



A Study on the Socio-Economic Analysis and Social Challenges of Rohingya Refugees in Cox's Bazar, Bangladesh

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Abstract

The influx of Rohingya refugees into Bangladesh has had sweeping economic and social implications, especially in Cox's Bazar, although hardly systematic research has focused on household-level conditions with respect to the wider socio-economic predicament. This missing link is the subject of this paper, where we explore how refugee households make a living and how these circumstances affect social stability, economic resources, and integration in the host society. Adopting a multi-method approach, primary data were collected among 204 refugee households through structured questionnaires that were complemented by focus group discussions, key informant interviews, and direct field observations, which were analyzed using regression and ANOVA models. The study shows that, despite low average household incomes and limited employment opportunities, high food expenditures and restricted access to health care, education, and safe housing generate vulnerability. Regression results suggest that household size, education, and the gender of the household head have significant influences on income and expenditure, while the social constraints, such as food security and risk of trafficking or strained relations between communities, work to destabilize. The paper concludes that the crisis will only further deteriorate human security and host-refugee relations in the absence of well-designed policy actions to address immediate needs and promote long-term livelihoods. These observations inform policy discussions by underlining the importance of moving towards inclusive development approaches, improved provision of services, and social cohesion programs that can provide scale-up opportunities.

Keywords: *Rohingya Refugees; Cox's Bazar; Socio-economic Analysis; Household Income and Expenditure; Social challenges; Policy implications*

Introduction

The Rohingya crisis is now among the most challenging humanitarian emergencies the world has seen in the twenty-first century, and it poses a special problem for Bangladesh, where already more than 1 million Rohingya refugees are living in Cox's Bazar, the location of the world's largest refugee camp (McAuliffe & Ruhs, 2018; UNHCR, 2021). Large-scale displacement resulting from persecution, human rights abuses, political oppression, and violence in Myanmar, refugees have fled into camps with working conditions that are highly precarious (Milko, 2019; Wolf, 2017). The unprecedented arrival has overburdened the host community, local economy, and public services, as well as redefined regional security and development (Dampah et al., 2022). Refugees in the camps continue to experience ongoing struggles to secure food, health, education and livelihood needs, which have perpetuated a cycle of dependency and vulnerability, that goes beyond humanitarian concerns in the immediate (Chowdhury et al., 2020; UNDP, 2018). Therefore, it is essential to comprehend the concerning socio-economic situation of this displaced population when planning more sustainable interventions.

While other studies have documented the larger economic, political, and environmental implications of the Rohingya influx (Jaman et al., 2025; Sullivan, 2022; UNDP, 2021), clear gaps still exist. There are more extensive macro-level implications caused by large-size refugees such as poor host-refugees relationships, regional instability, and environmental damages, but fewer micro-level understandings of how the lives of refugees are led in a household-based financial capacity existed (Tanha et al., 2020; WFP, 2023). Also, a few empirical studies have empirically examined factors affecting refugee household income based on quantitative methods, although repeated references are made to poverty, aid dependence and informal economic activities (Nasar et al., 2022). Other social dynamics including cohesion, integration into the host community and exposure to threats like trafficking and violence are little studied in the Cox's Bazar context (Alam et al. 2022; Hossain, 2020).

This paper attempts to cover this gap by integrating a socio-economic analysis and inquiry into the social challenges of the Rohingya refugees. The study, comprising both survey-based quantitative work and qualitative interviews, examines household income, patterns of expenditure, service access and social integration. The contribution of the present analysis is its all-encompassing consideration of financial vulnerability in relation to larger social insecurities in an effort to better inform evidence-based investigations and policy development. The examination of which aspects contribute most to refugees' well-being and resilience are intended to inform policymakers, NGO workers, and international humanitarian actors in the design of interventions that shift away from a focus on short-term relief to better support refugees over the longer term (World Bank, 2010 and 2016; ADB, 2023).

Objectives of the Study

- i. To find out the status of social stability of Rohingya refugees.
- ii. To identify the financial ability and constraints of Rohingya refugees.
- iii. To explore the challenges or difficulties of Rohingya refugees.

