

## **Socio-Demographic Correlates of Income Differentials In Chandel District of Manipur**

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**ABSTRACT :** *Using stratified random sampling technique, a cross sectional investigation has been carried out during eight months (August, 2010 - March, 2011) to identify the influential socio-demographic factors of income level of the people in Chandel District of Manipur, the North Eastern Border States of India. Regression analysis explores the determinants of the income differential to be number of family members engaged in agriculture and allied activities ( $P < 0.01$ ), area of cultivable land, education of husband ( $P < 0.01$ ) and number of live birth to a woman ( $P < 0.05$ ). The findings of the community study may contribute baseline information on the socio-economic development in North Eastern Region of India.*

**KEY WORDS:** *tribal, agricultural land, education, fertility, regression coefficient, P-value*

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### **I. INTRODUCTION**

While, India is facing the problems of rural sectors which cover about 75% in its population Manipur, the easternmost border state, is suffering from weakness of subsistence agriculture with worse infrastructure. The low utilization of modern inputs in agriculture has further reduced the ability of the cultivators to cope with high risks in production and income. These vulnerable accounts have resulted into poverty which hits the lives in tribal and backward communities they are facing the problems of social discrimination too. Further, Chandel – one of the five hill districts of the State has the highest decennial population growth of 66.62% in 2001 (Census) while the corresponding figure of the state is 24.86%. Most of the inhabitants of the district are Anals and Marings among the 33 schedule tribes in Manipur (Govt. of Manipur, 2011). The tribes in Manipur have a unique feature for a large number of their dialects with least population. According to 2001 Census Report, the schedule tribes population is increased from 6.32 lakh in 1991 to 7.41 lakh in 2001 while the corresponding state's total figure is 18.37 lakh and 22.94 lakh and it touches 27.93 lakh in 2011 (Govt. of Manipur, 2011). The state's high differential socio-demographic figures between valley and hill areas also leads uncertainty in the socio-economic development plans say for instance, the decennial population growth rate is still raised from 32.38% in 1981-91 to 35.46% in 1991-2001 in hill districts but the corresponding figures is observed to be 27.65% to 19.04% in valley districts while the state's figure falls from 29.29% to 24.86%. As such, the investigation of income generating factors in hill districts of Manipur is an urgent needful in the sphere of the national socio-economic development.

In India, more than 90% of labour force is employed in unorganized sector having no social security and other benefits of employment as in the organised sector (Usha, 2007). The socio-economically discriminated women are also facing various types of obstacles for empowerment (Sen, 2001). In their study conducted in Karnataka data, Puttaraja and Heggade (2012) highlighted that economic independence and education of tribal women will go a long way in attaining self-reliance for women. Having low educational status, such tribal communities generate their income mostly from agro-based, house-hold based activities such as dairying, fisheries, small animal husbandry, handlooms, handicraft, social forestry and sericulture. In their findings, Dewangan et al. (2011) observed the tribes in Raigarh District of Chhattisgarh could generate additional income from sericulture. In spite of so much emphasize given to tribal communities since 60 years of independence and more than half century of plan interventions with a good number of provisions, Indian tribe is nowhere near a satisfactory solution. In a recent study, it is found that the socio-economic status of tribes in Jharkhand centers one of the deprivation rather than development (Roy, 2012). The high incidence of rape cases and domestic violence are associated with women disempowerment which causes a source of economic poverty. In his finding, Bulender (2000) highlighted that poorer women are often raped in abusive relationship due to their dependence on partner for food, shelter and money. Awais et al. (2009) also pointed out that tribal women face problems and challenges in getting a sustainable livelihood and a decent life due to the environmental degradation and the interferences of the outsiders. They further observed that without any healthy and productive tribal women, the tribal societies can not have productive settled agriculture in the sense that tribal women contribute immensely to the agriculture.

## II. OBJECTIVES

The objective of the present study is to identify the socio-demographic factors influencing the income differentials of the people residing in Chandel district of Manipur, India.

