Investigating Income and Expenditure pattern among Migrant and Non-Migrant Fisherfolk Households in Malappuram District, Kerala

Abstract

Migration is pivotal for economic development, especially in developing countries where regional inequalities prompt people to seek better livelihoods. It reallocates labour to more productive areas, enhancing economic efficiency and growth. Historically, the industrial revolution and globalization have driven significant labour shifts across borders (Kumar & Pandey, 2020).In Kerala, the fish and fisheries industry is a primary income source for thousands, yet it remains marginalized with issues like seasonality and climate change impacts (Kurien, 1995). Migration, particularly to the Middle East, has become a survival strategy for Kerala's marine fishermen, especially in Malappuram district (Rajan & Pillai, 2020). This study examines the impact of migration on income and expenditure patterns among migrant and non-migrant fisherfolk households in Malappuram. Using descriptive statistics, Chi-square test, independent samples t-test, and multiple linear regression, the analysis shows that migration significantly affects economic dynamics. Migrant households generally have higher average incomes, reflecting the benefits of overseas employment. Expenditure patterns reveal that while both groups have similar expenditure levels, migrant households exhibit slightly lower average expenditures, possibly due to conservative spending behaviours influenced by remittance income.

Introduction

Migration is a fundamental aspect of economic development, especially pronounced in developing countries where regional inequalities and market dynamics drive people to seek improved livelihoods elsewhere. This phenomenon plays a pivotal role in enhancing economic efficiency and fostering growth by reallocating labour resources to where they are most productive. Historically, the industrial revolution and globalization have been catalysts for massive shifts in labour and capital across borders. The industrial revolution marked a significant turning point as mechanization and urbanization created new economic opportunities in urban centres, prompting rural-to-urban migration. Similarly, globalization, with its interconnected markets and free movement of goods and services, has intensified international migration as individuals and families seek to capitalize on global economic integration. Kumar, A., & Pandey, J. A. (2020). Many peoples form various country adopted migration as a livelihood diversification strategy and it has been increasing due to the influences of climate change consequences, globalization and natural calamities. In the previous years like early 1970's and 80's poor people used to go their nearby cities for employment, but the development of transport, infrastructure and information, communication and technology(ICT) sectors have improved, due to this the dimension and scope of seasonal and temporary migration has also enlarged from local to national and even national to international levels. Biswas, B., & Mallick, B. (2021).

Kerala is a southern Indian state that has developed differently from other Indian states; this development has earned the state the moniker "Kerala model of development." However, the model take into account mainstream populations, such as marine fishermen and other minorities. The marine fishing industry is thought of as a marginalized sector of the population, and the seasonality and climate change issues that they face at work compound these issues (Kurien, J. ,1995). Kerala's coastal population has historically relied heavily on the state's sizable marine fisheries industry for employment and a living. In the 222 fishing settlements scattered along the state's coast, an estimated 8 lakh people make their living from capture and related activities in marine fisheries. Kerala's coastline stretched across nine districts. Thiruvananthapuram, Kollam, Alappuzha, Ernakulam, Trissur, Malappuram, Kozhikkode, Kannur, and Kasaragod are Kerala's marine district(GoK ,2015). They are lag behind the mainstream and faces vicious circle of poverty and have a very low socio-economic development than the mainstream society in Kerala. So in order to survival they adopted migration, particularly to the Middle East, which they do for a sustainable living(Rajan, S. I., & Pillai, K. A. (2020).

Theoretical framework

Oded Stark and David E. Bloom's(1985) paper "The New Economics of Labor Migration" examines the noteworthy developments in labor migration studies. The authors contend that new theoretical advancements have expanded the range of factors, including family dynamics, skill levels, and relative deprivation, that affect migration decisions. These observations highlight the fact that migration is frequently a family strategy intended to diversify risks and improve economic conditions rather than just being an individual decision. One of the main points is that people often feel either relative satisfaction or deprivation based on how often they compare their income to that of people in their reference group. Migration may be prompted by this relative deprivation, as people look to relocate or shift their social circle in order to better their situation. The study also addresses the relationship between skill levels and migration behavior, arguing that all-or-none migration scenarios may result from imprecise knowledge of workers' skill levels.The authors point out that decisions regarding migration are frequently made in concert with the immigrant's family, with costs and benefits being shared. For instance, remittances are no longer viewed as solely charitable deeds but rather as a component of an intertemporal contractual arrangement. By emphasizing mutual interdependence over individual optimization, this family-based approach sees migration as a calculated strategy as opposed to a desperate move. These theoretical insights are supported by empirical research, which demonstrates that people's migration decisions are influenced by income incentives.

