UNIVERSITY OF CAPE COAST

EFFECTS OF LOCALITY ON VOTER TURNOUT AND REJECTED BALLOTS IN KOMENDA/EDINA/EGUAFO/ABIREM MUNICIPAL, GHANA.

THERESA KWAKWA

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BY

THERESA KWAKWA

Dissertation submitted to Management Department, School of Business, University of Cape Coast in partial fulfilment of the requirements for the award of Master of Business Administration degree in Management

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Signature: …… Date: ……

Candidate's Name: Theresa Kwakwa

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Signature: …… Date: ……

Supervisor's Name: Dr. Mark Bigool

ABSTRACT

This study investigates the effects of locality on voter turnout and rejected ballots in the Komenda/Edina/Eguafo/Abrem (KEEA) Municipality of Ghana, using data from the Electoral Commission of Ghana (2020). The study aims to improve electoral processes and participation. The research adopted a quantitative approach with a descriptive research design to explore the relationship between locality (rural and urban) settings and electoral outcome. However, many polling stations in Ghana do not maintain detailed records of previous elections. The purpose of the study was to ascertain how locality affected voting behavior and ballot rejection rates in Ghana. The study estimated the effects of locality on voter turnout and ballot rejection using the Ordinary Least Squares (OLS) Regression technique. The study also utilized the Poisson distribution to analyze the impact of locality on different types of rejections. Out of the 108 polling stations sampled, 61 were located in urban areas, while 47 were located in rural areas. The findings reveal that urban polling stations have a statistically significant 2.86% higher voter turnout compared to rural stations, indicating that urban residents are more likely to participate in elections. Conversely, urban polling stations exhibited slightly fewer rejected ballots than rural ones, though this relationship was statistically insignificant. Additionally, Urban polling stations exhibited 1.5% fewer stained ballots compared to rural ones, reflecting better handling of ballot papers. However, urban areas had slightly higher incidences of multiple-choice errors (2.03% higher) and top-thumb-printed ballots (0.317% higher), though these differences were statistically insignificant. Back-thumb-printed ballots were less frequent in urban areas, with a 1.7% lower incidence than rural areas. These findings underscore the significant role of locality in influencing specific ballot rejection patterns. The study recommends that the Electoral Commission launch a public education campaign to inform voters of the importance of voting and the reasons behind ballot rejections.

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DEDICATION

To my Late Dad, Mr. James Kwakwa; my mother, Mrs. Agnes Kwakwa; and Sisters, Issabel Kwakwa, Candida Kwakwa and Angela Kwakwa.

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CHAPTER ONE

INTRODUCTION

Introduction

This chapter presents the study by outlining its background and advocating the significance of doing it. The chapter also includes the problem statement and a summary of the goals and questions of the research. This chapter presents its significance of the study, its scope, boundaries, and its limits. The chapter concludes the structure or how the study will be organized.

Background to the Study

Voter turnout and ballot rejection rates are critical indicators of democratic system functionality, providing essential insights into electoral participation and political engagement. The geographical location of voters emerges as a significant determinant influencing these crucial electoral dynamics, with research consistently demonstrating substantial variations in voter participation between urban and rural localities (McCann et al., 2017; Halla et al., 2013; Gallego & Oyelere, 2017). The urban-rural divide substantially impacts political attitudes and voting patterns, revealing complex interactions between geographical context and electoral behavior, as highlighted by various empirical studies (Marcinkiewicz, 2018; Scala & Johnson, 2017).

Theoretical frameworks such as the Social Capital Theory (Coleman, 2018) and the Resource Model of Political Participation (Brady et al., 2019) provide critical perspectives on these geographical disparities, elucidating how community networks and resource accessibility significantly influence electoral engagement, particularly within contexts like the Komenda-Edina-Eguafo-

Abrem (KEEA) Municipal area. Beyond voter turnout, ballot rejection represents another crucial dimension of electoral integrity, with research indicating that factors including education levels, literacy rates, and language barriers contribute to variations in ballot rejection rates across different localities (Merivaki & Smith, 2020; Ansolabehere et al., 2010).

Within the Ghanaian context, urban localities generally exhibit higher voter turnout compared to rural areas. Awal and Agyemang (2019) emphasized the critical need for targeted civic education and mechanisms to enhance rural political participation, highlighting the complexity of locality-based electoral engagement. The Social Stratification Theory further illuminates how broader societal disparities manifest in electoral processes, demonstrating the nuanced relationship between geographical location and political participation.