## III. MATERIALS AND METHODS

A cross sectional sample survey of 1071 households was conducted through personal interview method in Chandel, one of the five hill districts of Manipur by using a semi-structural schedule. With stratified random sampling technique, the survey was completed during eight months (August, 2010 - March, 2011). In addition to the classical statistical tests ( $F$  and  $t$  test), a multiple regression analysis explores a set of co-variates for income differentials through SPSS vs 19. To quantify some qualitative variables, binary dummy variable (0, 1) technique is used and 0.45 is also taken as the cut off zero-order correlation value for scanning the multicollinearity problems among the co-variates. While interpreting the findings measuring the effects of the factors on income levels, the regression coefficient ( $\beta$ ) with its 95% confidence interval (CI) and P-values of the t-test for the coefficients are used. The probability levels of significance have been advocated by 5% ( $P < 0.05$ ) as statistical significance and 1% ( $P < 0.01$ ) as highly significance. The null hypothesis ( $H_0$ ) of the present investigation may be spelt out as  $H_0: \beta_i = 0$ , each regression coefficient is zero indicating that the income of a family is not influenced by their socio-demographic factors as against the alternative hypothesis ( $H_1$ ), pronounced by  $H_1: \beta_i \neq 0$  that is the income of a family is significantly influenced by the socio-demographic factors of the family. In case of functional relationship, the monthly income of a family ( $Y$ ) is defined to be a function of ten variables – cultivable land area, place of residence, type of family, number of family members engaged in agriculture and allied activities, number of literate persons in the family, educational status for both spouses, employment status, female age at marriage and number of live birth ever born to a married woman.

In the regression analysis, the response variable is considered to be the family monthly income (in rupee). The level in the family income is assumed to be functionally related with only ten explanatory factors of interest. They are place of residence (urban =1, rural=0); couple's educational level (levels: illiterate, literate but under matriculate, matriculate but under 10+2 standard, 10+2 standard but undergraduate and graduate and above); number of literate persons in the family; employment status (1 if any one of the family members is Govt. employed, 0 if non of any family members are Govt. unemployed); the area of agricultural or cultivable land (in acre); number of family members engaged in agriculture and allied activities. Under the caption of demographic variable, female age at marriage and number of live birth ever born to a woman are also included in the set of explanatory variables in the sense that such factors are assumed to be related with socio-economic development of a society.

## IV. ANALYSIS AND RESULTS

**Classical statistical analysis** – With a high variability in the average family income of Rs. 12,244  $\pm$  14,830 per month, the income is distributed according to ten socio-demographic correlates of interest and tested the differential levels by using classical statistics –  $F$  and  $t$  tests, manifested in Table - 1. The correlates are sub-division, place of residence, educational status for both spouses, number of literate persons in the family, employment status of any one of the family members, number of family members engaged in agriculture and allied activities, cultivable land area, female age at marriage and number of live birth ever born to a married woman. Without considering the influences of others, only four factors have been found to have their significant impact on the income level. The significant factors are sub-division ( $P < 0.05$ ), of male spouse ( $P < 0.01$ ), number of literate persons in the family ( $P < 0.01$ ) and number of family members engaged in agricultural works ( $P < 0.05$ ). This outlook of statistical significance has been accounted irrespective of the effects of other factors under analysis. In other words, the influence on the income differentials with respect to any factor has been resulted without controlling the joint effects of nine other factors they might perhaps been influencing on the result of the considering factor.

**Multiple Regression Analysis** - In the multiple regression analysis, the monthly income of family under observation is assumed to be functionally related with ten elsewhere variables of interest. For categorical variables, the regression coefficients are computed by utilizing binary dummy variable (0, 1) for easier way of interpretation.

It is evident that the null hypothesis is rejected in the sense that all regression coefficients ( $\beta_i$ ) can not be zero at a time indicating that some of the explanatory variables have significant impacts on the income level.

