

# The Economic Limits: Farmer's income in Odisha

## Introduction

Odisha's rural population is defined in two categories of households – 1. Agricultural households and 2. Non-Agricultural households. As an agrarian state, 59% of the total rural households were agriculture dependent and the rest were relying on various occupations like salaried jobs, labour work, etc. The activities that the farmers follow in the state are mostly, cropping, livestock, fishery and forestry. The majority of the farmers are small to marginal farmers owning an agricultural area of 0.01 hectares to 2 hectares of land. If we compare the agricultural land holdings with the state of Punjab, which had the highest agricultural income (according to NSSO) has more large and small farmers in comparison to Odisha.

**Statement 1.3.1: Percentage distribution of agricultural households by size class of land possessed (ha.) for different States/Group of UTs/ Group of North-Eastern States during July 2018 – December 2018**

State/Group of NE States/Group of UTs	percentage distribution of agricultural households							
	size class of land possessed (ha.)							
	< 0.01	0.01 - 0.40	0.40 - 1.00	1.01 - 2.00	2.01 - 4.00	4.01 - 10.00	10.00 +	all sizes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Odisha	0.1	22.1	53.5	18.2	5.2	0.8	0.0	100.0
Punjab	0.7	39.2	22.1	14.5	12.6	9.3	1.6	100.0

*Figure 1: Land Holdings in Odisha and Punjab*

Odisha has been termed as the second-lowest in terms of agricultural income (Rs.5112 per month) after Jharkhand and Punjab & Haryana has been determined as the highest agricultural income bearing states (SAS – 2018-19). The average income of an Odisha farmer was Rs. 7,731 in 2015-16. The incomes were Rs. 1,062 in 2002-03. In the 13 years between 2002-03 and 2015-16, Odisha farmer incomes grew the fastest in the country and even faster than the growth witnessed by the agricultural GDP of the state. (SAMRUDHI Agricultural Policy - 2020). We see the average income of the farmers in 2015-16 was Rs.7,731 but it reduced drastically to Rs.5,112 in 2018-19. Within 4 years the average income of the farmers in Odisha reduced by Rs. 2,619 in average income.

This gives rise to questions like –

**How did Odisha fall drastically in terms of agricultural income despite being one of the states beating the national growth rate & What are the factors that are affecting the rise in farmers' income in the state?**

## 1. Climatic conditions and COVID-19

Odisha is divided into ten agro-climatic zones based on climate, soil, rainfall, and cropping patterns: northwestern plateau, northcentral plateau, north-eastern coastal plain, east and south-eastern coastal plain, north-eastern ghat, eastern ghat high land, south-eastern ghat, western undulating zone, western central tableland, and mid-central tableland ([https://link.springer.com/chapter/10.1007/978-981-15-9335-2\\_9](https://link.springer.com/chapter/10.1007/978-981-15-9335-2_9)). Odisha has been constantly battling with natural calamities over the years such as cyclones, floods and droughts. According to the Disaster Management plan of Odisha by GoO and Impact of changing weather patterns on agriculture, out of 19 years (2000 - 2019), Odisha has been hit by cyclones and floods for 15 years and droughts for 8 years. COVID-19 has been a real problem for every agricultural and non-agricultural household. As Odisha is falling behind in terms of agricultural income, it should've been majorly dependent on the non-agricultural income i.e. through wage labour and businesses. Farmers in Odisha earned an average of Rs 5,112 per month, whereas those growing less than 0.01 hectares earned only Rs 1,062. Their monthly pension/remittance income was considerable, at Rs 4,299, which merits further investigation. Due to the COVID-19 epidemic and pay loss, households are likely to have been struck significantly harder in the year following the survey year.

