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Impact of Nonfarm Activity on Rural Income Inequality in South 24 Parganas District of West Bengal[§]

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Abstract

The impact of non-farm activity on rural income inequality in the South 24 Parganas district of West Bengal has been studied. The non-agricultural activities play a key role in shoring up income and employment opportunities for the rural work force in this district. The average annual income of nonfarm families (₹ 108662) is almost double to that of farm families (₹ 56081). The results of Gini coefficient decomposition have indicated that nonfarm income is the largest component (44.05%) of total income, followed by farm income (39.41%). The non-farm income contributes largest to the overall inequality (58.27%) in which non-farm self-employment activity increases the total income inequality, while non-farm wage employment decreases it. The analysis of factors influencing participation of households in different income generating activity showed that human capital endowed with formal and informal education are engaged more in nonfarm activities. The study has suggested development of both farm and non-farm sectors simultaneously to reduce rural income inequality.

Keywords: Gini-coefficient, income inequality, nonfarm activity, rural income, probit model, West Bengal

JEL Classification: C35, E24, J21, J31, J43, O14, O15, Q12

Introduction

In India, the rural economy is predominantly based on agriculture and allied activities, but various non-agricultural activities also play a significant role in providing employment and income to the rural sector, particularly to labour force that is largely semi-skilled

and belongs to both farm and non-farm households (Malangmei *et al.*, 2015). The rural transformation in India has been rapid, especially after the 1960s, when the rural nonfarm sector emerged as one of the major sources of income that spurred economy-wide employment growth. Unfortunately, the rapid economic growth in the rural areas was associated with stunted structural transformation, due to which the rural nonfarm sector has the sagging employment growth. In 2009-10, the National Sample Survey Organization (NSSO) estimated that around 42.5 per cent of rural households primarily earned their livelihood from non-farm sources, whereas the share of non-farm

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employment in rural workforce was 32.1 per cent. It is quite interesting to note that there has been 40-50 per cent increase in rural workforce participation in nonfarm activities and the same proportion of rural population has diversified its household income to nonfarm sources (GoI, 2001).

For the past some years, the marginal and small farmers have been feeling the necessity of non-farm income as their meagre land was not sufficient for generating income adequate to maintain the family (Rajshekhar, 1995; Pandey and Singh, 2013). Further, the agricultural sector has been unable to absorb the growing rural work force due to falling output elasticities of employment within the sector (Singh *et al.*, 2003). Participation in nonfarm activities enhances the capacity of farm households to overcome negative shocks and reinvest in farm activity. It mitigates income fluctuations and enables adoption of more profitable but risky agricultural technologies that encourages transformation of traditional agriculture to modern agriculture. The smallholders and landless households depend on rural nonfarm activities to secure livelihood during the slack agricultural season (Bhakar *et al.*, 2007).

It is also observed that educated youths take more interest in engaging themselves in nonfarm activities vis-a-vis their uneducated counterparts. Again, households in distant villages from the peri-urban and urban centres are more dependent on traditional agricultural activities for income and livelihood. Binswanger Mkhize (2013) envisioned that farm sizes in India will continue to decline and as a consequence, households will strive for income growth via technological and allocational changes towards diversified high-value agricultural commodities and the non-farm sector.

Nonfarm Sector and its Contribution to Indian Economy

The NCAER statistics on proportion of nonfarm income to rural households indicate an increase of 20 to 27 per cent during 1971-72 to 1981-82. Further, 70 per cent of the increase in real household income is attributed to the rise in non-agricultural incomes during this period. Papola (1992), while analysing trends in rural nonfarm employment using the NSSO data, found that workers who recorded rural nonfarm employment as their principal employment grew at 5 per cent per

annum between 1977-78 and 1987-88, while the share of nonfarm jobs rose from 17.9 to 23.4 per cent in the rural areas. The nonfarm activities not only significantly increased total household income but also functioned as a safety net through diversifying income sources. Interestingly, large farmers' repeated investments on nonfarm sectors spurred into further employment generation in this sector (Bhakar *et al.*, 2007). Therefore, the synergy of farm and nonfarm activities in the rural areas actually helped people to absorb themselves in employment-generating activities in villages only. Hence, a positive attitude for agriculture and rural development can be envisioned with suitable policies and institutional reforms. This change will ultimately improve the working performance of many rural developmental programs at the village level (Zhu and Luo, 2006).

