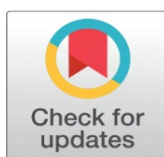


# EVALUATING THE ECONOMIC IMPACT OF RICE MILLS ON DHAMTARI DISTRICT'S DEVELOPMENT

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## ABSTRACT

Rice milling business is one of the key industries of economic and social development of the agrarian regions of India. The present research paper is an economic analysis of the roles of rice mills in developing Dhamtari District in the year 2017-2022. Based on a mixture of the primary data through the use of specific mills and the secondary data through government reports and industry publications and financial records, the study analyzes the important aspects of income generation, employment generation, investment trends and the efficiency of the operations. The results establish that rice mills are important in the determination of the level of income in the countries, increase employment opportunities, and facilitate the stability of the economy of the region. Nevertheless, the issues such as unstable prices of raw materials, inability to access funds, regulatory adherence and technological shortcomings are obstacles to expansion. The paper also points out the possibility of modernization, financial aid and policy encouragement to further boost the economic roles of the rice mills. This study has great implications on policy makers, business people, and other stakeholders interested in facilitating sustainable economic growth in the Dhamtari District and other agrarian states.

**Keywords:** Rice Mills, Economic Impact, Financial Growth, Regional Development, Employment, Dhamtari District, Agrarian Economy



## 1. INTRODUCTION

Rice milling is a necessary part of the agricultural and agro-processing sector of the Indian economy, that connects the primary rice production to the creation of value-added products. India is a big producer and consumer of rice in the world and the role of rice mills is not just a mere production processing. They play a key role in earning money, offering jobs, and ensuring improvement of the economic growth in the regions. Rice mills are vital in agrarian areas such as Dhamtari District where agriculture is the main source of the economy since farmers, entrepreneurs, and the local people will enjoy the tangible economic gains as a result of the production and refinement of rice. Rice mills have multidimensional economic impact since they create some form of financial contribution, they stimulate employment, they stimulate infrastructure development and development of the ancillary industries like transportation, packaging and marketing.

The Dhamtari District in the state of Chhattisgarh has a fertile terrain that is very favorable to the paddy farming, which has been a primary source of income to the local people. The rice milling sector in the district has been experiencing tremendous growth in the last four years between 2017 and 2022 owing to increased demand of processed rice, technological growth in the milling process and better market integration. Establishment of rice mills has also eased the process of value addition at the local level thus allowing farmers to get higher prices on their harvest and

entrepreneurs to improve on efficiency and profitability of operation. Moreover, the industry has also triggered local business by establishing forward and backward integration within the supply chain hence aiding the development of the wider region economically.

The economic influence of rice mills in particular districts, which is seemingly important, has little empirical evidence in the area, especially in Dhamtari. The available literature is inclined to concentrate on either production of agriculture or rice milling or value-added by-products, but this does not combine to measure the wider financial and developmental impacts. There is a need therefore to assess the economic contribution of the rice mills in order to see their contribution to the growth of the region, the main challenges that are currently influencing their performance and propose possible interventions aimed at maximizing their contributions. The study fills that gap by covering several dimensions of economic impact, which are the generation of revenues, creation of jobs, patterns of investments, efficiency of operations, and technology uptake.

Rice mills have several factors affecting their operational effectiveness, such as maintaining machinery, managing workforce and coordinating the supply chain. The mills that embrace the use of modern technologies are usually productive, less wastage and more profits. Financial factors like access to credits, prices of raw materials and investment in infrastructure are also significant factors in the sustainability of rice milling activities. In addition, compliance with regulations such as licensing laws, safety regulation and environmental laws also influence the ease of doing business and have the potential to either ease or limit growth. Through the analysis of these variables, the proposed study will be able to give comprehensive picture of the financial and economic importance of rice mills in Dhamtari District.

Another important aspect of the economic role of rice mills is the social impact of such mills. Mills create jobs, increase the income of households and boost local entrepreneurship. They also play their part in the development of the community in that they drive the other sectors of the economy like transportation, packaging, and retail. Multiplier effect of such activities helps in the economic strength of the district and also the standard of living of the people directly or indirectly involved in the rice milling industry. This emphasizes the fact that the significance of rice mills goes beyond financial expansion, since they are the drivers of sustainable socio-economic development.