<b>Year Calamities</b>
<b>2010 Flood, Heavy Rain, Drought &amp; Unseasonal Cyclonic Rain</b>
<b>2011 Drought &amp; Flood</b>
<b>2012 Drought &amp; Flood</b>
<b>2013 Very Severe Cyclonic Storm "Phailin"/Flood</b>
<b>2014 Very Severe Cyclonic Storm "Hudhud"/Flood</b>
<b>2015 Drought, Flood &amp; Heavy Rain</b>
<b>2016 Drought, Flood &amp; Heavy Rain</b>
<b>2017 Flood, Heavy Rain, Drought &amp; Pest Attack, Unseasonal Rain</b>
<b>2018 Cyclonic Storm "Titli" and "Pethai" / Drought</b>
<b>2019 Extremely Severe Cyclonic Storm "Fani" and "Bulbul"</b>
<b>2020 Severe Cyclone "AMPHAN" and heavy flood</b>

*Figure 2: Natural Calamities in Odisha over the last 10 years (2010-2020)*

*Source: Directorate of Agriculture and Food Production (5 Decades of Odisha Agriculture Statistics-2020)*

We can also see the land use pattern of Odisha according to the Odisha Economic Survey 2020-21.

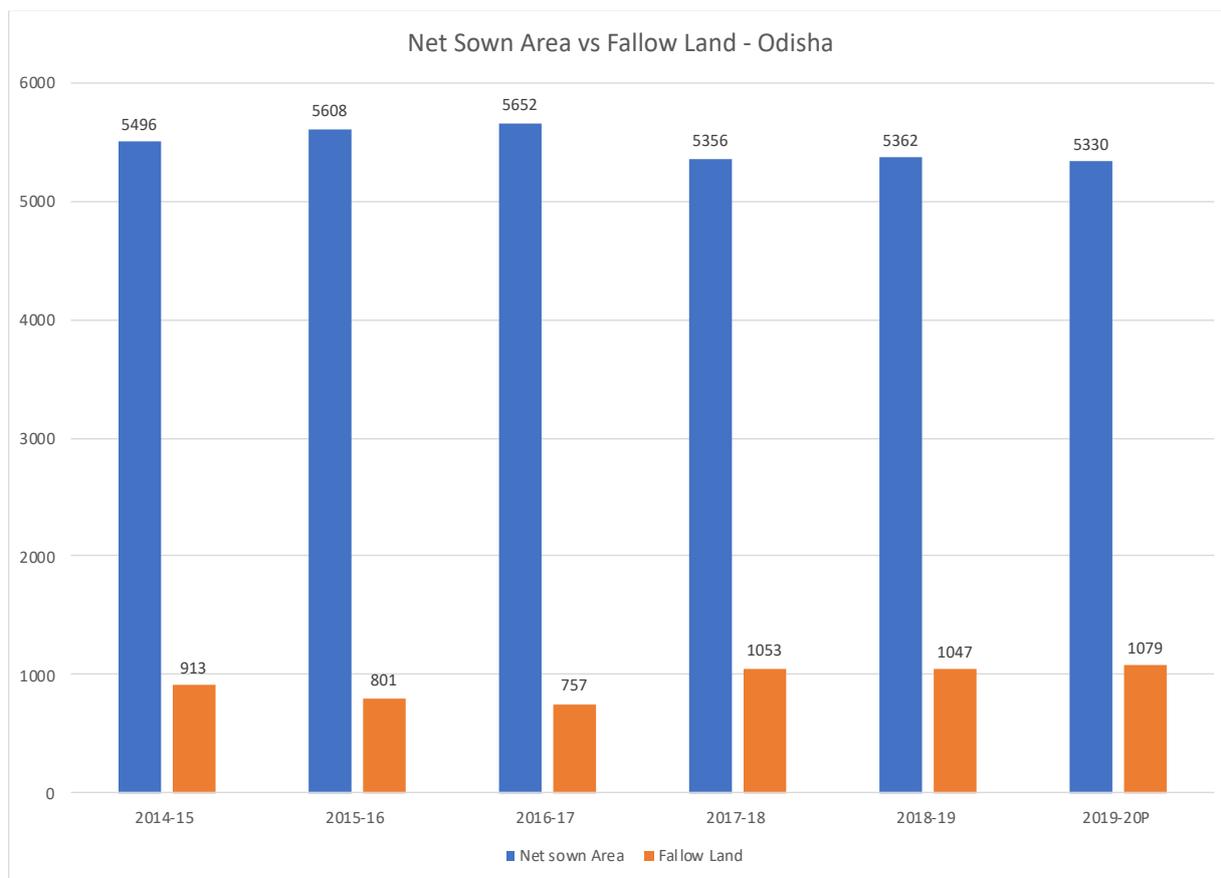


Figure 3: Odisha's net sown area and Fallow land over the years

According to the figure, we can see that the net sown area has been decreasing over the years thereby increasing the area under fallow land. The increase in fallow land can be an outcome due to some of the factors like – fall of the water table, irregular rainfall patterns, overgrazing, failure in capturing fallow lands under irrigation facilities, etc.

The declining trend in NAS (net area sown) and increase of fallow land may paint a worrying picture but can be overcome through policies like contract farming and higher incentives to farmers for optimum use of land. Odisha has a favourable and diverse agro-climatic climate, plentiful water bodies, a 485-kilometre (301-mile) long coastline along the Bay of Bengal, and control over 11% of the country's total water resources split across 11 river basins. As a result, the state possesses all of the prerequisites for a flourishing and rising agriculture