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Migration and consumption behaviour of mining labour: Evidence from Kalahandi and Koraput regions

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Abstract

Migration has resulted in an improved standard of living for the people and poverty reduction, reflected in economic development. Urbanization is the result of migration, and economic development is inextricably linked. Around 65 percent of India's GDP is estimated to come from the urban areas, which account for one-third of India's total population. The mining industry is one of the important development projects; it helps to reduce unemployment, increase the income of the people, and have positive impacts on education. The research examines migration and economic development by analysing the consumer behaviours of households in the mining workforce located in Kalahandi and Koraput, Odisha. This study aims to understand household consumption expenditures and their relationship to the development of human capital. The study has gathered a primary survey of 400 samples through purposive sampling from mining labourers in both areas. The monthly consumption expenditure includes non-durable products, durable goods, and expenditures on health and education by households. This research employed a log-linear regression model. The dependent variable is monthly consumption expenditure (MEC), while the independent variables include economic factors, household status, social factors, credit availability, poverty status, and social categorization, all of which influence consumption behaviour. The conclusion is that mining labour is in a precarious position, characterized by significant structural inequities, with mineral-resource-rich districts of Odisha being profoundly economically underdeveloped. This study re-emphasizes the economic precariousness of mining workers' households in resource-abundant mineral regions.

Keywords: Migration; Mining Labour; Economic Vulnerability; Consumption expenditure; Economic Factors; Social Factors

1 Introduction

Migration depends on the push factors; people are mainly motivated by better employment opportunities, higher wages, and good quality education; improved health conditions and better living conditions at the destination; and pull factors motivated at homes, such as lack of employment, low wage rates, agricultural crop failure, debt, drought, and natural calamities (Ravenstein, 1889; de Haan, 1999). Urbanization is the result of migration, and demographers have also discovered that only a tiny percentage of the country's total population lives in urban areas [9]. Urbanization and economic development are inextricably linked (Sovani, 1964). Around 65 percent of India's GDP is estimated to come from the urban areas, which account for one-third of India's total population [4]. According to the 2011 Census, urban areas are home to 31 percent of the population. Migration is a social process, not an economic decision. Migration patterns are inextricably tied to historical and cultural aspects, and migration can be understood using simple economic calculations, such as the costs and benefits of relocating, which reflect both individual choices and broader societal influences. The authors found that migration is ingrained in society and culture (De Haan, 1999; De Haan & Rogaly, 2002; Kothari, 2003).

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Migration has resulted in an improved standard of living of the people and a poverty reduction, reflected in economic development (De Haan, 1999 & Skeldon, 2002). Furthermore, migration entails labour mobility, skill transfer, and an increase in educational and health standards. It serves a variety of functions in reducing the economic vulnerability of the households and capital accumulation, enabling people to fulfil basic needs [13]. The mining industry is one of the important development projects, it helps to reduce unemployment, increase the income of the people, have positive impacts on education (Hota & Behera, 2019; Khan & Das, 2024; Willams & Nikijuluw, 2020). Contrary, mining has some negative scarcity of lands, shortage of food grains for the locals, poor health, poor environment quality and regional inequality [14] [20] [24]. Further, the agriculture lands are highly affected due to mining operation (Manduna, 2023).

