



PLANNING FOR THE DEVELOPMENT OF RATTAN-BASED HOUSEHOLD INDUSTRIES: CASE STUDY OF JALPAIGURI DISTRICT IN WEST BENGAL, INDIA

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Abstract: *Rattan is one of the important natural resources throughout almost all Asian tropical rain forests and homestead forests, which is extensively used in the household industries as raw material. A large number of rattan-based industrial units are found in Jalpaiguri district of West Bengal, India. The industrial units are located both in rural and urban areas. The craftsmen himself is the proprietor in each unit and is assisted by his own family. The skill is mainly hereditary. Due to wide prevalence of illiteracy and poverty they lack scientific and technical knowledge and as a result of these their techniques of production remains inferior and the products lack standardization. The products are mostly sold in the local market. Middlemen play a powerful role in marketing these indigenous products. The prevalence of outdated mode of production has hampered the growth and development of the sector. The study is based on 64 sample units collected through field survey covering 25 villages of the district. The purpose of the study is to find out the characteristic features of the rattan-based industries, problems of the sector and examine the structural relationship among variables related to the productivity of the industrial units. Multiple regression models have been developed to estimate the relevant structural equations and to interpret the co-efficient associated with different explanatory variables. Based on the observations and findings some policy measures have been suggested for the development of the sector.*

Key Words: *Development, Problems, Rattan-based Industries, Policy*

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INTRODUCTION

The process of economic growth has brought significant changes in the economic activities of different regions which ultimately changed the structure of the economy. The industrial revolution and development of transport network gradually destroyed the functional system of the rural society. Development of modern techniques made the household based industries vulnerable to decay and gradually the economy of these industries ruined. The recent trend of globalization has exacerbated the problems of rural areas as these household industries are further marginalised (Narasaiah and Naidu, 2006). In the absence of any organized activity in this sector and the products not being adequately remunerative, artisan workers are taking up alternate livelihood options and migrating to urban areas. In such conflicting situation the decay of a particular sector of employment poses a serious problem and obviously the rational solution seems to develop and make viable the traditional household industries. Besides providing employment to the artisan workers, the sector offer job opportunities to non-artisans during slack seasons of agricultural employment. They play important role in overall economic development of the country and contribute to the export earnings (Kasemi, 2013). Besides economic aspects, the social role household industries are quite significant in achieving various social goals such as removal of poverty, attainment of self-reliance, reduction in disparities in income, wealth and standard of living and regional imbalances (Pandey, 2013).

Rattan, a climbing palm belonging to the Calamoideae, a large subfamily of Palmae or Arecaceae (Dransfield, 2001), has easily received more attention than all other non-wood forest products because of its important economic value. Rattan is one of the important natural resources throughout almost all Asian tropical rain forests and homestead forests, which is extensively used in the household industry as raw material (Kabir, 1994; Renuka, 2001). Rattan-based industries provide the base for a broad range of rural and semi-urban household industries that provide livelihood for the rural poor, in the unorganized sector. A large number of rattan-based industrial units are found in the study area. The industrial units are located both in rural and urban areas. However, majority of the industrial units are found in the rural areas. The industries operate in the informal sector. The labour force engaged is largely unorganized. The machineries commonly used at homes, are utilized for the production of commodities. The craftsmen himself is the proprietor in each unit and is



assisted by his own family. The skill is mainly hereditary. Due to wide prevalence of illiteracy and poverty they lack scientific and technical knowledge and as a result of these their techniques of production remains inferior and the products lack standardization. The products are mostly sold in the local market. Middlemen play a powerful role in marketing these indigenous products. The prevalence of outdated mode of production has hampered the growth and development of the sector (Chhetri and Sao, 1995). The biggest constraint towards the rattan-based sector from developing has been the irregular and scanty supply of rattan for entrepreneurial use.

