

Economic Analysis of Non-Timber Forest Products with Reference to the Tribal Entrepreneurs in Jharkhand

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Abstract

Purpose : The present study aimed to analyze the economic benefits earned from the non-timber forest products (NTFPs) such as sal leaf, mahua flower, tamarind, lac, siali leaf, and chironji seeds by the tribal entrepreneurs of West Singhbhum district of Jharkhand.

Methodology : The present study was conducted in the West Singhbhum district of Jharkhand ; 272 samples were collected from the tribal entrepreneurs of six villages, Bila, Baraebir, Bara, Dewanbir, Gobindpur, and Bhalurangi, consisting of two blocks, Goilkera and Sonua. We asked the respondents about what forest resources they depended on, the use of products, the time of collection, and the earnings throughout the year.

Findings : Collection, processing, and selling of NTFPs are the prime activities tribal entrepreneurs do to generate income. Tribal entrepreneurs are more dependent on the NTFPs as there is an enormous increase in the annual household income, which leads to improved socioeconomic conditions and poverty alleviation.

Practical Implications : Policy should be made towards implementing conducive and supportive schemes for the marketing and business processes of the NTFP products.

Originality : The majority of tribes of Jharkhand are dependent on the NTFPs for their livelihood development. The study is novel as literature lacks on NTFP products and their economic analysis.

Keywords : non-timber forest products, income analysis, tribal entrepreneurs, self-employment

JEL Classification Codes : O15, L26, Q23, Q56

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The majority of the Jharkhand population are tribes who live in the hilly areas and are dependent on the forest resources to fulfill their livelihood needs. The forest is like a second home for the tribes as they spend maximum time in the forest to earn and secure their livelihood (Tomar, 2017). Moreover, tribes also worship trees and hence conserve the forest as well. They are an essential portion of the forest ecosystems. In rural regions, people are mainly dependent on two main activities, i.e., agriculture and forest resources (De Bruin & Mataira, 2018; Mahapatra & Tewari, 2005). Tribal entrepreneurs collect and process forest resources innovatively and in advanced ways, making it an opportunity for self-employment. Entrepreneurship provides

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various social and economic benefits to tribal households (Acharya, 2018). Collection and selling of NTFPs is the leading employment practice of the tribes living in the eastern part of Jharkhand. Jharkhand is a land of forests, where the NTFPs are easily accessible and a significant income source for the tribals. These inexpensive products collected are the daily based livelihood resources. The collection, processing, and selling of NTFPs is a prime livelihood activity for the tribes living near the forest areas (Bauri et al., 2015). The present study was conducted in the West Singhbhum district of Jharkhand, the home of Saranda, the giant Sal Forest of Asia, and the pride of Jharkhand. The state of Jharkhand is a land of forests and natural resources. West Singhbhum district has forest areas, approximately 47% of the geographical area, which is the highest among all other districts of Jharkhand. NTFPs highly available in the district are sal leaf, mahua flower, tamarind, lac, siali leaf, and chironji seeds.

The non-timber forest generates people's livelihood, security, and shelter. These NTFPs create a source of income and an atmosphere of entrepreneurship among the tribal community (Giribabu, 2021). Several studies have been conducted in the areas of NTFPs and their impact on the livelihood of tribal communities in different places in the country. Tribals have used non-timber forest products for many decades, but the world has discovered their significance only recently (Dash et al., 2016; Islam & Quli, 2017). The relevance and significance of conducting the present study are that most tribes in Jharkhand depend on non-timber forest products. The forest is like a second home for the tribes as they spend maximum time in the forest to earn and secure their livelihood. So, it is essential to promote the relevance of NTFPs among the tribal entrepreneurs in the state of Jharkhand. Hence, the present study assesses the economic benefits of NTFP products among the tribal entrepreneurs of the West Singhbhum district of Jharkhand.

