

# **Adaption pattern of improved Rice variety and their farm level impacts in rainfed areas: A micro level evidence from Odisha**

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The spread, adaption and determinants of modern rice varieties under different water regimes and their farm level impacts have been analyzed from the household panel data collected from 115 rice farmers under village level studies project during 2010-12. The coverage of modern varieties has been found to be only 37 per cent in medium land plots and 11 per cent in low land plots. A multivariable probit model has been used to study the factors affecting adoption of modern varieties. The important factors influencing adoption of a modern variety have been found as type of land, tenurial status of plots and status of irrigation. Therefore, a wider spread of modern rice varieties in these areas depends on the development of new varieties that are specifically adapted to these environments. The study has suggested that development of new varieties and irrigation along with adoption of land reform measures will facilitate a faster spread of modern rice varieties in the area. Under farm level impacts, it is found that the incomes of these households were quite diversified. As against the general impression that crop income dominates household income, it is observed that the non-farm income has emerged important source. Rice, which has been traditionally the main source of income in this area, has slipped to the third position, next to remittances and income from non-farm activities. The income from non-farm works and rice has accounted for 71 per cent and 20 per cent of the total income, respectively. The non-farm sources have contributed more than 90 per cent towards income inequality. The source-wise income share has also shown a similar trend at the disaggregated level of farm-size categories. The income share for livestock has been comparatively high for large farmers. The analysis of employment pattern shows that the male workers have dominated the labour market participation. A sizeable proportion of it has been in the non-farm sector. Creation of more non-farm employment opportunities, increase in investment on human resource development, more of research on development of rice varieties and assured irrigation will be needed to increase and stabilize household income in the rain fed affected areas.