



Research Article

COMPARISON BETWEEN THE CONTRIBUTION OF FARM AND NON-FARM ACTIVITIES TOWARDS HOUSEHOLD INCOME AND EMPLOYMENT IN EAST-SIANG DISTRICT, ARUNACHAL PRADESH

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Received: February 07, 2020; Revised: February 25, 2020; Accepted: February 26, 2020; Published: February 28, 2020

Abstract: The present study was designed to study systematically the contribution of farm and non-farm activities towards rural income and employment in Arunachal Pradesh, India. Two blocks viz. Pasighat and Mebo were selected purposively from East Siang district comprising a total respondent of 100. Both primary and secondary data were collected from various sources during the year 2017-18. Based on primary activities (occupation) 58% respondents were classified as non-farm households against 42% as farm households. Among the farm households, Agriculture + Horticulture + Livestock (60.28%) and Non-agro based business (21.58%) are the important source of income generation as farm and nonfarm activity respectively and Agriculture + Horticulture + Livestock (45.68%) as farm activity and Service + Non-agro based business + Labour (18.27%) as non-farm activity respectively, are the important source of income generation for a large majority of non-farm households. In non-farm households, the contribution of income from non-farm activities was very much high in comparison to the contribution of income from the farm sector. It also revealed that non-farm sector generates more employment opportunities than farm sector. T-statistics also indicated that income from non-farm sector gives more contribution to the rural households. Based on comparable differences between farm and non-farm respondents on income generation and employment opportunities, it can be concluded that non-farm sector has been contributing tremendous income generation and employment opportunities to the rural people in East Siang district of Arunachal Pradesh.

Keywords: Contribution, Farm, Non-farm, Income and employment

Citation: Pertin M., et al., (2020) Comparison Between the Contribution of Farm and Non-farm Activities Towards Household Income and Employment in East-Siang district, Arunachal Pradesh. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 12, Issue 4, pp.- 9569-9572.

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Academic Editor / Reviewer: Dr N N Jambhulkar

Introduction

Agriculture is an important sector for the growth of Indian Economy. Nearly, 70-80% of the rural households depend on agriculture for employment and livelihood. At the same time, non farm or non-agricultural activities also provide lots towards rural income and employment. Only farming in India is not capable to provide livelihood support, specifically for rural marginal and small farmers. Their small holding is not sufficient to earn adequate income for their living [1,2]. It has been reported that, due to falling of output elasticity of employment within the sectors, the agriculture sector alone cannot absorb the growing rural labour forces completely [3]. As agriculture sector is unable to provide complete eradication of rural poverty and rural unemployment, non farm activities must take a lead role in this direction. And as a result, out of necessity, workers are being pushed into the non-farm sector, and pulled by the dynamic rural non-farm opportunities. Non-farm sector has achieved great importance to rural economy for its productive and employment effects in Arunachal Pradesh state [4]. The non-farm employment may include activities like agro processing industries, wholesale and retail trading, storage and communication, transport and education, health industries and other service related activities. These activities provide subsidiary employment to small and marginal agricultural households especially during the slack season and these activities can be reduced income inequalities and rural urban migration. Under this circumstances, present study was designed to study systematically the comparison between contribution of farm and non-farm activities towards household income and employment in East Siang district of Arunachal Pradesh.

Material and Methods

Research work carried out at Nagaland University, Nagaland, India. Study was conducted in East-Siang district of Arunachal Pradesh.

Two blocks i.e., Pasighat block and Mebo block were purposively selected for the study, comprising of 100 respondents from 10 purposively selected villages. Both primary and secondary data were used for the study. Primary data were collected through structured schedule during 2017-2018 from all the sample respondents. The data collected were processed and analyzed using appropriate mathematical and statistical tools in order to get valid conclusions. T-statistics as well as correlation analysis were used in order to get some specific conclusions in some parts of the study.