Literature Review

The Rohingya refugee crisis, whose origins are based on decades of persecution and statelessness in Myanmar (Ullah, 2016; UNHCR 2023), has elicited extensive scholarly interest, particularly with reference to its socioeconomic impact in Cox's Bazar, Bangladesh. Previous research emphasizes that the 2017 arrival of more than one million Rohingyas has raised both humanitarian and developmental questions. Focused on the burden on health services, food security, and education (Khatun et al., 2021; Hossain, 2023) and the trauma and vulnerabilities of displaced populations (Islam & Naing, 2023). Work by Habib (2021), and Kyaw (2017) further show the legacy of historic and discriminatory citizenship laws

in Myanmar that have led to the institutionalized exclusion of the Rohingya, in turn determining their vulnerable legal and socio-economic conditions in Bangladesh.

There is extensive literature examining the economic and social impacts on refugees and the host population. Studies by Tanha et al. (2023) and Alam et al. (2022) highlight the fact of refugees' exclusion from the formal labor market, leading them to be trapped in aid dependency, informal experiences, and heightened rivalry with host populations for work. Similarly, (2019) and (2014) identified 76 and 65 % of the authors whose perspective warranted respect out of all the above articles, respectively. (2018) argue that tourism, agriculture and fishing have been affected, but that NGOs and humanitarian aid have brought localised opportunities. In addition to economic distresses, security and environmental implications, including trafficking and drug trafficking (Uppal et al., 2023) and extensive deforestation owing to settlement expansion (Ahmed et al., 2018, Braun & Fakhri, 2019) have also gained attention in the literature. Academia such as Islam (2023) and Ali & Shahreen (2023) also underline the long-term dangers of any conflict, environmental abuse and social breakdown that would result if sustainable management practices are not followed (Babu et al., 2025).

Although the analyzed literature has deepened the understanding of the issue, it is very much spread over different approaches. While the majority have focused on macroeconomic effects, environmental stress or host-refugee relations, very few take both economic and integrated socio-economic approaches to examine household impacts including income, expenditures and coping responses. In particular, few empirical studies use quantitative data to assess factors affecting the livelihoods of refugees (Sultana et al., 2023). This gap outlines a necessity for specific research that brings together financial vulnerability and social problems such as schooling, integration, and security. In filling this lacuna, the current paper seeks to add to the knowledge base on the socio-economic status of the Rohingya refugees in Cox's Bazar and to feed into a responsive and evidence-based policy.

Methodology

Selection of the Study Area and Sample Size

The selection of the study area is the prime factor for any research to cover the gap of research and implement the objectives and methodology properly for any study. This study selects mainly five major camps of Rohingya refugees in Cox's Bazar districts that are discussed below:

Table 1: Selection of the Study Area and Sample Size

Variable	Category	Camp Name	Sample Size
Cox's Bazar	Ukhiya	Kutupalong	70
		Balukhali	24
		Jamtoli	43
	Teknaf	Shamplapur	20
		Nayapara	47
Total			204

Determination of Sample Size

Determining the number of samples from a universe or population is the priority for any research, and adequate sample size is a prerequisite for better output from a research endeavor (Alok & Mishra, 2017). The appropriate sample size for this investigation is determined by the formula presented by Yamane (1967), which is calculated below in equation (1).

$$n = \frac{N}{1 + N(e)^2} \text{-----(1)}$$
$$n = \frac{10,00,000}{1 + 10,00,000(0.07)^2}$$
$$n = 204$$

Where, n= sample size, N=population size, e= margin of error

Therefore, the sample size is 204 for the study.

Data Collection

The finalized Questionnaire was administrated through face-to-face interviews conducted by trained field enumerators fluent in both Rohingya and Bengali. Using enumerators who were fluent in the local language minimized communication barriers and ensured the accuracy of the responses.

Pilot Testing

Research instruments should be tested to validate them beforehand (Cohen *et. al.*, 2012; Rouf et al., 2025), aiming at improving the collection of the data. Before the data collection, the questionnaire was pre-tested with a small group of refugees to ensure clarity, cultural relevance, and the appropriateness of the questions. Adjustments were made based on feedback from the pre-test.

