

Abstract

Mounting evidence on rural livelihoods point towards a gradual transition of households from agriculture to rural non-farm sector (hereafter RNFS) with employment in the former sector now has become rarely a sufficient means of living (Barrett, Reardon and Webb, 2001; Ellis, 1998; Haggblade, Hazell and Reardon, 2010; Lanjouw and Shariff, 2004; Lanjouw and Lanjouw, 2001; Nakajima, Otsuka and Yamano, 2018). Although the RNFS was envisioned to wither away with economic growth, this residual sector, in turn, has transformed into an important livelihood strategy with its substantial contribution to employment and income. Its share of employment ranges from 32 per cent in Asia, 40 per cent in Latin America and 42 per cent in Africa (Reardon, 1997) and share of income accounts for 35 to 50 per cent (Haggblade *et al*, 2010).

In case of India, the importance of RNFS as a source of livelihood gained momentum due to continuous fall in farm productivity, increased marginalization of land holding and a stunted nature of structural transformation, resulting in a lower labor absorption capacity by both agriculture as well as urban industrial and services sector (Binswanger-Mkhize, 2013). Poverty and unemployment are, thus more widespread in rural compared to urban India (Nakajima *et al*, 2018). But unlike agriculture, the RNFS is characterized by heterogeneity with high paying formal sector jobs in modern enterprises on one hand, and availability of low paying menial jobs on the other hand (Start, 2001). As such, various demographic, household and locational factors affect an individual's probability of joining a particular non-farm occupation. This heterogeneity which remained undermined in existing literatures, is addressed in our study as ignoring this aspect may mask many differences that exists between them (Lanjouw & Lanjouw, 2001; Fisher *et al*, 1997; Unni, 1998).

Again, this diversified livelihood strategy adopted by rural households, particularly farm households are not only for employment purpose but also to benefit out of this process. These benefits accrue in terms of increased consumption expenditure and dietary diversity, reduction in poverty and vulnerability and utilization of non-farm income for farm investments. Although rural farm households benefit from diversification as established in existing literatures, yet these benefits might vary between cultivator and casual farm households as cultivators, being the food producers are more food secure and economically well off compared to casual farm households (Dzanku, 2018; Chandrasekhar, Dev & Pandey, 2014; Rahman & Mishra, 2020). Hence, we address this aspect of diversification in our thesis where benefits of diversification

in terms of magnitude and share of food and non-food consumption expenditure are estimated separately for cultivator and casual farm households. Implications of diversification by non-farm households towards agriculture are also analyzed to shed light on whether non-farm sector is still used as a supplementary occupation or can be pursued as the major income source.

Again, the welfare of rural workers also depends on the prevailing wage rates where wages can be broadly categorized into farm and non-farm wages. As movement of labor from one sector to the other occurs, there may be linkages between farm and non-farm wages which is studied here. Moreover, not only 70 million rural workers constitute wage workers but it also represents the low economic status of those involved. Particularly farm wage workers constitute the most marginalized group (Himanshu & Kundu, 2016; Himanshu, 2018) and any upward movement of wages due to diversification would contribute significantly to poverty reduction and economic upliftment. Although studies have examined the demand and supply framework of farm wage rate determination together with the impact of other growth factors, the role of non-farm wages in influencing farm wages have remained unexplored. Hence, our thesis attempts to study the determinants and linkage between rural farm and non-farm wages to analyze the responsiveness of a change in wage rates in one market on the other.

Hence, the broad objectives of this thesis include the determinants of rural non-farm employment diversification, welfare implication of diversification on rural households and the determinants and linkage between rural farm and non-farm wages. To fulfil these objectives, national level secondary data on employment and unemployment of NSSO is utilised for three time periods that includes 61st (2004–05), 66th (2009–10) and 68th (2011–12) round. Non-availability of recent employment data by NSSO resulted in restriction of data use till 2011–12. Although Periodic Labour Force Survey (PLFS) data are available, yet they lack information on some crucial variables such as the principal activity and occupation of the household, information on land and a lack of detailed information on the household's spending on various food and non-food items (Jajoria & Jatav, 2020) which practically limits its use for our thesis.

We applied a multinomial logistic regression model to estimate the determinants of non-farm employment choice compared to agriculture activities where heterogeneity of RNFS is addressed through proper segregation of this sector into various sub-categories. We broadly consider the effect of individual, household and locational factors on diversification probabilities with emphasis on the role of education, caste and land ownership on employment

diversification across gender. Our findings demonstrate a positive impact of education and vocational training on employment in manufacturing, trade and service activities while having an adverse impact on construction employment. We also observe that education enabled rural females to diversify towards manufacturing and construction sector employment and their probability to join trade and service activities further increases if they belong to land owning households. Non-farm employment is also preferred by low caste ST, SC and OBC workers who are not only deprived of physical endowments but also lack adequate human capital. On the other hand, land owning households are less likely to diversify and more likely to engage in cultivation. Also, we found that the tendency to join non-farm activities rises with an increase in dependency ratio while it falls with a rise in household size. This might reflect a distress induced process where diversification is adopted as a survival strategy. Ebaidalla (2022) also observed that households with more dependents diversify to non-farm activities in rural Sudan to meet the household income requirements.

