Bangladesh Journal of Political Economy

Vol. 38, No. 1, June 2022, pp. 319-332
Bangladesh Economic Association
ISSN 2227-3182
http:/doi.org/10.56138/bjpe.jun2219

Income Inequality and Poverty in Pabna Municipality, Bangladesh: An Empirical Analysis

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Abstract

Pabna District is located in Bangladesh's Rajshahi division. It covers 2371.50 square kilometres and is situated between 23°48' and 24°21' north latitudes and 89°00' and 89°44' east longitudes. Natore and Sirajgonj districts on the north, Padma River, Rajbari and Kushtia districts on the south, Manikganj and Sirajgonj districts and the Jamuna river on the east, Padma River, Natore and Kushtia districts on the west and the Padma river on the west.

It has a total population of 2176270, with males accounting for 1126084 and females accounting for 1050186; Muslims account for 2099160, Hindus for 73839, Buddhists for 3023, Christians for 78, and others for 170. An extreme concentration of wealth or income in the hands of a small population is known as income inequality, and it has been referred to as the wealth gap between the wealthy and the rest.

According to the Urban Institute's research of 50 years of economic statistics, the poorest have gotten poorer while the wealthiest have gotten significantly wealthier. Between 1963 and 2016, the world's richest 1% owned 45 per cent of the world's wealth. Poverty is a state of being unable to meet one's necessities.

These can be defined as "those required for survival" or, more broadly, as "those reflecting the community's current standard of living." The quantity and scope of poverty in any country are determined by the average level of national income and the degree of economic disparity—clearly, the greater the national per capita income disparity, the more uneven the distribution.

Keywords *Income Inequality · Poverty · Pabna Municipality · Bangladesh*

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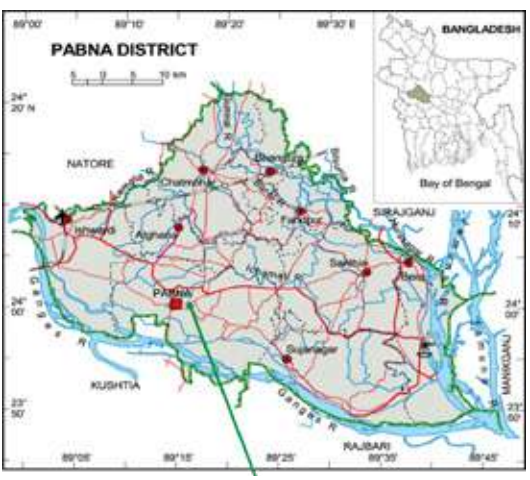
1. Introduction

Poverty and income inequality are critical roadblocks to growth in developing nations such as Bangladesh. Global inequality has become a significant concern in recent years and is increasing at an alarming rate. According to a recent Oxfam analysis, the richest 1% of the global population received 82 per cent of the wealth generated last year, which includes the 3.7 billion people who make up the world's poorest half who did not make any increase in their wealth.

To put it another way, the poorest half of the planet received nothing. The top ten per cent of South African society earns half of all wage income, while the poorest half of the workforce gets only 12 per cent. The current study aims to quantify poverty and economic inequality in Bangladesh's Pabna municipality. Economic inequality develops from the distribution of income, consumption, wealth, or assets, and it is a big problem worldwide to minimise or regulate it. According to Bangladeshi household data, income distribution is far more unequal than the distribution of consumption.

In Bangladesh, the top 5% of income earners account for 95% of total income, indicating an unequal distribution of wealth. The GINI coefficient, which measures income inequality, has been widely utilised as a measure of income disparity in recent decades. Bangladesh's economy is one of the most promising in the twenty-first century, although poverty and wealth inequality are widespread in Asian countries. A well-organised questionnaire obtained required data from 80 respondents who were selected using the simple random sampling technique to measure income inequality and poverty in Pabna municipality.



