

Financial Inequality and Electoral Success: A Geospatial Analysis of Parliamentary Candidates in Dhaka Division

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Abstract

This study examines the relationship between financial resources and electoral success among parliamentary candidates in the Dhaka Division during the 2024 Bangladesh general elections. By utilizing geospatial analysis and data from affidavits of 496 candidates, the research explores the spatial distribution of declared assets and income and assesses the impact of financial inequality on electoral outcomes. The Gini coefficient, Lorenz curve, Asset Inequality Index, and Income Inequality Index reveal significant disparities in wealth and income, with the top 10% of candidates controlling a disproportionate share of resources. The findings highlight that those candidates with greater financial assets are more likely to secure electoral victories, indicating the influence of wealth on political success. This research provides critical insights into the intersection of economic inequality and democratic processes in Bangladesh, calling for reforms in campaign finance regulations to promote transparency, fairness, and equity in elections.

Keywords

Electoral Success, Financial Inequality, Geospatial Analysis, Political Finance, Bangladesh General Elections

1. Introduction

Democracy relies on elections to let citizens choose representatives and have their say. They link the state and society for political stability, legitimacy, and peaceful transformation (Bhattarai, 2014: p. 156). Elections allow popular mobilization, preserve a political party-citizen compact, and ensure orderly power transition

(Palmer, 1976: p. 107). They also foster public debate and opinion in wealthy and emerging nations (Kumar, 2010: p. 2). Elections alleviate political crises and legitimize rule through popular support and obedience (Ishiyama, 2011: p. 158). Chapter IXA of the law outlines election offense terminology. Section 171A defines “candidate” as anyone legally nominated for an election, including those who portray themselves as prospective candidates before nomination if nominated. This ensures legal protections for confirmed and pre-nomination candidates (*The Penal Code, 1860*). The “electoral right” also includes the right to run, withdraw, and vote. These definitions emphasize electoral participants’ rights and obligations, preserving integrity and autonomy (*The Penal Code, 1860*). Affidavits are written statements sworn before an authorized person, unlike depositions, which require cross-examination. The facts that the deponent can establish or reasonably believe must be stated in affidavits. High Court Division affidavits are sworn before authorized officers, whereas those for other courts (art. 539A CrPC) are sworn before magistrates or court-appointed officers in Bangladesh. The High Court Division has a Commissioner of Affidavit, whereas subordinate courts have Serestaders. Affidavit lies can result in Penal Code perjury charges. A motion is a legal request for a court order. Most High Court Division cases are motion applications heard on certain days with affidavits or affirmations. Civil and criminal appeals rarely require affidavits. Section 419 CrPC does not require appeal affidavits, but section 526 CrPC requires motions for case transfer applications. Affidavits ensure genuine, sworn assertions in court processes, preserving legal integrity. All candidates must submit an eight-point affidavit under *The Representation of the People Order, 1972* (amended 2008).

The Election Commission released the 12th National Election schedule on November 15, 2023. Over 22% of the 1979 qualified candidates in the 12th National Parliamentary Election were independent. Notably, 57% of candidates were businesses, including 164 millionaires, and many had increased intangible assets over the last 15 years. Additionally, 18 applicants revealed holdings of hundreds of crores of taka, many possessed lands above 33 acres, with some owning up to 813 acres, 27% had debts or liabilities, and 170 had active court cases (TIB, 2024). Despite legal provisions for canceling nominations based on incorrect affidavit information, the Election Commission (EC) failed to check income, assets, liabilities, or their legality (TIB, 2024). The 12th Parliamentary Election saw 2,716 nominations for 300 seats. After reviewing and verifying nominations, 731 individuals were disqualified, leaving 1,985 valid candidates. The main reasons for rejection were loan and bill defaults, incomplete nomination paperwork, affidavits with false information, party committee conflicts, fraudulent signatures in independent candidate lists, and dual citizenship. 150 former government officials, 40 of whom were Awami League members, and sports and entertainment figures were nominated (Dhaka Tribune, 2024; The Financial Express, 2024; Somoy News, 2024). Central-level interviews often replaced local-level recommendations in the nomination process (TIB, 2024).

Electoral fraud, violence, and systemic issues have tarnished Bangladeshi elections. The existing “Winner Take All” (WTA) electoral system has been criticized for encouraging electoral outcomes to be questioned, eroding public trust in the democratic process (Akter, 2021). Proportional Representation (PR) reforms could improve electoral integrity and fair representation in Bangladesh (Akter, 2021). Bangladesh’s political problem, especially after 2007-2008, has worsened. The country has an autocratic regime, which threatens democracy (Islam, 2020). Without a proper democratic framework, political parties and international observers have called for reforms to ensure future free, fair, and credible elections (Islam, 2020). The violence surrounding the 10th national election in January 2014 highlights electoral integrity problems. Violence in this election reduced voter turnout and raised questions about its legality (Mollah & Jahan, 2018).

Political parties perpetuate electoral misconduct, which is concerning. Studies show that political dynamics, not constitutional or administrative difficulties, hinder free and fair elections in Bangladesh (Ruhullah & Qodir, 2021). Political brokers and clientelism have been linked to election rigging, particularly in the 2014 and 2018 national elections (Miaji & Islam, 2023). These tactics enable electoral manipulation, harming democracy (Miaji & Islam, 2023). Dynastic politics and insufficient intra-party democracy also hinder political representation and accountability (Amundsen, 2013). Religious-based political parties complicate the secular state and influence electoral and policy outcomes (Jahan & Shahan, 2013). During the 2018 elections, digital media was used for political communication, which affected voter involvement and the electoral process (Zaman, 2019; Al-Zaman, 2020). Misinformation and public discourse manipulation are dangers of digital engagement (Luceri et al., 2020). Complex political dynamics, systemic obstacles, clientelism, and violence weaken Bangladeshi elections. Restoring public trust and securing future election integrity requires comprehensive electoral reforms, including a proportional representation system, intra-party democracy, and transparency.

As specified in Chapter IIIA-44B (Election Expenses) of *The Representation of the People Order, 1972* (President’s ORDER NO. 155 of 1972), the Election Code of Conduct requires that only a candidate’s election agent can make payments toward election expenses, except for limited, small authorized payments. Election expenses, including the candidate’s party’s, cannot exceed 2.5 million takas, adjusted for the constituency’s voter count. Multi-colored or oversized posters, large campaign structures, cloth banners, excessive loudspeaker use, early publicity, multiple election camps per area, voter entertainment, vehicle processions, illuminated displays, and multi-colored candidate symbols are strictly prohibited. The election agent must notify and document illegal spending within seven days of the election.