Primary Data

Primary data was collected through surveyed and structured questionnaires administered to a sample of Rohingya refugees, interviews with refugees, Separate Focus Group Discussions (FGDs) for men, women, and children to gather qualitative insights, in-depth interviews with government officials, NGO worker and community leaders whose discussion topics was employment barriers, safety concerns, access to aid, and social integration and challenges. The Size of participants (FGDs) per session was more than 12 members due to higher population density. To get better qualitative data, the author's observation method was direct observations of living conditions, camp infrastructure, community events, economic activities, informal markets, social interactions, field notes and photographs to supplement qualitative insights. Key Informant Interviews (KIIs) with experts in refugee management, socioeconomic development, and humanitarian aid.

Secondary Data

Secondary data was collected from existing Government and NGO Reports, such as UNHCR, IOM, World Bank, and Bangladesh government reports on refugee statistics, aid programs, and economic conditions, and previous academic work on refugee economic integration, host-community relations, and displacement impacts. Data from international organizations, such as the World Bank and Human Rights Watch, which have conducted assessments on the situation, was also used.

Data Analysis

This study collected data from field surveys with direct interviews, discussions, and communications through a group of seven members who were experienced in the questionnaire survey of data collection. The research was conducted during May and June of 2024. The collected data were rechecked to see if there were any faults and then put into Microsoft Excel, and then coded and labored data for their analysis with statistical software.

Model Specification

A Multiple Linear Regression (MLR) model is employed to examine the financial condition of the refugee population. Model specification involves carefully defining the structure of the model, including the selection of relevant variables and underlying assumptions to accurately represent the relationships among them. MLR, as a statistical approach, explores how a dependent variable is influenced by multiple independent variables, offering a more comprehensive understanding than simple linear regression. let's express the model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon \dots\dots\dots (4)$$

Where:

- **Y is the** dependent variable, representing household income (financial condition in Bangladeshi Taka, BDT) of Rohingya refugees.
- **$X_1, X_2, X_3, X_4, X_5, X_6, X_7$** represent the independent variables of the model.
- **Y:** Household income.
- **X_1 :** Interaction with Host Community
- **X_2 :** Access Nutrition
- **X_3 :** Main Food
- **X_4 :** Access to Health care
- **X_5 :** Children attending school
- **X_6 :** Expenditure
- **X_7 :** Worries regarding future
- **β_0** denotes the intercept (constant term).
- **$\beta_1, \beta_2, \dots, \beta_7$** represent the coefficients of the independent variables.
- **ε** represents the error term.

Results & Discussion

Socio-Demographic Characteristics of Respondents

Table 2: Socio-Demographic Characteristics of Respondents

Variable	Category	Frequency	Percent	Cumulative Percent
Camp Name	Kutupalong	70	34.31	34.31
	Balukhali	24	11.76	46.07
	Jamtoli	43	21.08	67.15
	Shamlapur	20	9.81	76.96
	Naya Para	47	23.03	100.00
Age Category	18–30 years	46	22.55	22.55
	31–45 years	43	21.08	43.63
	46–60 years	65	31.86	75.49
	Above 60 years	50	24.51	100.00
Gender	Male	192	94.12	94.12
	Female	12	5.88	100.00
Religion	Muslim	204	100.00	100.00
Marital Status	Married	189	92.65	92.65
	Single	8	3.92	96.57
	Widowed	7	3.43	100.00
Total Respondents		204	100.00	100.00

The profile of the respondents, by demographic data, provides a few key insights into the refugee population captured in the survey. The study participants were mostly from Kutupalong camp (34.31%), Nayapara (23.03%), Jamtoli (21.08%), Balukhali (11.76%) and Shamlapur (9.81%) indicating that Kutupalong being the largest settlement has been a priority area in planning and resource allocation. As to age, the respondents aged 46 to 60 years accounted for the most (31.86%); followed by those aged greater than 60 years (24.51%), demonstrating an older and mid-aged population and an emerging demand for more medical and care services. Younger age groups particularly 18–30 years (22.55%) were under represented in the sample. Gender distribution is heavily skewed: males - 94%, while females comprise only 6% of respondents, which might be indicative for social perceptions or cultural barriers that preclude women's involvement in politics. All participants identified as Muslim (100%) which is in keeping with the religious monotony of the Rohingya population in Cox's Bazar, despite references to small minority groups in external reporting. Last but not least, early, preliminary marital status data also imply that family unit in the camps is still maintained, given that the vast majority of them are married (92.65%) vs. single (3.92%), or a widow/divorced (3.43%).