2. Objectives of the Study

The overall goal of this research is to determine income inequality and poverty in Pabna, Bangladesh. This study aims to achieve the following objectives to achieve the goal:

i. To depict the overall picture of Bangladesh's poverty and income inequality, notably in Pabna municipality.
ii. To determine the research area's socio-economic characteristics.
iii. Determine the poverty and economic disparity level in the study area.
iv. To determine the causes of poverty in the research region, as well as the degree of poverty and income disparity;
v. Recommending policies in the study region to minimise poverty and income disparity.

3. Review of Literature

A literature review is necessary for any research because it allows for a review of the research's pool of knowledge and information, which serves as a guideline for developing future research problems. Here are some essential works on the subject of the current study.

In Bangladesh, Zaman, K.A.U., and Akita, T. (2012) did research on "Spatial Dimensions of Income Inequality and Poverty." The study explores income inequality and poverty in Bangladesh, focusing on their spatial dimensions, using data from the Household Income and Expenditure Survey (HIES) in 2005 and 2010.

Given the modest disparity in administrative divisions, such inequities, particularly in metropolitan areas, require governmental attention. Raising the level of general education is critical, as education appears to influence rising urban inequality significantly. Similarly, wages and salaries help reduce inequality, indicating more opportunities to obtain formal revenues. Transfer programs could be increased to raise earnings among the poorest people, even if the impacts are expected to be minor. Providing primary education throughout the country and boosting general educational levels is vital to alleviate poverty. Increasing agricultural productivity in rural and urban sectors is critical, and Non-agricultural activities should also be fostered following the comparative advantage model.

S. Ferdousi and W. Dehai (2014) published a study on Bangladesh's "economic development, poverty, and inequality trend." According to this survey, Bangladesh has one of the highest rates of poverty in the world, and poverty affects millions of individuals around the world. Currently, one-third of the country's population (31.5%) lives in poverty.

Inequality also contributes to poverty's continuance. Bangladesh had the second-highest average yearly rate of poverty reduction among south Asian countries from 2000 to 2005. However, Bangladesh's rate of poverty reduction is far slower than that of faster-growing east Asian nations such as China, Thailand, and Vietnam, highlighting the significance of higher growth for attaining even faster poverty reduction. The current research focuses on Bangladesh's poverty trends, economic growth, and inequality. This paper also decomposes inequality and poverty by household type (rural, urban, and national). The research is based on secondary data.

Poverty decreased from 1991-to 92, dropping from 56.7 per cent in 1992 to 31.5 per cent in 2010. According to the findings, the incidence of poverty is higher in rural areas than in urban areas, and the rate of poverty reduction is likewise higher in rural areas (1.24%) than in urban areas (1.13 %). In Bangladesh, both general and food inflation are to blame for widening wealth disparities. Despite consistent GDP growth over the last decade, the general public has suffered more due to rising family expenditure and food inflation than income growth. The study paints a clear picture of the current state of affairs.

Stanhope (2016) studied income disparity, incarceration, and the disparities in poverty rates between black and white people. Using each state's Gini coefficient estimate as to the inequality measurement, this article seeks to investigate and isolate the effects of income inequality on the difference between poverty rates among the Black and White population by state in 2010. Furthermore, the author suggests an alternative income distribution measurement to understand better the effects of a state's income distribution on its poverty rate disparity. This article will discuss and quantify other factors that may affect the discrepancy in poverty rates between Black and White Americans. According to the author, a higher state Gini coefficient corresponded to a lesser magnitude of difference between Black and White poverty rates. In contrast, a higher variation in income bracket allocation corresponded to an increase in the extent of the poverty rate differential.

Feldstein (1998) studied "income inequality and poverty." The first section of this research report argues that income disparity is not a problem that must be addressed. The usual practice of viewing an increase in the Gini coefficient measure of inequality as a negative thing violates the Pareto principle and is akin to applying a social welfare function that gives negative weight to increases in high-income persons' income. Poverty, not inequality, is the real distributional issue. The study examines three causes of poverty and wonders what, if anything, can be done about them: unemployment, inadequate earning ability, and human choice.