Wealthy people are increasingly using elections to advance their interests. Money has become a key component in gaining voter support, as seen during the

problematic candidate nomination process (EUEOM, 2001). In the 2008 election, FEMA stated that vote buying had grown rampant in Bangladesh (Livsey, 2008). *The Economist* (2011) said that ‘bags of Indian cash and advice’ helped the ruling Awami League (AL) win the 2008 parliamentary election.

The 12th Bangladeshi parliamentary elections’ financial aspects presented substantial obstacles and justifications for this investigation. Transparency International Bangladesh (TIB) states that governing party candidates spent 11.45 times the legal limit. This election saw internal tensions, code of conduct violations, and a lack of genuine competition, prompting concerns about Bangladeshi democracy (The Business Standard, 2024). Karim (2024) also reported that many candidates violated the law by spending more than authorized. Despite these disclosures, the Election Commission lacked jurisdiction and resources to audit or act post-election. This shows that Bangladesh has widespread financial irregularities and weak election laws.

Financial influence in politics extends beyond elections, fostering a culture of dishonesty inside governance. Monetarily motivated political nominations create a cycle in which only the affluent may engage in politics, eroding public confidence in the election system (Shahriar, 2021). Voters are disenchanted because elections are perceived as driven by financial influence rather than meritocracy (Islam & Mahmud, 2015). Financial resources enable voter manipulation and electoral violence during elections. Monetary incentives skew voter participation and preferences toward affluent politicians or parties, threatening political stability and civic involvement (Moniruzzaman, 2016; Riaz, 2014). Bangladeshi electoral procedures limit poster dimensions, banner usage, and microphone deployment to mitigate “black money” (Livsey, 2008). Numerous candidates exceed legal expenditure limits before establishing the election timetable (Momen, 2014). Momen (2014) observed that the enforcement system of Bangladesh’s Election Commission (EC) is inadequate for verifying financial statements or penalizing overspending. Inadequate enforcement has cultivated illicit activity and election misconduct.

The study aims to analyze and visualize the spatial distribution of declared assets among MP election candidates in the Dhaka Division and evaluate the influence of these resources on their electoral performance. The objectives are: 1) to investigate the extent of resource inequality among the MP candidates ($n = 496$) and 2) to assess the relationship between resource allocation and electoral performance across 70 constituencies.

2. Study Area

As Bangladesh’s capital, Dhaka Division is crucial to its politics. Parliament, central political party headquarters, and other government institutions make Dhaka the political hub. The existence of high-profile constituencies commonly represented by significant national leaders makes the Dhaka Division crucial for comprehending Bangladesh’s political processes (Khan et al., 2016). Dhaka’s actions

affect national policies and elections, making it politically significant (Banks, 2015). Dhaka Division’s vast and diversified electorate is a national electoral battleground. Candidates who do well in this division generally gather momentum in the overall electoral scene (Hossain, 2023). The division has a high voter turnout, indicating strong political engagement (Mollah, 2020). This engagement is vital for studying electoral behavior and trends since high participation rates give a rich dataset for voter motivations and preferences. Figure 1 shows the extent of the Dhaka division, the distribution of the 70 constituencies, and the winning parties of each constituency. The division also has significant social gaps, with money concentrated in some areas and candidates, which enables a deeper look at wealth disparity and electoral results; the divider includes urbanized and rural regions, allowing comparisons of how socioeconomic factors affect electoral behavior (Sarker & Islam, 2017). In Dhaka, the urban-rural divide reflects the national economic and social landscape and the intricacies of income distribution and political engagement (Alam & Quazi, 2003). Dhaka Division is Bangladesh’s economic powerhouse, with its political dynamics tightly tied to national monetary policies and advancements. Understanding political and electoral developments in this division is crucial to understanding the country’s political economy (Hassan et al., 2022). This diversity makes Dhaka a representative area for national electoral studies, revealing the relationship between wealth, politics, and electoral outcomes (Pulok & Ahmed, 2017). Researchers can strengthen democratic processes in Bangladesh by analyzing the intricate linkages between wealth, politics, and electoral outcomes in the Dhaka Division (Tasnim, 2017).

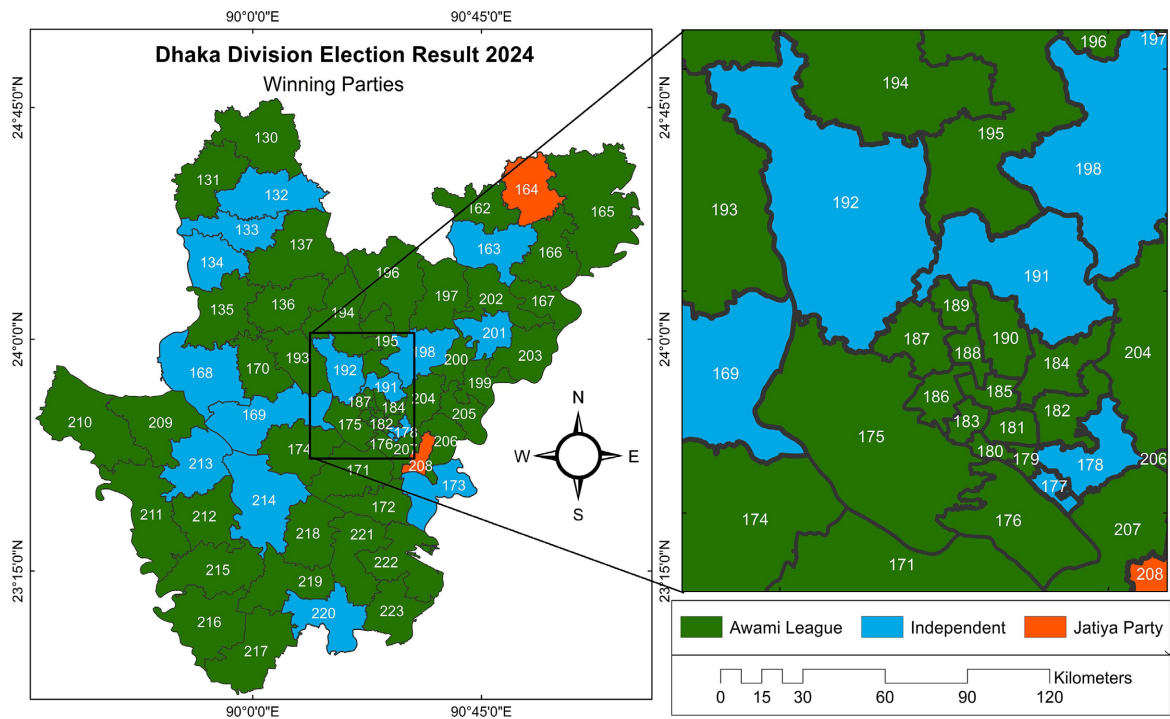


Figure 1. Map of Dhaka Division and its constituencies showing the National Parliament Election Result of 2024.