The Problem Statement

It has been found that repeated non-performance of farm activities for marginal farmers induce them to participate in nonfarm activities and interestingly enough that they earn higher income compared to those with better resource endowment. Households are motivated to undertake rural nonfarm activity by either pull or push factors. If the nonfarm sector has high returns, the pull factors will be strong and if farm activity cannot provide enough income for households or households need to diversify their income sources, the push factors may kick in. Many marginal or landless farm families are less capable of mitigating negative shocks, and are more risk averse. In order to have additional income as well as to diversify and undertake activities with returns that may have a low or negative correlation with those of farming, poor households may have stronger incentives to participate in nonfarm activity only.

The economy of coastal areas of West Bengal mainly depends on agriculture (including crop culture, fisheries, forestry, etc.), which influences the livelihoods of millions of rural households in the region. Nearly 20 per cent of the net state domestic product (NSDP) is contributed by this primary sector, in which crop culture contributes 16 per cent in East Medinipur, 12 per cent in North 24 Parganas and 15 per cent in South 24 Parganas (Mandal *et al.*, 2011). The contribution of agriculture to districts NSDP has shown a declining trend over the period 2002-03 and

2006-07. The employment pattern in the rural coastal areas (unskilled labourers) of West Bengal shows the scarcity of labour during the peak planting (July-August) and harvesting (December- January) periods of *kharif* rice, which is the major crop of the region.

During *rabi* and *summer* seasons, the less-remunerative farm activities seldom fulfil the households' requirements of securing livelihoods and the surplus labour force depends on non-agricultural livelihood options. This push factor instigates migration to nearby cities and towns during the lean periods of agriculture. The household members are engaged in several nonfarm wage earning activities (MGNREGS work, construction work, porter, factory worker, shop attendant, house maid, security guard, etc.) and self-employment activities (shopkeeper, electrician, mechanic, cable operator, own business, private tuition, driving own vehicle for carrying goods and passengers, hawker, vegetable and fruit vending, etc.). Therefore, this study has attempted to answer the underlying question whether nonfarm activity influences the overall household income inequality in rural areas with special reference to farming households in the South 24 Parganas district of West Bengal.

Data and Methodology

In West Bengal, the total 5.58 lakh ha of cultivable saline area, highest (42.53%) comes under the jurisdiction of South 24 Parganas district, followed by Midnapore (32.58 %), North 24 Parganas (17.03 %) and Howrah (7.79%) districts (Bandyopadhyay *et al.*, 2003). Among these districts, South 24 Parganas has the lowest cropping intensity of 134 per cent. The highest coastal salinity-affected area with lowest cropping intensity, predominance of marginal and small farmers, varying soil pH from ≤ 4.5 to ≥ 7.5 , etc. were the underlying reasons for the selection of this district for study. In this study, primary data were collected through a household level survey in six randomly selected villages, namely Mandalpara, Kayaler Chak and Pichhakhali of Kultali community development (CD) block and Kheria, Paschim Bhangankhali and Uttar Bhangankhali, for the agricultural year 2012-13. From each village, 30 households were selected randomly that ultimately rounded to total 180 rural households who were personally interviewed adopting a pretested structured schedule.

Analytical Tools

To study the impact of non-farm income on rural inequality, the non-farm income was considered as an exogenous transfer. We decomposed the total household income and studied the distribution of each income source and its contribution to total income inequality.

(i) Decomposition of Gini Index

Following Pyatt *et al.* (1980) and Stark *et al.* (1986), the Gini index of total income, G_t , can be decomposed as:

$$G_t = \sum_{k=1}^K R_k G_k S_k \quad \dots(1)$$

where, S_k is the share of income component k in total income, G_k is the Gini coefficient of income component k , and R_k is the Gini correlation of income component k with total income defined as:

$$G_k = \frac{\text{cov}[Y_k, F(Y)]}{\text{cov}[Y_k, F(Y_k)]} \quad \dots(2)$$

Using Gini decomposition technique, the extent of contribution to the overall income inequality, as influenced by a particular income source, the relative concentration coefficient of income component k can be determined by formula (3).

$$g_k = \frac{G_k R_k}{G_0} \quad \dots(3)$$

where, g_k is the relative concentration coefficient of income component k in the overall inequality. The income component k worsens the overall income inequality if $g_k > 1$ and has an equalizing effect if $g_k < 1$.

The Gini decomposition technique explores the contribution of an income component in increasing or decreasing the overall income inequality. The most contributory factor to the total can be understood by the regression-based approach to inequality decomposition which quantifies the relative contribution of various income determinants to the inequality in a given income component (Adams, 2001).