Islam and Khan supervised an empirical study in Bangladesh on "income disparity, poverty, and socio-economic development" in 1986. This article examines Bangladesh's income distribution pattern and poverty from 1963 to 1977. It contrasts the country's socio-economic condition in the mid-1970s with other emerging countries in Asia, Africa, and Latin America. Inequality and poverty have risen dramatically in recent years. This alarming trend is exacerbated by the fact that Bangladesh ranks last in the Third World in terms of a composite social index. Within the poverty population, the poor suffer, and the rural sector was the most affected by the increase in poverty. The basic policy advice is that while allocating resources for the country's future development, more emphasis should be paid to the social sectors.

4. Concepts about Income Inequality and Poverty

4.1 Income inequality

The unequal distribution of family or individual income among the various economic actors is known as income inequality. The percentage of income to a portion of the population is a standard measure of income inequality. For example, a statistic can show that 20% of a country's people control 70% of its income.

The concept of income "fairness" is frequently related to income disparity. Most people think it is "unfair" if the wealthy own a disproportionately significant share of a country's wealth compared to the rest of the population. Income inequality can be caused by various factors, including geography, gender, education, and social standing, and economists are split on the implications.

Since the 1980s, when the top ten per cent of earnings received 30 to 35 per cent of national income, income inequality has gotten worse. Since then, the percentage of income going to the top 10% has risen to 50%, resulting in a massive economic discrepancy between rich and low workers. Regarding the core cause and suitable answers, the topic has become politically and economically controversial. While most economists believe that rising disparities are due to unequal education, the environment, and social interactions, they disagree on the mechanisms causing the rise.

Contributing factors to income inequality

Education has been shown to have an impact on social equality. In the United States, many socio-economic groups lack access to high-quality education, particularly at the secondary school level. There is substantially less income difference in countries that give higher-quality secondary education to people from all walks of life.

Salary disparities arise as a result of the talent competition. Because of the increased rivalry for high-quality executive personnel, executive wages have risen about the amount of product delivered. Executive wages have been raised due to large bonuses and other incentives. Stagnant wages exacerbate inequality. Since 2007, the median salary for low- and middle-income workers has remained largely unchanged, while CEO remuneration has risen. Workers' earnings have remained steady or have decreased as labour unions' power has waned.

Earning potential is influenced by family and social relationships. In economically challenged places with many unstable families, social and emotional skills are not sufficiently developed to lead a quality life.

A rising wage disparity is exacerbated by increased demand for high-skilled jobs. Companies are investing more extensively in developing a high-skilled workforce, driving up high-skilled worker wages. As a result, low-skiing is deemphasised or automated.

