

Impact of Farm Mechanisation on Agricultural Labourers - A Case Study of Guntur District, A.P.

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ABSTRACT: *Improving the efficiency of agricultural production is a key to pro-poor economic growth; improvements in agricultural mechanization are the principal means of doing this. Agricultural technology can affect smallholder income, labour opportunities for the poor, food prices, environmental sustainability, and linkages with the rest of the rural economy. Agricultural mechanization has been a primary factor contributing to increases in farm productivity in developing countries over the past half-century. Although there is still widespread food insecurity, the situation without current technology development would have been unimaginable. New technology can provide additional rural employment, but there are always countervailing pressures to reduce labour input and lower its costs.*

Keywords: *Mechanization, Agricultural growth, Labour saving, Productivity, Inputs, Employment.*

Date of Submission: 10-07-2019

Date of acceptance: 28-07-2019

I. INTRODUCTION

Agricultural mechanization embraces the use of tools, implements and machines for agricultural land development, crop production, harvesting, preparation for storage, and on-farm processing. Others defined mechanization as application of suitable machines, recognition of technologies and applying suitable methods for production, processing of agricultural products, continuous increase of productivity as the result of the reducing the cost of production, reduction of the losses and increase of efficiency and increase of income.

In many developing countries, agricultural production and food security are adversely affected because of insufficient use of farm power, low labour productivity and/or labourer scarcity. The need to improve agricultural labour productivity is increasingly recognized.

II. REVIEW OF LITERATURE

Thangamani and Uma Rani (2005) pointed out that women are facing so many problems in agriculture like mechanization has affected women by reducing the demand for employment in peak season. Poor access to financial services, lack of mobility and time, lack of education and lack of incentives, low status and rigid traditional and social norms and heavy work load is carried by women in agriculture. Hence, they are facing so many problems when compared to men.

Mehta, J. (2004) noted that the workforce pushed out from agriculture does not get absorbed elsewhere. 'Manufacturing' and 'service category' are just not able to accommodate it.

Saxena, M. (2004) briefly assessed that the share of labour force in agriculture to the total labour force has been showing the declining trend since 1970s. The problem of unemployment and poverty was arrested by RNFS. Besides, the study also revealed that technological advancement along with institutional changes in agriculture sector will lead to further shrinking of employment and convert the underemployed into openly unemployed seeking work elsewhere. Some of them may opt to migrate to urban areas to find some work, but the need is to diversify the economy into RNFA to provide productive employment to rural labour force as it may help in arresting migration from rural to urban areas also.

Malkiat Kaur and Sharma (1991) had observed that full mechanization of agriculture had both positive and negative impact on women from different socio-economic strata. On the one hand, it has relieved that women belonging to the upper socio-economic strata, as they have withdrawn themselves for farm work and they were utilizing this free time in other areas, where a clear trend in improvement of their status was evident. On the other hand, it has negatively affected the women from lower castes, groups, who were either landless or having uneconomic landholding by reducing demand for employment in peak season.

Eshwar and Vanita, (1985) have found that there is evidence that suggests that technological progress has much negative impact on women's employment opportunities. When a new technology is introduced to

automate specific manual labour, women may lose their jobs because they are often responsible for the manual duties. For instance, one village irrigated its fields through a bucket system in which women were very active.

Singh and Ramanna (1974) observed that the adoption of improved technology coupled with adequate credit facility dynamises the income potential and offers the single best measure to solve the chronic problem of under employment of family labour on small farms and for labour in agricultural sector in general.

With this brief background, this paper attempts to study:

- (1) Impact on poverty;
- (2) Fall in human employment

III. METHODOLOGY

For the purpose of the study, 360 agricultural labourers are selected from Guntur district of Andhra Pradesh, the criteria of stratification are size and social status of the agricultural labourers. The sample labourers are selected from Bapatla, Chebrolu, Dachepalli, Ipur, and Nadendla mandals of Guntur district of Andhra Pradesh.

Sources of Data

The study made use of both primary and secondary sources of data. The required primary data were collected from respondents by administering a pre-designed questionnaire among them.

Table 1 Social category

Social category	Frequency	Per cent	Cumulative Per cent
OC	22	6.1	6.1
BC	187	51.9	58.1
SC	92	25.6	83.6
ST	59	16.4	100.0
Total	360	100.0	

Source: Primary data

Table 1 refers to the distribution of the sample labourers by their social category. It is observed that 6.1 per cent of the sample labourers are from the socially advanced castes, 51.9 per cent are from socially backward castes, 25.6 per cent are from scheduled castes and 16.4 per cent are from scheduled tribes.

Table 2 Place of the agriculture labourers

Place	Frequency	Per cent	Cumulative Per cent
Bapatla	85	23.61	23.61
Chebrolu	76	21.11	44.72
Dachepalli	54	15.00	59.72
Ipur	80	22.22	81.94
Nadendla	65	18.06	100.0
Total	360	100.0	

Source: Primary data

Table 2 refers to the distribution of the sample labour respondents by their place. It is observed that 23.61 per cent of the sample labourers respondents are selected from Appikatla and Gudipudi villages of Bapatla mandal, 21.11 per cent are selected from Godavarru and Suddapalle villages of Chebrolu mandal, 15 per cent are selected from Bhetrupalem and Mutyalampadu villages of Dachepalli mandal, 22.22 per cent are selected from Angalur and Gundepalle villages of Ipur mandal and 18.06 per cent are selected from Chirumamilla and Irlapadu villages of Nadendla mandal of Guntur district of Andhra Pradesh.