2 Migration, Mining Sectors and Economic Development

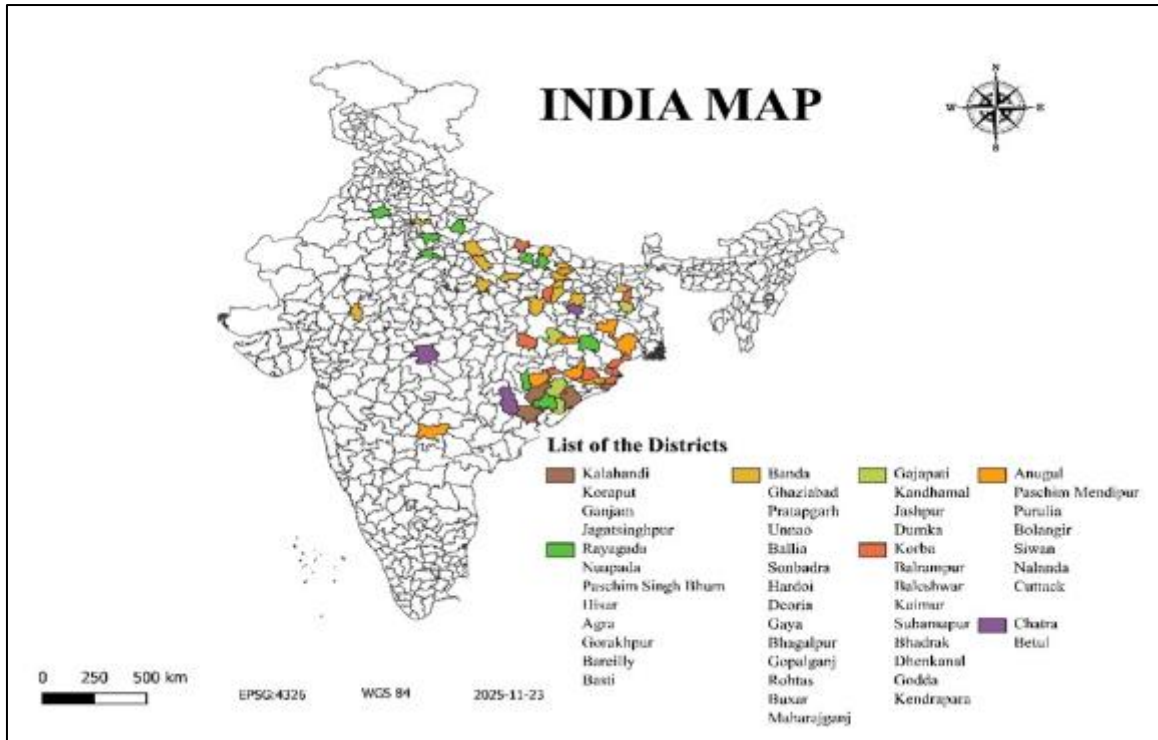
According to UNDP, migration has significantly improved the human development index of many developing countries. Over a billion people rely on internal and international migration to alleviate poverty, increase income, and provide their families with better education and health facilities (UNDP 2009 & IOM 2015). Another study revealed that annual remittances to developing countries total \$500 billion, which is triple the amount of official development assistance (ODA) of a developing country (Southerland, 2013). Migration is the process by which one's abilities and capabilities are enhanced. Moreover, migration has helped alleviate poverty and stimulate economic development. This is particularly evident in Asia, where the economy is booming (Deshingker & Grimm, 2005). It has been evident that directly and indirectly, migration is responsible to reduce the level of poverty with remittances supporting agriculture, boosting rural markets, and making lands accessible for tenancy (Afsar, 2003).

In mining, the world is shrinking; mining companies are actively searching for new mineral deposits and building new developmental projects that require greater investment [7]. A massive scale of land and money is required to operate these projects. Most of the regions endowed with natural resources like water, forest and minerals resources (Mishra, 2015). Globally, it is reported that 10-15 million people are dislocated due to various development projects [27]. Additionally, many people are displaced from their homeland to other places due to mining operations but unfortunately there is no assessment made on this globally [12]. The government liberalised policies are boosting the economic development and have attracted the investors from the various parts of the world for countless development projects such as dams, power plants, mining, infrastructure developments, irrigation etc., [2] [8].

India provides many minerals, mutually major and minor in terms of raw materials and key industrial sectors – such as cement, steel, power, etc., that drive the Indian economy. The goal of mining extraction in a country is to increase the nation's economy. The contribution of mining in India; total mineral production value in FY-2019 is Rupees 1,24,020/- crores, contribution to GVA in FY-2019 is 2.7 per cent, direct employment is 23 lakh, and indirect employment is 2.3 crores. Now come to the mineral-wise breakup of total mineral production value in FY-2019, excluding atomic and fuel minerals. The total mineral production value in FY-2019 is Rupees 1,24,020/- crores, out of 44 per cent are minor minerals and 56 per cent are major minerals (De & Bhattacharjee, 2020). Among the top five states, Odisha's mineral production value in Rupees 29,196/- crores in FY-2019, followed by Rajasthan's in Rupees 2,195/- crores, Andhra Pradesh's in Rupees 1,069/- crores, Chhattisgarh's in Rupees 10,445/- crores and Karnataka in Rupees 9,636/- crores. This is state-wise earned rupees through the mineral production value. Apart from the mineral production value, India is also a major producer of coal (De & Bhattacharjee, 2020)