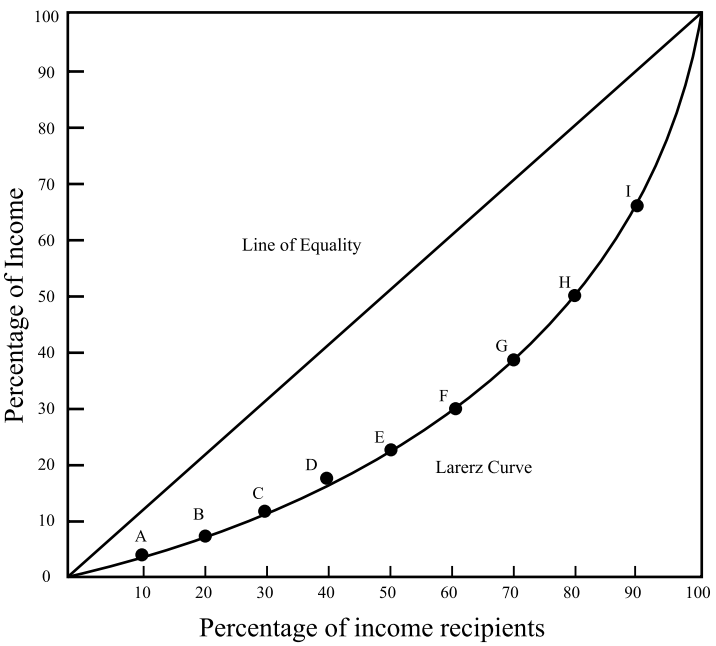
Measurement of income inequality

The Lorenz curve and the Gini coefficient can calculate income inequality. The ratio of incomes earned by the top 20% and bottom 40% of the population is a popular measure of income inequality. This ratio, also known as the Kuznets ratio after Nobel Laureate Simon Kuznets, is frequently used to measure the degree of disparity between the extremely poor and very rich. This inequality ratio in our example is 87/4, or nearly 22, indicating an unequal income distribution.

The Gini coefficient is another frequent technique for assessing inequality based on the Lorenz curve. The deviation of the size distribution of income from perfect equality is depicted by the Lorenz curve (Michel P Todaro, and Stephen C. Smith, 12th Edition)

The graph is a Lorenz curve that depicts income distribution in the United Kingdom in 2009.

The proportion of the population, organised in order of their incomes from least to wealthiest, is plotted along the horizontal axis. The scale ranges from 0% to 100% of the population of the United Kingdom.



Lorenz curve

The society's income proportion is represented by the vertical axis, which ranges from 0 to 100%. The 45-degree line depicts what 'perfect' equality looks like; everyone has the same income along this line (i.e. 10 per cent

of the population holds 10 per cent of the income, and so on). The line of complete inequality depicts the extreme circumstance in which the wealthiest individual owns 100% of a society's revenue. The lower a Lorenz curve sags below the line of perfect equality, the more unequal a society becomes. For example, the Lorenz curve for the United Kingdom reveals that the poorest 40% of the population receive only 16% of total income, while the poorest 80% receive around 53% of total income.

4.2 Poverty

Poverty can be either absolute or relative. The number of people living below a given income criterion, or the number of households unable to afford certain basic goods and services, is referred to as absolute poverty. Relative poverty is a household's financial resources falling below the economy's average income criterion.

Poverty lacks sufficient funds to cover basic requirements such as food, clothing, and shelter. Poverty, on the other hand, is much more than a lack of resources.

Poverty is defined as follows by the World Bank Organization:

"Hunger is poverty, and poverty is defined as a lack of shelter. Being sick and unable to see a doctor is a sign of poverty.

Poverty is defined as a lack of access to education and the inability to read. Poverty is defined as not having a job, anxiety about the future, and daily living.

Poverty has numerous faces, which change from place to time and are described in various ways. Poverty is frequently a circumstance from which individuals wish to be free. So, poverty is a call to action for everyone, rich and poor, to transform the world so that many more people have enough to eat, a safe place to live, access to education and healthcare, safety from violence, and a say in what happens in their communities.

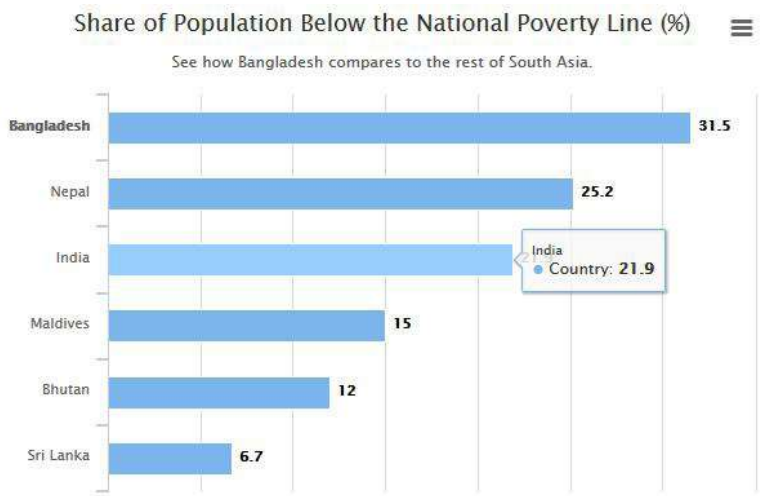
Types of poverty

Absolute poverty: It is a severe form of poverty characterised by a persistent lack of necessities such as food, clean water, health, and housing. People living in abject poverty often struggle to survive, and many children die from preventable diseases such as malaria, cholera, and disease caused by contaminated water. This type is usually long-lasting and frequently passed down through generations.

