

# Work participation among the elderly people living in rural areas in India: a case study on determinants

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## Abstract

**Background:** A case study on the nature and determinants of work participation among rural elderly people has been undertaken in this work. The paper analyses the economic life with respect to work participation among elderly people belonging to Sumi community living in rural areas of the state Nagaland in India.

**Methods:** Cross sectional primary data on rural elderly above 60 years of age has been used in the study. And in order to study the nature and determinants of work participation of the elderly we have applied both descriptive statistical analysis and multinomial logistic regression analysis to present our findings.

**Findings:** Majority of elderly in the study area were still found to be engaged in economic activities both as full time and part time workers respectively. Among those elderly people working, majority of the respondents were found to be in informal economic activity such as agriculture and allied activities. Factors such as age of the elderly, sex, income and health were found to be statistically significant determinants of elderly work participation.

**Application/Improvement:** Based on our findings, it has been observed that one of the main concerns for the prolonged work participation among elderly is due to the effect of economic necessity. As lack of economic security among rural elderly pushes them to remain working and that factor such as health enables elderly to earn livelihood which possibly can secure them against poverty, policies should be directed towards positively improving the wellbeing of the elderly people not only on economic stability but also towards healthy ageing.

**Keywords:** Work participation, Elderly people, Rural area, Tribal community.

## 1. Introduction

In the wake of growing proportion of population above 60 years of age at present, understanding the nature and status of the elderly people's behaviour towards work participation and retirement remain an important economic subject matter. The concern especially in developing countries emanates from the mismatch between the rapid increase in the number of people above 60 years of age and by the failure of the government to provide effective socio-economic support to the growing number of elderly people [1, 2] and at the same time due to poor economic stability among elderly in terms of savings or assets [3, 4]. Issue of economic security at old age with respect to their work participation also arises mainly due to the effect on the overall well being of the elderly people both at the individual and household levels and even policy wise at the country level be it matters regarding provision of social security benefits or employment of different groups of population [5, 6].

Economically there can be various possibilities on how the elderly people above 60 years of age continue to live for further 15 to 20 years or more mainly due to increase in life expectancy. The first possibility is that elderly people can be dependent on their children and relatives for their day to day needs; secondly, those who have saved money with commercial banks or institutions such as post office savings can live off the interests and even out of their investments in the form of wealth and assets and even through income in the form of service pensions. Thirdly, the elderly people can live on social security benefits provided through government policies for the elderly people and the fourth option will be to continue to remain employed or engaged in any livelihood activity as long as possible and be economically active and independent.

Not very common especially in rural areas, but destitute elderly people do live the rest of their lives in old age homes depending on charity and help from the society. It is also possible that there may be few cases where the elderly people are dependent on only one particular way of life especially in rural areas. Also it is very likely that they may be individually engaged in work participation and at the same time to some extent be economically dependent on their children and even availing facilities such as old age pensions and other state benefits from government. Given the general circumstances surrounding the ageing process where elderly are more likely to need more health care financing and the possibility of facing economic challenges such as poverty, due to fall in income and weak social support, it is possible that work participation even in old age can greatly contribute to the economic security in later life [7]. It is on this basis that study on the nature and determinants of work participation among the elderly in rural areas has been attempted in this work. In order to understand the economic life of the elderly people living in rural areas in general and the nature and determinants of work participation in particular, a community based case study has been undertaken. The state of Nagaland which is located in the North Eastern region part of India has been taken as the primary state and under which the district of Zunheboto has been selected as the main case study area. Demographically, the respondents covered in our study belong to the Sumi tribe, which is one of the major tribes of the state. And as only the rural inhabited elderly population is included in the analysis it is hoped that a better understanding of economic life and work participation behaviour at the later life in rural areas in these part of the country can be explored. It is also hoped that this paper will give a fresh look into economic life of small tribal elderly people where cultures and traditions and life styles differ greatly from the main stream society.

## 2. Elderly people and work participation

Elderly people are among those demographic groups whose attitude towards work participation or any economic activity can be influenced significantly due to any change in economic condition or state policies. As such there is an emphasis on understanding the factors determining work participation among elderly so that measures can be taken before making changes or introducing new policies [8]. For elderly people the decision to remain employed either as full time worker or part time worker or to retire in old age depends upon multiple factors ranging from their current economic condition, status of family support, health condition and availability of social security benefits [9]. It is very likely that from the above factors favorable personal economic condition and family support or social security services may encourage elderly not to participate in any work and so does the unfavorable health conditions and vice versa.

