



Economic behaviors of vulnerable people in sub-urban industrial area and non-industrial area: A comparative study

Fatema Akhter Hiramoni

Lecturer, Department of Economics, Sheikh Hasina University, Netrokona-2400, Bangladesh

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*Corresponding Author

Fatema Akhter Hiramoni

✉ fatema.akhter@shu.edu.bd

ABSTRACT

There is a scarcity of empirical evidence about the nature of economic behaviors of vulnerable and poor people in sub-urban industrial and non-industrial areas of Bangladesh. Therefore, this study aimed to explore the nature of the economic behaviors of these people. A total of 394 participants interviewed from a sub-urban industrial area and a non-industrial area utilizing the convenience sampling technique. Results showed that the majority were involved in agricultural activities and manual labor. The ratio of manual labor was higher in suburban industrial area and agriculture labor in the non-industrial area. Four-fifths of them received their earning as the wage-basis, and this ratio was higher in non-industrial area. More than half of the participants had savings and this ratio was higher in sub-urban industrial area. Nearly half of them had debts and this was doubled for participants from non-industrial area. Vulnerable people from the sub-urban industrial area had to spend more on housing and food, and people from the non-industrial area had to spend more on education and health. These findings would be helpful for government and other stakeholders to design and implement policies to reduce the distress of these people and improve their living standards.

INTRODUCTION

Bangladesh is one of the most densely populated countries in the world. A total of 1125 people live in per sq/km in 2019 (Ministry of Finance, 2020). Although it is a densely populated country, it has steady economic growth. Bangladesh became a lower-middle-income country in 2015 and will graduate from the LDC (Least Development of Countries) list in 2026. The per capita income of Bangladeshi people is \$2227 (Dhaka Tribune, 2021, May 17). Although per capita income is increasing, a number of people are in below the poverty line. A total of 20.5% of the population lives below the national poverty line (Asian Development Bank, 2021). According to the Household Income and Expenditure Survey in 2016, this rate is higher in rural areas (26.4%) than urban areas (18.6%). The Bangladesh government has taken a number of initiatives to reduce the national poverty rate to achieve the first Sustainable Development Goal (SDG).

In Bangladesh, 20.4% of the total labor forces work in industry and 40.6% in the agriculture sector (Ministry of Finance, 2020). Non-industrial areas are mainly agriculture intensive and rural areas. The present study aimed to investigate the economic behaviors of poor and vulnerable people in sub-urban industrial and non-industrial areas in Bangladesh. A suburban area is primarily a residential area that is not overcrowded but very near to an urban area. Although it is not urban, it has many characteristics that do not fall into the features of rural areas. Living costs in these areas are lower than in city areas but higher than in rural areas. In terms of facilities, a number of facilities like cities are available (i.e., electricity, gas, roads, hospitals, educational institutions, etc.). Sources of livelihood are versatile in these areas. For example – some people work in industries, some work as day laborers, etc. In Bangladesh, industries are located in many suburb areas of town areas (metro, district cities or upzila towns). Ashuganj (an Upazila of Brahmanbaria District) is such an example. The suburb of this upazila has several

power plants, a fertilizer factory, a number of auto rice mills, and one of the busiest river ports of the country. Non-industrial areas in Bangladesh are mainly rural areas. These areas are not overcrowded like cities or suburban areas. There are lacking good living facilities like gas, hospitals, good educational institutions, good roads, etc. Agriculture is the primary source of livelihood. As their sources of livelihood differed between sub-urban industrial areas and non-industrial areas, the economic behaviors of people living in these would be differed.

Economic behaviors include- work, buying, saving, lending, etc. More specifically, economic behaviors include - working sector, working days in a week, working hours in a day, income, earning patterns (wage basis and salary basis), additional income sources, taking health facilities, expenditures on housing, education, health, and food, savings, etc. Almost all economic behaviors involve money somehow, and decision-making is involved in economic behaviors.