Literature Review

Enterprise development has diverse planning sets, multiple activities, financial access, and required skill (Basu & Bharti, 2016; Lele et al., 2010). In recent times, tribal entrepreneurship gained popularity among the research communities due to its multifaceted development among tribal households. Many policymakers have considered indigenous enterprises an opportunity for poverty alleviation and inclusive growth of tribal households (Hazarika & Goswami, 2018; Pasaribu et al., 2021). Tribal entrepreneurship has benefited the indigenous people from economic gains to social and livelihood development. In the initial stage, the tribal entrepreneurs depend on local resources and indigenous skills to establish entrepreneurial activities (Dinda et al., 2020; Singh & Ram, 2017). Forest resources are crucial in tribal-dominated areas as they significantly shape the social, economic, religious, political, and cultural systems of the tribes (Kar & Jacobson, 2012). Entrepreneurship of NTFPs is a sustainable practice of business as it doesn't harm the environment. It provides a permanent solution to the livelihood problems and expressed traditional knowledge (Srivastav & Syngkon, 2010; Talukdar et al., 2021). Specifically, NTFPs emphasized forest resources of interest to local communities in and around the forest. Tribals from a wide range of socio-economic, geographical, and cultural contexts extract NTFPs for various reasons, including household needs, sacred ancestral and cultural preservations, cognitive and psychosocial well-being, animal feeding, traditional medicine and recovery, economic needs, and growth. These NTFP products served as raw materials for tribal entrepreneurs (Chiphang et al., 2020; Dash et al., 2016).

NTFPs were a hidden economy where the global trading value of non-timber forest products is an important option to develop economically instead of extractive force development resulting in deforestation (Lepcha et al., 2019; Sampathkumar & Pradeep, 2017). Forests and tribals have lived in harmony for millennia, and this relationship, more than ever, needs to be strengthened today forsake for a sustainable future (Acharya, 2018; Datta & Sahu, 2022; Pandey et al., 2016). The tribal economy study specifically showed tribal reliance on land and forests. Farmers depend on land directly; food gatherers, hunters, and even groups performing handicrafts now rely on trees. Forests are very significant, at least as a secondary source of revenue (Peerzada et al., 2022;

Ramesh et al., 2021). Timber and forest goods have been valued and used to survive for the tribal people. Tribal women used NTFPs for socioeconomic development, employment creation, and income generation. The non-economic, transcendental functions of NTFPs were more critical and even served as a foundation for the economic roles for the development programs (Ahenkan & Boon, 2011; Mahapatra & Tewari, 2005; Rasul et al., 2008).

In tribal areas, self-help groups bring tribal women together, provide them with skill and training, and encouragement to become entrepreneurs. Government agencies gave these entrepreneurs considerable support in production, storage, processing, packaging, technical, information, and marketing. Thus, they generate a regular source of income that improves their livelihood (Acharya, 2018; Dinda et al., 2020; Hazarika & Goswami, 2018). With the help of self-help groups, tribal women entrepreneurs got microcredit, cooperatives societies, government agencies, and NGOs promote their products on a big platform. These agencies also helped unskilled women become skilled entrepreneurs through skill development training (Dash et al., 2016; Mahapatra & Tewari, 2005; Tomar, 2017).

➤ **H1 :** Tribal entrepreneurs have increased their economic benefits through the NTFP business.

Research Methodology

Type of the Research

The present study is empirical. It includes a comprehensive literature review and rigorous field survey for primary data collection.

Design of the Study Approach

The present study was conducted in the West Singhbhum district of Jharkhand, the home to Saranda Forest, the largest Sal Forest of Asia, and the pride of Jharkhand. Data were collected from the tribal entrepreneurs of six villages, Bila, Baraebir, Bara, Dewanbir, Gobindpur, and Bhalurangi, consisting of two blocks, Goilkera and Sonua.

Methods of Data Collection

Two hundred and seventy-two (272) samples were collected from the respondents who depend on forest products for their livelihood. These respondents collect forest resources from the Saranda Forest and, with processing or without processing, sell these to the market and earn money. Data were collected using a semi-structured questionnaire through personal interviews. We asked the respondents about what forest resources they depended on, the use of products, the collection period in the year, and the income earned throughout the year. The data were collected using a semi-structured set of questionnaires, and 272 reliable samples were collected through personal interviews of the tribal women entrepreneurs on the economic benefits of the NTFPs. Further, these primary data were gathered for percentage analysis using Microsoft Excel software. The study was conducted from September 2021 – May 2022. The period was chosen due to the availability of NTFPs in these areas. In addition, it completes a complete cycle of harvesting of NTFPs.