OBJECTIVES

The objectives of the present study are-

- (i) To analyze the characteristic features and problems of the rattan-based industries in the study area.
- (ii) To evolve the structural relationship among variables related to the productivity of the industrial units and income of the household of the artisan workers engaged in the industries
- (iii) To derive policy implications from the structural relationships with regard to the development of these industries

DATA BASE AND METHODOLOGY

The present study is based on a primary survey, designed to collect data on the general and economic performance of the rattan-based household industries. The survey was carried out over a period of one year by repeated visits to rattan-based household industries during January – December, 2013 in urban and semi-urban areas of the Jalpaiguri district of India using simple random sampling without replacement. Sixty four sample units have been drawn from 25 villages of Jalpaiguri district with simple random sampling method without replacement. Multiple regression models have been developed to estimate the relevant structural equations and to interpret the co-efficient associated with different explanatory variables in the broad framework of productivity increase in the rattan-based household industries. They also indicate the impact of policy variables on principal objectives and intermediate variables.



STUDY AREA

The district Jalpaiguri is bounded by 26° 16' N to 27° 00' N latitudes and 88° 04' E to 89° 53' E longitudes. The district, situated in the northern part of West Bengal has international borders with Bhutan and Bangladesh in the North and South respectively and borders with Assam and Darjeeling hills in the East, West and Northwest. As per the Census 2011, the district had a population of 3,869,675 of which male and female were 1,980,068 and 1,889,607 respectively. Average literacy rate of the district is 73.25 per cent. The economy is chiefly agrarian although the industrial belt is gradually attempting to expand its periphery.

CHARACTERISTIC FEATURES OF THE RATTAN-BASED INDUSTRIES

The analysis of the survey reveals some characteristic features of the rattan-based household industrial sector. The unit of production in this sector is family. Size of the unit is generally small, the average being 3 with a low coefficient of variation. Members of the family work in a systematic matter, promoting division of labour related to the production procedure so that both quantity and quality are ensured to be the best. Out of the total full-time workers male accounts 57.54 per cent and remaining 42.46 per cent are females. An almost similar picture is observed in case of part-time workers where 58.11 per workers are males and 41.89 per cent are females. Average standard mandays worked out to be 361 and C.V is moderate. Majority of the work force is of skilled category and males are found to be more skilled than the females. Categorization of skill has been done based on the experience and participation in production process. No formal training is imparted to the beginners. The skill is passed from older to younger generation informally. Out of the total workers an overwhelming 79.18 per cent are skilled workers. The sector is characterized by long hours of operation. About 34.76 per cent of the full-time workers operate 8 to 10 hours a day. However, this situation should not be taken as unusual feature of the sector. In household industrial sector artisans are productively engaged in their own time at his own pace accompanied by his tools that are designed to serve the humans (Schumacher, 1974). Capacity utilization in terms of labour is high, the average being 89.45 per cent with very low coefficient of variation. It may be revealed from the above analysis that the sector is still in a position to attract skilled artisans and continue the industry tradition. On the contrary, if this unorganized sector would have been a depository of exodus labour force from



agriculture and/or other sectors due to technical and structural reasons, it would have had mostly unskilled full-time workers.

PROBLEMS OF DEVELOPMENT

It has been studied that rattan-based household industries of the study area suffers from innumerable problems. Firstly, the sector is facing raw material problems. Irregular supply of raw material is one of the major constraints for the development of rattan-based household industries. At times the irregular supply of the required quality and quantity of the raw materials affect the quality and size of the output of industrial units. Middlemen, who supply raw materials, usually tend to exploit the artisan in a number of ways. Secondly, one of the major problems of this sector is shortage of finance and lack of credit facilities. As a result of the shortage of the finance and the lack of ample institutional credit facilities the artisan workers are forced to depend on the middlemen. Thus, not only they face the exploitation by the middlemen or money-lenders but the productivity has also been considerably affected. Thirdly, the crude and obsolete tools of the artisan chiefly operated by hand and the technique of operation far below efficiency standards have considerably affected the quality of output of the rattan-based industries. Fourthly, to get immediate return from the investment the artisan workers sell their articles with a very low profit. It is the traders and middlemen who squeeze the real profit out of it. Fifthly, most artisan enterprises lack the requisite managerial and technical expertise. Most units suffer from poor planning and execution programmes. Sixthly, due to the absence of any co-operative marketing organisations or government agency in sufficiently large numbers in most of the unit, selling of the finished products through middlemen has been a dominant feature. Seventhly, lack of diversification of products also accounts for slow growth of the sector. Seventhly, Due to lack of research and development efforts, household industries could not develop in spite of their potentiality. There is no organisation or institution for introducing different designs or new articles in the processing of the raw materials and production process.