The multifaceted nature of locality's impact on voter turnout and ballot rejection underscores the necessity for comprehensive, context-specific strategies. Potential interventions include improving polling station accessibility, implementing robust voter education programs, addressing socioeconomic barriers, and enhancing language assistance mechanisms. Ultimately, understanding and addressing locality-based electoral participation disparities is fundamental to fostering inclusive, representative democratic systems, enabling societies to progressively enhance the legitimacy and effectiveness of their electoral processes

Statement of the Problem

Voter turnout and ballot rejection rates represent critical indicators of democratic participation and electoral integrity in Ghana's evolving democracy. In the Komenda/Edina/Eguafo/Abrem (KEEA) Municipal area, these electoral

dynamics present unique challenges that warrant systematic investigation. The interplay between locality characteristics and electoral participation patterns remains inadequately understood, particularly in this significant municipal area of Ghana's Central Region. Ghana has maintained a relatively stable democratic system since 1992, with regular elections being a hallmark of its political landscape. However, voter turnout patterns have shown concerning fluctuations, particularly in rural and peri-urban areas. The national voter turnout decreased from 79.43% in 2016 to 77.67% in the 2020 general elections (Electoral Commission of Ghana [ECG], 2020). Within the Central Region, where KEEA Municipal is located, turnout variations have been even more pronounced, with some localities recording turnout as low as 65% while others exceed 85% (Asante & Asare, 2021).

The KEEA Municipal area, with its diverse geographical and socio-economic composition, presents a particularly compelling case for investigation. The municipality encompasses both coastal and inland communities, urban and rural settlements, and varying levels of infrastructure development. Recent electoral data indicates that the municipality recorded a 73.4% turnout in the 2020 elections, slightly below the national average, with significant variations across different localities (Municipal Electoral Commission Office [MECO], 2021). More concerning is the rate of rejected ballots, which stood at 2.1% in the 2020 elections, higher than the national average of 1.84% (ECG, 2020). The problem of rejected ballots has persisted despite various voter education initiatives. Research by Debrah and Asare (2022) found that factors such as literacy levels, age demographics, and accessibility to polling stations significantly influence ballot rejection rates in

Ghana. However, their study, like many others, focused primarily on urban centers, leaving a gap in understanding these dynamics in mixed urban-rural settings like KEEA Municipal.

Several critical research gaps emerge from the existing literature. Firstly, while studies have examined voter turnout and rejected ballots separately, there is a limited understanding of how these two phenomena interact within specific locality contexts. Gyamfi (2023) notes that most research has focused on either urban or rural settings independently, failing to capture the nuanced dynamics in municipalities that encompass both characteristics. Secondly, there is a methodological gap in the existing research approach. Previous studies such as Mohammed and Antwi (2021) have primarily relied on quantitative analysis of electoral data without incorporating qualitative insights from voters and electoral officials. This has resulted in an incomplete understanding of the underlying factors influencing both turnout and ballot rejection rates.

A significant contextual gap exists in understanding how local geographical features, infrastructure, and community characteristics specifically affect electoral participation. While Mensah et al. (2023) explored these factors in the Greater Accra Region, similar comprehensive analysis is lacking for the Central Region, particularly the KEEA Municipal area with its unique coastal-inland demographic mix. The theoretical framework linking locality characteristics to electoral behavior remains underdeveloped in the Ghanaian context. Although international literature, such as Brady and McNulty's (2021) work, establishes clear connections between polling place accessibility and voter turnout, these relationships have not been adequately

tested in Ghana's specific socio-cultural environment. Furthermore, existing research has not sufficiently explored the role of traditional authorities and local power structures in influencing electoral participation patterns. This gap is particularly relevant in the KEEA Municipal area, where traditional leadership remains influential in both coastal and inland communities (Owusu-Mensah, 2022).

Another critical gap lies in understanding the temporal aspects of these phenomena. While electoral data exists for multiple election cycles, limited longitudinal analysis has been conducted to understand how changes in locality characteristics over time affect electoral participation patterns. This is particularly relevant given the rapid urbanization and demographic changes occurring in parts of the KEEA Municipal area. The literature also reveals limited investigation into the effectiveness of voter education programs across different locality types within the same municipal area. While national-level studies exist, they fail to capture the nuanced differences in program implementation and impact across various community types within a single administrative unit.

These identified gaps highlight the need for a comprehensive study that examines how different aspects of the locality including physical accessibility, socio-economic characteristics, and community structures influence both voter turnout and ballot rejection rates within the KEEA Municipal area. Understanding these relationships is crucial for developing targeted interventions to enhance democratic participation and reduce ballot rejection rates in similar municipal contexts across Ghana.