Food Habits, Shelter Condition, Social interaction, and Expectations of Respondents

Table 3: Food Habits, Shelter Condition, Social interaction, and Expectations of Respondents

Variable	Category	Frequency	Percent	Cumulative Percent
Main Food with Rice	Fish	127	62.25	62.25
	Vegetables	70	34.31	96.56
	Meat	7	3.43	100.00
Condition of Shelter	Good	20	9.80	9.80
	Fair	174	85.29	95.10
	Poor	10	4.90	100.00
Marriage System	CIC Permission	204	100.00	100.00
Interaction with Bengali	Occasionally	155	75.98	75.98
	Rarely	27	13.24	89.22
	Frequently	22	10.78	100.00
Expected Activities	Education Programs	71	34.80	34.80
	Sports & Games	48	23.53	58.33
	Vocational Training	21	10.29	68.63
	Agricultural Projects	14	6.86	75.49
	Food Distribution	22	10.78	86.27
	Waste Management	28	13.73	100.00
Total Respondents		204	100.00	100.00

The results for social integration and living conditions give important insights into the life of the Rohingya refugee community. Distribution of food consumption shows that fish plays 62 percent of the main diet, vegetables 34 percent and meat share a very small proportion of 3.4 percent. This evidently reflects dependence on relatively cheaper and available sources of protein with little dietary variety. Another important factor is housing because most of the respondents (85.3%) assessed their housing

conditions as “fair”, but only 9.8 percent as “good” and few (4.9%) as “poor”. This falls below minimum standards of living and, while the majority of shelters are adequate, the homeless population is in great need of improved housing. Two female respondents added “Yes they need to take permission from the CIC” Legal provisions on Marriage in the Camp Marriage in the camps is under very tight regulation, and the necessity of official permission has been reiterated by all respondents. Contact with the host Bengali community is infrequent, with almost three-quarters (76%) having occasional contact, while 13.2 per cent reported rare contact and only 10.8 percent enjoying frequent contact, suggesting cultural or language barriers restricting effective integration. With regard to aspirations for community development, refugees expressed particular interest in education activities (34.8%) and recreational activities such as sports activity (23.5%), although food distribution (10.8%), vocational training (10.3%), agricultural work (6.9%) and waste management (13.7%) were also ranked as priorities. Taken together, these findings demonstrate limited social integration, poor living conditions, and critical service and program needs within the camps.

Social Cohesion, Nutrition, Mental Health, Healthcare Access, and Future Worries of Respondents

Table 4: Social Cohesion, Nutrition, Mental Health, Healthcare Access, and Future Worries of Respondents

Variable	Category	Frequency	Percent	Cumulative Percent
Social Cohesion	Good	108	52.94	52.94
	Very Good	28	13.73	66.67
	Neutral	51	25.00	91.67
	Poor	9	4.41	96.08
	Very Poor	8	3.92	100.00
Access to Nutritious Food	Yes	198	97.06	97.06
	No	6	2.94	100.00
Mental Health	Good	173	84.80	84.80
	Poor	21	10.29	95.10
	Very Poor	10	4.90	100.00
Access to Healthcare	Frequent	10	4.90	4.90
	Occasional	41	20.10	25.00
	Infrequent	153	75.00	100.00
Future Worries	Killing	144	70.59	70.59
	Hassle	35	17.16	87.75
	Kidnapping	25	12.25	100.00
Total Respondents		204	100.00	100.00

Results highlight that social capital in the community is on the whole good, 52.94% (good) and 13.73% (very good) compared to a considerable proportion of 25% with no opinion. Now, only a small percentage thought less well of it. Availability of healthy food seemed relatively high, with 97.06% of the sample reporting access. With regard to mental health, most of them (84.80%) reported to be in good condition, yet around 15% had a poor or very poor state of the outcome, suggesting some vulnerabilities in this population.

Regarding health care, access was low as 75.0% reported infrequent access and only 4.90% were frequent access to health care. Future concerns were also very high, with 70.59% being bothered about killing, while others were concerned about hassles (17.16%) and kidnapping (12.25%), revealing the existing insecurity and tension in the area.