Results and discussion

Income distribution based on combination of activities among the farm households [Table-1] shows income generated from some important combination of different farm and non-farm activities among farm households. Respondent whose primary occupation was based on agriculture and allied, were termed as farm households and otherwise they were grouped as nonfarm households. Moreover, although farm households concentrate mainly on farm activities, they do non farm activity also. Similarly, non-farm household also do some farm activities in addition to their normal non-farm business. In Pasighat block, the combination of farm activities which are the main source of income generation were identified as follows: Horticulture + Livestock (57.02%), Agriculture + Horticulture + Livestock (23.83%), Agriculture + Livestock (13.40%) and Agriculture + Horticulture + Livestock + Other (5.74%) and in Mebo block, Agriculture + Horticulture + Livestock (79.71%), Horticulture + Livestock (15.76%) and Agriculture + Livestock (4.54%) were identified as the main source of income generation of farm households. Again, in Pasighat block, the combination of non-farm activities which are identified as the major source of income generation are as follows: Service (26.94%), Agro based business + Handicraft (25.04%), Non-agro based business (15.21%).

Table-1 Income distribution based on combination of activities among the farm households (N=42)

SN	Farm activity pattern	Income			Non-farm activity pattern	Income		
		Pasighat block	Mebo block	Total		Pasighat block	Mebo block	Total
1	Agriculture + Horticulture + Livestock + Other	27000 (5.74)	0	27000(2.00)	Service + Agro based business + Labour	0	107000(15.71)	107000(10.74)
2	Agriculture + Livestock	63000(13.40)	40000(4.54)	103000(7.62)	Service	85000 (26.94)	12000(1.76)	97000(9.73)
3	Horticulture + Livestock	268000(57.02)	139000(15.76)	407000(30.10)	Non-agro based business	48000(15.21)	167000(24.52)	215000(21.58)
4	Agriculture + Horticulture + Livestock	112000(23.83)	703000(79.71)	815000(60.28)	Handicraft	0	124000(18.21)	124000(12.44)

Figures in parentheses indicate percentage to total income

Table 2 Income distribution based on combination of activities among the non-farm households (N=58)

SN	Farm activity pattern	Income			Non-farm activity pattern	Income		
		Pasighat block	Mebo block	Total		Pasighat block	Mebo block	Total
1	Agriculture + Livestock	446250 (43.36)	20033 (3.10)	466283(27.84)	Service + Non-agro based business	986291 (21.03)	47000 (3.51)	1033291 (17.14)
2	Agriculture + Horticulture + Livestock	206567 (20.07)	558403 (86.50)	764970(45.68)	Service + Non-agro based business + Labour	1086500 (23.17)	14800 (1.11)	1101300 (18.27)
3	Horticulture + Livestock	59177 (5.75)	24000 (3.72)	83177(4.97)	Agro based business + Handicraft	1013900 (21.62)	0	1013900 (16.82)
4	Horticulture + Fishery	150000 (14.57)	0	150000(8.96)	Non-agro based business	273000 (5.82)	789350 (58.94)	1062350 (17.62)
5	Horticulture + Livestock + Other	80000 (7.77)	0	80000(4.78)	Handicraft	503500 (10.74)	119500 (8.92)	623000 (10.33)

Figures in parentheses indicate percentage to total income

Table-3 Summary of income among the farm households (Values in Rs.) N=42

Name of the block	Farm income	Non-farm income	Total income	Average household income(per year)
Pasighat (14)	470000 (59.8)	315500 (40.2)	785500 (100.0)	56107
Mebo (28)	882000 (56.4)	681000 (43.6)	1563000 (100.0)	55821
Total (42)	1352000 (57.57)	996500 (42.43)	2348500 (100.0)	55916

Figures in parentheses indicate percentage to total income

In Mebo, Non-agro based business (24.52%), Handicraft (18.21%), Service + Agro based business + Labour (15.71%) are the major combination of non-farm activity. It can be concluded that of all the combination of farm and non-farm activities: Agriculture + Horticulture + Livestock (60.28%) and Non-agro based business (21.58%) are the important source of income generation of farm households, that contributed more in the rural economy in East Siang district of Arunachal Pradesh.