3. Literature Review

3.1. Financial Influence in Electoral Systems

Money, as a form of institutionalized social power, significantly influences political and economic results, becoming entrenched in hierarchical frameworks and global capitalism (Kapadia, 2023; Bonefeld & Holloway, 1996). The function of capitalist power as a tool facilitates an unequal influence on policies and governance, as demonstrated by the interaction between international capital and national governments (Kerr, 1996). Historical changes, including the emergence of floating exchange rates and the trend of financial deregulation, highlight the geopolitical significance of money (Cerny, 1993). In democratic systems, the pervasive influence of money distorts electoral integrity. Significant financial contributions and lobbying allow well-funded groups to dominate political outcomes, often undermining broader public interests (Fourinaies & Hall, 2017; Igan & Mishra, 2014).

George (1883) emphasized that elevated campaign costs in the U.S. restricted participation to the affluent, compromising democratic principles. He advocated for reforms such as the Australian ballot to mitigate the impact of financial contributions in politics. India's elections demonstrate a persistent connection between money, crime, and politics. Following the ban on corporate donations in 1969, unaccounted funds have contributed to non-transparent campaign financing, resulting in unequal competition and diminished transparency, notwithstanding initiatives such as the Right to Information Act (Banerjee, 2019). These practices illustrate the worldwide issue of reconciling electoral integrity with financial influence.

The connection between financial resources and political dynamics is especially evident in emerging democracies. Countries with a brief history of democratization, such as Zimbabwe and Nigeria, exhibit notable relationships between political finance, unethical behavior, and authoritarianism, as incumbents leverage financial resources to reinforce their power (Dendere, 2021; Nwangwu & Ononogbu, 2016). The dynamics compromise democratic integrity, resulting in voter manipulation and exclusionary politics (Atta-Kesson, 2021).

Bangladesh exemplifies these challenges. The 1991 parliamentary election represented a significant shift, characterized by the predominance of business figures in nominations, establishing a precedent for financially motivated politics (Bangladesh Election Commission, 1991; Majumder, 2019). Since that time, political candidacy has increasingly necessitated significant financial resources to obtain nominations and affect voter behavior (Majumder, 2019). The intertwining of business interests and politics has sidelined candidates without economic resources, redirecting emphasis from merit to wealth (Khan & Islam, 2014; Mutakin et al., 2018). Electoral expenditures often surpass legal limits, indicating insufficient enforcement mechanisms by the Election Commission (Livsey, 2008; Momen, 2014). Money politics has perpetuated systematic fraud, voter disillusionment, and electoral violence, thereby eroding trust in the democratic process

(Islam & Mahmud, 2015; Moniruzzaman, 2016; Riaz, 2014).

The global viewpoint reflects these issues. In African nations, substantial campaign expenditures favor financially advantaged candidates, marginalizing broader voter interests, as political parties prioritize donors over constituents (Coleman & Manna, 2000). Policy outcomes frequently prioritize elite interests, intensifying inequalities and promoting political patronage (Claessens et al., 2008). Bangladesh's political landscape similarly exhibits financial inducements during elections, including cash handouts and providing goods and services, which undermine electoral integrity (Hasan et al., 2023). These practices enhance voter manipulation, distorting democratic representation to benefit the wealthiest candidates.

3.2. Quantitative Measures of Inequality: Gini Coefficient and Lorenz Curve

The Lorenz curve, developed in 1905, is a fundamental instrument for depicting income distribution, demonstrating the cumulative proportion of income possessed by designated population segments (Lorenz, 1905). In contrast to the quantile method, the Lorenz curve establishes a distinct relationship between cumulative income shares and cumulative population shares, providing a graphical depiction of inequality (Nicholson & Cowell, 1978). The curve typically represents cumulative income, arranged in ascending order and plotted against the cumulative population share, beginning with the poorest and ending with the wealthiest (Lam, 1988). A generalized Lorenz curve, adjusted for mean income, enhances its applicability in assessing social welfare and inequality (Shorrocks, 1983).

The Lorenz curve has diverse empirical applications across multiple contexts. Masud and Haron (2014) utilized it to examine income disparities among ethnic, regional, and social strata. Demographic shifts, including variations in fertility rates, complicate welfare comparisons and highlight the necessity for nuanced interpretations of distributional data (Dasgupta et al., 1973). The Gini coefficient, complementing the Lorenz curve, serves as a summary measure of inequality, with values ranging from 0, indicating perfect equality, to 1, indicating perfect inequality. A more significant deviation of the Lorenz curve from the line of equality is associated with elevated Gini coefficients, indicating significant inequalities (Bo-rooah, 2002; Han, 2015).

Within electoral studies, the Lorenz curve and Gini coefficient possess unique implications. A Lorenz curve illustrating pronounced inequality in candidates' financial resources demonstrates how wealth concentration among a limited number can distort electoral competition. The economic disparity undermines the competitiveness of less affluent candidates and reinforces inequality in political representation (Han & Kim, 2023). Elevated Gini coefficients in these contexts highlight the financial supremacy of elite candidates, frequently determining electoral results and affecting policy priorities to benefit economic elites (Theodossiou & Zangelidis, 2018; Solt, 2010).

The Gini coefficient has been utilized in various fields, including analyzing en-

ergy consumption inequality (Catalano et al., 2009) and proportional representation, exemplified by seat allocations in the European Parliament (Dniestrzański, 2015). The studies demonstrate the Gini index's adaptability in evaluating distributional equity across diverse contexts, including economic analyses and political frameworks. Despite ongoing debates regarding its precision, the Gini index remains essential for summarising inequality and informing policy analysis (Farris, 2010).