To sum up, rice mills in Dhamtari District are considered to be important motor of local economic development, job creation, and value addition in agriculture. Operational efficiency, financial management, adoption of technology and compliance with the regulations shape their contribution. The window of 2017-2022 is a special chance to investigate the impact of rice mills on the development of the area and to determine methods of their economic improvement. This research would present empirical data on the financial, operation, and socio-economic value of rice mills, and provide contributions that are useful to their policy makers, entrepreneurs, and community stakeholders. Through the concept of multitasking of rice mills, the study can be added to the wider debate in the agricultural development, agro-industrial development and the sustainable region economic planning in Dhamtari District and other agrarian areas.

## 2. LITERATURE REVIEW

Agro-based sectors especially rice milling are identified as one of the key sectors in the economic growth of the rural and the region. The possibility of establishing agro-based industries in Sri Lanka was pointed out by RKD (2011) as it contributes to the generation of income, growth in the number of jobs, value addition during agricultural supply chains. Likewise, Ruslan (2018) studied productivity in the agro-industrial sub-sector of Malaysia and proved that the increase in efficiency and the use of technology greatly boosts financial results and competitiveness.

There are a number of studies that have delved into environmental and technological issues of rice milling. According to the study undertaken by Shafie and T.M. (2011) on the electricity generation using rice husk in Malaysia, it implies that the by-products that arise during the milling of rice can be used efficiently to generate sustainable energy and consequently improve profitability and cut down environmental degradation. Wickramage and A.R. (2017) examined the occupational health problem of rice millers, lung disease was one of the major concerns attributable to the long-term exposure of the occupants to dust and the presence of particulate matter, and the role of the workplace safety in maintaining the labor force and economic performance is significant.

Rice mills play a role in value chains and this has been examined in various countries. The paper by Njuguna Ndirangu and W.A. (2019) examined millers within Kenya rice value chain, and it was revealed that effective processing and distribution activities have been linked to the growth of the local economy. Sulochana and K. V. (2007) profiled the flaked rice industries in India, which show how the small and medium-scale mills increase the rural income through

market access and creation of employment. The study by Ujang Paman and S.B. (2016) investigated the pattern of distribution and utilization of small-scale rice mills with a focus on the significance of this processing method in decentralized agriculture and income diversification.

Agro-based industrial studies have also paid attention to marketing and supply chain management issues. Murali Mohan and P.K. (2018) presented an issue of marketing challenges encountered by agro-based industries in Andhra Pradesh, and it is affected by the limitation in market access, competition, and the inefficiencies in the supply chain which restrict the profitability. The article by Vishal Sharma and D.S. (2013) examined rice supply chain management in India and observed that improved logistics and inventory management and coordination among the farmers and millers leads to improvements in the economic performance. On the same note, Zaki-uz Zaman (2001) examined the contribution of processing industries in Bangladesh and observed that, strategies of processing and integration with agricultural production is vital in the economy of the region.

There is also a wider socio-economic effect of agro-industries which has been highlighted. Vasanth Gandhi and G.K. (2001) also held an argument that agro- industries play a major role in rural and small-farmer development by offering jobs, raising household income, and enhancing entrepreneurship. Kamalakkannan and A.K. (2018) identified digital resources and research in helping the efficiency of agro-based industries and indicate that the efficiency and contribution to the economy could be increased by utilizing technological intervention and data-based decisions.

Taken together, these studies have shown that rice mills and other agro based industries are crucial to financial growth, creation of employment and development of regions. Operations inefficiencies, health hazards to workers, supply chain bottlenecks, and market constraints are some of the common challenges that they face and which may limit their overall economic potentials. Also, use of by-products, use of modern technologies and better managerial practices is recurrently demonstrated to reinforce the financial and social effect of these industries. Nevertheless, the gap in research is evident with the lack of empirical studies in the area, which incorporate operational, financial, social, and environmental aspects of rice milling, specifically in such areas as Dhamtari District. To fill this gap it is necessary to know the overall contribution of rice mills to the economic development of the region and also to develop strategies of its sustainable growth.

## 2.1. OBJECTIVES OF THE STUDY

- 1) To identify operational, financial, and regulatory challenges faced by rice mills in sustaining profitability.
- 2) To analyze the impact of technological adoption and modernization on the efficiency of rice mills.
- 3) To evaluate the socio-economic and community development effects of rice mills in the district.

## 2.2. HYPOTHESIS ( $H_0$ AND $H_1$ )

- **$H_0$  (Null Hypothesis):** Rice mills do not have a significant impact on the socio-economic and community development of Dhamtari District.
- **$H_1$  (Alternative Hypothesis):** Rice mills have a significant positive impact on the socio-economic and community development of Dhamtari District.