Best of the author's knowledge, a few studies have addressed the economic behaviors of vulnerable and poor people in sub-urban industrial areas and non-industrial areas in Bangladesh. It's important to know the nature of the economic behaviors of vulnerable and poor people in these areas for their betterment. To reduce their distress and vulnerability, to make availability of living facilities, it is important to know the economic behaviors of poor and vulnerable peoples. Therefore, the present was designed to explore the nature of economic behaviors of poor and vulnerable people of sub-urban industrial areas and non-industrial areas in Bangladesh. The main objective of the present study was to assess the economic behaviors (i.e., working sector, working days in a week, working hours in a day, income, earning patterns, additional income sources, taking health facilities, expenditures on housing, education, health, and food, etc.) of poor and vulnerable people of sub-urban industrial areas and non-industrial areas. Another objective of this study was to assess the differences in poor and vulnerable people's economic behaviors between sub-urban industrial and non-industrial areas.

METHODOLOGY

Participants

In the present study, vulnerable people were the study population. Ashuganj, an administrative unit of Brahmanbaria District, Bangladesh, was selected as the sub-urban industrial area in this study. There are electricity power stations, a fertilizer factory, gas fields, over 500 rice mills, a river port, etc. On the other hand, Agailjhara, an administrative unit of Barisal District, Bangladesh, was selected as the non-industrial area. This is an agriculture-based area. These two areas were selected utilizing the convenience sampling technique. Study participants from these areas were recruited utilizing the convenience sampling technique. With 5% marginal error, 95% confidence level, and 0.5 standard deviation, the required sample size is 385. To obtain the required sample size, a total of 485 potential participants were invited, and 399 of them were agreed to participate (response rate 82.27%). Among 399 observations, five were excluded from the dataset in the final analysis due to missing responses. Face-to-face interviews were conducted to collect necessary information from the participants.

Measures

In this study, interviews were conducted utilizing a structured questionnaire. This questionnaire had several sections. The first section contained questions about personal information (e.g., age, sex, religion, marital status, number of family members, number of dependents, and education level). The second section of the questionnaire contained questions about working type, types of payment that participants receive – wage or salary, number of days working in a week, number of hours working in a day, average income (daily wage earners and monthly for salary earners), number of other earning member in the family (if any), and allowance if they receive. The third section contained questions about places where participants usually receive health services and eHealth services. The fourth section of the questionnaire included questions about monthly expenditures related to housing, health, education, and food. Besides, this section had questions about the savings, debt, and assets of the participants.

Ethics

The present study was carried out in accordance with the Declaration of Helsinki and its later amendments and other comparable ethical standards. Before conducting the interview, the participants were informed about study purposes, their rights, data protection policy, confidentiality, and utility of their responses. Informed consent from participants was taken before conducting the interview. Participants had the right to withdraw themselves from the interview at any moment during the interview. Moreover, they were restricted to withdraw their responses after finishing the interview as their responses stored as anonymous, and it was impossible to find out their responses.

Statistical analysis

In the present study, Microsoft Office Excel 2019 and IBM SPSS v26 were utilized for data management and data analysis. Descriptive statistics (mean, standard deviation, frequency, and percentages), χ^2 test, and independent sample t-test were performed to analyze the data. Descriptive statistics were utilized to assess the distribution of demographic information and

economic behaviors. The χ^2 test was utilized to assess differences in categorical responses about economic behaviors by locations (sub-urban industrial and non-industrial, and categorical responses about economic behaviors). Independent sample t-test was utilized to assess the differences between participants from industrial and non-industrial area in earnings and expenditures.

RESULTS

Participants' description

In this study, a total of 216 (54.8%) were from the sub-urban industrial area, and 178 (45.2%) were from the non-industrial area. The demographic distribution of the study participants is presented in Table 1. Participants' age mean was 41.92 years (SD = 13.53 years). Among them, 88.6% were male, and around two-third were (69.3%) Muslim. Among the participants, 88.6% were married, and 8.4% were unmarried. The mean number of dependents was 3.67 (SD = 1.68), and the mean family size was 5.02 (SD = 1.91). Among the participants, 37.8% had no schooling experience, 52% attended primary level education, and 9.6% attended secondary level education.