In Bangladesh, financial disparities among electoral candidates illustrate the effectiveness of these measures. Research indicates that significant wealth concentration among candidates distorts democratic engagement, as individuals with more substantial financial resources exert disproportionate influence over political discourse and decision-making (Donovan & Karp, 2017). This dynamic intensifies the cyclical effects of income inequality, resulting in reduced political participation and representation among lower-income groups (Stockemer & Parent, 2014). As a result, policy outcomes frequently align with the interests of affluent individuals, thereby exacerbating the marginalization of economically disadvantaged groups (Kelly & Enns, 2010; Carey & Horiuchi, 2017).

4. Methodology

4.1. Data Acquisition

Table 1. Extracted information from affidavits.

Personal Information	Name, Educational Background, Litigation History, Profession
Yearly Income	Agriculture, House/Apartments, Bonds, Profession, Others
Movable Assets	Cash, Foreign Currency, Bank savings, Stocks, Postal Saving, Opulent Assets, Vehicles, Electronics & Furniture
Immovable Assets	Land Holdings, Houses & Apartments, Agro-industrial Assets
Loans & Liabilities	Personal Loans, Family Loans, Organisational Loans
Electoral Info	Previous Records, 2024 Electoral Performance

This study relies exclusively on secondary data from the Election Commission of Bangladesh and the Bangladesh Gazette. The primary dataset comprises affidavits (Holofnama) submitted by MP candidates, which provide detailed records of personal information, income, assets, liabilities, and electoral history. **Table 1** summarizes the key information extracted from these affidavits, systematically categorizing financial and electoral details.

All handwritten affidavit scans were accessed from the Election Commission's website and manually compiled into an Excel database to ensure structured analysis. The dataset includes candidate attributes such as education, litigation history, profession, income sources, asset ownership, loan obligations, and electoral per-

formance. Electoral results, specifying votes received across polling centers, were integrated with redefined constituency boundaries from the Bangladesh Gazette, forming a comprehensive foundation for analyzing the relationship between financial resources and electoral success.

This structured database enabled statistical and spatial analyses, allowing a deeper exploration of financial disparity among candidates and its impact on electoral outcomes.

4.2. Analytical Tools and Platforms

The analysis employed Microsoft Excel for data structuring and Python (via Google Colab) for advanced computations, utilizing libraries like NumPy, Pandas, and Matplotlib. Key analyses included correlation studies and Gini coefficient calculations to explore financial disparities. ArcMap was used for geospatial visualization, integrating data into a digital constituency map. This combination of tools ensured precision in statistical and spatial evaluations.

GIS tools were employed to create a digital constituency map using redefined boundaries from the Bangladesh Gazette. The process involved georeferencing data, creating shapefiles to delineate boundaries, and integrating demographic and administrative layers. Candidate data and electoral results were spatially linked to constituencies, enabling comprehensive attribute mapping. Quality checks ensured alignment with official boundaries, and thematic layers were added to visualize financial and electoral patterns. The map provides a critical resource for examining the spatial dimensions of electoral outcomes and candidates' financial resources.

4.3. Asset Valuation

The value of movable and immovable assets was determined using specific methodologies to guarantee that the data provided in the affidavits was consistent. Foreign currency values were converted into U.S. dollars at 108 taka per dollar in November 2023 ([EXCHANGE-RATES.org, 2023](#)) when the affidavits were presented. For gold assets, issues with the data were fixed by following the rules set by the Bangladesh Jewellers Association (Bajus). [BAJUS \(2023\)](#) requires listing 80% of the market price when selling or documenting gold. Candidates who provided only gold weight were valued using the November 2023 selling rate of 85,000 takas per vote, determined from the gold price of 1,06,376 ([Bangladesh Sangbad Sangstha, 2024](#)).

Immovable assets were handled differently depending on the information. Where the price was specified, it was used. If only the quantity of immovable assets was provided, no extra valuation was done because a generalized conversion technique was unavailable. This method verifies that the calculation matches the candidate data.

In financial analysis, “assets” and “wealth” must be distinguished. An individual's assets are their tangible and intangible wealth, excluding loans. Wealth is the

net value of assets after liabilities. Due to Transparency International Bangladesh (TIB) problems, this report focuses on assets rather than wealth. Political interference and illegal involvement from significant business groups have hampered the Bangladesh Bank's (BB) ability to manage defaulted debts, according to *Transparency International Bangladesh (TIB, 2020)*. *The Daily Star (2020)* reports that political pressures and governance failings undermine BB's regulatory functions, reducing its autonomy. The Bangladeshi banking sector and economy are undermined by political influence and financial misconduct, especially in the context of loan defaults. Political figures leverage their authority to secure loans, subsequently defaulting and acquiring additional funds, thereby perpetuating a cycle of mismanagement that undermines public trust (*Muttakin et al., 2015; Masud et al., 2022*). Systemic misconduct obstructs economic development, resource allocation, and the efficiency of financial markets (*Pulok & Ahmed, 2017*). The problem is intensified by cronyism, wherein political allies obtain preferential loan approvals (*Muttakin et al., 2018*). Accountability is diminished in a clientelist society, rendering the Anti-Corruption Commission ineffective (*Reza et al., 2020; Sarker & Nawaz, 2019*). Reforms aimed at enhancing regulatory frameworks, institutional integrity, and public accountability are essential for mitigating financial misconduct and fostering economic stability (*Zafarullah & Haque, 2021*).

These issues make wealth calculations incorrect due to orchestrated loan defaults and political interference. This study focuses on asset data and excludes loans to accurately and impartially represent candidates' financial resources. This method protects financial analysis from political interference.

4.4. Correlation Analysis

This study's correlation analysis aims to clarify the relationship between candidates' income, their total assets (both moveable and immovable), and the proportion of votes received. The Pearson correlation coefficient, r , was employed for this objective, computed using the formula (*Asuero et al., 2006*):

$$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2} \times \sqrt{\sum (Y_i - \bar{Y})^2}} \quad (1)$$

Here, X represents the candidates' income or total assets, while Y is the percentage of votes gained. This analysis helps identify the strength and direction of the linear relationship between these variables.