Relative poverty: This type is frequently about other community members and their families. For example, a family may be considered poor if it cannot afford vacations, Christmas presents, or university tuition for its children. Despite receiving government assistance for food, water, medication, and free housing, they are considered poor because the rest of the community has greater services and amenities.

Situational poverty (Transitory): People or families can become impoverished due to natural disasters, such as earthquakes, floods, or significant sickness. People can often help themselves out of a sticky situation if they are given a little help, as a single unlucky incident caused the causes of their predicament.

Generational or chronic poverty: This is more complex; we will see an example here. It occurs when people and families inherit poverty from previous generations. There is frequently no way out of this type since people are imprisoned in the causes and do not have access to resources that can help them get out.



Source: *ADB (2016)*

MEASUREMENT OF POVERTY

The Headcount Index:
The headcount Index (P0) measures the proportion of the population that is poor.

$$P_0 = \frac{N_P}{N}$$

Poverty Gap Index:

The poverty gap index (P1) calculates the percentage of people living in poverty (the poverty gaps) as a percentage of the poverty line. If transfers were perfectly targeted, the sum of these poverty gaps would yield the lowest cost of eradicating poverty. The indicator does not account for changes in poverty inequality.

$$P_1 = \frac{1}{N}\sum_{i=0}^{n}\frac{G_i}{z}.$$

Squared Poverty Gap Index:

The researcher uses the squared poverty gap index to create a measure of poverty that accounts for the disparity among the poor. The squared poverty gap index is just a weighted sum of poverty gaps, with the weights being the proportionate poverty gaps. Measure implicitly gives extra weight to observations that fall considerably below the poverty threshold by squaring the poverty gap score.

$$P_2 = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{G_i}{z}\right)^2$$

The Foster- Greer- Thorbecke Index:

Because of the measures, poverty is not so easy to interpret, and it is not used very widely. It may be thought of as one of a family of measures proposed by Foster, Greer and Thorbecke in 1984, which can be written as below:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{G_i}{z}\right)^\alpha$$

5. Methodology

This study has used the data of the Household Income and Expenditure Survey (HIES) of 2019. These are the primary source of data conducted by a well-prepared questionnaire regarding the sources of income and the types of expenditure of households in Pabna municipality. I also used different data sources like World Bank Data Bank, ADB, Bangladesh Bank, etc. In addition, various statistical reports and published articles were reviewed to write the paper. Different statistical techniques, graphs, charts, line charts, and pie charts, are used to analyse the data.

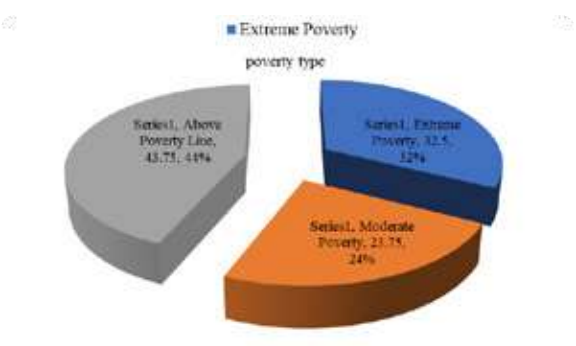
6. Discussion of Results

In October 2015, World Bank set extreme poverty at US$ 1.90 per person per day and moderate poverty at US$ 3.10 per day per person. In this study, primary data on income and expenditure from 80 respondents through a well-organised questionnaire in Pabna municipality. The data reveals that some households spend more than their income and go into debt. On the other hand, some households earn more than their expenditure and save a lion proportion of their income. In Pabna municipality, people live with different income levels, and they collected data. The income collected from 80 households, their family members, per capita income, per capita income per day and the poverty are given in the following table.