Analysis and Results

Primary data were collected from the tribal entrepreneurs of six villages such as Bila, Baraebir, Bara, Dewanbir,

Table 1. Demographic Information of the Respondents

Sl. No.	Particulars	Components	Response Count (N=272)
1.	Village Name	Bila	44 (16%)
		Baraebir	41 (15%)
		Bara	52 (19%)
		Dewanbir	57 (21%)
		Gobindpur	41 (15%)
		Bhalurangi	38 (14%)
2.	Age	15–25 Years	104 (38%)
		25–35 Years	114 (42%)
		35–45 Years	46 (17%)
		45 and above	8 (3%)
3.	Education	Illiterate	212 (78%)
		Primary	33 (12%)
		Middle	27 (10%)
4.	Marital Status	Unmarried	27 (10%)
		Married	245 (90%)
5.	Gender	Male	46 (17%)
		Female	226 (83%)
6.	Number of Family Members	2 or less	57 (21%)
		3–5 members	185 (68%)
		6 or more	30 (11%)
7.	Employment	Daily wage	199 (73%)
		Self Employed	35 (13%)
		Unemployed	38 (14%)

Gobindpur, and Bhalurangi, consisting of two blocks, Goilker and Sonua. The respondents' demographic information is depicted in Table 1. It is evidenced that most tribal entrepreneurs, i.e., 83% of the total respondents earning their livelihood from the NTFPs, were women. Literacy is lacking behind among tribal entrepreneurs. Most respondents were middle-aged, i.e., between 18–35 years, and depended on daily wages for their livelihood survival. Tribal entrepreneurs lived a dignified, free life as their business activities provided quality food and income to support family life.

Tribal women play a vital role and responsibility in forestry. Women are active performers in forest economies. Women are vital in the supply chain as they are engaged from the collection stage to production (Magry et al., 2022). Collecting NTFPs has been the foundation of the livelihood of women, in particular during non-agricultural months (Sonam et al., 2019).

Women entrepreneurs in NTFPs involve themselves in four types of contributions such as *actors*, who only collect and maintain NTFPs, without involvement in product processing or value chain management; *integrators*, who process the commodity, even if they don't have an impact on the value chain and are dependent upon intermediaries to reach markets; *partners*, who don't process their products but have their presence in the value chain; and *co-owners*, who add value and have a stake in management (Belcher et al., 2015; Sharma & Nagaich, 2014) (refer to Table 2).

Table 2. Type of NTFPs and Annual Collection in Volume

Sl. No.	NTFPs	Collection/ Respondents (in Quintal)	Respondents Engaged (in Number)	Collection/Year (in Quintal)	% of Total Volume
1.	Sal Leaf	27	178	4,806	55
2.	Mahua Flower	2	129	258	3
3.	Tamarind	3	122	366	4
4.	Lac	1	69	69	1
5.	Siali Leaf	20	159	3,180	36
6.	Chironji Seed	1	87	87	1

Table 3. Basic Information and Use of NTFPs

Sl. No.	NTFPs	Collection Month	Uses and Benefits	Issues and Challenges
1.	Sal Leaf	May to February (250–300 days)	4–6 leaves stitched together with a bamboo stick to prepare biodegradable plates.	Low MRPs and lack of dying and plate-making machinery.
2.	Mahua Flower	March to April (70–90 days)	Used to prepare local alcohol in the tribal region.	Lack of govt. support for processing and marketing.
3.	Tamarind	April to May (50–60 days)	Used in food and beverages for flavoring.	MRP is very low.
4.	Lac	October to December (70–90 days)	These are used in toy making, bangles, and filling materials in the hollows of gold and silver ornaments.	Lack of govt. support for training and processing.
5.	Siali Leaf	May to January (250–270)	Used as a plate for feeding. It is biodegradable and eco-friendly.	Lack of infrastructure for drying and plate preparation.
6.	Chironji Seeds	March to April (50–60 days)	People eat chironji fruit which is very tasty and sweet. Then, post-drying, it is sold in the market.	It consumes time in collection and processing.