Notably, some candidates declared no income or assets. While zero income is possible, having zero movable or immovable assets is unrealistic for election participants (*David, 2019*). Twenty-five candidates reported zero movable assets and declared zero immovable and movable assets. Four candidates did not list assets or income in their papers. Outliers were eliminated from the analysis to ensure correlation correctness and dependability.

For a detailed and localized examination, the correlation was calculated independently for each of the 70 constituencies. Each constituency had its own Excel

file with data. After these files were processed individually, the correlation coefficients were calculated using Python in Google Colab, utilizing libraries such as NumPy and Pandas. This detailed methodology illuminates how financial resources affect constituency-level election performance.

4.5. Income and Assets Inequality Assessment

The Gini coefficient, ranging from 0 to 1, is a widely used economic measure of income inequality or wealth distribution (Bosi & Seegmuller, 2006). A lower Gini coefficient indicates a more equitable society, whereas a higher value reflects greater inequality. Specifically, a Gini coefficient of 0 denotes absolute equality, while a value of 1 signifies absolute disparities. The coefficient is derived from the Lorenz curve, which plots the cumulative percentage of household income against the cumulative percentage of the population, with individuals ordered from lowest to highest income (Barr, 2020; Cowell, 2011). Mathematically, the Gini coefficient is the ratio of area A (the area between the Line of Equality and the Lorenz curve) to the total area under the Line of Equality (A + B).

This study utilizes the Gini coefficient and Lorenz curve to assess income and asset inequality among election candidates. The income and asset data were arranged in ascending order to construct the Lorenz curve. The cumulative percentages of total revenue and assets were calculated and plotted against the cumulative percentages of the population, resulting in two separate Lorenz curves—one for income and another for assets. The X-axis of these plots represents the cumulative percentage of the population, while the Y-axis denotes the cumulative percentage of income or assets. The Line of Equality, symbolizing perfect equality, was included for reference. The Lorenz curve is expressed mathematically as (Sitthiyot & Holasut, 2021):

$$L(p) = \frac{\sum_{i=1}^p X_i}{\sum_{i=1}^n Y_i} \quad (2)$$

where p represents the cumulative percentage of the population, X_i denotes the income or asset values arranged in ascending order. Y_i corresponds to the cumulative income or asset values up to the i -th candidate. This methodology aligns with established practices in the literature, highlighting the Lorenz curve's effectiveness in depicting inequality (Chotikapanich et al., 2007; Catalano et al., 2009).

The Gini coefficient, G , is derived from the Lorenz curve and is calculated as follows (Sitthiyot & Holasut, 2021):

$$G = \frac{A}{A+B} \quad (3)$$

where A represents the area between the Line of Equality and the Lorenz curve, and B is the area beneath the Lorenz curve. The data were meticulously sorted, and zero values for income or assets, particularly for immovable assets, were excluded from the analysis, as such values were deemed unrealistic for electoral candidates (Burns et al., 2013; Yan et al., 2017; Ma et al., 2021). This methodology

delineates the procedure for employing the Lorenz curve and Gini coefficient to rigorously analyze and quantify disparities in income and assets among election candidates, thereby offering a comprehensive understanding of financial inequality within this context.

These indices were explicitly designed to evaluate disparities within the candidate pool and between previously elected MPs and unelected candidates. The key indices calculated include the Income Inequality Index, Asset Inequality Index, Asset Disparity, Income Disparity, and Loan Disparity.

1) Income Inequality Index (III): The Income Inequality Index (III) was calculated as the income ratio of the top 10% of candidates to the total revenue of all candidates. This index measures the concentration of income among the most affluent candidates relative to the entire candidate pool. The rationale behind this approach is to quantify the extent of income disparity, thereby providing insights into the unequal distribution of financial resources within the candidate pool. The formula used for this calculation is as follows:

$$III = \frac{\text{Sum of Top 10\% Candidates' Income}}{\text{Sum of 100\% Candidates' Income}} \quad (4)$$

This methodology is consistent with previous research that emphasizes the importance of measuring income inequality through various indices, such as the Gini coefficient and the Theil index, which have been widely used to analyze economic disparities (Park et al., 2020; McAleer et al., 2019).

2) Asset Inequality Index (AII): Similarly, the Asset Inequality Index (AII) was computed as the ratio of the total assets held by the top 10% of candidates to the total assets of all candidates. This index aims to highlight the concentration of assets among the wealthiest candidates and to determine whether a small subset of candidates holds a disproportionate amount of total assets. The formula for the AII is expressed as:

$$AII = \frac{\text{Sum of Top 10\% Candidates' Assets}}{\text{Sum of 100\% Candidates' Assets}} \quad (5)$$

The use of asset inequality measures is supported by literature that discusses the implications of wealth concentration on economic stability and social equity (Ashby & Sobel, 2007; Wahyuningrum & Aisyah, 2023).

3) Asset Disparity (Previously Elected vs. Unelected MPs): Motivated by the aforementioned approaches, we introduced the Asset Disparity index to examine the asset disparity between previously elected Members of Parliament (MPs) and unelected candidates. This was calculated by dividing the sum of all MPs' declared assets by the sum of all candidates' assets. This comparative analysis assesses whether elected MPs possess significantly more assets than their unelected counterparts, revealing the wealth gap between these two groups.

$$= \frac{\text{Sum of all MPs' Assests}}{\text{Sum of All Candidates' Assests}} \quad (6)$$

4) Income Disparity (Previously Elected vs. Unelected MPs): The income disparity between previously elected MPs and unelected candidates was calculated

similarly to the asset disparity. By comparing the sum of all MPs' declared income to the total income of all candidates, this ratio highlights the income differences between elected MPs and other candidates. This measure highlights the income differences between elected MPs and other candidates, contributing to the understanding of economic inequality within the political landscape (Wang et al., 2014; Park et al., 2020).

$$= \frac{\text{Sum of all MPs' Income}}{\text{Sum of All Candidates' Income}} \tag{7}$$

5) Loan Disparity (Previously Elected vs. Unelected MPs): Loan disparity was calculated by comparing the sum of all MPs' declared loans to the total loans of all candidates. This index assesses whether MPs tend to carry a higher loan burden compared to unelected candidates, which could indicate potential financial liabilities affecting their political standing.

$$= \frac{\text{Sum of all MPs' Loans}}{\text{Sum of All Candidates' Loans}} \tag{8}$$