In a general comparative study, the circumstances in which the elderly people are participating in work are different between developed and developing countries. As in developed countries attempt to increase work participation rate among elderly remains an important government policy which are being approached through delay in retirement age and also through adoption of policies encouraging elderly to participate in work [10]. With respect to population ageing in developed countries, condition of increase in the number of elderly population and the corresponding situation of early retirement by the baby boomers it affect the tax burden on the remaining working population besides experiencing insufficient supply of labour force and overall decrease in economic output [7]. Besides the various government policies, factors such as drastic improvement in health among the elderly increase in longevity, increased education level and promotion of old age friendly jobs; upward shift in the work participation rate among the elderly has been experienced in many developed countries [11, 12]. It is also true that in developed countries due to low birth rate and faster growth rate of elderly population, labour supply has also been impacted resulting in people working longer even in old age.

As for the work participation among elderly in developing countries, it is more of a push factor as in many cases mainly the elderly with poor economic condition marked by low income, lack of assets and savings are more likely to be participating in economic activities. Also the nature of work participation among the elderly in developing countries is such that in many of the cases, they are found to be working in informal sectors characterized by poor working conditions and low income [13, 2].

In a very rapidly transforming country like India, the decline of traditional family structure as a source of care giving mainly through factors such as rising trend of rural to urban migration among younger population are also putting pressure upon elderly people to remain participating in work activities for as long as possible and which may prevent them from getting into poverty [2].

### 3. Data and Methodology

The present case study is based on a cross sectional data of 484 elderly people above 60 years of age both male and female which was collected during the year 2017 from 36 villages under Zunheboto district in the state of Nagaland using proportional allocation sampling method. Elderly people living in the administrative circles of Aghunato, Asuto, Atoizu, Ghatashi, Satakha, Suruhuto and Zunheboto respectively were interviewed using a well structured and pre tested schedule. With an attempt for more robust analysis the elderly people were divided into three different age groups which were categorised into the young aged elderly belonging to 60-69 years, the middle aged elderly belonging to 70-79 years and those above 80 years as the old-old aged elderly people. The sample consists of 309 elderly males and 175 elderly females and among the age groups majority of sample was in the age group of 70-79 with about 44.2% and the age groups of 60-69 and 80 above was about 27.9% each respectively.

In order to study the nature of work participation among elderly people first a descriptive analysis of the work participation among rural elderly across various socio-demographic, economic and other selected variables has been undertaken. Secondly, to identify the determinants we have applied multinomial logistic regression, as given the nature of data and our dependent variable, a broader understanding into work participation of the elderly people is possible. The characteristics of the dependent variable for the multinomial logistic regression has been applied based on classification of elderly workers used in earlier studies [14, 15], and is categorised into three main work status which are full time workers, part time workers and fully retired or those who are economically not active at all. In this way among the elderly people living in rural areas the ones who are more likely to work full time or part time as compared to not work at all can be observed. For the purpose of studying the determinants of work participation among elderly, the data was analyzed using SPSS 16.

And as for the explanatory variables they are broadly categorised into socio-demographic, economic and health factors respectively. Individually the main explanatory variables included are age groups, sex, marital status (never married/ currently married/ widowed), number of children (less than 5/ more than 5/ no children), number of sons and daughters (same number of sons and daughters/ more sons/ more daughters/ no children), family size (less than 3/ more than 3), living arrangement (living alone/ living with only spouse/ living with both spouse and unmarried children/ others), education (below middle school/ above middle school), income category in Indian Rupee (₹) (no income/ 1-2000/ 2001-5000/ 5001-10000/ 10001 above), old age pension (Indira Gandhi National Old Age Pension Scheme) beneficiary (no/ yes), Self Rated Health (poor/ fair/ good/ excellent) and prevalence of chronic diseases (none/ moderate/ high). Among the explanatory variables especially the ones representing health of the elderly the Self Rated Health (SRH) and prevalence of chronic diseases have been used as proxies.