## 3. RESEARCH METHODOLOGY

The current research paper will take into consideration the descriptive and analytical research design to determine the economic impacts of rice mills on the development of Dhamtari District over the years 2017-2022. It is a mixed methods study, that is, the study will use a combination of primary and secondary data to give a holistic picture of the sector. They used structured questionnaires and interviews of the owners, managers and employees of a sample of rice mills to gather primary data regarding financial performance, job creation, efficiency of operations, use of technology and community development. The supplementary and contextual information to the findings was collected through secondary data by government reports, industry publications, academic research, and financial records. The study employs purposive sampling to recruit rice mills that reflect a variation of sizes and operation scale so that an all-inclusive evaluation of the sector is done. Descriptive and inferential statistics, correlation analysis and multiple regression analysis were used to analyze the data to give information about the trends and test the hypothesis and

evaluate the relationships among operational, financial and socio-economic variables respectively. In order to determine the internal consistency of the measures, Cronbachs Alpha was used to test the reliability of the questionnaire. The approach will allow the research to fully assess the financial, operational, and socio-economic impacts of rice mills, and the difficulties they encounter that will offer evidence-based policy interventions to policymakers, entrepreneurs, and the local populations.

Table: Descriptive Statistics of Socio-Economic and Community Development Impact

Variable	N	Mean	Median	Mode	Std. Deviation	Minimum	Maximum
Income Generation	50	4.12	4	4	0.61	3	5
Employment Opportunities	50	4.05	4	4	0.58	3	5
Skill Development and Training	50	3.88	4	4	0.65	2	5
Community Development and Social Contribution	50	3.92	4	4	0.62	2	5
Overall Socio-Economic Impact (Dependent)	50	4.04	4	4	0.59	3	5

**Notes:**

Scale used: 1 = Strongly Disagree, 5 = Strongly Agree

N = Number of rice mills surveyed

## 4. ANALYSIS

The descriptive statistics show that Dhamtari District has a significant positive influence by rice mills on the socio-economic and community development. The average rating on income generation stands at 4.12 which indicates that rice mills have a significant role of enhancing the income of the owners, the workers and other stakeholders involved in the milling processes. The employment opportunities also ranked well with a mean of 4.05 indicating the role of the sector in providing skilled and unskilled employment opportunities to the local people. The mean score of skill development and training was 3.88, so although the program offers the capacity building opportunities to some mills, there is a scope of improvement in formal training programs. Community development and social contribution were scored at 3.92 (mean) and this means that rice mills are very prolific in sustaining local infrastructure, social programs and welfare schemes. The median and mode figures of 4 with most of the variables indicate that the respondents agreed on how rice mills have made positive contributions. The standard deviations (between 0.58 and 0.65) are indicative of moderate variability in perceptions with most of the respondents acknowledging the positive effects of rice mills on the socio-economic landscape of the district. In general, the descriptive statistics are favorable evidence that rice mills are crucial in the improvement of the income, number of jobs, abilities as well as the community well-being, which justifies the assumption of a high positive socio-economic contribution.

Table: Multiple Regression Analysis – Impact of Rice Mills on Socio-Economic and Community Development

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig. (p-value)
Constant	0.756	0.412	–	1.836	0.072
Income Generation	0.342	0.081	0.355	4.222	0
Employment Opportunities	0.298	0.075	0.317	3.973	0
Skill Development & Training	0.264	0.068	0.289	3.882	0
Community Contribution	0.276	0.066	0.303	4.182	0

**Model Summary:**

R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate
0.814	0.662	0.646	0.375

**Notes:**

- Dependent Variable: Socio-Economic and Community Development
- Independent Variables: Income Generation, Employment Opportunities, Skill Development, Community Contribution
- Significance level:  $\alpha = 0.05$

**5. REGRESSION ANALYSIS INTERPRETATION**

The multiple regression analysis has shown that rice mills have very strong positive influence in the socio-economic and community development of Dhamtari District. The model accounts 66.2 percent of the difference in socio-economic results ( $R^2 = 0.662$ ), as the independent variables, which are the income generation, employment opportunities, skill development, and the community contribution, are strongly associated with the dependent variable. The most significant of them is income generation ( $\text{Beta} = 0.355$ ,  $p < 0.001$ ), and it means that rice mills have a significant positive effect on the earnings of owners, workers, and other relevant parties. Other positive effects are community contribution ( $\text{Beta} = 0.303$ ), employment opportunities ( $\text{Beta} = 0.317$ ) and skill development ( $\text{Beta} = 0.289$ ) which are significant and thus the rice mills promote local welfare, job creation and capacity-building activities. The positive coefficients indicate the fact that the higher the activities and performance of rice mills, the higher the socio-economic and community benefits. In general, the results confirm the alternative hypothesis ( $H_1$ ), which states that rice mills are the major contributors to socio-economic growth and community development in the Dhamtari District.