Statement of the problem

Marine fisheries is an important sector in India supporting the livelihood of a large population of marine fisherfolks in different ways. The state of Kerala is home to a substantial population of 5,63,903 fishermen. Kerala now stands as the state with the second-highest population of fishermen among India's coastal states and union territories. Kerala state has 220 marine fishing villages dispersed over nine districts. Thiruvananthapuram has the highest number of villages at 42, while Kannur has the lowest number at 11. Kerala has 1,21,637 families that are marine fishermen. Thiruvananthapuram district has the most families (30,798), followed by Alappuzha (22,871) and Malappuram (15,962)(CMFRI,2016). Kerala's marine fishing community, especially in the Malappuram district, faces severe socioeconomic difficulties that jeopardize

their way of life and general well-being. This community, which is regarded as one of the most vulnerable groups in society, faces a variety of challenges, from the effects of climate change and natural disasters to being taken advantage of by middlemen in the marketplace (Sunitha, 2019). These difficulties have impeded socioeconomic development and prolonged the cycle of poverty, as is particularly clear in the Malappuram district.

According to KMS (2018), the Malappuram district in Kerala is notable for having a high emigrant population., the local fishermen in Malappuram are still facing serious local issues like overfishing and unstable income Local fishermen's ability to make a living from fishing is impacted by overfishing, which reduces fish stocks in the area. Furthermore, their problems are exacerbated by unpredictable income, which makes stable and planned finances difficult. So in this miserable condition many of them are adopted migration, especially to the Middle East, is a popular means of subsistence (Rajan et al., 2021) To raise their standard of living and reduce financial strains at home, a large number of people and families from this community look for better economic opportunities overseas. But more research is still needed to fully understand how migration affects the spending and income habits of migrant versus non-migrant families of fishermen.

Objectives

1. To analyse the income pattern of migrant and non-migrant fisherfolk households in Malappuram district
2. To examine the influence of migration on expenditure among migrant and non-migrant fisherfolk households

Methodology

The methodology utilized in this study adopts a systematic approach comprising four essential steps. Initially, it involves comprehensive data collection, ensuring a robust foundation of information relevant to the research objectives. Following this, rigorous variable selection is conducted to identify key factors that influence the study's outcomes effectively. Statistical techniques are then applied to analyse the collected data, employing methods suitable for examining relationships and patterns within the dataset. Finally, the results are meticulously analysed to derive meaningful insights and conclusions

Data collection

The primary data was acquired by a multistage random sampling method, from which 375 samples were derived using Cochran's sample formula. Among them, 203 families were non-migrant samples and 172 were samples of migrants.This shows the Malappuram district's proportionate distribution of migrant and non-migrant families according to KMS (2018). The representative sample that this sampling strategy ensures allows for a detailed analysis of the differences in spending and income patterns between migrant and non-migrant families who are fishermen in the area.

Analytical Techniques

To analyse the collected data, several statistical methods were employed to ensure a comprehensive understanding of the dataset. Initially, descriptive statistics were used to summarize the basic features of the data, providing simple summaries and measures such as mean, median, standard deviation, and frequency distributions. To examine the relationships and associations between categorical variables, the Chi-square test was utilized, which helps in identifying significant associations between variables. For comparing the means between two independent groups, an independent samples t-test was conducted, which determines if there is a statistically significant difference between the groups. Lastly, multiple linear regression was applied to model the relationship between a dependent variable and multiple independent variables, allowing for the assessment of the relative impact of each predictor. These combined methods offered a robust framework for analysing the data, leading to insightful interpretations and conclusions.