The income of the households is arranged in ascending order. The poverty types ep, mp and ap represent the people under extreme, moderate, and above the poverty line.

Income of the household	Family member	Per capitaincome	Per capita income per day	Poverty type
9000	2	4500	150	ep
10000	3	3333.333333	111.1111111	ep
10000	3	3333.333333	111.1111111	ep
10500	4	2625	87.5	ep
11000	5	2200	73.33333333	ep
12000	2	6000	200	mp
14000	6	2333.333333	77.77777778	ep
14000	7	2000	66.66666667	ep
14612	2	7306	243.5333333	mp
15000	2	7500	250	mp
15000	2	7500	250	mp
15300	3	5100	170	mp
15300	3	5100	170	mp
15400	3	5133.333333	171.1111111	mp
15500	4	3875	129.1666667	ep
15600	6	2600	86.66666667	ep
16000	7	2285.714286	76.19047619	ep
16000	2	8000	266.6666667	ap
16500	5	3300	110	ep
17000	6	2833.333333	94.44444444	ep
18000	9	2000	66.66666667	ep
18000	3	6000	200	mp
19000	10	1900	63.33333333	ep
19300	3	6433.333333	214.4444444	mp
20000	2	10000	333.3333333	ap
20000	6	3333.333333	111.1111111	ep
20000	5	4000	133.3333333	ep
21000	4	5250	175	mp
22000	7	3142.857143	104.7619048	ep
22000	8	2750	91.66666667	ep
22000	9	2444.444444	81.48148148	ep
22000	6	3666.666667	122.2222222	ep
23000	3	7666.666667	255.5555556	ap
23000	2	11500	383.3333333	ap
24400	4	6100	203.3333333	mp
25000	5	5000	166.6666667	mp
25000	7	3571.428571	119.047619	ep
25000	8	3125	104.1666667	ep
25000	9	2777.777778	92.59259259	ep
25900	6	4316.666667	143.8888889	ep
26000	3	8666.666667	288.8888889	ap
26000	3	8666.666667	288.8888889	ap
27000	5	5400	180	mp
27000	4	6750	225	mp
27400	6	4566.666667	152.2222222	ep
28000	4	7000	233.3333333	mp
28500	5	5700	190	mp

Income of the household	Family member	Per capitaincome	Per capita income per day	Poverty type
30000	6	5000	166.6666667	mp
30000	5	6000	200	mp
30000	4	7500	250	mp
30000	3	10000	333.3333333	ap
31000	4	7750	258.3333333	ap
32000	3	10666.66667	355.5555556	ap
32000	4	8000	266.6666667	ap
35000	3	11666.66667	388.8888889	ap
35000	4	8750	291.6666667	ap
36000	5	7200	240	mp
40000	6	6666.666667	222.2222222	mp
40000	3	13333.33333	444.4444444	ap
45000	4	11250	375	ap
45000	5	9000	300	ap
45000	3	15000	500	ap
47300	4	11825	394.1666667	ap
49000	5	9800	326.6666667	ap
62500	3	20833.33333	694.4444444	ap
65000	6	10833.33333	361.1111111	ap
70000	3	23333.33333	777.7777778	ap
92000	4	23000	766.6666667	ap
130000	5	26000	866.6666667	ap
190000	3	63333.33333	2111.111111	ap
260000	4	65000	2166.666667	ap
270000	5	54000	1800	ap
300000	3	100000	3333.333333	ap
350000	5	70000	2333.333333	ap
385000	4	96250	3208.333333	ap
520000	3	173333.3333	5777.777778	ap
800000	4	200000	6666.666667	ap
1140000	5	228000	7600	ap
1200000	3	400000	13333.33333	ap
5500000	4	1375000	45833.33333	ap