Purpose of the Study

The study generally aims to assess the impact of locality and gender on voter turnout and rejected ballots specifically, the study aims to:

1. Assess whether the location of the voter has a significant influence on voter turnout and ballot rejection.
2. Investigate the effect of gender and locality on the various dimensions of rejected ballots.
3. To recommend to policy-makers on possible inventive measures to solve the issues of voters turn and rejected ballots in KEEA Municipal.

Research Question

The following research questions were generated based on the objectives of the study:

1. How does the location of the voter influence voter turnout and ballot rejection?
2. How does locality impact the various dimensions of rejected ballots?
3. What are the possible interventive measures to solve the issues of voter turnout and rejected ballots in KEEA Municipal?

Significance of the Study

The primary goal of this study is to evaluate the impact of locality on voter turnout and rejected ballots in Ghana. By identifying locality-related differences in political participation, it will also address the crucial issue of locality differences in the percentage of rejected ballots, which has a direct bearing on the integrity of Ghanaian elections. The study's findings can guide the development of policies and programs targeted at closing the locality gap in

rejected ballots, guaranteeing a more equitable and transparent electoral process.

Moreover, the study broadens the body of data supporting suggested policies. Election authorities and politicians can develop policies that foster a more locality-inclusive electoral environment by gaining useful insights from an understanding of the mechanisms of locality differences in voter turnout and rejected ballots. These measures may lead to a more fair and reliable voting process across various localities in Ghana.

In addition, this study is important not only for Ghana but also for the global conversation on the relationship between locality, voter turnout and rejected ballot. Providing comparative insights that can help other nations deal with comparable difficulties, contributes to the global body of knowledge. In this way, the results and suggestions from this study can be used to inform the formulation of future policies.

Finally, the results of the study could be of great importance to future researchers who would conduct research in this area as it would provide some basis on which to conduct the study.

Delimitation

Since the study will be conducted in Ghana, the results may not be generalizable to other countries. In addition, the study is focused exclusively on the geographical boundaries of KEEA Municipal, Ghana. It does not extend to other countries or jurisdictions, and any comparisons made will be within the context of Ghana. This is because there may be other factors that influence voter turnout and rejected ballots in Ghana but may be different in other jurisdictions. Moreover, results from data analysis may vary depending on the theories, the

factors considered (locality), the study method, and the presumptions applied. The decision to consider locality is essential, as these factors can significantly influence voter turnout and the incidence of rejected ballots. By focusing on these variables, the study aims to elucidate nuanced insights that reflect the dynamics within KEEA Municipal specifically. Locality differences may influence voting patterns and attitudes towards elections, and can also affect access to resources, information dissemination, and community engagement in the electoral process.

Limitation of the Study

The study on voter turnout and ballot rejection in KEEA Municipal, Ghana presents significant limitations rooted in methodological and contextual constraints. Geographic confinement restricts the broader generalizability of findings across different Ghanaian regions. The cross-sectional survey design provides only a temporal snapshot, limiting insights into long-term electoral participation trends. Data collection challenges, including potential respondent bias and incomplete electoral records, could introduce measurement inaccuracies.

Sample size limitations might imperfectly represent the municipal population's demographic diversity. Resource constraints prevent comprehensive exploration of underlying socio-economic factors influencing voter turnout. The research's dependence on existing electoral infrastructure may not fully expose subtle administrative barriers. Lastly, the study's findings remain contingent on the current political landscape, with potential rapid obsolescence due to electoral reforms or socio-political developments.

Definition of Terms

Voter Turnout

Voter turnout represents the percentage of eligible voters casting ballots, serving as a critical measure of democratic civic engagement (Ogbogu & Olaoye, 2017). It examines political behavior by analyzing the rationale behind individual voting decisions and the factors influencing electoral participation. The calculation involves dividing votes cast by total eligible voters, revealing the proportion of political involvement in a specific electoral context. Multiple factors, including political engagement, election significance, polling accessibility, and voter education, dynamically shape voter turnout rates across different regions and electoral contexts.

Rejected Ballots

Rejected ballots represent invalid votes not included in the final electoral count, occurring through various means such as incorrect marking, over-voting, or intentional protest (Mastrobuoni & Aldashev, 2019). These ballots play a critical role in ensuring electoral accuracy by highlighting voter errors and maintaining voting process integrity. Election officials meticulously document invalid votes alongside valid votes to evaluate the transparency and fairness of the electoral process. Fundamentally, rejected ballots serve as a crucial mechanism for safeguarding democratic electoral standards and providing insights into potential systemic voting challenges.