Results and Discussions

A marine fisherman, regardless of gender or sexual orientation, engages in marine fishing or related activities (CMFRI, 2016). They face numerous challenges due to uncertain catch and income, which often leads them to adopt migration as a survival strategy in Malappuram district to achieve sustainable livelihoods. Migration can have positive effects on their lives, offering opportunities for improved stability and well-being. This study aims to examine how migration influences income and expenditure patterns among these fisherfolk, providing insights into the economic impacts of migration. By understanding these patterns, the study seeks to highlight the benefits and challenges faced by the community, ultimately contributing to strategies for enhancing their financial stability and overall quality of life.

Table 1: Descriptive statistics of the study area

Category	Non Migrant				Migrant			
	Mean	Median	Mode	Std. Deviation	Mean	Median	Mode	Std. Deviation
Age	44.75	45	40	10.158	37.88	36	45	10.620
Family Size	5.77	5	5	2.456	5.37	5	5	2.182
Income	20635.47	20000	15000	7545.579	32488.37	30000	30000	10075.440
Expenditure	25300.49	26000	27000	6075.910	26133.72	26000	25000	5933.809

Source: Primary Survey ,2023

The table 1, which compares economic and demographic factors between migrant and non-migrant families of fishermen in the Malappuram district, is based on important metrics like age, family size, income, and expenditure. Knowing the socioeconomic dynamics and variations in this community is made possible by these insights

The average age of non-migrant fisherfolk is 44.75 years, slightly higher than migrants at 37.88 years. This difference suggests a trend where younger individuals are more inclined towards migration, possibly seeking better economic opportunities abroad early in their careers. Both non-migrant and migrant families have similar median and mode family sizes of 5 members each. The standard deviation indicates moderate variability, implying that family sizes among both groups are generally consistent, with occasional deviations. Non-migrant families have a mean income of ₹20,635.47, with a median and mode at ₹20,000 and ₹15,000, respectively, showing a relatively stable income distribution. In contrast, migrant families report a significantly higher mean income of ₹32,488.37. This disparity may reflect the economic benefits of migration, where overseas employment opportunities yield higher earnings compared to local fishing activities. Non-migrant families spend an average of ₹25,300.49, with median and mode expenditures at ₹26,000 and ₹27,000, respectively. The standard deviation suggests moderate variability in spending patterns. Conversely, migrant families

exhibit lower average expenditures of ₹26,133.72, with similar median and mode values. This difference may indicate more conservative spending habits among migrant families, possibly influenced by remittance management or cost-saving behaviours due to the transient nature of their earnings abroad.

Table 2: Occupation pattern of migrant and non-migrant

Occupation	**Migration Status**	
	Migrant	Non-Migrant
Fishing	43(25)	182(89.7)
Allied Activity	14(8.1)	13(6.4)
Driver	27(15.7)	0
Shop Keeper	43(25)	0
Other	45(26.2)	8(3.9)
Total	173(100)	173(100)
Pearson Chi-Square	(199.271, df:4 P :0.000)	
Gamma	Value: .894, p :.000	

Source: Primary Survey ,2023

The table : 2 illustrates the occupational distribution among fisherfolk families in Malappuram district, categorized by their migration status—migrant and non-migrant. It highlights significant disparities in occupational choices influenced by migration. Non-migrant families overwhelmingly dominate traditional fishing roles, with 89.7% directly engaged in fishing activities compared to only 25% among migrant families. This stark contrast suggests that fishing remains a primary and stable livelihood option for non-migrants, deeply rooted in local economic activities.

Conversely, migrant families exhibit a more diversified occupational profile. A substantial proportion engages in allied activities related to fishing (8.1%) and other roles such as drivers (15.7%), shopkeepers (25%), and miscellaneous occupations (26.2%). These occupations indicate a broader economic engagement beyond traditional fishing, likely influenced by the opportunities and experiences gained through migration. The significant Chi-Square test result (Chi-Square = 199.271, df = 4, $p < 0.001$) underscores the strong association between occupation and migration status, affirming that migration significantly shapes occupational diversity within the fisherfolk community Abraham, A. (2020)

Moreover, the Gamma value of 0.894 ($p < 0.001$) suggests a robust positive relationship, indicating that as migration increases, so does the likelihood of engaging in diverse occupations beyond fishing. This trend reflects how migration acts as a catalyst for economic diversification among fisherfolk, potentially enhancing household income resilience and economic stability. Understanding these occupational dynamics is crucial for informing policies that support both traditional fishing practices and facilitate the socio-economic integration of migrant families returning to Malappuram district.