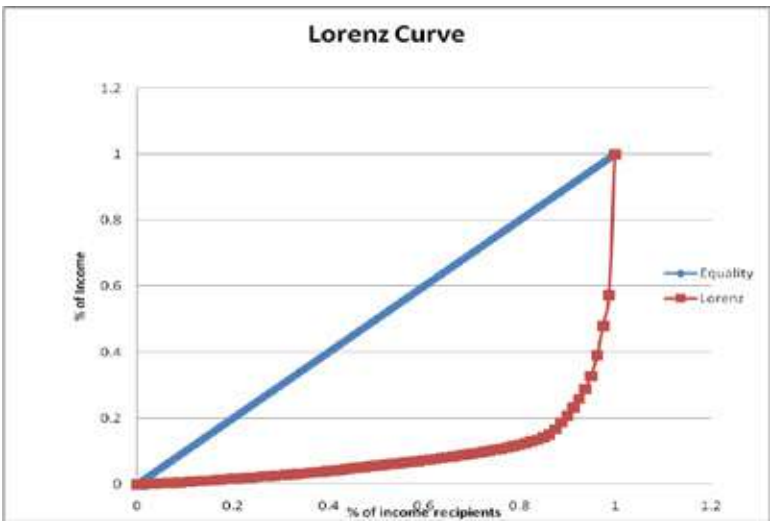


Source: *Field survey, 2019*

Family income distribution: among the respondents

Income Category	Share of Total Income %	*L*= Cumulative Share of income %	*P*= Cumulative Share of population %
lowest 20%	1.527201	1.527201	20
2nd 20%	2.519805	4.047006	40
3rd 20%	3.465897	7.512903	60
4th 20%	5.435757	12.94866	80
Top 20%	87.05134	100	100
Total	100		

Source: ***Field survey, 2019***



Calculation of Gini coefficient

Area A + Area B	½*base*height	5000
Area 1	½*20*1.527201	15.27201
Area 2	½*20* (1.527201+2.519805)	40.47006
Area 3	½*20* (1.527201+2.519805+3.465897)	75.12903
Area 4	½*20* (1.527201+2.519805+3.465897+5.435757)	129.4866
Area 5	½*20* (1.527201+2.519805+3.465897+5.435757+87.05134)	1000
Area B		1260.3577
Area A	5000-1260.3577	3739.6423
Gini		0.7479 or 75%

7. Major Findings and Conclusion

Poverty is a barrier to the development process of any country. So, poverty should reduce as much as possible. That is why it is crucial to know the current poverty status of Bangladesh. This study represents the poverty and income inequality status of the Pabna municipality district in Bangladesh.

By reviewing the literature comprehensively, it is found that there is a relationship between poverty and income inequality. By investigating the previous literature, it has become possible to measure the poverty and income inequality in the study area. Conceptual issues related to poverty, poverty, poverty measurement criterion and measurement of income inequality and brief descriptions of theoretical tools necessary for the present study are discussed. The study found that 24% and 32% of the households live in extreme and moderate poverty, respectively. The Gini coefficient measured from the Lorenz curve is 0.75, indicating a highly unequal income distribution among the Pabna municipality households. In this situation, the government should take necessary steps to reduce unemployment and invest in the education sector so that the masses can access education as poverty is severe among the illiterate.

8. Policy Recommendations

Based on the findings of this research, the following recommendations can be made.

1. Ensure the education facilities in the study area: Poverty is severe among illiterate people. If they can be educated, there will be a chance of getting a job, and unemployment will reduce.
2. Controlling population: It is seen from the study that with a larger family, there is a significant incidence of poverty. They should adopt family planning to control the birth rate.
3. Income generation activities: To boost the income of the poor, they should be involved in income generation activities. Job diversification among the dwellers can be a good solution in this regard.
4. Credit facilities: The city dwellers can do small business. For this, they need credit, and NGOs can play a good role in disbursing small loans.

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