The SRH asked the elderly to rate their current health status as has been formulated in separate works by Madox and Fillinbaum [16, 17]. On the other hand no on spot medical test was conducted however based on the assumption that prior to the interview at any point of time elderly respondent had experienced medical treatment and doctors or medical persons had informed them regarding having or not having any of the selected chronic health conditions. In this way report on the degree of disease presence was recorded on the following health problems such as high blood pressure, low blood pressure, diabetes, respiratory illness, heart problem, arthritis and rheumatism, hearing and sight impediments respectively [18-22].

#### 4. Nature of work participation among the rural elderly

In this section the nature of work participation among the elderly in the study area is discussed through descriptive analysis of their work status. Although elderly people work, but they are considered to be among the demographic section who are less likely to be within the main working age groups considering their age, declining physical prowess and other factors [8]. Table 1 show the number of elderly people who are currently economically active or working and are mainly identified as those who are working as full time workers consisting of 32.64% and part time workers with about 31.82% respectively. The reason for a relatively high percentage of elderly working as part time workers may be due to the characteristics observed among the elderly at the field where many of them are partially working in order to supplement their other sources of livelihood be it from pensions or economic support from children and relatives, income from wages or business. And lastly out of the total sample, majority of the elderly who by some points were not economically active or were identified as fully retired was about 35.54%.

Table 1. Frequency distribution of work status

Work status	Frequency	Percentage
Full time	158	32.64
Part time	154	31.82
Fully retired	172	35.54
Total	484	100

Source: Field survey - 2017

Within those working elderly either as full time or part time, main occupation wise comparison indicated that majority of the elderly about 82.37% were working as cultivators which in fact is a representation of the state economy that is primarily agricultural based. This is followed by 16.99% of elderly who are engaged in other occupations such as clerical jobs in public sectors, business owners, teachers and the ones which are not included in the first category. A very small percentage of about 0.6% of elderly in the total sample are working as agricultural labourers. Here it can be noted that main occupation reflects the economic activity which the respondent consider to be the primary source of income or livelihood.

##### 4.1. Work participation among elderly across various selected characteristics

Further a cross analysis of work participation and general characteristics of the elderly across various selected variables in the study area is shown in Table 2. Age group wise comparison show that out of total elderly who are full time worker, majority of elderly at 54.43% belong to the young aged elderly and only 6.96% of the elderly above 80 years. Elderly in the age groups 70-79 and 80 above are more likely to be not working at all. In a gender wise comparison elderly male with about 80.38% were more likely to be working as full time worker, whereas among the economically not active group elderly female with about 57.56% are the dominant ones. Out of the total elderly, majority of those about 63.22% were currently married followed by widowed elderly at 35.74%. While among the full time workers about 81.65% are currently married followed by widowed elderly at 17.72% and also widowed elderly at 56.4% were more likely to be not economically active compared to other marital statuses.

In a current family size comparison, majority of respondents of about 65.29% were of less than 3 members in a household and about 34.71% were more than 3 members. Elderly with household members less than 3 are more likely to be participating as both full time and part time workers and also at 65.29% are more likely to be economically not active. Majority of the elderly about 40.91% are currently living with both spouse and unmarried children followed by about 21.07% each were elderly who are living only with spouse and others which include living in relative's house, married children's house and joint family system where married children live in the elderly parent's house and at least 16.94% of the elderly were living alone. Elderly living with both spouse and unmarried children of about 60.13% were more likely to be working full time, whereas elderly living alone of about 27.33% were more likely to be economically not active.

Education among the elderly respondents seems to be poor as majority of those who had education standard of less than middle school were more compared to those with above middle school qualification by 65.91% to 34.09% respectively. A comparison between the education level indicate that less educated elderly are more likely to be engaged in economic activity than elderly with higher level of education.