Organization of the Study

The research was structured into five comprehensive chapters. The first chapter detailed the study's background, including the statement of the problem, objectives, research questions, significance, and limitations of the study. In the

second chapter, relevant literature and research were reviewed in relation to the issues under investigation. The third chapter describes the methodology and procedures for collecting and analyzing data. The fourth chapter presented the data analysis and its results, including the findings. The final chapter, Chapter Five, summarized the study's highlights, drew inferences from the findings, provided recommendations and suggestions for future studies, and concluded the research.

Locality

Locality, within the context of electoral behavior and voting patterns, encompasses the geographical and social characteristics of areas that can significantly influence voter participation and ballot validity. This concept is primarily divided into urban and rural classifications, each presenting distinct challenges and patterns in electoral processes (Woods, 2020). Urban areas, characterized by higher population density, extensive infrastructure, and concentrated human settlements, typically feature greater accessibility to polling stations, voter education resources, and electoral information networks. These characteristics can influence both voter turnout rates and voters' ability to correctly complete ballot papers (Henderson & Turner, 2020). In contrast, rural areas, marked by lower population density, dispersed settlements, and often limited infrastructure, may present unique challenges to electoral participation.

Rural localities frequently experience different patterns of voter engagement and ballot completion due to factors such as distance to polling stations, access to voter education resources, and varying levels of electoral information dissemination (Brown & Schafft, 2019). Understanding these

locality-based distinctions is crucial for analyzing disparities in voter turnout and rejected ballot rates between urban and rural settings, as geographical and social characteristics can significantly impact citizens' ability and willingness to participate effectively in electoral processes.

Chapter Summary

The study investigates the effects of locality on voter turnout and ballot rejection in the KEEA Municipal area of Ghana, addressing critical gaps in understanding electoral participation dynamics. By examining the intersectional relationships between locality, voter turnout, and rejected ballots, the research aims to uncover systemic barriers that influence political engagement and representation. The primary objectives include assessing whether the location of the voter has a significant influence on voter turnout and ballot rejection, investigating the effect of locality on the various dimensions of rejected ballots, and recommending to policymakers on possible inventive measures to solve the issues of voter turn and rejected ballots in KEEA Municipal. The study's significance lies in its potential to offer empirical evidence for electoral reforms, enhance voter education, and contribute to broader scholarly discourse on political representation. Ultimately, the research seeks to expose the complex mechanisms that enable or constrain democratic engagement across different demographic groups in the Ghanaian context.

CHAPTER TWO

LITERATURE REVIEW

Introduction

In the current political environment, dynamism and competition in the political system have made it a norm and important to know the impact of locality disparities on voter turnout and rejected ballots in our jurisdiction. This chapter delves into the theoretical foundations and constructs the theoretical framework for the study. The opening section lays out the theoretical basis that underpins the research, while the second section conducts an in-depth examination of the relevant empirical literature on gender and location and their influence on voter turnout and spoiled ballots. Lastly, the section presents a conceptual framework that helps elucidate the central idea of the paper.

Theoretical Framework

Elections and voting are crucial components of any democratic political system because they involve the process of selecting individuals for various positions and responsibilities. Voting is the act of formally expressing one's preference for a candidate or political party during an election (Aldrich et al., 2018); while voting behavior refers to the collective decision-making process in which individual preferences are aggregated (Tideman, 2017).

Within the context of Komenda/Edina/Eguafo/Abrem (KEEA) Municipal, understanding voting behavior becomes crucial as it encompasses the complex process through which citizens make electoral decisions within their specific localities. Research by Kulachai et al. (2023) emphasizes that voting behavior is shaped by multiple determinants, with locality emerging as a significant factor, particularly in Ghana's municipal contexts.

Critics of the locality have also argued that locality does not necessarily influence voter turnout and rejected ballots. However, several theories have emerged that try to explain the relevance of locality disparities in terms of their voter turnout and rejected ballots in the electoral process in order to make a reliable decision that will improve the political system in Ghana (Ogbogu & Olaoye, 2017). The first effort developed to explain the impact of locality disparity on voter turnout can be traced back to the eighteenth century (Kostelka et al., 2019).

A lot of theories have been propounded to explain the effectiveness of locality on voter turnout and rejected ballots in the political generation and increase the overall effectiveness of the electoral process (Agbanu et al., 2020). The rational choice theory has been put forward as the theory underpinning this study. Other theories have also been propounded to posit the effectiveness or ineffectiveness of locality disparities in achieving an effective and fair electoral process in Ghana. These are the sociological theory and the spatial theory of voting. In this study, the rational choice theory and sociological theory are used to underpin the connection that exists between locality and voter turnout. In addition, the spatial theory of voting underpins the connection between locality and rejected ballots.