MODELLING OF VARIABLES FOR INCREASE IN PRODUCTIVITY AND INCOME GENERATION

The models which represent the productivity increase and mechanism of income generation have been developed assuming the following notational form:



$$Y_1 = f(X_1, X_2, X_3, X_7, X_9, X_{10}, X_{15})$$

$$Y_2 = f(X_7, X_{10}, X_{11}, X_{12})$$

$$Y_3 = f(X_4, X_5, X_7, X_8, X_{10}, X_{13}, X_{14})$$

$$Y_4 = f(X_3, X_{11}, X_{15}, X_{16})$$

$$Y_5 = f(X_1, X_4, X_6, X_7, X_{16})$$

Where we have,

Objective Variables

Y_1 Total production per unit in Rs.

Y_2 Value added per unit in Rs.

Y_3 Duration of daily operation of total workers per unit in hours

Y_4 Value of fixed capital per unit in Rs.

Y_5 Value of working capital per unit in Rs.

Y_6 Net income per household in Rs.

Policy Variables

X_1 Standard mandays as defined by total man-hours worked per unit /
8 (taking as standard shift hour)

X_2 Size of unit in terms of employment

X_3 Duration of daily operation of main workers per unit in hours

X_4 Percentage of part-time workers to total workers per unit

X_5 Percentage of skilled workers to total workers per unit

X_6 Age of the workers (in code taking a 5-point scale)

X_7 Experience level of the workers (in code taking a 3-point scale)

X_8 Percentage of finished products sold to customers

X_9 Percentage of finished products sold to middlemen

X_{10} Maximum distance covered for purchase of raw materials

X_{11} Percentage of income outside household industry

X_{12} Value of total capital per unit in Rs.

X_{13} Total production per unit in Rs.

X_{14} Value of fixed capital per unit in Rs.

X_{15} Value of working capital per unit in Rs.

X_{16} Net income per household in Rs.



ESTIMATION OF THE MODEL

The models which have been developed are characterized by a set of simultaneous equations. In estimating the equations method of two stage least squares has been used. Estimated structural parameters obtained from two stage least squares analysis are presented table (Table 1).

The structural relations presented in the table reveal the following facts -

Table 1. Structural Equations between Objective and Policy Variables

Y _i Coefficients for variables/ Intercepts/R ²	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
X ₁	600.120** (110.444)				332.694** (3.167)
X ₂	85.291** (80.236)				
X ₃	332.309* (41.131)			87.287** (10.345)	
X ₄			0.480* (0.211)		-210.463** (91.302)
X ₅			-1.021* (0.038)		
X ₆					-149.088 (59.418)
X ₇	80.759** (1.879)	226.576** (72.165)	0.890** (0.254)		275.709 (25.368)
X ₈			-4.365** (0.481)		
X ₉	-439.528* (115.475)				
X ₁₀	103.472 (0.609)	345.589** (89.765)	-0.593** (0.219)		
X ₁₁		25.121 (9.378)		-0.502** (0.213)	
X ₁₂		410.980** (115.012)			
X ₁₃			14.569** (0.215)		
X ₁₄			-4.201* (0.043)		
X ₁₅	75.089** (0.290)			-72.519** (11.465)	
X ₁₆				15.690**	57.378**



				(0.351)	(27.790)
Intercepts	3547.552** (687.821)	6098.879 (460.868)	233.908** (26.683)	678.428** (15.802)	-9129.575** (1879.139)
R ²	0.670**	0.881**	0.715**	0.598**	0.821**