5. Result & Discussion

5.1. Resource Disparity

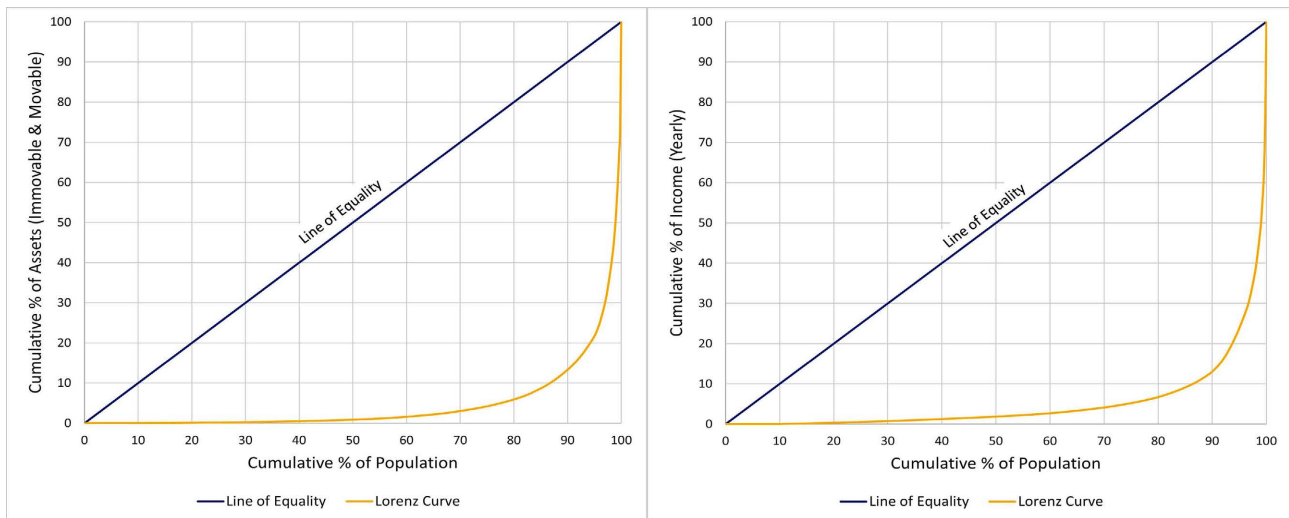


Figure 2. Graphs illustrating the Lorenz curve for asset distribution (left) and income inequality (right).

Table 2. Gini coefficients for asset and income disparity.

Metric	Asset Disparity	Income Disparity
Area A	45.402	44.777
Area B	4.598	5.223
Gini Coefficient	0.908	0.896

The Gini coefficients of 0.908 for assets and 0.896 for income indicate significant disparities in the financial resources of MP candidates in the Dhaka Division. These values highlight the concentration of wealth and income among a small

group of candidates, raising concerns about electoral competition and democratic fairness. The Lorenz curves in **Figure 2** illustrate this inequality, showing a sharp deviation from the line of equality, emphasizing the disproportionate distribution of assets and income.

Table 2 presents the numerical breakdown, where Area A (the gap between the Lorenz curve and the line of equality) is 45.402 for assets and 44.777 for income, while Area B (below the Lorenz curve) is 4.598 for assets and 5.223 for income. These results confirm that financial resources in politics are unequally distributed, which may provide wealthier candidates with a competitive edge in campaigning, voter outreach, and media influence.

This disparity raises critical questions about fairness in electoral competition. Candidates with significant financial backing may leverage their resources to shape election outcomes, potentially disadvantaging less affluent contenders. Addressing these inequalities is crucial for promoting a more transparent and competitive democratic process. Future research should explore policy measures to mitigate financial disparities in elections and ensure fairer political representation.

Table 3. Resource inequality indices.

Index	Score
Income Inequality Index	0.867
Asset Inequality Index	0.871
Asset Disparity (Elected vs. Unelected MPs)	0.556
Income Disparity (Elected vs. Unelected MPs)	0.540
Loan Disparity (Elected vs. Unelected MPs)	0.673

The analysis of resource inequality among Dhaka Division MP candidates, as shown in **Table 3**, reveals a pronounced financial stratification. The Income Inequality Index (III) of 0.867 indicates that the top 10% of candidates account for 86.7% of total income, while the Asset Inequality Index (AII) of 0.871 shows that the same group holds 87.1% of declared assets. These high concentrations of wealth underscore the dominance of a small elite in the financial landscape of electoral politics.

A comparison between previously elected MPs and unelected candidates further highlights disparities. The Income Disparity Index of 0.540 reveals that 54.0% of total income is concentrated among previously elected MPs, suggesting a substantial financial advantage for incumbents. Similarly, the Asset Disparity Index of 0.556 shows that elected MPs control 55.6% of all declared assets, reinforcing the concentration of economic power among a select group of politicians.

In **Table 3**, the study also identifies notable disparities in financial liabilities. The Loan Disparity Index of 0.673 indicates that previously elected MPs hold 67.3% of reported loans. This raises critical questions about the underlying factors

contributing to this trend. While higher liabilities may indicate more significant financial burdens, they may also reflect increased access to credit due to political influence. Political figures in Bangladesh often leverage their positions to secure loans, sometimes for personal or campaign-related expenses. Reports from Transparency International Bangladesh (TIB, 2020) and *The Daily Star* (2020) highlight concerns regarding the misuse of political power to obtain loans, often followed by defaults or non-repayment. Securing loans, defaulting, and acquiring additional funds perpetuates financial mismanagement and undermines public trust in the banking sector (Muttakin et al., 2015; Masud et al., 2022).

However, it is also possible that elected MPs are more likely to take on loans for legitimate purposes, such as business investments or property development, due to their higher income and asset levels. Without detailed information on these loans' purpose and repayment status, it is challenging to conclude whether the higher loan burden among elected MPs reflects financial liability or strategic financial behavior enabled by political power.

This ambiguity underscores the need for greater transparency in political candidates' financial disclosures, particularly regarding loans and their intended use. Future research should explore the causality behind the loan disparity by examining the purpose of loans, repayment histories, and the role of political influence in securing credit. Such investigations could provide more precise insights into whether the higher loan burden among elected MPs is a sign of financial mismanagement or a strategic use of political power to access financial resources.