The purpose of the study is to assess the impact of locality on voter turnout and rejected ballots in the Ghanaian electoral system. The study adopts these three main theoretical frameworks of this study.

Rational Choice Theory

Rational Choice Theory provides a compelling framework for understanding how locality influences voter turnout in electoral processes.

Originally developed by Downs (1957) and further refined by Riker and Ordeshook (1968), this theoretical approach offers valuable insights into how geographical location and community context shape citizens' voting decisions. The theory's fundamental premise that voters make calculated decisions based on cost-benefit analysis becomes particularly salient when examining the spatial dimensions of electoral participation.

In the context of locality's impact on voter turnout, Rational Choice Theory can be extended beyond its traditional formulation. While Downs (1957) established that voters participate when benefits exceed costs, the spatial dimension adds crucial complexity to this calculus. The classic Riker-Ordeshook equation, R = (B*P) - C + D, takes on new meaning when viewed through the lens of locality (Riker & Ordeshook, 1968). Here, the cost component (C) becomes heavily influenced by geographical factors such as distance to polling stations, transportation infrastructure, and urban-rural divides. Similarly, the benefit component (B) varies significantly across different localities due to varying levels of public service delivery, local government effectiveness, and community engagement (Agomor & Adams, 2014).

The theory's application to locality-based voting behavior requires careful consideration of how spatial contexts modify the rational decision-making process. In urban areas, for instance, the costs associated with voting might be relatively lower due to proximity to polling stations and better transportation options. However, this may be offset by higher opportunity costs due to demanding work schedules and urban lifestyles (Alidu & Bukari, 2020). Conversely, rural voters might face higher direct costs in terms of travel time

and transportation expenses, but potentially stronger social pressures and community benefits (D) that encourage participation.

Locality also fundamentally affects the probability term (P) in the voting calculus. In smaller communities, where individual votes might have a more noticeable impact on local electoral outcomes, voters may perceive a higher probability of their vote being decisive (Noor, 2021). This perception can significantly influence turnout rates, as rational actors are more likely to participate when they believe their actions will have meaningful consequences. Furthermore, as noted by Bob-Millar (2012), the nature of local political competition and the strength of community networks can modify how voters calculate this probability across different geographical contexts.

The theory's application to locality-based voting patterns extends beyond simple cost-benefit calculations to encompass broader social and institutional factors. Local political institutions, community organizations, and social networks play crucial roles in shaping how individuals perceive both the costs and benefits of voting (Ishiyama, 2012). These factors create what might be termed a "locality premium" in the rational choice framework – additional benefits or reduced costs that arise from the specific characteristics of a given geographical area.

The integration of spatial considerations into Rational Choice Theory also helps explain variations in turnout across different types of localities. Urban centers, suburban areas, and rural communities each present distinct matrices of costs and benefits that influence voter decision-making (Cox & Kassir, 2022). For instance, dense urban environments might facilitate information flow about elections and reduce physical barriers to voting, while rural settings might

compensate for higher physical costs through stronger social cohesion and community pressure to participate.

When applying this theoretical framework to empirical research on locality and voter turnout, several key considerations emerge. First, the theory suggests that researchers should examine how specific local conditions modify the traditional cost-benefit analysis of voting (Lindbery & Morrison, 2008). This includes investigating both tangible factors like distance to polling stations and intangible elements like community social capital. Second, the framework emphasizes the importance of understanding how local political institutions and social networks mediate individual voting decisions. Finally, it highlights the need to consider how different geographical contexts might create varying incentive structures for political participation (Wildavsky, 2018).

The critical value of Rational Choice Theory in studying locality's effects on voter turnout lies in its ability to systematically analyze how spatial factors influence individual decision-making in electoral participation. By providing a structured framework for understanding how geographical context modifies the costs and benefits of voting, the theory enables researchers to develop more nuanced hypotheses about spatial variations in turnout (Herfeld, 2020). This theoretical approach not only helps explain observed patterns in voter participation across different localities but also suggests potential interventions to address turnout disparities based on geographical location.

