



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(8): 514-516
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www.thepharmajournal.com
Received: 13-06-2021
Accepted: 15-07-2021

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Income diversity of the farm household in Kabirdham district of Chhattisgarh

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Abstract

India is the second highest income inequality country in the world lower than only South Africa. Inequality in income would be much higher than that of consumption. Consumption Gini coefficient is 0.36 in 2011-12. Inequality in income is high with a Gini coefficient of 0.55 while wealth Gini coefficient is 0.74 in 2011-12. The present study has been undertaken to Chhattisgarh state having three agro climatic zones *i.e.*, Chhattisgarh Plains, Northern Hill and Bastar Plateau. Kabirdham district was selected because more diversity in the income of farm households than that of other districts of Chhattisgarh plains. The farm households survey was conducted for the agricultural year 2018-2019. In all sample size of 330 respondents was selected for the present study. The results of the income diversification Income of farm households based on income generated by all farms income sources across different farms size groups indicates that diversification index was highest was marginal farms size 0.69 and it was found to be lowest for large farms 0.51.

Keywords: income diversification, Simpson diversification index, agro-climate zone and Chhattisgarh

Introduction

Rural farm households earn their income from multiple sources including on farm, non-farm and off farm. Apart from agriculture which is taken as the pillar of Indian rural farm households earning agricultural labour, livestock, forestry, fishery, poultry and off farm income supplement the earnings of farm households which are entirely dependent on agriculture based activities. Income diversification can also be defined as the process of switching from low value crop production to a high value crop, livestock and non-farm activities. Distinction can be made among growth in crop income, non crop agricultural income (livestock, fisheries and forestry) and non-agricultural income, which includes both off-farm wage labour and non-farm self-employment (Escobal 2001) ^[1]. India is predominantly an agriculture based country. 70 per cent of its population is rural of those households 60 per cent engage in agriculture as their main source of income. It is a major income field of Indian economy. Here agriculture and allied activities are the main occupations of the people in rural India. About per cent of the Indian farmers are small (less than or equal to two ha.) (GOI 2014a). Diversification is refers to the process by which rural households construct increasingly diverse livelihood portfolios, making use of increasingly diverse combinations of resources and assets in order to meet their basic needs, improve their living standards or welfare, and manage risk (Wan *et al.* 2016). The studies generally assume two economic incentives of farm diversification as an objectives *i.e.*, farmers either seek to generate a portfolio of income from activities risk minimization, or they seek to optimally allocate the households productive assets among different income generating activities (Rathmann 2007) ^[6].

India is predominantly an agriculture based country. 70 per cent of its population is rural of those households 60 per cent engage in agriculture as their main source of income. It is a major income field of Indian economy. Here agriculture and allied activities are the main occupations of the people in rural India. About per cent of the Indian farmers are small (less than or equal to two ha.) (GOI 2014a). Despite a significant decline in its share in gross domestic product (GDP) to 15.4 per cent in 2015-16 from 29 per cent in 1990-91, agriculture engages half of the countries workforce (GOI 2014b). Over the past three decades, Indian agriculture has grown at an annual rate of around 3 per cent. This has helped improve farm incomes and reduce rural poverty (Datt and Ravallion 1996 and Warr 2003).

Methods and Materials

Out of these agro climatic zones, Chhattisgarh Plains has been selected which comprised of 15 districts. Out of these 15 districts, Kabirdham district was selected because medium and more diversity in the income of farm households than that of other districts of Chhattisgarh plains. Among them two blocks that is Kawardha and Pandariya were selected for the present study. From the total numbers of villages in the sampled blocks two villages was undertaken from each direction and central part of the block *i.e.*, North, South, East, West and Central. The percentage of proportionate sampling method was adopted for selection of respondents through which 10 per cent farmers were undertaken from each farm size of holdings *i.e.*, marginal (up to 1.0 ha), small (1.0 to 2.0 ha), medium (2.0 ha to 4.0 ha) and large farmer (above 4.0 ha) based on their holding size and 10 per cent respondent from each of the 4 categories for the 20 selected villages have been sampled to collect the required information. In all sample size of 330 respondents was selected for the present study.

The present study fundamentally utilized primary data and secondary data which were collected for year 2018-19 through the extensive survey of sampled farm households. It used well structured pre-tested interview schedule. Secondary data was however used to discuss the agro-economic features of the study area. The main sources of secondary data were various journal, published source, government websites and other sources.

Analysis of data

The collected of data will be tabulated and analyzed. The tools used for the analysis of the data are presented and discussed below.

Method of analysis

To estimate the income diversity among the sampled farm households a Simpson Diversity Index was used:

There are various indicators and indices are there to measure income diversification like number of income sources and their share, Simpson index, Herfindahl index, Ogive index, Entropy index, Modified Entropy index and Composite Entropy index (Shiyani and pandiya, 1998), etc. In present study diversity in the income among the sampled farm households a Simpson Diversity index were applied. The

formula of Simpson Diversity income is as follow.

$$SDI = 1 - \sum_{i=1}^N P_i^2$$

Where,

SDI = Simpson Diversification Index.