3 Migration of Labourers to the Mining Areas

Migration is basically of two types: first, internal migration, and second, international migration. Internal migration implies the migration of people within the borders. Internal migration is driven by various factors, including enforced movement, resettlement due to dams and public works, displacement from civil complex emergencies and violent conflicts, as well as circular and seasonal migration patterns from rural to rural and rural to urban areas. International migration, which is defined as a movement beyond the country's borders. The primary reasons for this migration are displacement due to ethnic conflict and wars; better economic opportunities; white-collar jobs; as well as longer duration sub-types within the preceding cross-border or international movement [13]. (Mining sectors such as the Kalahandi and Koraput regions have labour migration due to persistent poverty, unemployment in their areas, restricted agricultural output, and a dearth of local non-farm work opportunities. The coloured areas in Figure 1.1 illustrate the principal districts to which mining labourers migrate: the Kalahandi and Koraput regions for the pursuit of jobs.



Data Sources: QGIS 3.44.3, 2025 (Census 2011, Survey of India)

Figure 1 Migration of Labourers to the Mining Areas form Different Districts in India

4 Research Objectives and Methodology

The main objective of the study is examining migration and economic development through the consumption patterns of mining labourers' households. The research examines the consumer behaviours of mining workforce households in *Kalahandi and Koraput*, Odisha. The study has collected a primary survey of 400 samples through purposive sampling from mining labourers in both regions. This study utilizes primary data obtained through structured questionnaires and employs purposive sampling for data collection. Comprehending the household consumption expenditures and the development of human capital. This study will examine descriptive analysis employing regression models. The dependent variable is monthly consumption expenditure (*MCE*), while the independent variables include economic factors, household status, social factors, credit availability, poverty status, and social categorization, all of which influence consumption behaviour.

5 Determinants of Monthly Consumption Expenditure of Mining labourers

Log-linear model:

$$\ln(MCE_i) = \beta_0 + \beta_1 \ln(TI_i) + \beta_2 Loan_i + \beta_3 \ln(InvAmt_i) + \beta_4 HHStatus_i + \beta_5 FamSize_i + \beta_6 SocialDummy_i + u_i$$

Where:

MCE = Monthly Consumption Expenditure, TI = Total Income, Loan = Access to credit, InvAmt = Investment amount, HHStatus = BPL/APL and FamSize = Family size.

6 Analysis and Discussion

The log-linear regression model estimating the determinants of monthly consumption expenditure (MCE) of mining households. Since the dependent variable is specified in logarithmic form, the estimated coefficients indicate proportional changes in consumption expenditure associated with changes in the explanatory variables, holding other factors constant. The model is statistically significant overall ($F = 12.46$; $Prob > F = 0.0000$) and explains nearly 30 per cent of the variation in monthly consumption expenditure ($R^2 = 0.2997$), indicating a reasonably good fit. Among

economic factors, total income has a positive and statistically significant effect on consumption expenditure ($\beta = 1.940$, $p < 0.01$), confirming that higher income directly enhances the consumption capacity of mining households. This reflects the strong income–consumption linkage in mining-dependent households, where current income plays a crucial role in meeting basic and non-basic consumption needs.