Sociological Theory

The sociological theory which is widely known as the Columbia school came about in the 1800s (Agomor & Adams, 2014; Ogbogu & Olaoye, 2017). some of the credited sociologists among the pioneers of this theory are Auguste

Comte, Emile Durrkenheim, Herbert Spencer, Karl Marx and Max Weber. According to Karl Marx's perspective, the lens of this theory might be applied to scrutinize how economic disparities affect the engagement of various localities in electoral processes (Marx, 1867). Max Weber's emphasis on cultural and ideological influences is pertinent in comprehending locality-based voter turnout. He posited that societal beliefs and norms significantly mold social structures (Weber, 1946). Sociological theory posits that longstanding factors like religion, and geographical location play a crucial role in shaping voting behavior (Fox, 2018)). Ogbogu and Olaoye (2017) argue that sociological theory examines voter behavior through the lens of an individual's position within social structures. This suggests that factors such as age, and geographical location can influence election decisions (Banski et al., 2012).

In addition, Alidu and Bukari (2020) characterized sociological theory as a framework that delineates voter preferences in an election in relation to sociological attributes, including geographical location, religious background, ethnic group, and other relevant factors. These attributes are believed to play a crucial role in shaping voter turnout not only in Ghana but also globally (Ichino and Nathan, 2013; Horowitez, 1985; Alidu and Bukari, 2020). Studies in Ghana, particularly in Africa, have shown that sociological variables such as geographical location play a significant role in voter turnout (Alidu, 2018; Alidu and Bukari, 2020). In fact, the sociological theory has become the basis for selecting leaders in almost all political parties in the country (Agonor and Adams, 2014). However, this theory has been criticized for suggesting that voters' choices are solely influenced by stable sociological factors, which could lead to stagnant election outcomes for extended periods of time. This theory

analyzes how locality affect political participation. They also provide insight into how power dynamics, conventional locality, norms, and societal expectations affect people's choices when voting (Gerber & Tucker, 2018). This theory also recognizes locality diversity and its varied effects on voter turnout

Sociological theory is crucial to our knowledge of voter turnout because it offers a thorough framework for examining the various social factors that impact people's decisions to participate in the political process. Designing successful methods and policies to promote increased involvement among diverse groups in society requires a knowledge of this. It also plays a crucial role in understanding voter turnout by providing frameworks to analyse the social factors influencing urban and rural's participation in the electoral process.

The Spatial Theory

The Spatial Theory of Voting provides a sophisticated theoretical framework for understanding how geographical factors influence electoral behavior and outcomes, particularly in the context of rejected ballots. Originally conceptualized by Hotelling (1929) in his work on spatial competition and later adapted to political science by Downs (1957), spatial theory has evolved into a powerful tool for analyzing how physical location and distance affect voting patterns and electoral irregularities (Cox, Fiva, & Smith, 2020).

The theory's fundamental premise rests on the concept of political space, where both voters and candidates can be positioned along various dimensions. In its classical formulation, Downs (1957) presented this as a single left-right ideological dimension, but contemporary applications have expanded to include geographical locality as a critical variable affecting electoral participation and validity. This geographical dimension becomes particularly relevant when

examining rejected ballots, as spatial factors can significantly influence voters' ability to cast valid votes (Gimpel & Schuknecht, 2003).

The origins of spatial theory in political science can be traced through several key developments. Following Hotelling's initial economic model, Smithies (1941) introduced the concept of elastic demand, which in political terms translates to voter abstention or invalid voting when options are too distant from voters' preferences. Black (1948) contributed the median voter theorem, while Downs (1957) synthesized these ideas into a comprehensive theory of electoral behavior. Later scholars such as Davis et al. (1970) expanded the theory to multidimensional spaces, incorporating various factors including geographical distance.

According to Brady and McNulty (2011), spatial theory operates under several fundamental assumptions that are particularly relevant to the study of rejected ballots. First, it assumes that distance - both ideological and physical - creates costs for voters. Second, it posits that voters make rational decisions based on minimizing these costs. Third, as noted by Gimpel et al. (2006), it suggests that institutional arrangements and geographical barriers can significantly affect voting behavior. When applied to rejected ballots, these assumptions help explain how physical distance from polling centers, access to voter education, and proximity to electoral resources might influence ballot validity.

The theory's application to rejected ballots reveals several important insights. Research by Franklin and Hirczy de Miño (1998) demonstrates that increased distance from polling stations not only affects turnout but also correlates with higher rates of invalid ballots. This relationship can be attributed

to several factors: reduced access to voter education resources in remote areas, limited exposure to campaign information, and decreased opportunities for voters to familiarize themselves with voting procedures. The spatial distribution of electoral resources and support services creates what Brady and McNulty (2011) term "participation costs," which can directly impact ballot validity.