(ii) Factors Affecting Participation in Different Income Generating Activities

The participation equation is estimated with a dummy variable equal to 1, if the household participates in the activity, and 0 otherwise, is regressed on the independent variables, viz. net cropped area (in acres), number of family members, age of household-head, years of education of household-head, number of household members trained, distance from the nearest railway station, number of working males and females, and membership of any self-help group (SHG) in the village. The rural families are more inclined to various nonfarm activities for higher income. Thus, a probit is fitted separately for each case to reveal the intensity of participation in nonfarm income generating activities. If Z_i is a vector of independent variables of the participation equation, then we have:

$$P_i^* = \alpha Z_i + \varepsilon_i \quad P_i = 1 \Leftrightarrow P_i^* > 0; \quad P_i = 0 \Leftrightarrow P_i^* \leq 0 \quad \dots(4)$$

where, P_i^* is the non-observed continuous latent variable and P_i is the observed binary variable, with a value of 1 if the household participates in the nonfarm activity and 0 otherwise.

Results and Discussion

Categorization of Farmers

To categorize sample farmers, the classification given by Reddy *et al.* (2004) was followed. In West Bengal, due to land reforms and socio-cultural status of farmers, there was almost no existence of so-called medium or large farmers having more than 10 acres of landholding. The respondents were post-stratified into marginal, small and semi-medium farmers based on the size of operational holdings. The number of

respondents under different categories, presented in Table 1, showed that the majority of sample farmers belonged to the marginal group with operational holding-size of less than or equal to 1.25 acres (43.89%), followed by small farmers (40.56%) and semi-medium farmers (15.55%). The marginal and small farmers were predominantly mono-cropped with cropping intensity of 119 per cent (Rahaman and Haldar, 2014). This signifies the fact that the household members, not engaged in round-the-year farming activity, functioned as a pull factor for involvement in nonfarm activities.

Basic Features of Sample Households

The income of rural household was from farm, nonfarm and other sources (salaried job, pension, remittances, land rent, etc.). The farm sector included agriculture, livestock, forestry, fishing and hunting. Formal or informal wage-employment and self-employment were the two major sources of non-farm income. Table 2 presents some key indicators about sample respondents. Across the total farm households in the sample, 29 per cent had only farm income and 71 per cent had both farm and non-farm income. The average annual income of the households that participated in non-farm activity (₹ 108662) was higher than those households who participated in the farm activity only (₹ 56081). However, agriculture provided employment to a larger number of farm family members, but on an average, non-agricultural activity contributed to the major part of total income of farm households.

Table 2 summarizes the characteristics of sample households and indicates the significance of their participation in non-farm activity for income and livelihood. The average number of workers was three

Table 1. Categorization of sample farmers based on landholding-size

Category of farmers	Number of farmers	Size of holding (wet land in acres)		Cropping intensity (%)
		Ownership holding	Operational holding	
Marginal farmers	79 (43.89)	0.58	0.91	123.54
Small farmers	73 (40.56)	1.40	1.72	120.61
Semi-medium farmers	28 (15.55)	3.06	3.58	113.98
Total	180	1.32	1.68	119.02

Note: Figures within the parentheses indicate per cent to the total.

Table 2. Description of sample statistics, 2012-13

Particulars	All households	Households that do not participate in nonfarm activity	Households that participate in nonfarm activity
Household income (₹)			
Total income	94237 (78906)	56081 (39321)	108662 (85256)
Farm income	37135 (34158)	33965 (19784)	38334 (38250)
Nonfarm income	41510 (55109)	-	57203 (57364)
Other income	15592 (33912)	22116 (43215)	13125 (29598)
Characteristics of households			
Average No. of working population	3 (2)	3 (1)	4 (2)
Males	2 (1)	1 (1)	2 (1)
Females	2 (1)	1 (1)	1 (1)
Number of dependents	2 (2)	1 (1)	2 (2)
Average number of schooling years of household-head	5.84 (4.12)	4.94 (4.19)	6.18 (4.07)
No. of members that have received some technical training	1 (1)	1 (1)	1 (1)
Distance from village centre to the nearest railway station (km)	16.13 (7.93)	16.61 (7.91)	15.95 (7.99)
Distance from village centre to the nearest bus stop (km)	1.96 (0.55)	2.10 (0.57)	1.91 (0.54)
Average ownership holding-size (acre)	1.32 (1.29)	1.19 (0.85)	1.34 (1.35)
Average net cropped area (acre)	1.68 (1.19)	1.58 (1.06)	1.69 (1.22)
Average leased-in land (acre)	0.49 (0.82)	0.39 (1.15)	0.51 (0.75)
Average leased-out land (acre)	0.15 (0.73)	0.03 (0.09)	0.17 (0.79)
Average gross cropped area (acre)	2.00 (1.71)	1.73 (1.04)	2.04 (1.80)
Number of observations	180	27	153