Table 1: Demographic characteristics of the participants

Variables	Groups	Frequency (%) / Mean (Sd)
Age		41.92 (13.53)
Sex	Male	349 (88.6%)
	Female	45 (11.4%)
Religion	Muslim	273 (69.3%)
	Hindu	120 (30.5%)
Marital status	Married	349 (88.6%)
	Unmarried	33 (8.4%)
	Other	8 (2.1%)
Number of dependent		3.67 (1.68)
Family size		5.02 (1.91)
Education level	No schooling	149 (37.8%)
	Primary level	205 (52.0%)
	Secondary	38 (9.6%)

Main results

Information about participants' economic behaviors (i.e., occupation sector, working hours and days, earning patterns, income from other

sources, availing health service facilities, and expenditures) is presented in Table 2. From Table 2, one-fourth (25.1%) participants worked as manual labor, 23.6% in the agricultural sector, 19.5% in the transportation sector, 14.2% were

skilled workers, etc. The average working days in a week was 6.128 days (SD= 1.06 days), and the average working hours in a day was 7.99 hours (SD = 2.65 hours). Table 2 shows that 80.2% of participants were wage earners and the rest of them were salary earners. The average daily income of wage earners was \$ 5.54 (SD= \$ 2.63), and the monthly income of salary earners was \$ 113.97 (SD = \$ 58.09). Among the participants, one-third had other earners in the family. Besides, 43.1% of participants had other income sources like livestock (68.2%), small-scale cultivation

(11.8%), stipend (20.6%), etc. Table 3 shows that anyone of the family members of 12.9% of participants received the government allowance (i.e., old age allowance [64.7%], widow allowance [21.6%], and other allowance [13.7%]). Regarding receiving health services, more than half of them took these services from a local pharmacy (53.3%), 23.4% from Upazila health complex, 11.4% from doctors' private chamber, and 9.1% from the private hospital. Among them, only 9.9% of participants took the eHealth facilities.

Table 2: Descriptive statistics of economic behaviors of the participants

Variables	Groups	Frequency (%) / Mean (SD)
Working sector	Agriculture	93 (23.6%)
	Manual labor	99 (25.1%)
	Transport	77 (19.5%)
	Skilled work	56 (14.2%)
	Vendor	33 (8.4%)
	Small business	25 (6.3%)
	Unemployed	26 (6.5%)
	Others	11 (2.8%)
Days work in a week		6.28 (1.06)
Hours work in a day		7.99 (2.65)
Earning pattern	Wage basis	316 (80.2%)
	Salary basis	77 (19.6%)
Average daily income of wage earners		\$ 5.54 (\$ 2.63)
Average monthly income of salary earners		\$ 113.97 (\$ 58.09)
Having other earners		142 (36.0%)
Other income sources (n=170) [multiple response]	Livestock	116 (68.2%)
	Stipend	35 (20.6%)
	Small scale cultivation	20 (11.8%)
	Others	12 (7.1%)
Allowance recipient (self/ other family member)		51 (12.9%)
Allowance type (n=51)	Old age allowance	33 (64.7%)
	Widow allowance	11 (21.6%)
	Other allowances	7 (13.7%)
Usual places of receiving health services	Pharmacy	210 (53.3%)
	Upazila health complex	92 (23.4%)
	Doctors' private chamber	45 (11.4%)
	Private hospital	36 (9.1%)
	Others	11 (2.8%)
Received eHealth facilities		39 (9.9%)
Have Savings		250 (63.5%)
Debt		178 (45.2%)
Having assets		152 (38.6%)
Average housing expenditure		\$ 5.00 (\$ 11.58)
Average education expenditure		\$17.31 (\$ 19.35)
Average health expenditure		\$15.28 (\$ 14.38)
Average food expenditure		\$ 72.41 (\$ 28.19)

From Table 2, 63.5% of participants had savings, 45.2% had debt, and 38.6% had assets. Participants' average housing expenditure was \$ 5.00 (SD = \$ 11.58), education expenditure was \$17.31 (SD = \$ 19.35), health expenditure was \$15.28 (SD = \$ 14.38), and food expenditure was \$ 72.41 (SD = \$ 28.19).