It is evidenced that the highest number of respondents collected sal leaf and siali leaf. This is because these leaves are available for an extended period, i.e., 6 months a year, and are easily accessible in the forest. At the same time, other NTFPs such as mahua flower, tamarind, lac, and chironji seed are seasonal products available only during its season. Thus, tribal entrepreneurs are more focused on collecting and processing sal and siali leaves throughout the year (Table 3).

Due to the high-volume collection of sal and siali leaf, these generate higher income for the tribal entrepreneurs as compared to other NTFPs. The other NTFPs had a low volume in the collection. Therefore, they earned less income. Sal leaf generated higher income for an individual, i.e., 27,000 rupees annually, followed by

Table 4. Annual Income (Total and Individual) Earned from NTFPs

Sl. No.	NTFPs	MRPs of NTFPs/ Quintal (in Rupees)	Collection/ year (in Quintal)	Income from NTFPs (in Rupees)	Entrepreneurs Engaged (in number)	Individual Income/year (in Rupees)
1	Sal leaf	1,000	4,806	4,806,000	178	27,000
2	Mahua Flower	800	258	206,400	129	1,600
3	Tamarind	600	366	219,600	122	1,800

4	Lac	8,000	69	552,000	69	8,000
5	Siali Leaf	1,000	3,180	3,180,000	159	20,000
6	Chironji Seed	1,600	87	139,200	87	1,600

Siali leaf, which generates 20,000 rupees annually (refer to Table 4). Other NTFPs generated minimal income for the tribal entrepreneurs due to their occasional availability. A tribal entrepreneur earned 60,000 rupees in a year, enough for a household to survive. But due to a lack of infrastructure, machinery, training, and money, they couldn't process or make these forest resources into final products restricting their income growth. With advanced machinery and skill, the tribal economy can be promoted sustainably, and the livelihood of tribal entrepreneurs will also be developed. Thus, the proposed hypothesis H1 is accepted.

Theoretical Implications

The study implies that tribals depend more on NTFPs for their livelihood due to a lack of employment and income sources. Therefore, the study will prompt the policymakers and decision-makers to implement policies, schemes, and platforms for the tribal entrepreneurs to enhance their business activities. Further, the marketing and selling of NTFP-based products need to smoothen as intermediaries consume the profits of the tribal entrepreneurs.

Conclusion

The study has analyzed the economic benefits of non-timber forest products among tribal entrepreneurs. The study was conducted in the district of West Singhbhum in Jharkhand, which is the home to Saranda Forest, the giant Sal Forest in Asia, and the pride of Jharkhand. Data were collected from the tribal entrepreneurs of six villages: Bila, Baraebir, Bara, Dewanbir, Gobindpur, and Bhalurangi of Goilkera and Sonua blocks. It is evidenced from the results that sal leaf and siali leaf are the highly available resources and provide decent earnings to support the livelihood. Due to the plastic ban, the demand for plates made from sal and siali leaf is high, and the business is profitable and futuristic.

Entrepreneurship of NTFPs is a sustainable practice of business as it doesn't harm the environment. It provides a permanent solution to livelihood problems and expresses traditional knowledge. Hence, the collection and processing of NTFPs generate sources of income and better living conditions. Hence, there is a positive socioeconomic impact of NTFPs-based entrepreneurship on the households of tribal entrepreneurs in Jharkhand. Policymakers should promote skill-based training on the use of forest resources among tribal entrepreneurs so that advanced and innovative forest products can be developed and the livelihoods of tribes can be promoted.

Limitations of the Study and Scope for Future Research

NTFPs consist of various products, and the present study has studied only a few. The study could be a limitation as there is a need for exposure variety of NTFPs available for the tribal entrepreneurs for their livelihood. The scope for further research in NTFPs is vast and flexible. To promote tribal entrepreneurs, exposure and research need to be conducted to examine the multifaceted benefits of NTFPs.

Authors' Contribution

Jogeswar Mahato and Kumar Gaurav produced the concept and established the qualitative and quantitative methods to execute an empirical investigation. Kumar Gaurav retrieved high-quality research papers as per the

relevance of the study. Jogeswar Mahato examined the statistical methods and monitored the research. The interviews were conducted by Jogeswar Mahato and Kumar Gaurav in local languages such as Sadri and Hindi. They both did the numerical computations using Microsoft Excel and worked together on the manuscript preparation and editing.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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