Impact on Host Community

Price Hiking and Food Security

The cost comparison chart shows considerable variation in the prices of essentials between the refugee camps and Cox's Bazar Sadar. Rice, pulses/legumes, vegetables, and oil have a price differential between 20 to 50 BDT, while fish and chicken, also sources of protein, have a much larger difference (ranging from 100 to 200 BDT in Cox's Bazar). There are also significant variations in eggs, salt and sugar, further complicating food choice for low-income families (Mim et al., 2025). They illustrate that refugees, with their scarce resources and uncertain access to assistance, cannot afford to shop at the cheaper local markets.

Table 5: Comparative Price Chart of Basic Commodities

Variable	Rohingya Camp Price (BDT)	Cox's Bazar Sadar Price (BDT)	Price Difference (BDT)
Rice (per kg)	45–50	65–80	20–30
Cooking Oil (per liter)	130–150	160–200	30–50
Vegetables (per kg)	30–50	60–100	30–50
Lentils (per kg)	75–100	110–150	35–50
Fish (per kg)	200–300	350–500	150–200
Chicken (per kg)	160–200	260–350	100–150
Eggs (per dozen)	110–120	150–180	40–60
Salt (per kg)	20–30	40–50	20–30
Sugar (per kg)	50–70	80–100	30

The Rohingya are facing greater food insecurity resulting from decreased humanitarian aid and rising prices. In 2023, the World Food Program (WFP) reduced monthly rations to \$8 a person — down from an inadequate \$12, thereby increasing hunger and malnutrition. The ration however was partially restored to \$12.50 by 2024 with the introduction of fortified rice; even then, refugees continue to struggle with affordability due to bloated prices and syndicated markets (Rouf et al., 2018). Tackling these gaps needs strict enforcement of measures that prevent hostile commercial practices, ongoing surveillance and sustained global commitment to ensuring an adequate enjoyment of the right to adequate food and nutrition among refugees (Babu, 2025).

Security Concern

Cox's Bazar's resources and services have been stretched by the arrival of a large refugee population, an influx that has also increased tensions with host communities. Increasing thefts, robberies and conflicts over increasingly scarce supplies have eroded safety and trust. Law and order authorities are overstretched, making for difficult crime control. In addition to that the recruitment of ARSA and its participation in trafficking of drugs and arms posed a significant threat to the regional law & order and stability.

Prostitution

The arrival of Rohingya refugees in Cox's Bazar has driven a boom in the sex trade there, where poverty and the absence of other employment opportunities have forced women and children into prostitution. Most are preyed on because they have no choice, and demand for them is worse in tourist hot spots. Anwara and Halima – UKHIYA, Bangladesh: Anwara looks older than her twelve years and (at the request of the community welfare staff) will meet her in a few hours to attend a child-friendly center in one of the Rohingya refugee camps with her mother Halima – is at risk of being taken advantage of by men looking to get her involved in sex work for food or money in Ukhiya and Teknaf, duly alerting that protection concerns women of tomorrow about a generation of Rohingya refugee children.

Human Trafficking

Human trafficking has become a growing problem in the Rohingya camps, particularly in the dry season, when the sea is quieter and illegal crossings are possible. Traffickers prey on men, women and children with false promises of safety or work, but then subject victims to labor or sexual servitude. Refugees are abused, violence is used and they exploit the refugees, with the help of sometimes corrupt officials in Bangladesh or abroad.

Criminal syndicates, occasionally in league with corrupt officials, push refugees into unseaworthy boats laced with abuse, starvation and violence. In the face of these challenges, Bangladeshi authorities have stepped up efforts, recently intercepting hundreds from trafficking attempts in Teknaf and Ukhiya. The police, for example, rescued 30 Rohingya from the captivity of traffickers en route to Malaysia in Teknaf in December 2024, signaling their existing efforts to crack down on this organized crime.