sector. However, there are limits such as an over-reliance on rain-fed farming due to insufficient irrigation facilities, a low degree of capital creation, a paddy-centric agricultural method, sluggish modernisation, tiny land holdings, and, most importantly, frequent natural calamities. These limitations have served as roadblocks to realising the promise. Diversification favouring high-value items such as cash crops, floriculture, livestock, fisheries, and horticulture, as well

as increased public investment in irrigation and agri-infrastructure for doubling farmer's income. (OES 2020-21).

## 2. Crop production and productivity

Odisha has traditionally been a state that relies on rainfall. As a result, in addition to extreme weather circumstances, inconsistent rainfall has long been an issue in the state's crop production. The normal rainfall in Odisha is around 1,451.2mm with about 75-80 percent of the rainfall being recorded between mid-June and end- September (Kharif season). During 2019, the State received 1627 mm of rainfall, which was a 12.17% surplus above the normal rainfall.

Table 1: Area Yield and Production of different crops. (Area in 000 ha, Yield in kg/ha and Prod. in 000 MT)

Crops	2014-15			2019-20			% Change		
	Area	Yield	Production	Area	Yield	Production	Area	Yield	Production
Paddy	4180	2760	11535	3941	3751	14780	-6	36	28
Maize	279	2785	778	254	2886	733	-9	4	-6
Mung	857	476	407	826	495	408	-4	4	0
Arhar	139	896	124	129	1124	145	-7	25	17
Biri	598	455	272	435	483	210	-27	6	-23
Seasamum	212	403	85	200	411	82	-5	2	-3
Groundnut	267	1787	478	205	1894	388	-23	6	-19
Potato	15	16655	250	25	11936	295	65	-28	18
Sweet Potato	42	9426	396	37	9814	363	-12	4	-8
Onion	36	12066	432	31	11735	365	-14	-3	-15
Cotton	124	410	299	170	580	579	37	41	93
Small millets	19	502	9	33	517	17	73	3	89

Source: Directorate of Agriculture and Food Production, Odisha & Directorate of Horticulture, Odisha