Table 1 Result of Log-linear Regression Model to Determine the Determinants of Monthly Consumption Expenditure Mining Labourers' Household

Nature of the Variable	Description of Variable	Result			
		Coef.	Robust Std. Err.	t	P>t
Dependent (Y)	Monthly Consumption Expenditure				
Independent (X _i)	<i>Economic Factors</i>				
	Total Income	1.940*	3.240	6	0.00
	Loan	-0.048	0.039	-1.23	0.221
	Investment Amount	4.830*	9.850	4.91	0.00
	<i>Households Status</i>				
	Total Number of Family	0.042*	0.013	3.11	0.002
	BPL	0.089	0.077	1.16	0.247
	APL	-0.023	0.089	-0.26	0.797
	<i>Social Factors</i>				
	OBC	-0.227*	0.070	-3.23	0.001
	SC	-0.166**	0.082	-2.01	0.045
	ST	-0.144**	0.073	-1.97	0.049

Sources: Author's Calculation from the Field Survey, 2023-24.; Note: Number of Observation=400, F (9,390) =12.46, prob>F=0, R-square=0.2997 and Root MSE=0.37471, *1 per cent level of significance, ** 5 per cent level of significance *** 10 per cent level of significance.

The coefficient for investment amount is also positive and highly significant ($\beta = 4.830$, $p < 0.01$), suggesting that households with higher investment activity tend to have higher consumption expenditure, possibly reflecting better financial capacity and diversified income sources. In contrast, the coefficient for loans is negative but statistically insignificant, indicating that borrowing does not significantly influence consumption expenditure, possibly because loans are used primarily for distress financing or debt servicing rather than regular consumption. Household characteristics also influence consumption patterns. The coefficient for family size is positive and statistically significant ($\beta = 0.042$, $p < 0.01$), indicating that households with a larger number of members incur higher monthly consumption expenditure. However, poverty status indicators BPL and APL are statistically insignificant, suggesting that once income and other economic variables are controlled for, official poverty classification alone does not significantly determine consumption expenditure among mining households.

Social factors emerge as important determinants of consumption expenditure. The coefficients for OBC, SC, and ST households are all negative and statistically significant, indicating that these social groups have significantly lower monthly consumption expenditure compared to the reference category. The strongest negative effect is observed for OBC households ($\beta = -0.227$, $p < 0.01$), followed by SC ($\beta = -0.166$, $p < 0.05$) and ST households ($\beta = -0.144$, $p < 0.05$). These results highlight persistent social disparities in consumption levels, reflecting underlying inequalities in income opportunities, job security, and access to resources within the mining sector.

From a policy perspective, the findings suggest that income enhancement remains the most effective pathway for improving consumption and living standards of mining households. Policies aimed at increasing wage levels, ensuring regular employment, and reducing income volatility are crucial. The significant role of investment activity indicates the need to promote financial inclusion, savings instruments, and productive investment opportunities for mining households. The insignificance of loans in determining consumption highlights the importance of shifting credit policy away from distress borrowing toward income-generating and asset-building credit. The strong negative effect of social category variables points to the need for targeted welfare and social protection measures for OBC, SC, and ST mining households, including subsidized food, health support, and housing assistance. Overall, the regression results emphasize

that improving monthly consumption expenditure in mining regions requires a policy focus on stable income generation, inclusive investment opportunities, and targeted social protection, rather than reliance on poverty classification alone. Such interventions are essential for reducing consumption inequality and enhancing household well-being in mining-dependent communities.

7. Conclusion

Precarious livelihoods and extreme economic vulnerability plague labour migration to the Kalahandi and Koraput regions. The findings of the studies are essential in demonstrating that monthly consumption is relatively low even when labour is employed in mineral-rich areas. They anticipate being worked on in the mining sectors, which makes their economic development impossible. Because of their poor salary, contractual labour, and unpredictable cash streams, miners are seen as being in poverty. The country's growth and development will be hampered if workers are dissatisfied with living conditions and do not raise living standards. The study also examined how investment activities positively affect consumer purchasing and contribute to national prosperity. Legislative adjustments should be necessary to ensure fair compensation and consistent income generation. Focused social protection programs and improved access to financial, health, and educational resources are also necessary for improving human capital development. The study indicates that if social inequality and income instability are not addressed, mining-led development will continue to exclude labour households from its benefits, prolonging economic instability in mineral-rich areas.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors assert that there are no conflicts of interest pertaining to the publication of this research derived from all individual participants.

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