Again, diversification also refers to a situation where individuals combine more than one economic activity and to examine this aspect of diversification separately for rural farm and non-farm workers, we applied a binary logit regression model and pooled the data for all the three time periods. We also focused on the direction of diversification where diversification from farm to non-farm occurs when farm workers whose principal occupation is in agriculture also engage in non-farm activities as a subsidiary worker. Similarly, non-farm workers are regarded as diversified when they also supply labor in farm activities. Workers who engage in only one activity form the non-diversified group. Here, we try to analyze the nature and characteristics of workers who diversify from farm to non-farm and those who diversify from non-farm to farm. The results show that older people are less likely to combine multiple economic activities whether they are farm workers or non-farm workers. Specialization in either activity is also preferred by educated individuals who can earn high returns through utilisation of their skills. Our findings demonstrate the significance of non-farm employment for low caste workers who not only specialise in non-farm activities but also diversify to non-farm activities even if their principal occupation is in agriculture. We further found that diversification strategy varies between males and females. While diversification from farm to non-farm employment has increased for rural female workers, males are more likely to diversify from non-farm to farm. Inheritance of land mostly by male members might increase their chance of working on the field. Diversification is also more likely to happen in regions where unemployment rate is high signifying that workers try to engage in work other than their

principal occupation when there is an overall fall in income levels. Therefore, we observe that workers combine multiple activities only as a response to cope with push factors like high dependency ratio and high unemployment rate.

Furthermore, for analysing the well-being of diversified rural households, we applied Propensity Score Matching (PSM) method. We observe that both rural farm and non-farm households are in a better position in terms of higher spending on food and non-food items due to diversification. For instance, diversified casual farm households could spend rupees 276 and rupees 593 more on food and non-food during 2011–12. However, benefits differ for cultivator and casual farm households when they completely shift towards non-farm employment. A complete shift of cultivator households to non-farm self-employment lowers their spending on food and non-food while for casual farm households, switching to casual non-farm activities resulted in a gain in their consumption expenditure. The findings demonstrate the low economic status of casual farm households which can be improved either through combining farm with non-farm activities or by shifting completely to casual non-farm employment. Similarly, for casual non-farm households, diversification to farm activities results in greater consumption expenditure but for self-employed non-farm households, diversification significantly enhances the magnitude of food expenditure only, without having any impact on non-food expenditure. Therefore, we say that an overall increase in consumption spending has occurred for self-employed non-farm households because of diversification. In addition to this, diversification also affects the household's pattern of food and non-food spending where cultivator households tend to spend a greater share of income on non-food items like durable goods, education and health and lowers their expenditure share on food. For casual farm and casual non-farm households, diversification significantly reduces their food expenditure share without having any impact on non-food share. Again, for self-employed non-farm households, diversification augments only their food expenditure share while reducing their share of non-food expenditure. Thus, it is observed that occupational diversification can be a welfare enhancing process, particularly for casual households who are at the low level of income strata. However, this livelihood strategy does not have a uniform impact on welfare and depends crucially on the household type and nature of diversification strategy adopted.

Lastly, we estimated the determinants of rural farm and non-farm wages where wage rates are calculated at the state region level of NSSO forming a panel data for three time periods. We applied fixed effects panel model due to absence of any simultaneity issue related to farm and non-farm wage determination. We observe a close association between rural farm and non-

farm wages where a rise in wage rate in one market led to an increase in wages in the other market. We find a direct positive effect of a rise in real non-farm wage on farm wages and a positive impact of farm wage on non-farm wages. For instance, a one-rupee increase in non-farm wage increases wages of casual farm workers by 0.220 rupees. Similarly, increase of farm wage by one rupee increases non-farm wage by 0.243 rupees. This indicates that any rise in non-farm wages acts as a pull factor for daily wage workers in agriculture which results in a shift of workforce from farm to non-farm sector. This shift of workers creates a situation of labor scarcity in agriculture leading to an increase in farm wages as well. Apart from non-farm wages, rural farm wages also respond positively to a rise in irrigation intensity and share of farm wage workers. We also observe an increasing trend in the movement of both farm and non-farm wages over time but since the magnitude of a rise in non-farm wage is higher than that of farm, therefore, we do not observe any convergence of farm and non-farm wages for these time periods.

Based on the above findings, the study suggests that employment in remunerative non-farm jobs not only requires adequate human capital but also availability of jobs as well. Since education also favors rural females to engage in work outside agriculture, therefore, policies should focus on easy accessibility of formal and vocational training facilities. Skill training programs would particularly benefit women to compete for non-farm jobs. Also, expansion of infrastructure facilities like all-weather roads, electricity, and telecommunications and even a well-functioning financial market would better serve the diverse employment requirements of the people. We also observe a positive linkage between rural farm and non-farm sectors not only through its favourable effect on household consumption expenditure but also through wages. As such policies should focus on strengthening the growth linkage between these two sectors. Investments in agricultural technology, transport and communication and electrification would encourage development of non-farm businesses as well.