Mean differences between participants from sub-urban industrial area and non-industrial area in earnings and expenditures are presented in Table 3. Table 3 shows that wage earners from sub-urban industrial area worked significantly more days in a week than wage earners from non-industrial area (t-value = 2.66, $p = .008$, (95% CI [.08, .53])). Similarly, wage earners from sub-urban industrial

area also worked more hours compared to wage earners from non-industrial area (t-value = 7.68, $p < .001$, (95% CI [1.57, 2.66])). However, this trend for salary earners is opposite. Among vulnerable people who were salary earners from non-industrial area received more salary than from sub-urban industrial area (t-value = -2.93, $p = .005$, (95% CI [-86.07, -16.41])). Regarding expenditure, vulnerable people from sub-urban industrial area had to expense higher in housing (t-value = 7.06, $p < .001$, (95% CI [5.66, 10.02])) and food (t-value = 6.04, $p < .001$, (95% CI [11.17, 21.97])), and vulnerable people from non-industrial area had to expense more in education (t-value = -5.57, $p < .001$, (95% CI [-14.29, -6.83])) and health (t-value = -2.03, $p = .043$, (95% CI [-5.82, -0.10])).

Table 3: Mean differences between participants from sub-urban industrial area and non-industrial area in earnings and expenditures

Variable	Groups	N	Mean	SD	t-value	p value	95% CI	
							Lower	Upper
Working days in a week	Sub-urban industrial	149	6.461	.83	2.66	.008	.08	.53
	Non-industrial	165	6.16	1.16				
Hours work in a day	Sub-urban industrial	149	9.13	2.30	7.68	<.001	1.57	2.66
	Non-industrial	165	7.01	2.55				
Average daily income of wage earners	Sub-urban industrial	149	\$5.82	\$1.86	1.68	.093	-0.09	1.09
	Non-industrial	165	\$5.32	\$3.17				
Average monthly income of salary earners	Sub-urban industrial	60	\$105.93	\$51.35	-2.93	.005	-86.07	-16.41
	Non-industrial	12	\$157.17	\$72.55				
Housing expenditure	Sub-urban industrial	216	\$8.57	\$13.44	7.06	<.001	5.66	10.02
	Non-industrial	178	\$0.73	\$6.88				
Education expenditure	Sub-urban industrial	216	\$12.62	\$13.61	-5.57	<.001	-14.29	-6.83
	Non-industrial	178	\$23.18	\$23.51				
Health expenditure	Sub-urban industrial	216	\$14.01	\$11.84	-2.03	.043	-5.82	-0.10
	Non-industrial	178	\$16.97	\$16.98				
Food expenditure	Sub-urban industrial	216	\$80.21	\$30.95	6.04	<.001	11.17	21.97
	Non-industrial	178	\$63.64	\$21.56				

Table 4 shows the distribution of participants' economic behaviors (i.e., occupation sector, earning patterns, savings, debt, etc.) in terms of location. In the sub-urban industrial area, the majority of the vulnerable people (32.4%) were involved in manual labor and one-fourth of them in transportation. In the non-industrial area, the majority were involved in agricultural activities (44.9%). This interaction between the working

sector and location was significant ($\chi^2 = 96.82$, $p < .001$). Regarding earning patterns, almost all vulnerable people (93.8%) in the non-industrial area were wage earners, while just above the two-thirds (69.4%) were wage earners in the sub-urban industrial area. The interaction between earning pattern and location was significant ($\chi^2 = 36.59$, $p < .001$). Among the participants, 41.7% of sub-urban industrial area and 29.2% of the non-

industrial area had other earning members, and this interaction was also significant ($\chi^2 = 6.57$, $p = .010$). It suggests that the most vulnerable people from non-industrial areas are the sole earning members of their families. Participants (17.4%) from the non-industrial area were higher in number to receive eHealth service than from sub-urban industrial area (3.7%), and this interaction was significant ($\chi^2 = 20.57$, $p < .001$). Interaction between the locations and usual places of receiving health services was also significant ($\chi^2 = 63.05$, $p < .001$). In both areas, majority of participants took health services from the local pharmacy, but this ratio was higher for participants from sub-urban industrial areas (57.9%). Besides,