Impacts on Tourism

Table 6: Positive and negative impacts of tourism

Aspects		Explanation
Positive Impacts	Economic Boost	The tourism industry generates revenue through hotels, restaurants, transportation services, and local shops. The local economy benefits from these activities. Residents secure employment in the tourism sector.
	Infrastructure Development	To accommodate tourists, there is an increase in infrastructure like roads, accommodations, and communication networks, which in return benefit the local community.
	Cultural Exchange	Interaction between tourists and locals can enhance the understanding and appreciation of local culture and traditions.
Negative Impacts	Pressure on Resources	The influx of so many tourists creates pressure on resources like water, electricity, and waste management, which are already under pressure because of so many refugees.
	Environmental Degradation	Over-tourism can have adverse effects on an environment, especially in ecologically sensitive areas such as Cox's Bazar. Beach pollution and habitat destruction can often be seen.
	Trigger Anxiety	Conflict arises sometimes between tourism and humanitarian assistance with respect to the local communities' needs and the refugee populations.

Drugs and Smuggling

Bangladesh's Yaba crisis has turned into a national epidemic, facilitated by the failure of this Yaba trade, with trafficking through the refugee camps in Cox's Bazar following in the wake of the 2017 Rohingya exodus. Armed groups like A.R.S.A. and the R.S.O. control much of the trade, causing violent turf battles. The Naf is the most used entry point with about 90% of yaba entering through this river." To many traffickers living as refugees, the camps have become home, and have served as a cradle to spread addiction to the youth in the camps and the host communities.

Between regular raids, arrests and patrols, police are still trying to tackle the scale and political complications of the problem. The camps are vulnerable pockets of poverty, people without homes and without oversight, allowing the camps to become a breeding ground for drug syndicates. Common/Big picture solutions include cracking down on the border, international cooperation and alternatives to forced prostitution for refugees; otherwise the cycle of crime, violence, and victimization will continue.



Figure 1: Impacts of Drug and Smuggling

Financial Behavior

Table 7: Employment Status, Source of Income, and Financial Aid of Respondents

Variable	Category	Frequency	Percent	Cumulative Percent
Employment Status	Employed	113	55.39	55.39
	Unemployed	81	39.71	95.10
	Self-employed	10	4.90	100.00
Source of Income	Service Sector	122	59.80	59.80
	Labor Class	58	28.43	88.24
	Agriculture	24	11.76	100.00
Financial Aid	NGO	196	96.08	96.08
	Relatives	8	3.92	100.00
Total Respondents		204	100.00	100.00

The results indicate that the number of employment opportunities of the respondents is not extensive, among which about 55.39% are employed, 39.71% are not employed and only 4.90% self-employed. In terms of sources of income, the service sector plays a dominant role (59.80%), while labor-intensive activities (38.43%) and agriculture (11.76%) are second and third respectively, revealing

reliance on basic services and manual work. The support of families is an important factor as 96.08% of the households rely on NGOs for support, 3.92% on relatives. Altogether, the findings illustrate a lack of diversity of employment, an excessive dependence on humanitarian assistance, as well as limited financial self-sufficiency, and underscore the importance of interventions promoting sustainable livelihoods here.

Table 8: Household Income and Expenditure of Respondents

Variable	Obs.	Mean	Std. Dev.	Min	Max
Household Income	204	8901.96	5264.22	2000	22000
Household Expenditure	204	9762.26	5177.02	2500	25000

Results Refugee households have monthly income of BDT 8,902 on average (ranging from a minimum of 2,000 to a maximum of 22,000), which is significantly lower than both national averages and UNHCR figures. In contrast to this, average expenditure of BDT 9,762 is forced throughout and some of the households are also one spending as much as their income. This disparity reflects ongoing financial insecurity, limited avenues of income, and heightened the level of susceptibility relative to households in Bangladesh

Regression Analysis of Determinants of Household Income

Table 9: Regression analysis of determinants of household income

Household Income	Coef.	Std. Err.	t	P> t	95% Conf. Interval	
					Lower	Upper
Interaction with host community	401.5928	136.4676	2.94	0.004	132.4595	670.7261
Access to nutrition	1535.681	548.3074	2.80	0.006	454.3415	2617.021
Main food	279.8124	162.443	1.72	0.087	-40.54814	600.173
Access to Healthcare	1015.091	421.4894	2.41	0.017	183.8544	1846.328
Children attending to school	-496.9911	183.8927	-2.70	0.007	-859.6534	-134.3288
Household expenditure	.9781983	.0172782	56.61	0.000	.9441233	1.012273
Worries regarding future	-234.3954	127.6526	-1.84	0.068	-486.1443	17.35361
Constant	-3300.615	736.187	-4.48	0.000	-4752.479	-1848.75
Extra Statistics						
R-squared	0.9451					
Adj R-squared	0.9431					
F (7,196)	481.82					
Prob > F	0.0000					
Root MSE	1255.5					
Number of obs.	204					