Income distribution based on combination of activities among the non-farm households

[Table-2] shows the income generated by the respondent households by different combination of activities among the non-farm households (42). In Pasighat block, out of different activity combination Agriculture + Livestock contributed the highest income share (43.36%) followed by Agriculture + Horticulture + Livestock (20.07%), Horticulture + Fishery (14.57%) etc. Again in Mebo block, the combinations of Agriculture + Horticulture + Livestock (86.50%) contributed the highest income followed by Horticulture + Livestock (3.72%) and Agriculture + Livestock (3.10%). Study also identified the combination of different non-farm activities in Pasighat block, such as Service + Non-agro based business + Labour (23.17%) found to be the highest followed by Agro based business + Handicraft (21.62%), Service + Non-agro based business (21.03%), Handicraft (10.74%) etc. Again, in Mebo block, Non-agro based business (58.94%) found to be the highest income generated activity pattern followed by Handicraft (8.92%), Service + Non-agro based business (3.51%), and Service + Non-agro based business + Labour (1.11%).

It can be concluded that, among the farm activity pattern Agriculture + Horticulture + Livestock combination contributed the highest income (45.68%) and among the non-farm activity pattern Service + Non-agro based business + Labour combination contributed the highest income (18.27%) among the non-farm households (58) in East Siang district of Pasighat.

Summary of income among the farm households

[Tables-3] shows the summary of income derived from different farm and non-farm activities among the farm households in the two blocks of East-Siang district. In Pasighat block, total annual income stood at Rs. 7,85,500/- among the farm

households with an average annual income of Rs. 56,107/-. Out of total, 59.8% derived from farm activities i.e., Rs. 4,70,000/- and 40.2% from non-farm activities i.e., Rs. 3,15,500/-. Whereas in Mebo block, total annual income among the farm households recorded a bit higher of Rs. 15,63,000/- as number of farm household was more (28) with an average annual income of Rs. 55,821/-, 56.4% derived from farm activities i.e., Rs. 8,82,000/- and 43.6% from non-farm activities i.e., Rs. 6,81,000/-. In totality, the total annual income reported as Rs. 23,48,500/- with an average annual income of Rs. 55,916/- in which 57.57% of income were derived from farm activities i.e., Rs. 13,52,000/- and 42.43% from non-farm activities i.e. Rs. 9,96,500/-.

It can be concluded that among the farm household also, the role of non-farm activities is very significant as the contribution of income from non-farm sector was quite high. Of course, among the farm households, farm income was obviously high in both the blocks. It is also stated that rural non farm income is an important resource for farm and other rural households, including the landless poor as well as rural town residents [5]. It was reported that the majority of rural population in developing country was mainly depending on agriculture sector both for its livelihood and employment. It has been stated that in the rural communities, mostly households occupied in non-farm activities in order to enhance economic base [6].

Summary of income among the non-farm households

[Table-4] shows the summary of income derived from different farm and non-farm activities among the non-farm households in East-Siang district. In Pasighat block, the total annual income among the non-farm households recorded as Rs. 57,18,239/- with an average annual income of Rs. 1,58,840/- (18.0% from farm activities i.e. Rs. 10,29,244/- and 82.0% from non-farm activities i.e. Rs. 46,88,995/-). Whereas in Mebo block, the total annual income among the non-farm households recorded as Rs.19,27,869/- with an average annual income of Rs. 91,803/- (30.8% from farm activities i.e. Rs. 5,93,719/- and 69.2% from non-farm activities i.e. Rs. 13,34,150/-). In totality, the total annual income reported as Rs. 76,46,108/- with an average annual income of Rs. 1,31,829/- in which 21.22% of income were derived from farm activities i.e. Rs. 16,22,963/- and 78.78% of income were derived from non-farm activities i.e. Rs. 60,23,145/-.