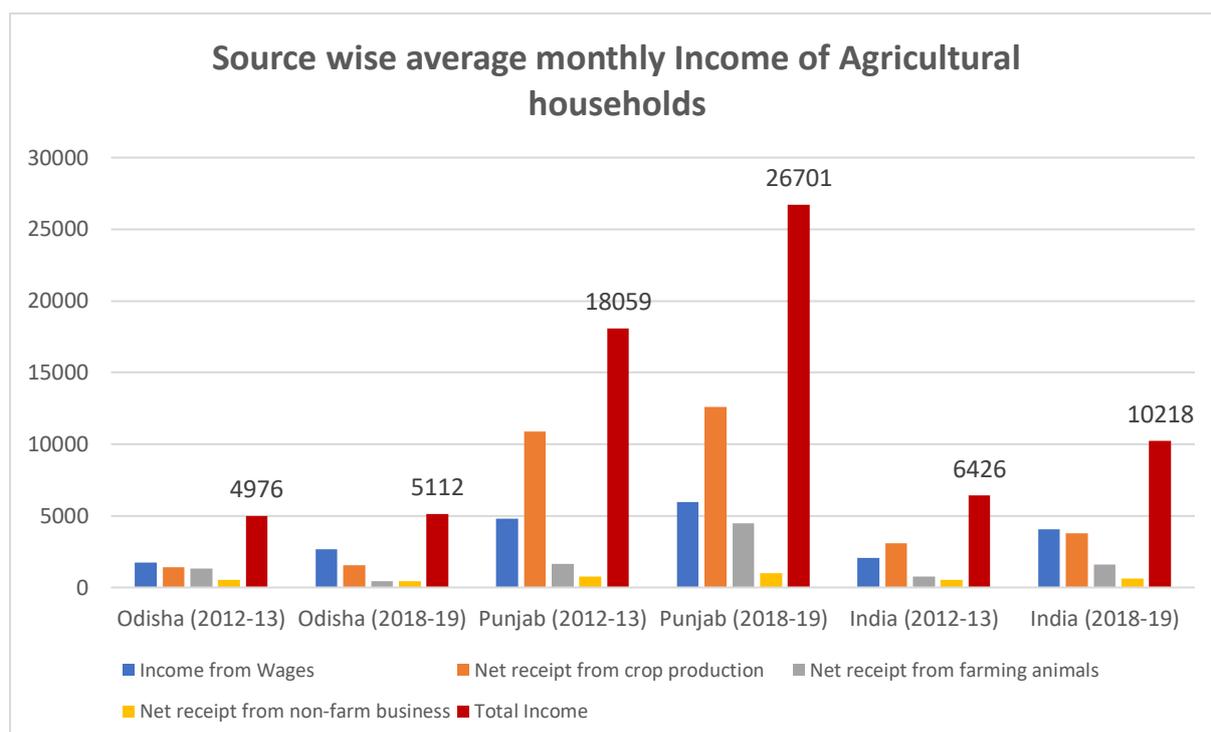
As seen in Table 1; the area of crop production has decreased over the years, further field investigations might lead to conclusive results on why is there a **reduction in the area of cropping**. But still, in 2019-20, the total area under food grains, which includes cereals and pulses, is 62.77 lakh hectares, accounting for 88 percent of total cultivated land. In 2019-20, paddy production reached 146 lakh MT, with a yield rate of 3717 kg/ha. Maize yields rose to 2886 kg/ha in 2019-20, up from 2785 kg/ha in 2014-15. Pulse yields increased to 544 kg/ha in 2019-20, up from 508 kg/ha in 2014-15. Mung (green gramme) is the most widely farmed pulse, with 8.26 lakh hectares planted, followed by Biri or urad (black gramme) with 4.35 lakh hectares, Kulthi (horse gramme) with 2.36 lakh hectares, and Arhar (pigeon pea) with 1.29 lakh hectares in 2019-20. Mung, Biri, Arhar, and Kulthi yield rates were reported 495 kilogrammes per hectare, 483 kilogrammes per hectare, 1124 kilogrammes per hectare, and 446 kilogrammes per hectare, respectively. In 2014-15, the equivalent statistics for the above pulses were 476 kg/ha, 455 kg/ha, 896 kg/ha, and 385 kg/ha.