13.9% of the sub-urban industrial area took health services from private hospitals, and this ratio from non-industrial was 3.4%. Meanwhile, one-fourth of the non-industrial area took this service from doctors' private chambers. Regarding savings, three-fourth of participants from sub-urban industrial areas had savings, while half of the participants from non-industrial areas had savings. Regarding debt, nearly two-thirds from the non-industrial area had debt and nearly one-third from the sub-urban industrial area had debt. Both interactions of location by having saving ($\chi^2 = 21.28$, $p < .001$) and debt ($\chi^2 = 38.70$, $p < .001$) were significant.

Table 4: Differences in economic activities between participants from sub-urban industrial area and non-industrial area

Variable	Groups	Sub-urban Industrial	Non-industrial	χ^2	P
Working sector	Agriculture	13 (6.0%)	80 (44.9%)	96.82	<.001
	Manual labor	70 (32.4%)	29 (16.3%)		
	Skilled	28 (13.0%)	28 (15.7%)		
	Small enterprise	16 (7.4%)	9 (5.1%)		
	Transport	52 (24.1%)	25 (14.0%)		
	Vendor	30 (13.9%)	3 (1.7%)		
	Other	7 (3.2%)	4 (2.2%)		
Earning pattern	Wage basis	150 (69.4%)	166 (93.8%)	36.59	<.001
	Salary basis	66 (30.6%)	11 (6.2%)		
Having other earners	Yes	90 (41.7%)	52 (29.2%)	6.57	.010
	No	126 (58.3%)	126 (70.8%)		
Allowance recipient (self/ other family member)	Yes	22 (10.2%)	29 (16.3%)	3.23	.072
	No	194 (89.8%)	149 (83.7%)		
Received e-health facilities	Yes	8 (3.7%)	31 (17.4%)	20.57	<.001
	No	208 (96.3%)	147 (82.6%)		
Usual places of receiving health services	Pharmacy	125 (57.9%)	85 (47.8%)	63.05	<.001
	Upazila health complex	50 (23.1%)	42 (23.6%)		
	Doctors' private chamber	2 (0.9%)	43 (24.2%)		
	Private hospital	30 (13.9%)	6 (3.4%)		
	Others	9 (4.2%)	2 (1.1%)		
Have Savings	Yes	159 (73.6%)	91 (51.1%)	21.28	<.001
	No	57 (26.4%)	87 (48.9%)		
Debt	Yes	67 (31.0%)	111 (62.4%)	38.70	<.001
	No	149 (69.0%)	67 (37.6%)		
Having assets	Yes	74 (48.7%)	78 (51.3%)	3.77	.052
	No	142 (58.7%)	100 (41.3%)		

DISCUSSION

The ratio of poorer people is higher in rural areas of Bangladesh than in other areas. As differences in livelihood facilities, the present study was undertaken to explore the economic behaviors of poor and vulnerable people in the sub-urban industrial area and non-industrial area. The necessary data of the present study were collected through a face-to-face interview method utilizing convenience sampling technique.

Results showed that one-fourth of the participants were manual labor, and an almost similar number of participants were involved in agricultural activities. As expected, the majority of manual laborers were from sub-urban industrial areas, and most of the participants involved in agricultural activities were from non-industrial areas. As their less availability of land for agriculture in sub-urban industrial areas, a few people are involved in agriculture-related activities. On the contrary, non-industrial areas are agriculture-intensive areas. Therefore, the majority of participants are engaged in agriculture-related activities. Results also showed significant differences in working days in a week and working hours in a day between these two areas. Vulnerable people from sub-urban industrial areas work more days in a week and work more hours in a day than vulnerable people from non-industrial areas. These differences existed due to differences in living expenses between these areas. Usually, living expenses in sub-urban areas are higher compared to non-industrial/ rural areas. Therefore, vulnerable and poor people need to work more to meet their living expenses.