Several key reasons are identified by the regression analysis that affects the household income. Contact with host community is positively and highly collinear and for every additional unit of community contact, house hold incomes rise by approximately 401.59 units. This finding is statistically significant as evidenced by its low p-value and confidence interval that does not contain zero (Babu et al.,

2024; Jaman et al., 2023; Rouf et al., 2025). Also, nutritional access exhibits a very strong correlation with income, which implies that a better nutritional access will increase income by a relatively large amount of 1535.68 units. The strength of this result is further supported from the statistically significant p-value and confidence interval, suggesting that access to nutrition is one of the prime characteristics of economic well-being.

The indicator for the primary food type is also positively correlated with income, but no statistically significant effect is observed for it. Since the p-value is over 0.05 and the confidence interval includes zero, there is not strong evidence to suggest that the type of food has a direct impact on the earnings of a household. The impact of access to healthcare, however, is clear and statistically significant and positive on income, with households' better accessibility to healthcare expected to earn about 1015.09 units more. This importance is also substantiated by the p-value and the confidence interval, indicating that access to healthcare leads people to have their income stabilized and grow.

Interestingly, the average number of children-in-school has a negative sign and is statistically significant, with respect to income. Income is expected to decrease around 496.99 units with an additional child taking school. While this might seem counterintuitive, it reflects the financial demands that educational outlays may impose on constrained family budgets. The significance of this variable is highly credible given that the confidence interval does not cover zero. On the other hand, the household expenditure relationship is strongly significant and positive with income for all time periods. Each one-unit increase in expenditure also brings an appropriate increase in income, indicating higher earning households consume more, situating income and expenditure into a mutually reinforcing relationship.

Future concerns are negatively related to income, but this association is marginal. However, due to very small sample size, the statistical evidence for its effect, though very proximate to the classic threshold, loses conclusiveness indicating unsureness about its effect. The negative and statistically significant value of the constant of the regression suggests that if the explanatory variables had no impact, then the expected income level of households would be very low, therefore, suggesting the relevance of these factors in the explanation of household income.

The performance statistics further validate the generality of the model. Almost 95% of the variation in household income is explained by the predictors, an indication of very high explanatory power ($R^2 = 0.9451$). The R^2 adj equal to 0.9431 above indicates that the model is robust after adjusting for the number of predictors as well. Furthermore, an F-statistic of 481.82 and p-value of 0.000 indicates that the model was significant as a whole. The average error for prediction is moderate (root mean squared error, 1255.5), and the observed sample is 204, indicating the results can be trusted. In general, this analysis shows that community interaction, nutrition, health, schooling, expense and future concerns were found to play different not insignificant roles in the determination of household income.

Analysis of Variance (ANOVA) for the Regression Model

Source	df	Sum of Squares	Mean Square	F	Prob > F
Regression	7	5,318,570,546.41	759,795,792.30	481.82	0.000
Residual	196	308,950,929.00	1,576,280.25		
Total	203	5,627,521,475.41			

The ANOVA table sums up the regression analysis and shows “to what extent the predictors explain the variation in the dependent variable”. The 5,318,570,546.41 of SSR indicates the amount of variance accounted for by model, while the extent of residual variability that not accounted for by the model is explained by 3,089,509,29 of SSE. Conjointly, they constitute the total sum of squares (SST) 5,627,521,475.41 which is the variation of the outcome as a unit. The degrees of freedom display 7 for

regression, 196 for residuals, and 203 altogether which is based on the number of predictors and observations.

The mean squares are the averages of the explained and unexplained variance, with the regression mean square equivalent to 759,795,792.30 and the residual mean squares to 1,576,280.25. Taking the ratio of these results in an F-statistic of 481.82, with such a large value suggesting strong statistical significance. The p value of 0 supports this conclusion, rejecting the null hypothesis. Thus, the model shows further evidence that the independent variables explain a lot of variances of the dependent variable as a group, and that both the reliability and predictive validity of the model is good.