Income pattern of migrant and non-migrant fisherfolk households

Due to their migration to Gulf countries in search of better job opportunities, it is imperative to analyse the income patterns among households within the fisherfolk community in Malappuram district. Major threats in their lives, such as debt and uncertain local income prospects, are frequently perceived as the reason for migration. The comprehension of the ways in which migration affects income patterns offers valuable perspectives on the financial effects of migration on these households. When compared to local fishing customs, migration to Gulf countries usually provides fishermen with access to better-paying employment opportunities. The economic advantages of migration are reflected in the rising household incomes that follow this change in employment. The income patterns do, however, also highlight difficulties that can cause income instability, such as sporadic overseas employment or irregular remittance flows. Analyzing these income patterns helps to assess the extent to which migration serves as a pathway to economic improvement and stability for fisherfolk families. It highlights whether migration contributes to significant changes in income levels, enabling households to mitigate financial vulnerabilities and improve their socio-economic status.

The independent samples t-test is a statistical tool used to compare the mean scores of two distinct groups to determine if there is a significant difference between them. In the context of analyzing income patterns among migrant and non-migrant households in Malappuram district, this test helps assess whether migration to Gulf countries leads to different income levels compared to those who remain engaged in traditional fishing activities locally.

Table 3: Pattern of income among migrant and non migrant households(Monthly)

Group Statistics			
Migration status	Mean	Std .Deviation	Std.Error Mean

Non Migrant	20635.47	7545.579			529.596		
migrant	32488.37	10075.440			768.245		
	Independent Samples Test						
Income	Levens's Test for Equality of Variances		T test for equality of means				
	F	Sig.	T	Df	Sig(2 tailed)	Mean Differnces	Std.Error Differences
Equal Variances assumed	20.834	.000	-13.003	373	.000	-11852.904	911.585
Equal variance not assumed			-12.703	312.415	.000	-11852.904	933.098

Source: Primary Survey ,2023

The table 3 shows the statistical analysis compares the income levels between migrant and non-migrant marine fisherfolk households in Malappuram district. According to the descriptive statistics, the mean income for non-migrant households is ₹20,635.47 with a standard deviation of ₹7,545.58, whereas migrant households have a higher mean income of ₹32,488.37 with a standard deviation of ₹10,075.44. This initial comparison suggests a substantial income disparity between the two groups.

The independent samples t-test was conducted to determine if this difference in mean income between migrant and non-migrant households is statistically significant. The assumption of equal variances was tested using Levene's test, yielding a significant result ($F = 20.834$, $p < .001$), indicating unequal variances between the groups. Therefore, the t-test results were interpreted using the assumption of unequal variances.

The t-test results indicate a statistically significant difference in mean income between migrant and non-migrant households ($t = -13.003$, $df = 373$, $p < .001$). On average, migrant households earn ₹11,852.90 more than non-migrant households. The 95% confidence interval for the mean difference (-₹13,645.39 to -₹10,060.41) confirms that this difference is unlikely due to random chance and suggests that migration status significantly influences income levels among marine fisherfolk in the district.

These findings underscore the economic advantages of migration for marine fisherfolk, as migrant households enjoy significantly higher incomes compared to their non-migrant counterparts. Remittances, which are financial transfers from migrant workers to their friends and family back home, are extremely important to migrant families. For the recipients, these monetary inflows are vital because they frequently make up a sizeable amount of their household income. Remittances have the potential to empower individual households and communities, thereby promoting economic development from the bottom up. Remittances can raise living standards at the household level by helping to pay for necessities like food, housing, healthcare, and education. This monetary assistance improves people's quality of life overall and lessens poverty. Remittances can also be saved or invested in small businesses, which promotes economic stability and community development.Nanziri, L. E., & Mwale, M. L. (2023)The results also highlight potential socioeconomic implications, such as income disparities within the community and the role of migration in shaping economic opportunities.