Regarding the earning patterns, four-fifths of vulnerable people received their payment as daily wages. However, this ratio between the sub-urban industrial area and non-industrial area differed significantly. Two-thirds of the people from sub-urban areas received their earnings as wages, and almost all people from non-industrial areas received their earnings as wages. This difference existed as there are opportunities for vulnerable people to be paid in monthly or yearly salaries. In non-industrial areas, this opportunity is almost absent. Therefore, almost all from the non-industrial area were involved in wage-based

payment activities. However, the average daily income of wage-based earners was the same in both areas. But, salary-based earners from the non-industrial areas had higher salaries than the sub-urban industrial area. This existed difference might be due to experience and more physical labor in agricultural activities. Moreover, there is a shortage of agricultural labor as a large number of working people shift to industrial works in urban and sub-urban areas. This crisis of agri-labor might be a reason for this difference. Results regarding the having other earners, significant differences existed between vulnerable people from these two areas. Two-fifths of the vulnerable and poor people from the sub-urban industrial area had other earning members in the family.

Results regarding the usual place of receiving health services, more than half of the participants received health services from a pharmacy. This ratio was significantly higher for the participants from the sub-urban industrial area. Their lower income facilities, lack of proper information, etc., might be reasons for receiving health services from a pharmacy. The ratio regarding the health services received from private hospitals was also higher for the participants from the sub-urban industrial area than the participants from the non-industrial area. As private hospital facilities are available only in urban and sub-urban areas, this higher ratio is usual for the participants from the sub-urban area. Results also showed that one-fourth of vulnerable people from the non-industrial area received health services from the doctor's private chamber. Lower consultancy fees in the non-industrial area might be a possible reason for this difference. Results showed that two-fifths of participants received the eHealth facilities. Interestingly, this rate was significantly higher for the participants from the non-industrial areas. This difference demands further exploratory research to identify possible reasons.

Regarding the savings, almost two-thirds of the vulnerable people had savings. This ratio was significantly higher for the vulnerable people from the sub-urban industrial area than those from the non-industrial areas. Regarding the debt, almost half of the participants had debt. This ratio doubled for the vulnerable people from the non-industrial area compared to those from the sub-

urban industrial area. These differences also demand further exploratory study to explore possible reasons.

Results showed significant differences in expenditures on housing, education, health, and food. Vulnerable people from sub-urban industrial areas had to expense significantly more on housing and food compared to vulnerable people from non-industrial area. In the non-industrial area, most of the people live in their own house. Therefore, their average expense on housing is less than one USD. On the other hand, most of the vulnerable people had to live in the house on rent. Therefore, their housing expense was significantly higher. Regarding food, food price is lower in non-industrial area compared to sub-urban and urban areas. Therefore, vulnerable people from sub-urban industrial areas had to spend more on food compared to non-industrial areas. However, vulnerable people from non-industrial areas had to spend more on education and health than people from sub-urban industrial areas. Further exploratory studies will be needed to explore the possible reasons for why these differences existed in education and health expenditure.

Limitations of the study

The present study has some limitations. Firstly, the present study data were collected only from two areas utilizing the non-probability sampling technique. Generalize ability of the study findings to the outside of these two areas may be limited. A national representative study would be undertaken to overcome this limitation. Secondly, self-reported data were utilized in this study. Self-

reported data might be subjected to social desirability bias.

CONCLUSION

The present study explored the nature of vulnerable and poor people's economic behaviors from sub-urban industrial areas and non-industrial areas in Bangladesh. These findings provide an insight about the economic activities as well as the living standard of these people. These would be helpful to the Bangladeshi government, NGOs, and other international stakeholders like the World Bank, United Nations, etc., to improve the standard of living of these vulnerable and poor people. These results would also be helpful for planning and implementing policies to reduce their vulnerability and enhancing their well-being.

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