### 3. Agricultural Income

Table 2: Agricultural income and % of change

State/Nation	Income from Wages	Net receipt from crop production	Net receipt from farming animals	Net receipt from non-farm business	Total Income
Odisha (2012-13)	1716	1407	1314	539	4976
Odisha (2018-19)	2649	1569	416	449	5112
<b>% Change</b>	<b>9.33</b>	<b>1.62</b>	<b>-8.98</b>	<b>-0.9</b>	<b>1.36</b>
Punjab (2012-13)	4779	10862	1658	760	18059
Punjab (2018-19)	5981	12597	4457	1014	26701
<b>% Change</b>	<b>12.02</b>	<b>17.35</b>	<b>27.99</b>	<b>2.54</b>	<b>86.42</b>
India (2012-13)	2071	3081	763	512	6426
India (2018-19)	4063	3798	1582	641	10218
<b>% Change</b>	<b>19.92</b>	<b>7.17</b>	<b>8.19</b>	<b>1.29</b>	<b>37.92</b>

According to the table, wage income has increased to 9.33 percent, although it still lags behind India's average of 19.92 percent. **We can also observe from the numbers above that livestock income has declined dramatically and is now much below the revenue of Punjab or even India.**



As seen from the figures above, Punjab has increased its net income from agriculture by 86.42 % and the average of the entire nation has also improved by 37.92%. Odisha on the other hand has improved by a very marginal rate i.e. 1.36%.

Livestock is also an important aspect in Indian economy. A total of 20.5 million people rely on livestock for their survival. Small farm households earned 16 percent of their income from livestock, compared to 14 percent for all rural households. Two-thirds of rural communities rely on livestock for their livelihood. It also employs approximately 8.8% of India's population. India has an abundance of livestock. The livestock industry accounts for 4.11 percent of overall GDP and 25.6 percent of total agriculture GDP.

Odisha and Punjab had huge differences when compared to the aspects of owning and obtaining profit from livestock according to the latest NSSO report.

Statement 3.1.1: Percentage of households reporting owning of livestock for different States/Group of UTs/ Group of North-Eastern States									
State/Group of NE States/Group of UTs	cattle			buffalo			Ovine and other mammals	poultry birds	others
	In-milk	Young stock	others	In-milk	Young stock	others			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Odisha	16.9	22.6	23.0	0.2	0.4	0.9	28.1	21.1	0.2
Punjab	17.1	14.8	7.5	23.6	21.2	12.7	2.7	0.9	0.0

The accompanying chart shows livestock ownership in Odisha and Punjab, where we have similar or more ownership in cattle but lag far behind when it comes to buffalo. We also have a significant lead in terms of ovine animal and poultry ownership.

Statement 5.1A.1: Average monthly income (Rs.) from different sources per agricultural household during agricultural year July 2018 - June 2019 for different States/Group of UTs/ Group of North-Eastern States (where net receipt is obtained considering 'paid out expenses' approach)						
State/Group of NE States/ Group of UTs	income from wages	income from leasing out of land	net receipt from crop production *	net receipt from farming of animals*	net receipt from non-farm business	total income
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Odisha	2,649	29	1,569	416	449	5,112
Punjab	5,981	2,652	12,597	4,457	1,014	26,701

However, when you examine the average monthly income of the two states, particularly the net receipts from animal farming, you'll see a significant difference. On average, Odisha earns Rs. 416 and Punjab earns Rs. 4457. This indicates that even if we have the most ownership of livestock, either we consume more byproducts from the animals than we sell, or other variables are at play, resulting in less output. During our fieldwork in Odisha, Team PHDMA discovered that small to marginal families who deal with livestock consume more than 75-80% of the livestock's derivatives. As a result, one of the possibilities of why it's income from livestock is lower when compared to Punjab.

#### 4. Irrigation patterns

According to the SAS 2018-19, the two visits that NSS conducted had given us the results that most of the irrigation equipment acquired were from Government agencies or bought from private parties or one's savings.

Table 3: Irrigation inputs for farmers – SAS 2018-19

			Per 1000 agricultural households reporting agency of procurement of farming resources					
Resource		Number of households per 1000 agricultural households using resources for farming	Own farm	Local market	Govt. agencies	FPO	Private Processors	Others
Irrigation	Visit 1	134	19	165	509	11	155	140
	Visit 2	69	0	110	176	9	389	315

In Odisha, irrigation is a vital part of crop production. It plays an essential role in the state's agricultural growth and development. The total Irrigation Potential Created (IPC) for the 2019-20 crop year was 43.07 lakh hectares for Kharif and 19.51 hectares for Rabi. From 2015-16 to 2019-20, it has been seen that the new source Mega Lift, together with major, medium, and minor lifts, has been growing during Kharif.