5.2. Correlation Between Financial Resources and Electoral Performance

Table 4. Correlation between financial resources and electoral performance.

Level of Correlation		Number of Constituencies			
		Correlation between Asset and Electoral Performance		Correlation between Income and Electoral Performance	
Very Strong Positive	1.0 - 0.81	42		45	
Strong Positive	0.80 - 0.61	12		15	
Moderate Positive	0.60 - 0.41	6	67	4	68
Weak Positive	0.40 - 0.21	5		2	
Very Weak Positive	0.20 - 0.01	2		2	
Very Weak Negative	-0.01 - -0.20	3	3	2	2

The analysis of 70 constituencies in Dhaka Division reveals a significant correlation between financial resources—encompassing assets and income—and electoral outcomes. **Table 4** provides a detailed breakdown of the correlation levels between candidates' assets, income, and electoral performance. **Figure 3** and **Figure 4** visually depict the spatial distribution of these correlations, illustrating how

financial resources influence electoral performance across the region.

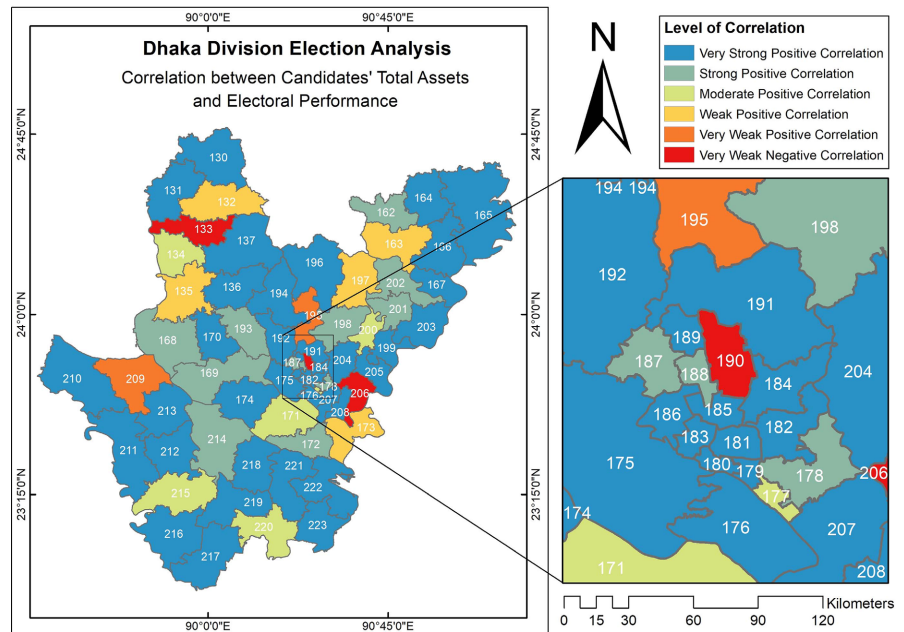


Figure 3. Map depicting the correlation levels between candidates' total assets and electoral performance across all constituencies in Dhaka Division.

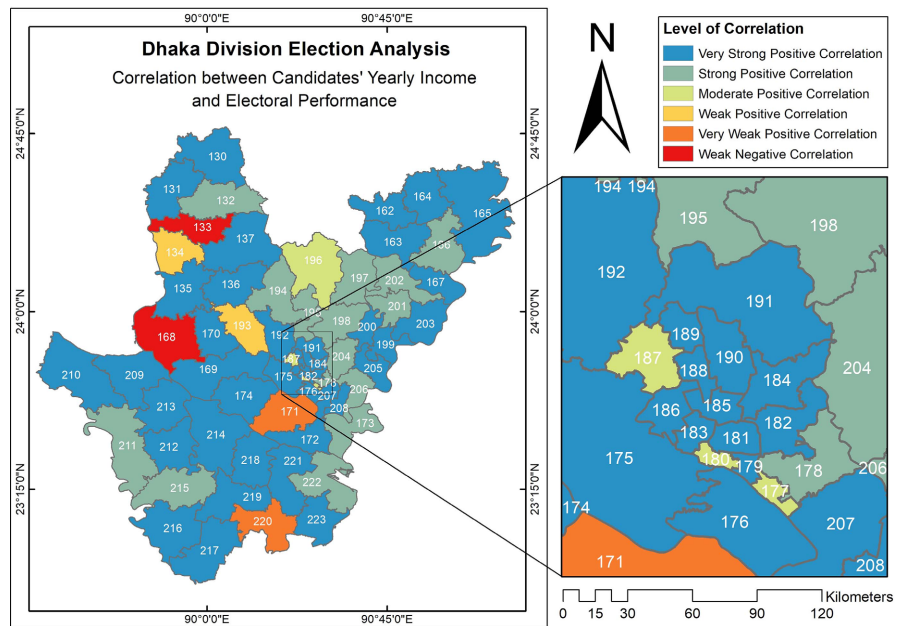


Figure 4. Map depicting the correlation levels between candidates' yearly income and electoral performance across all constituencies in Dhaka Division.

Figure 3 maps the correlation between candidates' total assets and electoral performance. It shows that 42 constituencies (60%) exhibit a robust positive correlation (0.81 - 1.0), indicating that candidates with higher asset values tend to perform better in these areas. Similarly, **Figure 4** maps the correlation between

candidates' yearly income and electoral performance, revealing that 45 constituencies (66.2%) display a strong positive correlation (0.81 - 1.0). These findings underscore the crucial impact of financial resources on electoral success, particularly in constituencies where wealth and income are strongly linked to voter support.

Among the constituencies exhibiting a strong positive correlation (0.61 - 0.80), 12 (17.1%) showed the influence of assets, while 15 (22.4%) indicated the effect of income. The impact of financial resources was significant, though it demonstrated a marginally reduced prevalence in these constituencies. In 6 constituencies (8.6%), moderate positive correlations (0.41 - 0.60) were identified for assets, while four constituencies (6%) showed similar correlations for income, suggesting a quantifiable yet subtle impact.

In the lower range, weak positive correlations (0.21 - 0.40) were identified in 5 constituencies (7.1%) concerning assets and in 2 constituencies (3%) regarding income. Very weak positive correlations (0.01 - 0.20) were confined to only two constituencies (2.9%) across both categories, indicating a minimal influence of financial resources on electoral results. Notably, negative correlations were observed as well: 3 constituencies (4.3%) for assets and two constituencies (3%) for income displayed weak negative correlations (-0.01 to -0.20), suggesting an inverse relationship between financial resources and electoral success.