Table 2. Work status of elderly by socio-demographic and selected variables (N=484)

Variables	Work status			
	Full time	Part time	Fully retired	Total
Age groups				
60 to 69	86 (54.43%)	36 (23.38%)	13 (7.56%)	135 (27.89%)
70 to 79	61 (38.61%)	74 (48.05%)	79 (45.93%)	214 (44.21%)
80 above	11 (6.96%)	44 (28.57%)	80 (46.51%)	135 (27.89%)
Total	158	154	172	484
Sex				
Female	31 (19.62%)	45 (29.22%)	99 (57.56%)	175 (36.16%)
Male	127 (80.38%)	109 (70.78%)	73 (42.44%)	309 (63.84%)
Marital status				
Never married	1 (0.63%)	1 (0.656%)	3 (1.74%)	5 (1.03%)
Currently married	129 (81.65%)	105 (68.18%)	72 (41.86%)	306 (63.22%)
Widowed	28 (17.72%)	48 (31.17%)	97 (56.4%)	173 (35.74%)
Children number				
Less than 5	61 (38.61%)	68 (44.16%)	70 (40.7%)	199 (41.12%)
More than 5	94 (59.49%)	82 (53.25%)	97 (56.4%)	273 (56.4%)
No children	3 (1.9%)	4 (2.6%)	5 (2.9%)	12 (2.48%)
Sons/ daughters				
Same	37 (23.42%)	25 (16.23%)	29 (16.86%)	91 (18.8%)
More sons	62 (39.24%)	52 (33.77%)	70 (40.7%)	184 (38.02%)
More daughter	56 (35.44%)	73 (47.4%)	68 (39.53%)	197 (40.7%)
None	3 (1.9%)	4 (2.6%)	5 (2.01%)	12 (2.48%)
Family size				
Less than 3	88 (55.7%)	103 (66.88%)	128 (74.42%)	316 (65.29%)
More than 3	70 (44.3%)	51 (33.12%)	44 (25.58%)	168 (34.71%)
Education				
Bellow middle	90 (56.96%)	95 (61.69%)	134 (77.91%)	319 (65.91%)
Above middle	68 (43.04%)	59 (38.31%)	38 (22.09%)	165 (34.09%)
Income groups				
No income	2 (1.27%)	1 (0.65%)	10 (5.81%)	13 (2.69%)
1 – 2000	65 (41.14%)	61 (39.61%)	96 (55.81%)	222 (45.87%)
2001 – 5000	40 (25.32%)	18 (11.69%)	7 (4.07%)	65 (13.43%)
5001 – 10000	16 (10.13%)	20 (12.99%)	21 (12.21%)	57 (11.78%)
10001 above	35 (22.15%)	54 (35.06%)	38 (22.09%)	127 (26.24%)
Old age pension				
No	66 (41.77%)	56 (36.36%)	53 (30.81%)	175 (36.16%)
Yes	92 (58.23%)	98 (63.64%)	119 (69.19%)	309 (63.84%)
Self Rated Health				
Poor	13 (8.23%)	27 (17.53%)	30 (17.44%)	70 (14.46%)
Fair	29 (18.35%)	38 (24.68%)	71 (41.28%)	138 (28.51%)
Good	65 (41.14%)	55 (35.71%)	59 (34.3%)	179 (36.98%)
Excellent	51 (32.28%)	34 (22.08%)	12 (6.98%)	97 (20.04%)
Chronic diseases				
None	134 (84.81%)	101 (65.58%)	89 (51.74%)	324 (66.94%)
Moderate	19 (12.03%)	38 (24.68%)	63 (36.63%)	120 (24.79%)
High	5(3.16%)	15 (9.74%)	20 (11.63%)	40 (8.26%)
Living arrangement				
Living alone	9 (5.7%)	26 (16.89%)	47 (27.33%)	82 (16.94%)
Spouse only	31 (19.62%)	36 (23.38%)	35 (20.35%)	102 (21.07%)
Spouse and unmarried children	95 (60.13%)	67 (43.51%)	36 (20.93%)	198 (40.91%)
Others	23 (14.56%)	25 (16.23%)	54 (31.4%)	102 (21.07%)

Source: Field Survey - 2017

The economic status of the elderly people in the study area indicate a challenging situation when viewed through their current household income status as majority of them at about 45.87% were in the lowest income category of ₹1-2000 with a median income of ₹500 per month. Within the elderly workers it can be observed that majority of elderly in the lowest income group at about 41.14% are working as full time worker compared to about 22.15% in the highest income group. Social security benefit such as old age pension can be of great economic support for elderly who can help in their day to day life. However, in a developing country like it has been identified that old age pension scheme such as Indira Gandhi National Old Age Pension Scheme which is of the main concern here is not efficient both in implementation or the pension amount itself and out of the total elderly about 36.16% does not have access to old age pension compared to 63.84% who does.