Influence of migration on expenditure(monthly) among migrant and non migrant fisherfolk households

A multiple linear regression model was utilized to examine the impact of migration status on expenditure among fisherfolk households, distinguishing between migrants and non-migrants. In this model, total expenditure served as the dependent variable, while migration status, family size, age, and income were treated as independent variables.Migration status was included as a categorical predictor to assess its specific effect on household expenditure. Family size was incorporated to understand how household composition influences spending habits, with larger families potentially incurring higher expenditures. Age was considered to explore generational differences in expenditure patterns, while income was included as a crucial factor affecting financial capacity and expenditure levels.

By employing multiple linear regression, researchers aimed to quantify the individual contributions of these independent variables to total household expenditure while controlling for other factors. This statistical approach facilitates the identification of significant predictors of expenditure and helps elucidate whether migration status exerts a statistically significant influence on spending behaviours compared to non-migrant counterparts

Table 4: The influence of migration on expenditure pattern(monthly)

Model Summary					
Model	**R**	R Square	Adjusted R Square	Std Error of the Estimate	
	.555	.309	.301	5030.901	
Change statistics					
F Change	Df 1	Df 2	Sig. F Change	Durbin Watson	
41.269	4	370	.000	1.612	
ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	4178051412.959	4	1044512853.240	41.269	.000[b]
Residual	9364685920.374	370	25309961.947		
Total	13542737333.333	374			
Coefficients					
	Unstandardized Coefficients		Standardised Coefficients Beta	T	Sig
	B	Std. Error			
(Constant)	13963.614	1534.779		9.098	.000
migration status	4312.975	601.274	.358	7.173	.000
Family size	69.385	112.034	.027	.619	.536
Age	1.913	25.028	.003	.076	.939
Income	.356	.028	.626	12.621	.000

Source: Primary Survey ,2023

The table 4 summarises the influence of migration status with expenditure and other explanatory variables

Model Summary:

R: The correlation coefficient (R = 0.555) indicates a moderate positive linear relationship between the predictors and the dependent variable. Variability in the dependent variable that can be explained by the predictors is moderate.

R Square: The coefficient of determination (R^2 = 0.309) tells us that approximately 30.9% of the total variability in the dependent variable is explained by the independent variables included in the model.

Adjusted R Square: Adjusted for the number of predictors, it is slightly lower than R Square (Adjusted R^2 = 0.301), suggesting that the model explains 30.1% of the variability in the dependent variable.

Change Statistics:

F Change: The F-statistic (F Change = 41.269) tests the overall significance of the regression model. It compares the variability explained by the model to the variability that cannot be explained by the model (residual variability).

Sig .F Change: The significance level of the F Change statistic (Sig .F Change = .000) indicates that the overall regression model is statistically significant, meaning that the variability explained by the predictors is significantly different from zero.

ANOVA (Analysis of Variance):

Regression Sum of Squares: This represents the variability in the dependent variable that is explained by the regression model (4178051412.959). It indicates how much of the total variability in the dependent variable is accounted for by the predictors.

Residual Sum of Squares: This represents the unexplained variability or error in the model (9364685920.374). It shows how much variability in the dependent variable remains after accounting for the predictors.

Total Sum of Squares: The total variability in the dependent variable (13542737333.333), which is the sum of the regression sum of squares and the residual sum of squares.

Coefficients:

Unstandardized Coefficients: These coefficients (B) show how much the dependent variable changes with a one-unit change in the predictor variables, in their original units.

Constant: The intercept value (13963.614) indicates the estimated value of the dependent variable when all predictor variables are zero.

Migration Status, Family Size, Age, Income: These coefficients show the estimated change in the dependent variable for each unit change in the corresponding predictor, holding other predictors constant.

Overall, the variability in the regression analysis results indicates how well the model explains the variation in the dependent variable based on the included predictors. The significant F Change statistic and the significant coefficients (such as for Migration Status and Income) suggest that these variables contribute significantly to explaining the variability in the dependent variable, while Family Size and Age do not contribute significantly in this model. The standard errors associated with each coefficient give us an idea of the variability in the estimates of these coefficients themselves.