The findings highlight the differing impact of financial resources on electoral performance in various constituencies. The influence of assets and income is significant, yet it varies, illustrating the complex political and economic dynamics present in the region.

The study that compared total assets to election wins showed a weak negative correlation between total assets and the percentage of votes won in three constituencies: Tangail 4, Dhaka 17, and Narayanganj-3. Regarding income, the same cannot be said for the other constituencies of the Dhaka division. In Dhaka 17 and Narayanganj 3, a strong and positive link existed between income and vote share. This means that the candidates' levels of assets have not changed the outcome of the election, but incomes have played a significant role in these areas. Also, when income and election results were compared, they showed that there is only a negative correlation in two constituencies: Tangail 4 and Manikganj 1. In Manikganj 1, the level of performance and the level of assets were strangely correlated in a way that made sense. One important thing that these results show is that only Tangail-4 had a negative relationship, and the correlation coefficients for both assets and income about the percentage of votes won were in between 0 and -0.2. Several factors may explain this anomaly. This contrasts with the general trend observed in other constituencies. Several factors may explain this anomaly. First, voter sentiment in Tangail-4 might prioritize candidate integrity or local development over financial resources. Voters may value a candidate's track record or commitment to addressing regional issues more than their wealth (Ahler et al., 2016). Second, candidate credibility could play a significant role; the winning can-

didate may have had an intense personal reputation or grassroots support, outweighing the influence of financial resources (Caprini, 2023). Third, local campaign strategies, such as direct voter engagement or focus on specific issues, might have resonated more with voters than financial expenditures (Forest, 2017). Moreover, data limitations could contribute to the observed outlier. Inaccurate or incomplete asset declarations in affidavits (Holofnama) might skew the results, particularly in constituencies like Tangail-4. Despite these limitations, the Tangail-4 case highlights the importance of local context and non-financial factors in shaping electoral outcomes, demonstrating that wealth is not always decisive in voter decisions.

5.3. Incumbency and Party Affiliation

In addition to financial resources, incumbency and party affiliation play a significant role in electoral outcomes. In the 2024 Dhaka Division election, 71 previously elected or incumbent candidates participated. Although there are 70 constituencies, the number of incumbents is 71 because candidates are not required to contest in the same constituency in every election. Furthermore, the affidavits (Holofnama) do not provide a space to indicate the constituency where the candidate is an incumbent, which creates some ambiguity in tracking incumbency. Among these 71 incumbents, 47 were re-elected in the 2024 election, highlighting the decisive advantage of incumbency.

Party affiliation also played a critical role in electoral success. From the Awami League (Boat symbol), 50 candidates were elected across the 70 constituencies; among these, 38 were incumbents. Similarly, 2 candidates from the Jatiya Party (Plough symbol) were elected, both of whom were incumbents. The remaining elected candidates were independents, not affiliated with any major party. Specifically, 6 independent candidates were elected with the Truck symbol, 10 with the Eagle symbol, 1 with the Kettle symbol, and 1 with the Scissors symbol.

This data suggests that while financial resources are a significant factor in electoral success, incumbency, and party affiliation also provide substantial advantages. Incumbents likely benefit from established networks, name recognition, and resource access, while candidates from major parties like the Awami League benefit from strong party machinery and voter loyalty. These factors may interact with financial resources to amplify electoral success, making it challenging to disentangle the direct effect of wealth from incumbency and party influence.

6. Conclusion

This study analyzed the relationship between the reported assets of parliamentary candidates in the Dhaka Division and their electoral outcomes, uncovering significant findings regarding resource allocation and its possible influence on electoral success. The accuracy of the disclosed information limits the study's contributions, as the analysis depended solely on self-reported data from candidates' affidavits. Transparency International Bangladesh (TIB) and independent reports in-

dicating that discrepancies in the affidavits reveal challenges in ensuring data reliability. TIB has highlighted the absence of regulatory oversight, expressing concerns regarding incomplete or misleading declarations that could influence voter decision-making (Islam, 2024). Media reports, such as those from The Daily Star and Dhaka Tribune, have highlighted discrepancies between candidates' reported incomes and their financial activities, raising further concerns about the integrity of the disclosed information (Majumdar, 2023; Irani, 2019). This study demonstrates a significant correlation between candidates' assets and electoral outcomes, acknowledging that financial resources represent only one of several factors affecting election results. Previous studies indicate that electoral success is influenced by various factors, including candidates' public image (Ahler et al., 2016), party financing (Jones, 2019), media strategies (Caprini, 2023), and the dynamics of voter behavior. This complexity highlights the necessity for future research to employ a multidimensional approach that combines qualitative and quantitative methodologies to achieve a more thorough understanding of electoral success.

This study's limitations arise from methodological constraints. The absence of standardized methods for verifying candidates' disclosures limits the comprehensive representation of electoral dynamics. Additionally, previous research indicates that systemic deficiencies in regulatory enforcement and oversight undermine the credibility of the data utilized in this analysis. Despite its limitations, this study adds to the existing literature on electoral geography and political economy by highlighting the spatial and financial aspects of elections in the Dhaka Division.

Future research should build upon this study by incorporating advanced data visualization techniques, including compositional analysis, to more effectively depict resource distribution and its impact on electoral dynamics (Duche-Pérez et al., 2023). Geographic Information Systems (GIS) can be employed to map voting patterns and analyze the spatial distribution of resources, providing essential insights into systemic inequalities (Forest, 2017). The influence of social media on voter perceptions requires additional investigation. Research indicates that the strategic deployment of social media platforms can considerably influence voter behavior, implying that analyzing candidates' social media campaigns may yield essential insights (Williams & Gulati, 2012). Additionally, analyzing emotional narratives related to resource presentation could enhance our comprehension of voter engagement (Hípola et al., 2021). Integrating big data analytics into electoral research improves the understanding of candidates' strategies regarding resource allocation. Integrating voter data and behavioral predictions facilitates real-time analysis of electoral performance, providing dynamic and actionable insights (Nickerson & Rogers, 2014). Addressing these dimensions will enable future research to enhance the understanding of electoral processes and the influence of resource allocation on democratic outcomes in the Dhaka Division.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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