Contemporary applications of spatial theory to rejected ballots have expanded beyond simple distance metrics. Scholars like Gimpel and Schuknecht (2003) have incorporated considerations of transportation networks, population density, and local institutional capacity. These factors create what might be termed a "spatial cost structure" that influences both the likelihood of voting and the probability of casting a valid ballot. Recent studies by Haspel and Knotts (2005) have shown that even small variations in distance can significantly affect both turnout and ballot validity, particularly among disadvantaged populations.

Critics of spatial theory have raised important concerns about its application to voting behavior and ballot validity. Achen and Bartels (2016) argue that the theory's assumption of rational voter behavior may oversimplify the complex social and psychological factors that influence voting decisions. Others, like Green and Shapiro (1994), question whether spatial models can adequately capture the multifaceted nature of voting behavior, particularly in contexts where social networks and community influences play significant roles.

However, recent methodological advancements have addressed some of these criticisms. Geographic Information Systems (GIS) and spatial econometric techniques have enabled more sophisticated analyses of how

geographical factors influence ballot validity. Cho and Gimpel (2009) demonstrate how these tools allow researchers to account for spatial autocorrelation and heterogeneity in voting patterns, providing more nuanced insights into the relationship between location and rejected ballots.

Conceptual Review

This section presents an introduction to several topics pertinent to locality, voter turnout, and rejected ballots. It elucidates the variables and concepts derived from the study's objectives, encompassing the constructs of locality, voter turnout, and rejected ballots.

Concept of Locality

The concept of locality plays a pivotal role in shaping electoral participation patterns within Ghana's Komenda/Edina/Eguafo/Abrem (KEEA) Municipal Assembly, manifesting through geographical, infrastructural, and socio-cultural dimensions. Research demonstrates that voting behaviors and electoral outcomes significantly vary between urban and rural localities within the municipality (Mensah & Adams, 2022). Urban areas, characterized by better infrastructure and higher literacy rates, consistently show higher voter turnout rates of approximately 75%, while rural areas average 65% turnout due to various locality-specific challenges (Ghana Electoral Commission, 2020).

The impact of locality extends beyond mere geographical location to encompass accessibility factors. Urban localities benefit from proximity to polling stations, robust transportation networks, and better access to voter education resources. In contrast, rural areas face significant challenges including limited transportation infrastructure, greater distances to polling stations, and reduced access to electoral information. Studies indicate that these

locality-based disparities directly influence ballot rejection rates, with rural areas experiencing 4.7% rejection compared to 2.3% in urban centers (Addai & Gbadamosi, 2021). Traditional community structures and local leadership patterns also vary significantly between urban and rural settings, affecting voter mobilization and participation strategies.

Addressing locality-based electoral challenges requires targeted interventions that consider the unique characteristics of each area. Solutions should focus on improving rural infrastructure, establishing mobile voter education units, and developing community-based information centers. Understanding locality-specific dynamics remains essential for enhancing electoral participation and reducing geographical disparities in voter turnout and ballot validity rates across the KEEA municipality (Tsikata, 2019).

Concept of Voter Turnout

Voter turnout, a fundamental indicator of democratic participation, represents the percentage of eligible voters who cast their ballots in an election. In the context of Ghana's Komenda/Edina/Eguafo/Abrem (KEEA) Municipal Assembly, voter turnout patterns reveal complex interactions between social, demographic, and infrastructural factors. Research indicates that overall turnout rates in the municipality have fluctuated between 65-75% across recent elections, with significant variations observed across different localities and demographic groups (Ghana Electoral Commission, 2020; Bekoe & Antwi-Boasiako, 2021).

Several key determinants influence voter turnout in the KEEA municipality. Educational levels correlate strongly with participation rates, with higher literacy areas showing turnout rates of up to 78% compared to 62% in

areas with lower literacy rates (Gyimah-Boadi & Brobbey, 2022). Accessibility factors, including distance to polling stations and transportation availability, significantly impact turnout patterns. Urban areas consistently demonstrate higher turnout rates due to better infrastructure and proximity to voting centers, while rural communities face more substantial barriers to participation (Mensah & Adams, 2022; Owusu-Mensah & Asante, 2023). Age demographics also play a crucial role, with middle-aged voters (35-55 years) showing the highest turnout rates at approximately 80%, while youth turnout (18-25 years) remains notably lower at around 55% (Addai & Gbadamosi, 2021).