Note: Figures within the parentheses indicate standard deviation

per household, comprising two males and one female member with two dependent members per family. The average years of education of household-head was 5.84, that shows completion of primary level schooling. The average ownership holding per household was 1.32 acres, while the gross-cropped area was 2.0 acres. The pressure on land surface due to its increasing demand for non-agricultural activities coupled with decreasing interests of rural youth in farming are the glaring reasons for decreasing share of farm income in total family income (Akpan *et al.*, 2015). In comparison with farm activity, the households that participated in non-farm activities had a larger number of workers, who were relatively educated and residing in peri-urban areas.

Decomposition of Gini Coefficient

The results of Gini coefficient decomposition presented in Table 3 by income source for all

households. The first column shows that non-farm income is the largest component of inequality in the total income (44.05%), followed by farm income (39.41%); and as expected, non-farm income also contributed largest to the overall inequality (58.27%). The Gini coefficient of 0.39 for total income reveals a value that lies within the range seen in many other developing countries. A recent computation by the World Bank has indicated that Gini coefficients for SAARC countries ranged from 0.30 for Pakistan to 0.39 for Bhutan (World Bank, 2014). The Gini coefficients for various income components like fishery, agricultural labour, self-employment, salary income, pension & remittance and land rental income were much higher than that of total income because not all households derived income from each of the mentioned sources.

The aggregate non-farm income, however, may hide the effects of its respective components on the

Table 3. Inequality decomposition by income source for all rural households

Income sources	Income share (S_k)	Gini's concentration ratio (G_k)	Gini correlation (R_k)	Contribution to inequality $\frac{S_k G_k R_k}{G_0}$	Relative concentration coefficient $g_k = \frac{G_k R_k}{G_0}$
Total income	100.00	0.39			
Farm income	39.41	0.39	0.89	33.07	0.90
Agriculture	19.47	0.37	0.73	13.70	0.70
Livestock	7.29	0.18	0.88	2.90	0.40
Fishery	6.69	0.69	0.45	5.33	0.80
Agricultural labour	5.95	0.77	0.94	11.13	1.87
Nonfarm income	44.05	0.61	0.84	58.27	1.32
Self-employment	30.94	0.76	0.79	47.87	1.55
Non-agricultural labour income	13.11	0.34	0.91	10.39	0.79
Other incomes	16.55	0.31	0.47	8.67	0.38
Salary income	11.51	0.90	0.23	6.15	0.53
Pension, remittances, etc.	3.76	0.93	0.14	1.31	0.35
Land rent	1.28	0.92	0.40	1.21	0.94

overall income inequality. The nonfarm self-employment income contributed to the increase in income inequality, while non-farm wage employment income decreased it, highlighting the importance of distinguishing between self-employment and wage-employment income while assessing the effect of non-farm income on income inequality. The results, however, suggested the existence of entry barriers into non-farm self-employment. The results also corroborated the findings of Morduch and Sicular (2002) on self-employment income, a dis-equalizing effect on total income, whereas cultivation practices, livestock-rearing and fishery activities decreased the total income inequality.

Thus, it is clear that non-farm income has potentially substituted farm income in many households. Amongst the two major types of nonfarm activities, participation in wage-paying activity is often conditioned by the spatial mobility, as the members concerned may leave their household and work outside; while the self-employment activity is more likely to be local family work (Mehta, 2002). In general, participation in wage-paying activity is an individual decision, while the participation in self-employment activity is the choice of entire household.

Analysis of Factors Affecting Participation in Different Income Generating Activities

To analyse the probability of participation in various nonfarm activities by the households subject to different factors that influenced the participation in a given activity, the probit regression technique was employed using statistical package R 3.1.1. The results (Table 4) depict that the households with a higher number of working male and female members were more likely to participate in the non-farm activity. The total cultivable land available to a family being insufficient to earn a living for the households (Table 2), both farm and nonfarm families do lease-in land. Other things being equal, a significant proportion of households having lower opportunity cost of staying in village only, do migrate to the nearby cities for various non-agricultural works. On the other hand, the rural households endowed with better human and physical capital, had greater capability to establish themselves as rural entrepreneurs.