P_i = Proportion of income coming from i^{th} source.

N = Total number of income sources.

Results and Discussion

Income diversification of farm households

Income diversification of farm households presents the various income generating activities of the farm households. Farm households are engaged in on-farm, off farm and non-farm income generating activities. Attempt was made to compute diversification indices among the on-farm income sources, non-farm income sources, among the off farm income sources between on-farm, non-farm income sources and off farm income sources as well as all income sources to examine the income diversification across farm size. For the present study Simpson's index (SDI) was used for measuring income diversification using income as a variable. The value of SDI lies between 0 and 1. If the value of SDI is nearer to 0, it indicates less diversification or specialization and conversely, more diversified if the value is nearer to 1.

Income diversification of farm households based on farm income sources across farm size

Table 1 presents the income diversification farm households based on on farm income sources across farm size. The income proportion from different on-farm income sources was considered for computing SDI. From the Table, it was found that SDI values varied from as low as 0.28 in large farms to as high as 0.40 in marginal farms with an average of 0.32 for all farms. Thus, it is clear that marginal farms were more diversified followed by small and large, respectively. large farms were least diversified which might be due to less contribution of arhar and soyabean crop and horticulture crop component to annual net income from on-farm income sources compared to contribution from crop component.

Table 1: Income diversification of farm households based on on farm income sources across farm size

Farm size	Marginal	Small	Medium	Large	Over all
SDI	0.40	0.33	0.30	0.28	0.32

Income diversification of farm households based on non-farm income sources across farm sizes

Income diversification of farm households based on non-farm income sources across farm size is presented in the Table 2. Income proportion from different non farm income sources was used for computing the diversification indices. From the Table, it was found that SDI values varied from as low as 0.37

in small farms to as high as 0.50 in medium farms with an average of 0.44 for all farms. This might be due to the fact that contribution of business was more in all the size groups, but wages employments highly contributed to annual net income of marginal farms. Rent out of land was highly contributed to annual net income of large farms.

Table 2: Income diversification of farm households based on non-farm income sources across farm size

Farm size	Marginal	Small	Medium	Large	Over all
SDI	0.44	0.37	0.50	0.48	0.44

Income diversification of farm households based on off-farm income sources across farm sizes

Income diversification of farm households based on off farm income sources across farm size is presented in the Table 3.

Income proportion from different off farm income sources was used for computing the diversification indices. From the Table, it was found that SDI values varied from as low as SDI 0.45 in marginal farms to as high as SDI 0.83 in medium

farms with an average of 0.67 for all farms. From the table it is evident that medium farmers were found to be more diversified than other group of farmers with SDI 0.83. Revealed that the medium farms were more diversified followed by large and small, respectively. Marginal farms were less diversified which might be due to less contribution of poultry, dairy, fishery and goatry component to annual net

income from on-farm income sources compared to contribution from crop component. This might be due to the fact that contribution of forestry and livestock was more in all the size groups, but wage earning on other farm highly contributed to annual net income of marginal farms and small farms.

Table 3: Income diversification of farm households based on off farm income sources across farm size

Farm size	Marginal	Small	Medium	Large	Over all
SDI	0.45	0.67	0.83	0.76	0.67

Income diversification of farm households based on all income sources across farm size

Table 4. represents the existing Income diversification of farm households based on all income sources across farm size. It was revealed that the value of SID were 0.69, 0.67, 0.51 and 0.55 for marginal, small, medium and large farms with an average of 0.60 for all farms. Thus marginal farmers were

more diversified than the other group of farmers as SID has a direct relationship with diversification. Land holding of the marginal farmers was less due to which they were more involved in activities like rearing of, wage earnings of other farm and wages employment and other non-farm business was more in all the size groups. While in case of large farms, diversification index was found to be lowest.

Table 4: Income diversification of farm households based on all farm income sources across farm size

Farm size	Marginal	Small	Medium	Large	Over all
SDI	0.69	0.67	0.55	0.51	0.60

Suggestion and policy measures

Based on the results of the present study area, the following suggestions may be made for appropriate policy measures. Proper plans should be formulated to establish profitable on farm, non-farm and off farm. Establishment of proper market infrastructures and storage facilities use of improved technologies and machineries can boost up the income generating activities. Easy access to the market information can help farmers to sell their produce in the markets with better remunerative price. Credit is one of the vital prerequisite of the farmers and the backbone for each sector of the economy. Proper timely access to credit facilities facilitates the farmers to meet the farm needs and capital requirements. Linkage of credit between financial institution and extension agencies as well as farmers can help the farmers in a proper way. Insurance for agriculture is the most importance. Provision of proper insurance facilities can help the farmers in reducing risk and enhance farmers income. Integration of several activities like crop farming and livestock farming along with fish farming and also silk worm breeding, apiculture, mushroom cultivation etc. based on the area must be encouraged to develop the income of farmers.

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