*Figures in the parenthesis are corresponding standard errors and ** and * indicate that the parameters are statistically significant at 1 per cent and 5 percent level of significance respectively for $n-p^1$ degree of freedom. R² represents the square of multiple correlation-coefficient (coefficient of determination)*

- (i) Productivity is influenced by positively by standard mandays, size of the units, hours of operation, distance covered for purchase of raw materials and working capital. It is influenced negatively by finished products sold to middlemen.
- (ii) Value added is increasingly influenced by experience of the workers, distance covered for purchase of raw materials, income outside household industry and higher use of capital.
- (iii) Duration of hours of operation is positively influenced by part-time workers contribution, work experience of the artisans and production of the units. It is negatively influenced by the involvement of skilled workers, goods sold to customers and fixed capital. It is negatively impacted by maximum distance covered for purchase of raw materials.
- (iv) Investment of fixed capital has a positive influence of duration of daily operation and net income of the household. However, it is influenced adversely by working capital and percentage of income outside industry.
- (v) Working capital bears a positive influence of size of the units, experience of the workers and net income of the household. It is adversely influenced by part-time workers' involvement as well as net income of the household.

POLICY RECOMMENDATIONS

In the light of the above findings the study suggests the following policy prescriptions and measures for the growth and development of the rattan-based household industries in the district of Jalpaiguri in West Bengal, India.

- It is suggested to set up raw material depots at suitable places to facilitate uninterrupted supply of standard raw material to the artisans in appropriate quantity and quality at reasonable rates. In such circumstance the state



governments should supply raw material at cheaper rates which will encourage artisans to continue their production.

- Inadequate finance has been one of the most important problems of the rattan-based household industries and therefore, requires credit facilities and financial support for the purchase of raw materials, payments of wages and for meeting their business obligations. Along with the state governments, nationalized commercial banks and other financial organizations should come forward to finance the entrepreneurs providing short, medium and long term loans.
- At times artisans depend totally on distant markets for selling their manufactured articles. It is suggested that a scheme of cooperative societies should be formed which, in the initial stage will take care of marketing of products at reasonable prices.
- The tools and equipment are very old and traditional techniques lead to higher cost of production thereby causing difficulties in the sale of final products. Design development production of new items and improvements traditional tools and age old techniques need to be introduced in such items where the originality of the artisans designs is retained.
- Management training should be introduced which will widen the artisan workers outlook, increase the knowledge of systematic approach to all activities, make them realize the necessity of basic plans on the factual data and thus promote the understanding of the principles and advantages of industrial management.
- The artisan workers usually produce traditional utilitarian articles. Apart from these, non-traditional articles should be produced after examining the consumers' preference and marketing orientation. The sector offers a great scope for the production of variety of artistic items if skill is slightly upgraded.
- For meeting the demand of better skill, which is a prerequisite for modernisation of production technology it is recommended to improve skill of the artisan workers through training and education of the workers in the related field. DIC can play an important role in this regard.



- Fifthly, cooperative societies should be established which should take up the supply of raw material, purchase of finished goods from artisans, marketing and provision of credits.
- Cooperative societies should be established which should take up the supply of raw material, purchase of finished goods from artisans, marketing and provision of credits. Finally, a comprehensive study is needed for the overall policy formulation covering a wide range of research activities including data collection on the production and marketing aspects.

CONCLUSION

The study reveals that rattan-based household industries of the study area are family based. Average employment in the sector is only 3. The operation is dominated by the male workers and majority of the workers are skilled. The sector is characterized by long hours of operation. It is suffering from numerous problems like irregular supply of raw materials, lack of credit, use of obsolete technology and lack of diversification of products. The empirical findings shows that standard mandays, size of the units, duration of daily operation, part-time workers contribution, percentage of skilled workers, experience of the workers, products sold to customers and value of the working capital are significant predictors of productivity of rattan-based household industries of the study area. There is a need for a specific plan of development for the sector. Moreover, there should be concerted action and policy between agencies that assist the development of the industries. The growth and development of the sector can only be brought about by a combination of policies and approaches as suggested. Efforts for better co-ordination among government agencies of different branches and at different levels should be made in the planning stages as well as during implementation.

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