Table-4 Summary of income among the non-farm households (Values in Rs.) N=58

Name of the block	Farm income	Non-farm income	Total income	Average household income (per year)
Pasighat (36)	1029244 (18.0)	4688995 (82.0)	5718239 (100.0)	158840
Mebo (22)	593719 (30.8)	1334150 (69.2)	1927869 (100.0)	91803
Total (58)	1622963 (21.22)	6023145 (78.78)	7646108 (100.0)	131829

Figures in parentheses indicate percentage to total income

Table-5 Status of employment generation among the rural households

Name of the block	Farm household		Non-farm household		Total man-days	Overall average man-days
	Total man-days	Average man-days	Total man-days	Average man-days		
Pasighat	6660 (24.87)	475	20123 (75.13)	558	26783 (100.0)	536
Mebo	15305 (55.35)	546	12346 (44.65)	561	27651 (100.0)	553
Total	21965 (40.35)	523	32469 (59.64)	560	54434 (100.0)	544

Figures in parentheses indicate percentage to total

Table-6 Comparison of farm and non-farm income (Rs. per year per household)

Particular	Pasighat	t-value	Mebo	t-value	District total	t-value
Farm sector	29985	3.84**	29514	0.827(NS)	29750	3.55**
Non-farm sector	100090		40303		70196	

** Significant at 1% level, NS- Not Significant

Table-7 Comparison of income among the farm and non-farm households (Rs. per year per household)

Particular	Pasighat	t-value	Mebo	t-value	District total	t-value
Farm household income	56107	4.14**	55821	1.36(NS)	55916	4.14**
Non-farm household income	158840		91803		131829	

** Significant at 1% level, NS- Not Significant

It can be concluded that in non-farm households, the contribution of income from non-farm sector was very much high in comparison to the contribution of income from the farm sector. Again, among the blocks, in Pasighat contribution from non-farm sector was quite high. Non-farm activity has been immensely helpful for the villagers as it not only provided employment but also good income all the year [7].

Status of employment generation among the rural households

[Table-5] presents the status of employment generation among the rural households in respect of farm and non-farm sector. In Pasighat block, the total man-days created was 26783 in which 20123 (75.13%) man-days generated from non-farm activities and 6660 (24.87%) man-days generated from farm activities with an average annual man-days of 558 man-days per household from non-farm activities and 475 man-days per household from farm activities. And in Mebo block, the total man-days created was 27651 in which, 12346 (44.65%) man-days generated from non-farm activities and 15305 (55.35%) man-days generated from farm activities with an average annual man-days of 561 man-days per household from non-farm activities and 546 man-days per household from farm activities.

It can be concluded that non-farm sector generated significant employment opportunities in West Siang district among both farm and non-farm households. Many organisation found in their study that the rural non-farm activities are the important sources of employment and income generation for a large majority of rural workers [8-10].

Comparison of farm and non-farm income by farm and non-farm household

[Table-6] shows the overall comparison between farm and non-farm income earned by the respondent households by using t-test. In Pasighat block, the income generated from farm sector remained lesser than non-farm sector and further t-statistics indicated the significant difference (1% level) of average income between farm income and non-farm income. In Mebo block, the income generated from farm sector remained lesser than non-farm sector and t-statistics indicated the non-significant difference. As a whole, in East-Siang district, it shows the significant difference (1% level) between average income generated from farm and non-farm sector. It indicates that income from non-farm sector gives more contribution to the rural households.

Comparison of income among the farm and non-farm households

[Table-7] shows the comparison of income between farm and non-farm households by using t-test. In Pasighat blocks, the income from farm households is less than non-farm households. Further t-statistics indicated significant

difference (1% level) of average income between farm households and non-farm households. In Mebo block, the income from farm households remained lesser than non-farm households and t-statistics indicated non-significant difference. In the district, it shows the significant difference (1% level) of average income between farm and non-farm households. It can be concluded that income contributed from non-farm sector was higher than farm sector among the rural households.

Association of some independent variables with income and employment generation

Correlation analysis was carried out to see the association-ship between various independent variables viz. age of respondent, educational qualification, family size, family type, occupation, type of house, training imparted to the respondent, member of local body/organization and benefit by govt. schemes etc. and dependent variables viz. non-farm income, farm income, total income, expenditure, savings, non-farm employment, farm employment and total employment. The following [Table-8] indicates the correlation coefficient values (r) to show the relationship of the above independent variables with different types of income and employment indexes. In East-Siang district, it indicated that most of the independent had maintained non-significant relationship with almost all types of dependent variables and in some cases, it was even negative. It can also be concluded that age of respondent and type of house had to some extent positive and significant (1% or 5% level) relationship with value of income and employment indexes in some cases, otherwise, the other variables viz. occupation, training imparted to respondents and benefit from govt. scheme had negative significant (1% or 5% level) relationship. And all the other variables had maintained either non-significant (but positive) relationship or no relationship. It was found in Kerala state also. It was stated that the employment structure in rural areas of Kerala did not show any significant overall improvement due to non-farm sector, but rural prosperity had increased among casual workers [11].