**In terms of modest lift irrigation projects, as shown in Figure 4, the irrigation area is gradually improving. Borewells and LI points have proven to be a successful method of supplying water to places with low groundwater levels. However, from 2015-16 to 2019-20, irrigation use has grown, rising from 32.94 lakh hectares to 38.80 lakh hectares. Approximately 62 percent of the irrigation created in 2019-20 has been used. This indicates that a 38 percent deficit still exists, which will need to be closed in the next years through improved irrigation facilities.**

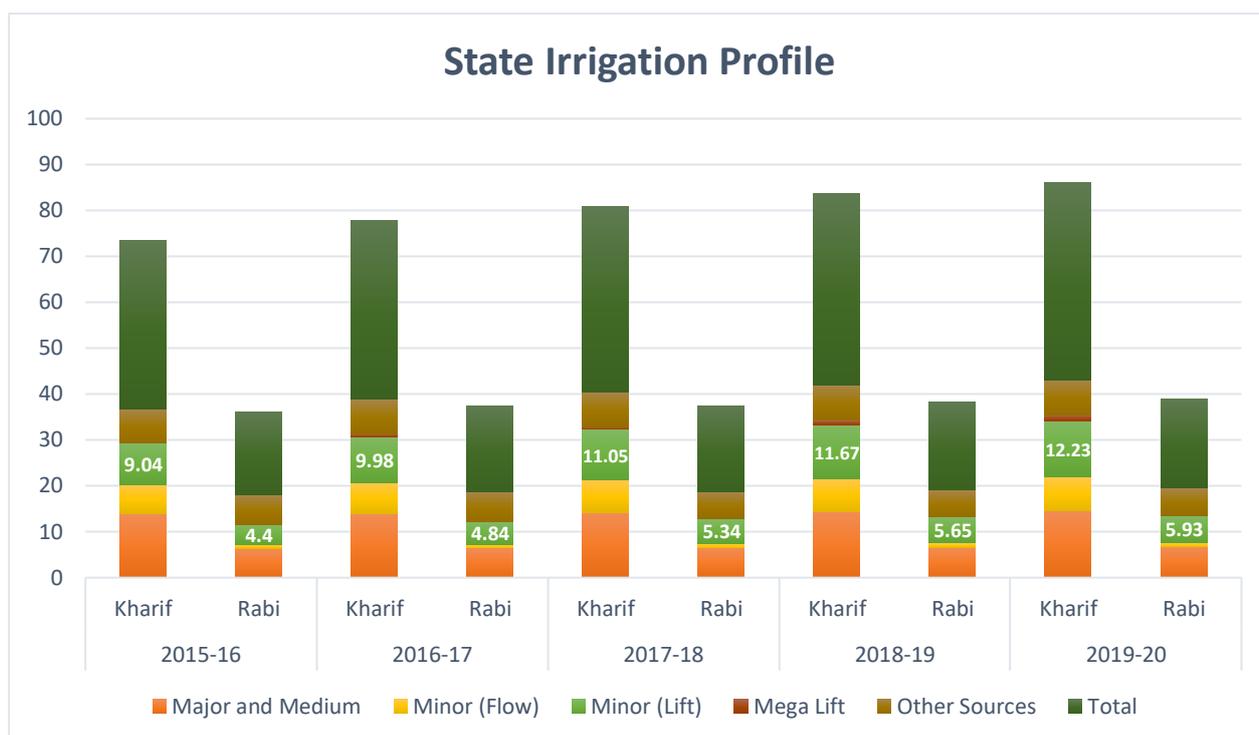


Figure 4: Irrigation Potential Created in lakh hectares – Odisha Economic Survey 2020-21