Health wise, first of all according to the self-reported of current health status, 36.98% of the elderly responded to have a good health and the lowest of 14.46% reported of having poor health. Elderly with good with good health (41.14%) and excellent health (32.28%) were more likely to be full time workers. Elderly with fair or poor health are on the other hand more likely to be economically not active. Secondly, chronic disease wise rural elderly seen to be in a good condition as most of the respondents about 66.94% responded to be without any chronic disease and only about 8.26% with high degree of chronic diseases. And as a result 84.81% with no chronic diseases are more likely to be full time worker compared to only 3.16% with high degree of chronic diseases.

## 5. Determinants of work participation among elderly

In order to analyze the determinants of work participation among the rural elderly a multinomial logistic regression was performed with the explanatory variables broadly categorized into socio-demographic, economic and health on work status of elderly consisting of full time worker, part time worker and fully retired as the reference category. The overall model fitting test showed a statistically significant relationship between the model and data as shown by the result  $\chi^2(48, N=484) = 279.843, p < .001$ ; pseudo  $R^2 = (\text{Cox and Snell} = 0.439, \text{Nagelkerke} = 0.495)$ . In brief over view at Table 3 we can see that explanatory variables such as age of the respondents, sex, income and health variables are statistically significant determinants of elderly work participation in the study area.

### 5.1. Full time elderly workers

In this first sub-section of work participation elderly who are likely to be full time workers compared to fully retired is discussed. From Table 3 we can see that within the age groups comparison, the odds of elderly aged 60-69 and 70-79 to be working full time rather than fully retired are 63.59 and 6.03 times significantly greater than elderly above 80 years of age. Gender wise, elderly females are statistically less likely to be working as full time by about 72% than elderly males. Among the elderly with different levels of income we can see that income significantly determine the work participation of the elderly. As the odds of elderly in the lowest monthly income groups of ₹1-2000 and ₹2001-5000 to be working full time rather than fully retired are 2.69 and 8.3 times greater than the elderly with current monthly household income above ₹10,001.

Health also plays a significant role in determining work participation of elderly as elderly who reported of having poor and fair health are 85% and 84% respectively less likely to be working full time than retired when compared with elderly with excellent health. And as for chronic diseases there is a positive effect as the odds of elderly with no chronic disease to be working full time rather than economically not active is 6.53 times greater than elderly with high degree of chronic diseases.

### 5.2. Part time elderly workers

The determinants of work participation of elderly with reference to part time workers is also given in Table 3 and unlike the full time workers, within the part time workers, only the elderly in age group 60-69 are 4.84 times significantly more likely to be working part time than fully retired compared to the oldest age groups.

The odds of elderly females in working as part time workers rather than fully retired is 59% significantly less than that of elderly males. And as for the elderly who worked part time, the odds of having fair and good self-rated health status respectively in working part time rather than fully retired are 76% and 61% less likely than elderly who have excellent self-rated health.