Form Table 3, the variable 'average number of years of schooling of household-head' measured the human capital endowment that positively influenced participation in non-farm activity, especially in many self-employment generating activities like village tutor,

Table 4. Regression results of participation in non-farm activities (Probit model)

Particulars	Regression 1: Nonfarm activity	Regression 2: Self-employment activity	Regression 3: Wage paying activity
Net cropped area (acre)	0.381** (0.181)	0.107 (0.12)	0.06 (0.148)
No. of dependents in family	0.259* (0.133)	0.032 (0.074)	0.403*** (0.131)
Age of the household-head	-0.03* (0.015)	-0.01 (0.012)	-0.026* (0.015)
Average number of years of education of household-head	0.111** (0.046)	0.08** (0.036)	-0.026 (0.042)
Number of household members trained	0.802** (0.407)	0.076 (0.295)	-0.19 (0.393)
Distance from nearest railway station	-0.02 (0.026)	-0.027 (0.021)	0.024 (0.024)
No. of working males	0.554*** (0.209)	0.076 (0.132)	0.634*** (0.187)
No. of working females	0.613** (0.277)	-0.139 (0.17)	0.708*** (0.239)
Membership in any self-help group	1.18* (0.69)	0.405 (0.51)	-0.046 (0.637)
Constant	-1.026 (0.985)	-0.213 (0.698)	-1.935** (0.898)
McFadden R-squared	0.221	0.072	0.265
Akaike criterion	123.447	161.666	134.268
Hannan-Quinn	134.514	172.734	145.336
Log-likelihood	-51.723	-70.833	-57.134
Schwarz criterion	150.721	188.940	161.542

Note: Figures within the parentheses indicate standard error.

***, ** and * denote the significance at 1 per cent, 5 per cent and 10 per cent levels, respectively.

various entrepreneurship (electrical and electronics goods sale and repairing) and many more. The education of household-head was considered as a crucial factor because all the decisions of household members were either directly dictated or greatly influenced by him/her. Hence, education provides the motivation of participation in more remunerative non-farm activities to alleviate poverty and avail opportunity to compensate the asset disadvantage (Rahaman *et al.*, 2015). Thus, an educated/skilled person fits easily in a non-farm job, whereas an uneducated/unskilled is left with much choice other than to opt for non-farm wage employment. The number of households who had received some technical training or had membership in any SHG, influenced

the quality of labour force positively in participating in non-farm activities. Further, any sort of training with knowledge of technology and management improved the competence of the household members and facilitated their participation in nonfarm works. In short, human capital endowed with formal or informal education, was engaged more in the non-farm activities.

The number of dependents of a family positively influenced the participation in nonfarm wage earning activities like housemaid, embroidery works, etc. for enhancing livelihood security. The distance from nearest railway station and bus stop was found statically non-significant, indicating a good connectivity of villages with the mega city Kolkata and its suburban areas and it encouraged local migration for seeking

non-farm employment. The distribution of non-farm income was unequal among the rural households because not all the sample households participated in the non-farm activities. Thus, the opportunity cost of rural labour was very weak locally for participation in the farm and non-farm activities.

Conclusions

The study has revealed that participation in non-farm activities can provide opportunity to the households with low farm productivity to supplement their income. The households endowed with greater human/ technical capital can opt for some skilled wage earning activities including self-employment. Also, with rising population, declining land-man ratio, degraded soil fertility and dwindling land and labour productivity, agriculture alone would not be able to provide adequate income and employment to the rural households. Under such circumstances, to ensure a regular flow of income for a decent living and to achieve food and nutritional security, the household members have to depend more on non-farm income generating activities to supplement the farm income. Thus, rather than raising inequality, the non-farm sector can neutralise or at least reduce income inequality in the rural areas.

The study has observed the contribution of farm sector to average family income as around 40 per cent that can cater to the basic requirement of the family, but a greater portion of household income is being generated through non-farm sector. Therefore, it will be appropriate to follow an integrated approach for the development of both farm and non-farm sectors by developing appropriate infrastructures and other income-generating facilities in the non-farm sector.

