduled tribe (86.8 percent) retailers who anticipated

expanding their businesses within the next 5 years were greater than those of non-scheduled caste retailers (73.3 percent).

These responses could reflect the smaller scale of the businesses operated by women and scheduled caste and tribe retailers relative to men and non-scheduled caste retailers, and hence the perceived potential of these businesses to grow. Alternatively, these responses could signify that retailers belonging to groups with marginalized identities place greater importance on their enterprises, leading to differences in ambition related to their growth. In either case, the average high level of positive business sentiment across all types of vegetable retailer suggests a high level of potential for growth in this node.

Figure 1: Perceived challenges to business expansion (% of respondents reporting)



Source: INCATA Odisha Surveys, 2025

Finally, respondents were asked about challenges they face in expanding their vegetable retail businesses (Figure 1). Men and women identify different types of challenges. Men are more likely to cite broader economic conditions as their main challenges, such as too much competition, inadequate demand, or inadequate local supply. In contrast, women tend to emphasize day-to-day operational constraints related to labor, time, space, and to a lesser extent, transport. These results suggest that women face a different set of constraints than men when running their businesses. This may be linked to competing demands on their time from household care duties, limited control over household decisions that restrict their access to family resources, and marginalization in marketplace locations.

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