Table 3. Result of multinomial logistic regression on work status

Variables	Full time worker (Ref. Fully retired)			Part time worker (Ref. Fully retired)		
	Coeff (B)	SE	Exp (B)	Coeff (B)	SE	Exp (B)
Age groups (Ref: 80 above)						
60-69	4.152*	0.54	63.589	1.578*	0.43	4.843
70-79	1.796*	0.435	6.025	0.443	0.289	1.557
Sex (Ref: Male)						
Female	-1.27*	0.453	0.281	-0.889**	0.348	0.411
Marital Status (Ref: Widowed)						
Never married	2.61	1.732	13.594	-0.545	1.561	0.58
Currently married	1.978	1.198	7.229	0.567	1.088	1.762
Living children (Ref: No children)						
Less than 5 children	0.513	1.174	1.671	0.026	1.019	1.026
More than 5 children	0.448	1.178	1.565	-0.361	1.016	0.697
Living sons and daughters (Ref: More daughters and none)						
Same number of sons and daughters	0.258	0.422	1.294	-0.313	0.366	0.731
More sons	0.443	0.35	1.557	-0.2	0.287	0.819
Family size (Ref: More than 3)						
Less than 3	0.231	0.389	1.26	0.098	0.341	1.103
Living arrangements (Ref: Others)						
Alone	-0.724	0.587	0.485	0.251	0.411	1.285
SP	-1.547	1.167	0.213	-0.242	1.075	0.785
SPUC	-0.723	1.118	0.485	0.216	1.038	1.242
Education (Ref: Above middle school)						
Below middle school	0.06	0.383	1.062	-0.174	0.335	0.84
Income groups (Indian Rupee) (Ref: 10001 above)						
No income	0.879	1.11	2.409	-1.362	1.158	0.256
1-2000	0.99**	0.46	2.692	-0.178	0.385	0.837
2001-5000	2.117*	0.616	8.302	0.747	0.572	2.111
5001-10000	0.419	0.56	1.521	0.026	0.466	1.027
Old age pension/Social security benefit (Ref: Receives)						
Does not receive	-0.503	0.38	0.604	-0.264	0.321	0.768
Self-rated health (Ref: Excellent)						
Poor	-1.879*	0.611	0.153	-0.788	0.506	0.455
Fair	-1.832*	0.499	0.16	-1.414*	0.444	0.243
Good	-0.859	0.462	0.424	-0.939**	0.425	0.391
Degree of Chronic sickness (Ref: High)						
None	1.877*	0.669	6.533	0.269	0.463	1.308
Moderate	0.9	0.705	2.46	0.02	0.471	1.021
-2 log likelihood	759.289					
Cox and Snell R Square	0.439					
Nagelkerke R Square	0.495					

Level of significance: \*p<.001; \*\*p<.05; (Ref.)= reference category; Coeff (B)= coefficient; SE= standard error; Exp (B)= odds ratio : SP= only with spouse, SPUC= both spouse and unmarried children

## 6. Discussion and Concluding remarks

In this study we have tried to understand the nature and determinants of work participation of elderly living in rural areas in developing countries in general and in particular from the elderly people’s point of view by undertaking a case study of tribal elderly people living in rural areas of the state Nagaland in India.

Multinomial logistic regression analysis of the work participation indicate that factors such as age, sex, income and health are an important statistically significant determinants of work participation among the rural elderly in Nagaland. Our analysis did not find factors such as education of the elderly, marital status and living arrangements to be statistically significant determinants of work participation among rural elderly contrasting findings observed by previous studies for rural areas.

Yet in this study, the finding that still a large number of elderly in Nagaland are engaged in economic activities both full time and part time poses some important economic concerns. Mainly because majority of the rural elderly are also engaged in a more physically stressing activity that are related with agricultural works which in most cases are undertaken mainly for direct consumption or income generation. Effect of income situation also indicate that many of those who are working belong to the lower strata of monthly household income group explaining the economic push to work participation among the rural elderly in Nagaland. However, it is also true that some elderly especially in the younger aged group are completely comfortable to be working without depending on others and remain economically independent for as long as their health permits. Yet it is after they could work no more that economic issue arises as generally it has been observed that in rural areas many are unable to accumulate any savings or assets for retirement. And given the general situation in a country like India where social benefit programmes are underperforming and without any formal pension system many may continue to remain in work force.

Economic security is a major concern for the elderly and is one of the main factors driving the elderly people's decision to work or not to work [20, 21]. And this is true not only in the case of elderly in developed countries but also for developing countries. However, work participation due to economic need is of bigger concern for elderly people living in a developing country like India. Family may continue to support elderly to some degree, but every elderly do not have that kind of support, and therefore, any policy implemented by the government should be to promote economic independence among elderly people.

Among other things, health status remains an important issue while discussing work participation of elderly people and has been found to be an important determinant of elderly people's work participation. As such, the government policies directing towards health improvement at the later stages of life has to be strengthened. Sometimes elderly may engage in physically straining works for reasons other than economic such as to remain active or just as a part of the rural life style, yet whatever may be the reason for work participation be it in developed or developing economy, it is evident that there are many factors pushing elderly to remain in work force for as long as possible. And observing from the findings in this study and also others, policies should direct towards positively improving the wellbeing of the elderly people as well as of the whole economy and wherever and when need to work arises, make work participation of the elderly more efficient and working environment old age friendly.

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