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DEVELOPMENT OF RATTAN-BASED HOUSEHOLD INDUSTRIES IN BIRPARA-MADARIHAT BLOCK OF ALIPURDUAR DISTRICT, WEST BENGAL

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ABSTRACT:

Rattan constitutes the most abundant non-timber forest products which is used as a substitute for wood in the form of furniture and other products in many communities. A large number of rattan-based industrial units are found Jalpaiguri district of West Bengal, India. Due to the widespread illiteracy and poverty, they lack scientific and technical knowledge, which means that their production methods are still worse and their products are not standardized. The products are mainly sold in the local market. The intermediaries play an important role in the marketing of these local products. The proliferation of obsolete production is hindering the growth and development of the sector. The main obstacle to the development of the rattan sector was the uneven and scarce supply of rattan for commercial use. The study is based on 32 sample units collected from 4 villages of the district through field survey. The purpose of the study is to analyse the development potential of rattan-based industries in terms of production in the study area. It aims to evolve structural relationship among variables and to derive policy measures with regard to the development of the said sector. In this analysis, a multiple regression model was used. When assessing the development potential from the production point of view using the model, several related factors are identified as model variables.

KEYWORDS: *Rattan-based Industries, Multiple Linear Regression, Development, Policy.*

INTRODUCTION

The rattan is of great economic importance in the handicraft and furniture industry, since it is rich in fibers, has sufficient strength and is easy to work (Razak et al., 2016 and 2010). It is also a new milestone for the taxonomic study of rattan and provides systematic and practical guidance and technical assistance for the classification and rattan that are the inventory and evaluation of rattan sources, and strategic protection, cultivation, processing, use and international trade of them. (Maria et al., 2016). The rattan still played a role in the world market of $ 6.5 billion a year (Wan Ariffin et al., 2018). Then, the rattan market with 37,000 hectares of cultivation area and follow its approximately 31,000 hectares. The rattan is comfortable to grow, harvest, transport, store and market. Rattan products have some advantages compared to other industrial raw materials, because the products are relatively cheap, rigid, durable, beautiful, comfortable to use and lightweight.

Household industries play an important role in the development of a developing economy such as India. These industries not only raise the population's income and the population's standard of living, but also offer employment opportunities and reduce a disparity in economic structure. In addition, promoting these industries provide the opportunity to make better use of local resources to meet local needs. They play an important role in global economic development and export earnings (Kasemi, 2013). In addition to economic aspects, industries have played an important role in achieving

various goals, such as poverty, self-sufficiency, income reduction, regional wealth and standard of living (Pandey, 2013). Rattans or canes, the climbing palms of the family *Areaceae* form one of the most useful forest resources, utilized for the manufacture of a wide variety of aesthetic furniture and articles of decoration they provide gainful employment to many people in rural and remote areas, particularly among the tribal people. Although economically important, rattan remained as a neglected natural resource till recent times. With the rampant destruction of forests and habitats and unsustainable extraction, its stock at present is highly depleted. 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. These industries produce various utilitarian articles as well as decorative articles. 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, most of the industrial units are found in the rural areas.

Due to the widespread illiteracy and poverty, they lack scientific and technical knowledge, which means that their production methods are still worse and their products are not standardized. The products are mainly sold in the local market. The intermediaries play an important role in the marketing of these local products. The proliferation of obsolete production is hindering the growth and development of the sector. The main obstacle to the development of the rattan sector was the uneven and scarce supply of rattan for commercial use.

OBJECTIVES

The objective of the study is to analyse the development potential of rattan-based industries in terms of production in the study area. It aims to evolve structural relationship among variables and to derive policy measures with regard to the development of the sector.

STUDY AREA

The study was carried out in some selected villages of Madarihat-Birpara block of Alipurduar District. Madarihat-Birpara block is one of the six blocks of Alipurduar District in West Bengal. It is bounded by 26°37'19" N to 26°54'39" N latitude and 89° 08'09" E to 89°22'01" E longitude with a geographical area of 380.96 sq. km. It has total population of 2,02,026 persons as per the 2011 census.

DATA BASE

The study is based on both primary and secondary data. Secondary sources include Census reports, reports of the District Industrial Centre and District Statistical Handbook. Primary data has been collected from sample artisans and household industrial units through a schedule constructed for such purpose. A total of 32 industrial units of rattan-based industries have been surveyed which covers 4 villages of the block.