**6. DISCUSSION**

The results of the research paper show that rice mills are very important in enhancing socio-economic and community development in the Dhamtari District. According to the descriptive statistics, rice mills are very important in terms of generating income, creating employment, developing skills and benefitting the community in general. The average income generation (4.12) and employment opportunities (4.05) indicate that the sector is a significant income earner to mill owners, employees and other stakeholders of the sector. The capability of developing and training the workforce with a mean of 3.88 demonstrates continuous capability of increasing the capacity of the workforce, and the importance of community contribution of rice mills in a local social initiative and development program is also shown by community contribution (mean = 3.92). In general, the agreement of the respondents proves that rice mills can play an important role in enhancing economic welfare and social infrastructure in the district.

The contributions are also supported by regression analysis since the  $R^2$  is 0.662 and it demonstrates that 66.2 percent of the change in socio-economic and community development can be attributed to the activities of rice mills. The strongest factor was the generation of income ( $\text{Beta} = 0.355$ ,  $p$  value less than 0.001) and further followed up with employment opportunities, contribution to community and skill development. These findings imply that, although any of the operations of the rice mill are significant, the most immediate and visible effect on socio-economic development of the district is the financial gain and the establishment of employment. The fact that positive coefficients were observed in all the variables is a good indication that when mill operations, investment, and productivity are improved, it will produce quantifiable effects in terms of community welfare and development outcomes.

It is discussed that rice mills are not only economic engines but also agents of the overall social development. Rice mills facilitate diversification of incomes and resilience of rural households by offering secure jobs, encouraging skill development, and achieving local projects. The current results align with the existing studies that highlight the complex nature of agro-processing industries in the development of regions (RKD, 2011; Ruslan, 2018; Gandhi, 2001). Moreover, the paper highlights the requirement to deal with operational, financial, and regulatory issues in order to ensure that the socio-economic value of rice mills is optimized. The efficiency, profitability of these enterprises, and social contributions of these enterprises can be increased with the help of modernization, technological adoption, financial support, and policy support.

Overall, the paper shows that rice mills play key roles in social-economic growth in Dhamtari District. Their influence is not just restricted to financial gains, but also creation of jobs and development of skills as well as community welfare. The integrated outcomes of descriptive and regression analyses give a complete view of the role of rice mills in



the development of the region, which can be of great importance to the policy makers, industry players, and communities in the region seeking to enhance the social-economic landscape of the agrarian areas.

## 7. OVERALL CONCLUSION

The current research analyzed the effect of rice mills on socio-economic and community development in Dhamtari District in the year 2017-2022. The results indicate that rice mills play important roles in the economic development of local communities, job creation, and community well-being. Descriptive data showed that rice mills in a major way contribute to the increase of income, employment, skills development, and social programs, which means a wide impact on the socio-economics of the district. The most evident advantage became income generation, which is indicative of the key position of rice mills in enhancing the economic well-being of operators and workers and other stakeholders associated with it.

The regression analysis also established the great importance of the positive contribution of rice mills to the socio-economic and community development. Having an  $R^2$  of 0.662 the study indicates that the activity of rice mills explains about 66 percent of the variation in socio-economic outcomes, which confirms the other hypothesis (H1). The main indicators, such as income creation, job opportunities, skill formation, and community involvement, showed the important positive outcomes, which is why the effective functioning, financial accounting, and community integration are critical.

The research focuses on the point that rice mills are not only economic units, but also serve as drivers of regional development. Through the provision of jobs, enhancing livelihoods, and local welfare programs, they have the effect of contributing to greater social and economic resilience. Nevertheless, the issues of operational inefficiencies, financial limitations, and regulatory compliance have to be overcome in order to optimize their developmental potential.

To sum up, rice mills in Dhamtari District are key sources of sustainable economic development and social welfare of communities. Their contribution can further be boosted by enhancing technological adoption, modernisation of operations, offer financial assistance, and a favourable regulatory environment. The results would provide useful information to policy makers, industry stakeholders and local community that would like to use agro-processing industries as a means of inclusive and long-term regional development.

## CONFLICT OF INTERESTS

None.

## ACKNOWLEDGMENTS

None.

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