Conclusion

It can be concluded that of all the combination of farm and non-farm activities, Agriculture + Horticulture + Livestock (60.28%) and Non-agro based business (21.58%) respectively, are the important source of income generation of farm households and Agriculture + Horticulture + Livestock (45.68%) and Service + Non-agro based business + Labour (18.27%) respectively, are the important source of income generation for a large majority of non-farm households in East-Siang district.

Table-8 Association of independent variables with income and employment

Independent variables	Coefficient of correlation (r) with income and employment							
	Non-farm income	Farm income	Total income	Expenditure	Saving	Non-farm employment	Farm employment	Total employment
Age	0.166 ^{NS}	-0.173 ^{NS}	0.122 ^{NS}	0.167 ^{NS}	0.07 ^{NS}	0.143 ^{NS}	0.148 ^{NS}	0.248 ^{**}
Education	0.226 ^{NS}	-0.037 ^{NS}	0.206 ^{NS}	0.174 ^{NS}	0.218 ^{NS}	0.189 ^{NS}	-0.055 ^{NS}	0.146 ^{NS}
Family size	0.119 ^{NS}	-0.017 ^{NS}	0.110 ^{NS}	0.160 ^{NS}	0.054 ^{NS}	-0.041 ^{NS}	0.271 ^{NS}	0.157 ^{NS}
Family type	0.152 ^{NS}	-0.139 ^{NS}	0.116 ^{NS}	0.158 ^{NS}	0.067 ^{NS}	-0.120 ^{NS}	0.066 ^{NS}	-0.070 ^{NS}
Occupation	-0.399 ^{NS}	-0.137 ^{NS}	-0.405 ^{NS}	-0.361 ^{NS}	-0.410 ^{NS}	-0.126 ^{NS}	-0.103 ^{NS}	-0.199 [*]
Type of house	0.235 ^{NS}	0.109 ^{NS}	0.245 ^{**}	0.231 ^{NS}	0.236 ^{NS}	0.344 ^{NS}	-0.133 ^{NS}	0.240 ^{**}
Training programme attended	-0.251 ^{**}	-0.076 ^{NS}	-0.254 ^{**}	-0.239 ^{NS}	-0.245 ^{**}	-0.292 ^{NS}	-0.226 ^{NS}	-0.451 ^{NS}
Member of SHG/FO	-0.101 ^{NS}	-0.296 ^{NS}	-0.156 ^{NS}	-0.096 ^{NS}	-0.196 [*]	-0.164 ^{NS}	-0.295 ^{NS}	-0.376 ^{NS}
Benefit from govt. scheme	-0.343 ^{NS}	-0.103 ^{NS}	-0.346 ^{NS}	-0.316 ^{NS}	-0.342 ^{NS}	-0.212 ^{NS}	0.047 ^{NS}	-0.174 ^{NS}

** - Significant at 1% level, * - Significant at 5% level, NS - Not Significant

It can also be concluded that in non-farm households, the contribution of income from non-farm sector is very much high in comparison to the contribution of income from the farm sector and also the non-farm sector generates more employment opportunities than farm sector.

Application of research: Study to frame out some effective policy for rural farm and non-farm sectors identifying effective combinations.

Research Category: Agricultural Economics

Acknowledgement / Funding: Authors are thankful to Department of Agricultural Economics, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema, 797106, Nagaland, India.

****Research Guide or Chairperson of research: Dr Sanjoy Das**

University: Nagaland University, Medziphema, 797106, Nagaland

Research project name or number: MSc Thesis

Author Contributions: All authors equally contributed

Author statement: All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: East Siang District, Arunachal Pradesh

Cultivar / Variety / Breed name: Nil

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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