Conclusion

It is evident from the comprehensive analysis of income and expenditure patterns among migrant and non-migrant fisherfolk households in Malappuram district that migration significantly impacts their economic dynamics. Migrant households generally exhibit higher average incomes compared to non-migrant households, reflecting the economic benefits of overseas employment opportunities. This income disparity underscores migration as a viable strategy for enhancing household financial stability and improving socio-economic status within the fisherfolk community. Moreover, the expenditure patterns reveal nuanced differences between migrant and non-migrant households. While both groups exhibit similar expenditure levels, migrant households demonstrate slightly lower average expenditures, possibly due to conservative spending behaviours influenced by the transient nature of remittance income.

The multiple linear regression analysis further confirms the influence of migration status on expenditure, with migration status and income emerging as significant predictors. This statistical model highlights that migration not only increases income levels but also shapes expenditure patterns among fisherfolk households, indicating a complex interplay between migration, economic opportunities, and household financial management strategies. Furthermore, occupational diversification among migrant households underscores the broader

economic impacts of migration, as migrants engage in varied occupations beyond traditional fishing roles. This diversification not only reflects adaptation to global economic trends but also enhances household resilience against local economic uncertainties.

In conclusion, while migration presents opportunities for economic advancement among fisherfolk in Malappuram district, it also brings challenges such as income volatility and occupational transitions. Policies aimed at supporting sustainable livelihoods should consider these dynamics to ensure inclusive development and mitigate vulnerabilities within the fisherfolk community. By understanding and addressing these issues, stakeholders can foster more resilient and economically empowered communities amidst evolving global and local economic landscapes.

References

1. Abraham, A. (2020). International Migration, Return Migration and Occupational Mobility: Evidence from Kerala, India. The Indian Journal of Labour Economics, 63(4), 1223–1243. doi:10.1007/s41027-020-00284-9 .
2. Biswas, B., & Mallick, B. (2021). Livelihood diversification as key to long-term non-migration: evidence from coastal Bangladesh. *Environment, Development and Sustainability*, *23*(6), 8924–8948. https://doi.org/10.1007/s10668-020-01005-4
3. CMFRI(2016). Marine Fisheries Census 2016. Department of Fisheries. Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India
4. CMFRI(2016). Kerala Marine Fisheries Census 2016. Department of Fisheries. Ministry of Fisheries, Animal Husbandry and Dairying, Govt. Kerala
5. Gok(2015) Kerala marine fisheries statistics 2015. Director of fisheries, statistical cell, directorate of fisheries Vikas bhavan, Thiruvananthapuram
6. Kumar, A., & Pandey, J. A. (2020). *Occupational and Employment Mobility among Migrant Workers: A Case Study of Slums of NCT of Delhi*
7. Kurien, J. (1995). The Kerala Model: Its Central Tendency and the Outlier. *Social Scientist*, *23*(1/3), 70. https://doi.org/10.2307/3517892
8. Nanziri, L. E., & Mwale, M. L. (2023). Remittances, crowd-in effect, and household welfare. *Scientific African*, *19*. https://doi.org/10.1016/j.sciaf.2022.e01521

9. Nunan, F. (2010). Mobility and fisherfolk livelihoods on Lake Victoria: Implications for vulnerability and risk. Geoforum, 41(5), 776–785. https://doi.org/10.1016/j.geoforum.2010.04.009
10. Oded Stark, B., & Bloom, D. E. (1985). *The New Economics of Labor Migration, The American Economic Review. pp. 173-178*
11. Rajan, S. I., & Pillai, K. A. (2020). Migration as a Livelihood Strategy Adopted by Fisherfolk in South India. *Social Change*, *50*(4), 548–568. https://doi.org/10.1177/0049085720966291
12. Sathiadhas, R., & Prathap, S. (2009). Employment Scenario and Labour Migration in Marine Fisheries. Aian Fisheries Science ,22, 713-727.
13. Salim, S. S. (2021). Assessing labour migration patterns in marine fisheries sector across the coastal States of Gujarat and Maharashtra. *Indian Journal of Economics and Development*, *9*, 1–9. https://doi.org/10.17485/IJED/v9.72
14. Sunitha, L. F. (2019). Financial Inclusion of Marginalised Communities: A Study on Fisher Households in Kerala. *Asian Journal of Managerial Science*, *8*(1), 35–40. https://doi.org/10.51983/ajms-2019.8.1.1450

.