Source: Water Resource Department, Odisha & Directorate of Agriculture and Food Production, Odisha

## 5. Expenditure & Loan Patterns

Outstanding loans mostly occur to create a window of opportunities and investments. The various categories of loans are –

1. Capital Expenditure in farm business
2. Revenue expenditure in farm business
3. Non-farm business
4. Housing
5. Marriage and ceremonies
6. Education
7. Medical emergencies
8. Other Consumption
9. Others

The average monthly paid-out spending in agricultural crop production per family in Odisha was estimated to be Rs. 1,587, while the highest paid-out expenditure was reported to be Rs.11,277 in Punjab. This data demonstrates how farmers are unable to invest more in land leases and that the majority of their expenses are incurred through human labour in agriculture.

Table 4: Average monthly expenditure (Rs.) on productive assets per agricultural household reporting expenditure on productive assets and receipt from the sale of productive assets used in farm and non-farm business per agricultural household reporting sale of productive assets during agricultural year July 2018 – June 2019

State/Country	Average monthly expenditure incurred on productive assets (Rs.)						receipts from the sale of productive assets (Rs.)	Monthly average net expenditure on productive asset per agricultural household (Rs.)
	used for farm business							
	livestock and poultry	agricultural machinery and implements	Other productive assets	Total	Used for non-farm business	Total		
Odisha	45	154	103	303	4	307	517	176
Punjab	328	1319	283	1930	232	2163	981	1334
India	167	313	273	752	53	806	4559	221

Table 4 compares Odisha's average monthly expenditures to those of Punjab and India. We can readily observe that Odisha spends significantly less on agricultural gear and cattle than Punjab. The amount of money spent on this in the future will reveal the level of participation and ownership that the farmers of Odisha have developed. The average outstanding loan per farming household in Odisha is Rs.32,721. A total of 61.2 percent of farm households are in debt. When compared to the national average (Rs.74,121), this is a minor loan amount, but when compared to income, the people of Odisha have a long way to go to pay off their debts. The patterns also say that most of the loans are opted through professional money lenders (21.3%), followed by co-operative **societies** (21.2%) and scheduled commercial banks (18.8%).