It is evidenced by F-value of the regression model say 33.13 ( $P < 0.01$ ). The total variation in the family income has been explained about 31% by the explanatory variables or so called predictors ( $R^2 = 0.314$ ). Out of ten variables five ones are observed to have their significant contributions on the variation of income level in the population. They are cultivable land area ( $P < 0.05$ ), number of family members engaged in agriculture and allied activities ( $P < 0.01$ ), number of literate persons in a family ( $P < 0.05$ ), educational level of male spouse ( $P < 0.01$ ) and number of live births ever born to a women ( $P < 0.05$ ). After adjusted the joint effects of other nine variables, area of cultivable or agriculture land has positive influence on the family's income in the sense that about rupees three thousand (Rs. 2916) can be enhanced in the annual income of a family as increment of one acre of cultivable land of the family as quantified as  $\beta = 243$  (monthly, 95%CI: 103-483,  $P < 0.05$ ). Apart from the statistical significance, if one of the family members is government employed, the family monthly income will correspondingly be increased by at least rupees five thousand ( $\beta = 5316$  with 95%CI: 197-10,829,  $P > 0.05$ ). This effect may be interpreted that government employment has somewhat influences on the advancement of family income despite statistically insignificance. Education has also been found to have its positive impact on the income level when controlled the joint effects of other variables. In this context, the income level of a family can be increased by Rs. 3764 per month as advancement of one level in the education of male spouse. This improvement is highly significant ( $P < 0.01$ ) while adjusted the joint effects of other nine explanatory variables under study. Though having some visible improvement in the income level (Rs. 1822 per month), the educational level of female spouse has statistically insignificant impact on family income as controlling the joint effects of other nine variables including education of male spouse. But, the number of literate persons in the family is again found to be positively associated ( $P < 0.01$ ) with income level.

One of the important findings is that the family income is negatively associated ( $P < 0.05$ ) with the number of live births ever born to a woman ( $\beta = -818$  with 95%CI: -1596, -39). In crude sense, it may be interpreted that the family income can not be improved with higher fertility of the respondent. To each increment of one live birth, the corresponding family income will be reduced by Rs. 818 per month while controlled the effects of other nine predictors under investigation. This negative impact is statistically significant at 0.05 probability level of significance. The fitted multiple regression model on the family income ( $Y$  in rupees per month) may be expressed as:

$$Y = 4736 + 243(\text{cultivable land area}) - 3752(\text{place of residence}) + 7431(\text{type of family}) + 1733(\text{number of family members engaged in agricultural and allied activities}) + 5316(\text{employment status}) + 1259(\text{number of literate persons in the family}) + 3764(\text{education of male spouse}) + 1822(\text{education of female spouse}) - 72(\text{female age at marriage}) - 818(\text{number of live birth to a woman})$$

## V. DISCUSSION AND CONCLUSION

In the present investigation, the five predictors – education particularly for male spouse, number of literate persons in the family, number of family member engaged in the agriculture and allied activities, area of cultivable land and number of live birth ever born to a woman can be identified to be determinants of the income differential of the people of Chandel District in Manipur (India). The larger number of live births which is assumed to be high fertility is reducing the income level of the communities. In a complex fashion, educational level particularly for male spouses, number of family members engaged in the agricultural works and larger cultivable land area can enhance the income levels. The significant positive association between educational level and economic status is in agreement with the similar views of Tungdin and Kapoor (2010) and Puttaraja and Heggade (2012). Also, the views of larger cultivable land enhances the economic status of the people is supported by the findings of Dewangan et al., (2011). It indicates that the socio-economic status of the communities may be solely dependent of agriculture and allied activities. Thus, to achieve the millennium development goals subject to the welfare of tribal and rural people, the policy makers have to promote education, fertility control and safe agriculture land from the large scale development projects covering vast agricultural areas specifically in rural/ hill areas of Manipur.