Table 3 Impact of farm mechanization on labour-Fall in human employment

Response	Frequency	Per cent	Cumulative Per cent
Yes	288	80.0	80.0
No	72	20.0	100.0
Total	360	100.0	

Source: Primary data

Table 3 shows the distribution of the sample labour respondents by their perceptions about the impact of farm mechanization on agriculture labour with a focus fall in human employment. It is observed that 80 per

cent of the sample labour respondents have stated that a fall in human employment is evident due to farm mechanization and 20 per cent of the respondents did not subscribe to this view.

Table 4 Impact of farm mechanization on labour-Adverse effect on living conditions of labourers

Response	Frequency	Per cent	Cumulative Per cent
Yes	259	71.9	71.9
No	101	28.1	100.0
Total	360	100.0	

Source: Primary data

Table 4 shows the distribution of the sample labour respondents by their perceptions about the impact of farm mechanization on agriculture labour with a focus on adverse effect on living conditions of labourers. It is observed that 71.9 per cent of the sample labourers respondents have stated that they have experienced adverse effect on their living conditions due to farm mechanization and 20 per cent of the respondents did not subscribe to this view.

Table 5 Impact of farm mechanization on labour-Increase in poverty

Response	Frequency	Per cent	Cumulative Per cent
Yes	275	76.4	76.4
No	85	23.6	100.0
Total	360	100.0	

Source: Primary data

Table 5 shows the distribution of the sample labour respondents by their perceptions about the impact of farm mechanization on agriculture labour with a focus on increase in poverty. It is observed that 76.4 per cent of the sample labour respondents have stated that they have experienced an increase in poverty due to increasing scale of farm mechanization and 23.6 per cent of the respondents did not subscribe to this view.

Table 6 Social category and fall in human employment

Social category	Fall in human employment		Total
	Yes	No	
OC	14	8	22
	63.6%	36.4%	100.0%
	4.9%	11.1%	6.1%
BC	151	36	187
	80.7%	19.3%	100.0%
	52.4%	50.0%	51.9%
SC	73	19	92
	79.3%	20.7%	100.0%
	25.3%	26.4%	25.6%
ST	50	9	59
	84.7%	15.3%	100.0%
	17.4%	12.5%	16.4%
Total	288	72	360
	80.0%	20.0%	100.0%
	100.0%	100.0%	100.0%

Chi-Square=4.602, df=3, $\rho=0.203$, $r=-0.065$

Source: Primary data

Table 6 refers to the distribution of the sample labour respondents by their social category and by their perceptions about the impact of farm mechanization on agriculture labour with a focus fall in human employment. The correlation between the social category of the sample labour respondents and their perceptions about the impact of farm mechanization on agriculture labour with a focus fall in human employment is found to be negative ($r=-0.065$). The null hypothesis is tested with the help of Chi-square statistic with LOS=0.01 and DF=3 and found that the same is accepted. Thus, it is understood that the relationship between the social category of the sample labour respondents and their perceptions about the impact of farm mechanization on agriculture labour with a focus fall in human employment is found to be statistically independent.

Table 7 Social category and increase in poverty

Social category	Increase in poverty		Total
	Yes	No	
OC	20	2	22
	90.9%	9.1%	100.0%
	7.3%	2.4%	6.1%
BC	143	44	187
	76.5%	23.5%	100.0%
	52.0%	51.8%	51.9%
SC	70	22	92
	76.1%	23.9%	100.0%
	25.5%	25.9%	25.6%
ST	42	17	59
	71.2%	28.8%	100.0%
	15.3%	20.0%	16.4%
Total	275	85	360
	76.4%	23.6%	100.0%
	100.0%	100.0%	100.0%

Chi-Square=3.462, df=3, $\rho=0.326$, $r=0.071$

Source: Primary data

Table 7 refers to the distribution of the sample labour respondents by their social category and by their perceptions about the impact of farm mechanization on agriculture labour with a focus on an increase in poverty. The correlation between the social category of the sample labour respondents and their perceptions about the impact of farm mechanization on agriculture labour with a focus on an increase in poverty is found to be positive ($r=0.071$). The null hypothesis is tested with the help of Chi-square statistic with LOS=0.01 and DF=3 and found that the same is accepted. Thus, it is understood that the relationship between the social category of the sample labour respondents and their perceptions about the impact of farm mechanization on agriculture labour with a focus on an increase in poverty is found to be statistically independent.

IV. CONCLUSION

Thus, it is concluded that the impact of farm mechanization on human labour employment and the other related is measured and arranged in the descending order of endorsement which include increase in unemployment due to absence of alternative employment opportunities, inclusive growth of labour is not possible, heavy dependence on MGNREGS, fall in human employment, mal labour employment most adversely affected than of female labour, marginalization of the poor, low wage incomes due to low skills, increase in poverty, adverse effect on living conditions of labour, and migration to urban areas.

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Pradeep, M." Impact of Farm Mechanisation on Agricultural Labourers - A Case Study of Guntur District, A.P." International Journal of Humanities and Social Science Invention (IJHSSI), vol. 08, no. 7, 2019, pp.66-69