Major Challenges and Difficulties Faced by Respondents

Table 10: Major Challenges and Difficulties Faced by Respondents in Accessing Food and Basic Needs

Challenges / Difficulties of Respondents	Frequency	Percent	Cumulative Percent
Financial Problems (Food Access)	184	90.20	90.20
Inferior Goods (Food Access)	20	9.80	100.00
Kidnapping by RSO	60	29.41	29.41
Firing	15	7.35	36.76
Lack of Housing Shelter	34	16.67	53.43
No Earning Facilities for the Elderly	14	6.86	60.29
Providing Inferior Rice from WFP	20	9.80	70.10
Insecurity	7	3.43	73.53
Lack of Entertainment	4	1.96	75.49
Harassment by Police	10	4.90	80.39
Lack of Proper Medicine	11	5.39	85.78
Insufficient Clean Water	10	4.90	90.69
Lack of Proper Education	19	9.31	100.00
Total	204	100.00	100.00

The results of the analysis suggest that the major boundary for food access among the Rohingya refugees is financial crisis, which was reported by 90.20% of the respondents. There is little opportunity to earn an income, food prices are high and jobs are scarce that the household are unable to access enough nutritious food. A minority (9.80%) mentioned the quality of food, stressing that even when aid is provided, it is not always of nutritional quality. Refugees also face numerous challenges beyond food insecurity. Kidnapping Risk (29.41%) is the highest alarming Issue; it is an indication of unsustainable security situation. Other problems of note are lack of housing (16.67%), education (9.31%), poor quality food assistance (9.80%), harassment from authorities (4.90%), healthcare (5.39%) and clean water (4.90%).

These findings indicate that such vulnerabilities have both economic and social dimensions, with personal insecurity and the poor quality of life multiplying the vulnerability. Lack of food and no place to live ruin the health of the body, harassment, lack of safety and non-availability of opportunity are adding to the mental stress. Besides, the lack of proper education and means for living sustains a system of dependency, specially within children and old people. In general, the results indicate that humanitarian assistance needs to move beyond food and work on safety, health, education and social protection to strengthen refugee resilience and decrease chronic refugee vulnerability.

Conclusion

The Rohingya refugee crisis continues as one of the most pressing humanitarian challenges of the 21st century, heavily concentrated in Cox's Bazar, Bangladesh. The objective of this study was to understand the socio-economic situation and social problems experienced by the Rohingya refugees, in particular household income, expenditure behaviour, access to basic services and integration with host community. Its dual quantitative-qualitative methodology filled a critical void in the literature, which has tended to focus on macro-level effects and overlook household-level processes and the intersections between financial difficulty and social vulnerabilities.

This study revealed that refugee households continue to live heavily reliant on humanitarian assistance, with an income (BDT 8,902) lower than expenditure (BDT 9,762), reflecting ongoing financial stress. Regression analysis indicated that household income was positively influenced by the interaction of the host community, access to nutritional support, and access to health services, and negatively by schooling fees and lack of security about the future. Socially, refugees live in crowded conditions, have little no access to health services and are integrating poorly with the host community. These challenges further add up with topics of serious security risk like traffic, drug violence, child exploitation, and lack of education, illustrating how poverty is not just economic but it is a social one where the degree to which people are poor correspond with exclusion and vulnerability from the society. The value-added of this research is in providing evidence from a household level that illustrates the relationship between financial ability to be social well-being, thus providing a multi-dimensional view of refugee livelihoods.

The consequences of these findings are that the time is ripe for an intervention that does not simply offer short-term relief. Long-term responses should focus on sustainable livelihoods, more access to health and education, better protection, and better integration of host and refugee communities. However, several limitations of this study should be noted: its cross-sectional design restricts the ability to characterize the long-term situation, and the exclusive site in Cox's Bazar may restrict the generalization to other refugee contexts. In the future studies we recommend applying longitudinal methods that will account for gendered and child-specific effects, and comparisons across refugee-hosting contexts. Tackling the Rohingya crisis will require well-coordinated, evidence-based, multidimensional approaches that integrate financial security and social resilience. This, and not short-term fixes, is the only way pathways to dignity, to security, to sustainable futures for the Rohingya can be realized.

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