## Farm mechanization

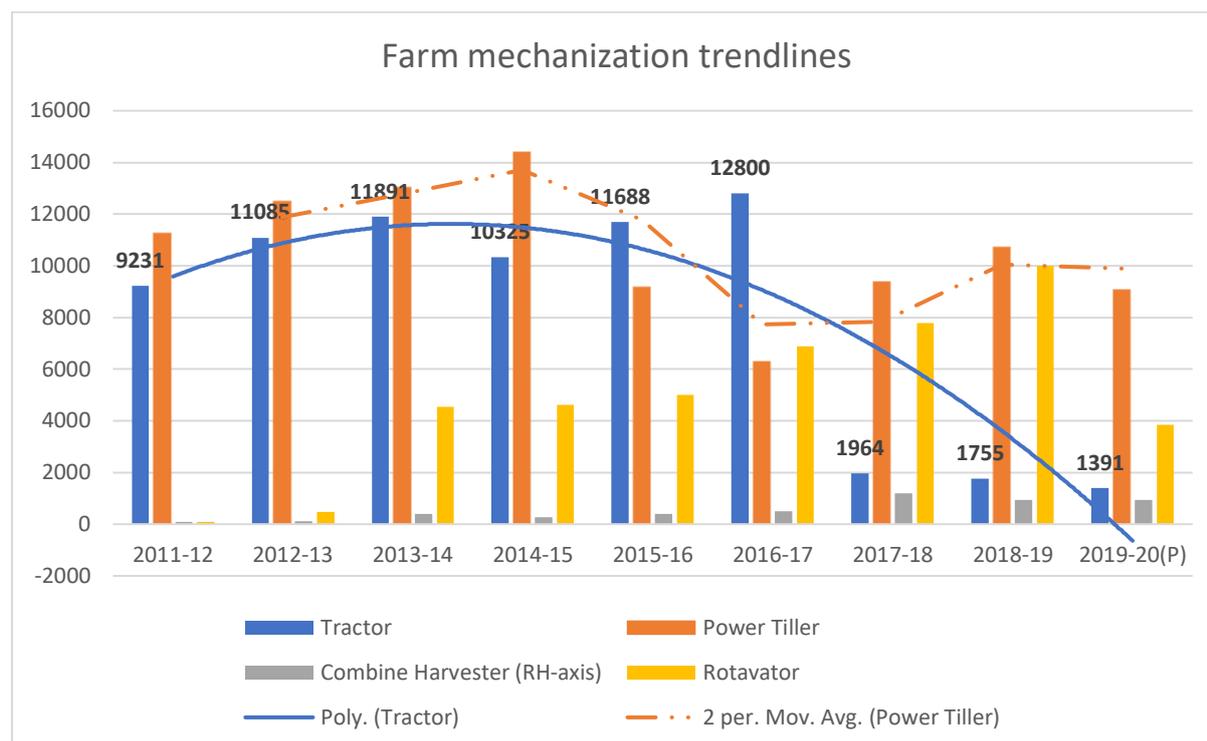


Figure 5: Farm Implements supplied under Farm Mechanization (in Number) and trends

Source: Directorate of Agriculture and Food Production, Odisha

With the data collected from the Odisha Economic survey, we have found that farm mechanization boosts output and productivity while lowering the cost of production and reliance on agricultural labour. It saves time and improved the productivity of farm workers. It also allows for more efficient use of agricultural inputs. Farm mechanization is also important because it allows farmers to perform timely and high-quality agricultural activities, lowering production costs. By providing financial help in the form of subsidies and enabling agricultural financing, the government encourages farmers to adopt upgraded farm machinery and equipment. Under State sector and Central sector programs, the State is undertaking schemes for the popularization of agricultural tools, equipment, and diesel pump sets by providing subsidies. However, as seen in the graph, the usage of farm implements, particularly the tractor, has fallen dramatically over the years, particularly after 2017. This could also back up the claim that agricultural households are spending more money on labour. Even affordable equipment for small and marginal farmers, such as Power tillers, are underutilized and used below the data's moving average.

## Observations

- Odisha is ranked the second-lowest farmer's income state after Jharkhand, but yet its farmer's income grew the fastest in the country; even faster than the national GDP from 2001 to 2013.
- With a geographic advantage, Punjab has the highest farmer's income in the country while Odisha has been facing disasters at annual intervals, slowing down the process of development.
- The net sown area has been decreasing over the years thereby increasing the area under fallow land. The increase in fallow land can be an outcome due to some of the factors like – fall of the water table, irregular rainfall patterns, overgrazing, failure in capturing fallow lands under irrigation facilities, etc.
- Despite the reduction in the agricultural area, paddy, arhar, potato, and other crops have increased in productivity.
- When compared with the increase in livestock in Punjab and the average of the entire nation, Odisha has fallen behind. When it comes to cattle, ovines, and poultry, Odisha is ahead of Punjab in terms of ownership. However, when compared to Punjab, Odisha's average monthly income from animal husbandry is more than ten times smaller. The major secondary source of farmers and primary source of landless farmers in the state is livestock. Therefore, there is a call for improvement in the area of livestock.
- Odisha's agricultural land and its rivers are the sources of vast potential in irrigation. Approximately 62 percent of the irrigation created in 2019-20 has been used. This indicates that a 38 percent deficit still exists, which will need to be closed in the next years through improved irrigation facilities.
- The agricultural households' expenditures are reported to be higher on human labour employed in agriculture, with a decreasing tendency in the usage of farming machineries such as tractors and power tillers.
- The lending patterns are also a good indicator of where the money goes in the hands of the farmers. Professional moneylenders and cooperative societies are the primary sources of credit for farmers. The money obtained through loans is primarily used for personal purposes and not improving livelihood.

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