References

- Adams, R.H. (2001) *Nonfarm Income, Inequality and Poverty in Rural Egypt and Jordan*. Policy Research Working Paper Series No. 2572. The World Bank, Washington, DC.
- Akpan, S.B., Patrick, I.V., James, S.U. and Agom, D.I. (2015) Determinants of decision and participation of rural youth in agricultural production: A case study of youth in southern region of Nigeria. *Russian Journal of Agricultural and Socio-Economic Sciences*, 7(43): 35-48.
- Bandyopadhyay, B.K., Maji, B., Sen, H.S. and Tyagi, N.K. (2003) *Coastal Soils of West Bengal: Their Nature, Distribution and Characteristics*. Bulletin No. 1/2003, Central Soil Salinity Research Institute, Canning Town, South 24 Parganas, West Bengal. 62p.
- Bhakar, R., Banafar, K.N.S., Singh, N.P. and Gauraha, A.K. (2007) Income and employment pattern in rural area of Chhattisgarh: A micro view. *Agricultural Economics Research Review*, 20 (2): 395-406.
- Binswanger Mkhize, H.P. (2013) The stunted structural transformation of the Indian economy: Agriculture, manufacturing and the rural nonfarm sector. *Economic & Political Weekly*, 48: 5-13.
- GoI (Government of India (2001) *Concepts and Definitions Used in NSS*. National Sample Survey Organization, Ministry of Statistics & Programme Implementation, New Delhi. Available at: http://mospi.nic.in/Mospi_New/upload/concepts_golden.pdf (accessed on 12.02.2015).
- Malangmei, L., Rahaman, S.M., Haldar, S. and Bera, B.K. (2015) Understanding sustainable rural livelihood security in Indian context: A review. *International Journal of Current Research*, 7(10): 21025-33. Available at: <http://www.journalcra.com/article/understanding-sustainable-rural-livelihood-security-indian-context-review>.
- Mandal, S. Bandyopadhyay, B.K., Burman, D., Sarangi, S.K. and Mahanta, K.K. (2011) Baseline report of the NAIP Project: *Strategies for Sustainable Management of Degraded Coastal Land and Water for Enhancing Livelihood Security of Farming Communities*. Central Soil Salinity Research Institute, South 24 Parganas, West Bengal. 47p.
- Mehta, G.S. (2002) *Nonfarm Economy and Rural Development*. Giri Institute of Development Studies, Lucknow.
- Morduch, J. and Sicular, T. (2002) Rethinking inequality decomposition with evidence from rural China. *The Economic Journal*, 112: 93-106.
- Pandey, R.K. and Singh, B.K. (2003) Impact of urbanization on rural income, employment and expenditure: A sectoral analysis. *Agricultural Economics Research Review*, 16 (Conf. No.) 70-82.
- Papola, T.S. (1992) Rural nonfarm employment: An assessment of recent trends. *The Indian Journal of Labour Economics*, 353: 238-45.
- Pyatt, G., Chen, C.N. and Fei, J. (1980) The distribution of income by factor components. *Quarterly Journal of Economics*, 95(3): 451-474.

- Rahaman, S.M. and Haldar, S. (2014) Sewage fed farming systems and sustainable livelihood in Peri-urban Kolkata. *Economic Affairs*, **59**(2): 147-161. Available at: <http://ndpublisher.in/admin/issues/EAV59I2e.pdf>.
- Rahaman, S.M., Haldar, S., Pal, S. and Ghosh, A. (2015) Role of rural off-farm employment in earning income and livelihood in the coastal region of West Bengal, India. Available at: <http://ageconsearch.umn.edu/handle/212697>
- Rajshekhar, D. (1995) *Economic Mobility of Rural Households*. Ph.D. thesis (unpublished), Jawaharlal Nehru University, New Delhi.
- Reddy, S.S., Ram, P.R., Sastry, T.V.N. and Devi, I.V. (2004) *Agricultural Economics*. Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
- Singh, A., Vasisht, A.K. and Jain, P.K. (2003) Inter-state variations in non-agricultural employment in rural India: An exploratory analysis. *Agricultural Economics Research Review*, **16** (Conf. No.): 60-69.
- Stark, O., Taylor, E. and Yitzhaki, S. (1986) Remittances and inequality. *Economic Journal*, **96**: 722-40.
- World Bank (2014) *World Development Indicators*. Available at: <http://wdi.worldbank.org/table/2.9> (accessed on 12.01. 2015).
- Zhu, N. and Luo, X. (2006) *Nonfarm Activity and Rural Income Inequality: A Case Study of Two Provinces in China*. World Bank Policy Research Working Paper 3811.

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