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Table - 1  
Differential family monthly income (in Rs.) according to ten interested socio-demographic correlates

Correlates (N%)		Mean $\pm$ S.D	Test values
Sub-Division	Tengnoupal	33.6	15384 $\pm$ 16027
	Machi	34.5	10905 $\pm$ 13519
	Chandel	12.2	9937 $\pm$ 12148
	Chakpikarong	19.7	10820 $\pm$ 15860
Residence	Rural	87.9	12696 $\pm$ 15448
	Urban	12.1	8944 $\pm$ 8523
Educational level of male spouse	Illiterate	14.8	10886 $\pm$ 12544
	Literate but under matriculate	49.8	9966 $\pm$ 12317
	Matriculate but below 10+2	17.9	15330 $\pm$ 16774
	10+2 but under graduate	5.8	22852 $\pm$ 18396
	Graduate and above	11.7	22652 $\pm$ 21183
Educational level of female spouse	Illiterate	20.8	8366 $\pm$ 9108
	Literate but under matriculate	46.4	13679 $\pm$ 18820
	Matriculate but below 10+2	19.8	11162 $\pm$ 9336
	10+2 but under graduate	8.3	12357 $\pm$ 13330
	Graduate and above	4.7	22010 $\pm$ 14695
No. of literate persons in the family	<2	8.8	6896 $\pm$ 11070
	2-3	33.3	9305 $\pm$ 13269
	4-5	37.9	14565 $\pm$ 15703
	6+	20.0	15050 $\pm$ 15908
Employment status of any one of the family members	Govt. unemployed	92.7	11852 $\pm$ 14852
	Govt. employed	7.3	17168 $\pm$ 13852
No. of persons engaged in agriculture & allied activities	<3	35.4	10155 $\pm$ 14107
	3-5	56.4	13279 $\pm$ 15263
	6+	8.2	16231 $\pm$ 15329
Area of cultivable land (in acre)	<1	16.2	11866 $\pm$ 12050
	1-3	56.4	12333 $\pm$ 13050
	3+	27.4	16543 $\pm$ 15005
Female age at marriage	<18	15.3	10356 $\pm$ 11723
	18-20	33.3	14242 $\pm$ 16312

(in yrs)	21-23	20.2	11281 ± 13678	P>0.05
	24-26	15.6	11348 ± 11048	
	27-29	6.1	17138 ± 24567	
	30+	9.5	8540 ± 12357	
No. of live birth ever born	Upto 2	36.8	14837 ± 16657	F=2.50, P>0.05
	3-4	36.4	10467 ± 13921	
	5-6	20.3	10709 ± 13599	
	7+	6.5	13556 ± 13237	
<b>Total</b>		<b>100</b>	<b>12244 ± 14830</b>	

Table - 2  
Multiple regression coefficients and their test values

Variables	$\beta$ (95% CI)	t  -value
(Constant)	4736 (2357,11832)	3.424 (P<0.01)
Area of cultivable/ agricultural land (in acre)	243 (103,483)	2.04 (P<0.05)
Place of residence	-3752 (-8183,679)	1.665 (P>0.05)
Type of family	7431 (-765,15627)	1.78 (P>0.05)
No. of family members engaged in agricultural activities	1259 (712,2766)	3.37 (P<0.01)
Employment status of one of the family members	5316 (-197,10829)	1.90 (P>0.05)
No. of literate persons in a family	1259 (524,1995)	3.37 (P<0.01)
Educational status of male spouse	3764 (2289,5240)	5.02 (P<0.01)
Educational status of female spouse	1822 (243,3887)	1.74 (P>0.05)
Female age at marriage	-72 (-202,-57)	1.10 (P>0.05)
No. of live birth ever born to a women	-818 (-1596,-39)	2.07 (P<0.05)

**Model Diagnostics: F = 33.13 (P<0.01); R<sup>2</sup> = 0.311**

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