Model Specifications and Estimation Methods

The multiple linear regression model was used in the present analysis due to its simplicity, precision and ease of handling in relation to other models. When estimating development potential in terms of production using the model, several related factors are identified as model variables. Using this model, MLR (Multiple Linear Regression) equations were constructed. Therefore, the most important factors influencing the productivity of rattan-based industries are determined using the multiple linear regression model

Multiple Linear Regression model of production of rattan based industries is shown in the following equation:

$Y = a\ X_1\ X_2\ X_3\ X_4\ X_5\ X_6\ X_7\ X_8\ X_9$ .....(1)

Where,
Y = Production of rattan-based industries (Rs.)
X_1 = Size of the unit in terms of employment
X_2 = Duration of daily operation of workers per unit in hours
X_3 = Percentage of part-time workers to total workers per unit
X_4 = Maximum distance covered for purchase of raw materials (km)
X_5 = Value of working capital per unit (Rs.)
X_6 = Percentage of goods sold to customer
X_7 = Percentage of finished products sold to middlemen
X_8 = Experience of the workers (in code taking a 3 point scale)
X_9 = Educational level of the workers (in code taking a 5 point scale)

The basic form of Multiple Linear Regression equation may be expressed as follows:

$$Y = a + X_1 + X_2 + X_3 + X_4 + X_5 + X_6 + X_7 + X_8 + X_9 \quad \text{..... (2)}$$

Where, in the equation a is the constant, variables $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$ and X_9 are slope coefficients of respective variables in the equation 2.

The method of least square has been used to estimate the equations.

EMPIRICAL RESULTS AND DISCUSSIONS

Regression coefficients of nine independent variables are obtained using statistical software SPSS 21. The mathematical regression model is obtained as:

$$Y = 11818.327^{**} + 625.227^{**}X_1 + 299.548^{*}X_2 - 201.268^{*}X_3 - 18.846X_4$$
$$(921.041) \quad (301.025) \quad (0.849) \quad (0.102) \quad (11.302)$$
$$+14.261^{**}X_5 + 8.026X_6 - 17.759^{*}X_7 + 3.287^{**}X_8 + 74.111^{*}X_9$$
$$(3.178) \quad (0.289) \quad (6.441) \quad (0.033) \quad (9.532) \quad \text{..... (3)}$$

$$R^2 = 0.792^{**}$$

Figures in the parenthesis are corresponding standard errors and ** and * indicate that the parameters are statistically significant at 1 per cent and 5 per cent level of significance respectively for n-p[1] degree of freedom. R^2 represents the square of multiple correlation-coefficient (coefficient of determination).

From the model the coefficient of determination (R^2) value is found to be 0.792. It reveals that 79.2 per cent of the variability of the independent variable is accounted for by the model.

The structural relations presented in the table reveals that productivity is influenced positively by size of the units, hours of operation, working capital, products sold to customer, experience and educational level of the workers. It is negatively influenced by percentage of part-time workers, distance covered for purchase of raw materials and products sold to middlemen. This may be because rattan-based family industries are labor-dependent, which is why the elasticity of production relative to unit size is very high. It can be said that these industries are labor-intensive and that an increase in working time leads to an increase in production. The increase in working capital favoured productivity, because a larger working capital is spent either on the purchase of higher quality raw materials resulting in more profitable products, or on increased production thus increasing value added through a sales maximum approach.

The percentage of goods sold to the customer has a positive effect on production, as retail customers always pay higher prices than intermediaries for the same products. Increasing experience and training of entrepreneurs leads to increased unit productivity, as trained and experienced

entrepreneurs can use human and capital resources more efficiently by sharing work, providing better working conditions, and so on. An educated entrepreneur can solve problems more professionally and more competently (Khan et al., 2010).

The negative impact of the part-time workers may be because of the fact that they are usually unskilled and help only in the minor production process like processing of raw materials. Percentage of goods sold to influences production negatively because middlemen pay lower price for the products and exploit the workers.

CONCLUSION AND POLICY RECOMMENDATIONS

The study sought to identify factors affecting the productivity of the rattan industry in the Indian district of Jalpaiguri in West Bengal. The key findings are that the size of the units, opening times, working capital, products sold to the customer, experience and education levels have increasingly affected the productivity of rattan-based household industries. Factors such as part-time workers, distance traveled for purchasing raw materials, and products sold to middlemen had a negative impact on productivity.

Empirical results are important for the development of the rattan industry in research. First, adequate financial support should be provided to entrepreneurs, since most departments suffer from a lack of working capital. Loans should be provided to the unit in order to improve the working conditions of the unit. Short-term, medium-term and long-term loans. The Ministry of Trade and Industry should develop a comprehensive policy plan for technical assistance and education. The training of entrepreneurs must be improved through workshops and training programs (Lakshman, 1966). This can be done via District Industrial Centers (DICs). The working conditions of the device must be developed. Design, development of new articles and improvements Traditional tools and age-old techniques need to be introduced. Marketing support can be given to the employee group through institutional arrangements or departmental support, so that employees achieve better returns and are less dependent on intermediaries. Cooperative associations should be set up, which include the procurement of raw materials, the purchase of finished products by craftsmen, the marketing and the granting of loans. Finally, a comprehensive policy-making study covering a wide range of research activities is needed, including data collection on production and marketing aspects (Sao and Chhetri, 2008).

Training and education of entrepreneurs should be increased through workshops and training programmes (Lakshman, 1966). It may be done through District Industrial Centres (DICs). Working conditions of the unit should be developed. Design development of new items and improvements traditional tools and age old techniques need to be introduced. Marketing support can be given to workers group through institutional arrangements or departmental support, so that the workers may get a better return and reduce their dependency on the middlemen. 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 (Sao and Chhetri, 2008).

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