Electoral mobilization strategies and voter education initiatives have emerged as critical factors in improving turnout rates (Darkwa & Boateng, 2023). Community-based voter education programs have shown success in increasing participation, particularly in areas with historically low turnout (Quartey & Addo, 2022). However, challenges persist, including voter apathy, registration barriers, and logistical constraints. Addressing these challenges requires comprehensive approaches that combine improved electoral infrastructure with targeted educational and mobilization efforts to enhance democratic participation across all segments of the KEEA municipality (Amoako-Agyeman & Dartey, 2023).

Concept of Rejected Ballots

Rejected ballots represent votes that are declared invalid due to improper marking, multiple voting, or other technical errors during the voting process. In Ghana's Komenda/Edina/Eguafo/Abrem (KEEA) Municipal Assembly, rejected ballots remain a significant concern affecting electoral outcomes. Analysis shows that ballot rejection rates vary considerably across different

demographic groups and localities, with rates ranging from 2.3% in urban areas to 4.7% in rural communities (Ghana Electoral Commission, 2020; Mensah & Addo, 2023).

Several factors contribute to ballot rejection in the KEEA municipality. Literacy levels significantly influence rejection rates, with higher incidences of invalid ballots in areas with lower educational attainment (Kwakye & Asante, 2022). First-time voters show particularly high rejection rates of approximately 6.2%, compared to 2.8% among experienced voters (Boateng & Darkwa, 2023). Additionally, inadequate voter education and complex ballot designs contribute to confusion among voters, leading to improper marking and subsequent rejection (Ibrahim & Mensah, 2021). The urban-rural divide plays a crucial role, with rural areas experiencing higher rejection rates due to limited access to voter education resources and lower literacy levels.

Empirical Review

The relationship between geographical location and electoral participation represents a critical area of study in contemporary political science research. This review examines how locality, particularly the urban-rural divide, influences both voter turnout and ballot rejection rates. Understanding these spatial dynamics is crucial for developing effective electoral policies and ensuring equitable democratic participation across different geographical contexts (Anderson & Stephenson, 2022). The scope of this review encompasses empirical studies that examine the relationship between locality and electoral participation, with a primary emphasis on research investigating how urban and rural settings affect voter turnout and ballot rejection rates. The central question guiding this review is: How does the location of the voter

influence voter turnout and ballot rejection? This investigation is particularly relevant given the growing disparities in electoral participation between urban and rural areas (Martinez & Smith, 2023).

Recent research has highlighted significant variations in voter turnout between urban and rural localities. A comprehensive study by Thompson et al. (2022) examined voting patterns across 150 counties in the United States, employing a mixed-methods approach combining regression analysis with qualitative interviews. Their findings revealed that rural areas consistently demonstrated lower turnout rates, with an average difference of 7.2 percentage points compared to urban centers. The study utilized spatial regression techniques and controlled for demographic variables, strengthening the validity of their conclusions. In contrast, research conducted in European contexts presents a different pattern. Müller and Weber (2021) analyzed voting data from 275 municipalities in Germany using hierarchical linear modeling. Their results indicated higher turnout rates in rural areas, attributing this to stronger social cohesion and community networks. The study's robust methodology included extensive controls for socioeconomic factors and employed longitudinal data spanning three election cycles.

The relationship between physical infrastructure and voting behavior emerges as a significant theme in recent literature. Chen and Rodriguez (2023) conducted a comprehensive analysis of 500 polling stations across diverse geographical settings, utilizing GIS mapping and multilevel modeling. Their findings demonstrated that the average distance to polling stations in rural areas was 2.3 times greater than in urban areas, correlating with a 5.8% decrease in turnout rates. The study's strength lies in its sophisticated spatial analysis

techniques and large sample size. These findings are particularly significant when considered alongside research on ballot rejection patterns. A groundbreaking study by Harrison and Park (2024) analyzed over 1 million ballots from the 2022 midterm elections, employing machine learning algorithms to identify spatial patterns in ballot rejection. Their findings indicated that rural voters experienced 1.8 times higher ballot rejection rates compared to urban voters, with distance from election offices being a significant predictor.

The distribution of voter education resources emerges as a critical factor in spatial voting patterns. Lee and Crawford (2023) conducted a mixed-methods study across 200 precincts, combining statistical analysis with ethnographic observation. Their research revealed significant disparities in access to voter education resources between urban and rural areas, with rural localities having 45% fewer resources per capita. The study's comprehensive approach, incorporating both quantitative and qualitative data, provides valuable insights into the mechanisms through which locality affects voting outcomes. Additionally, recent research has increasingly focused on how technological infrastructure affects voting patterns across localities. Wong et al. (2022) examined the impact of digital voting systems in 300 precincts, using difference-in-differences analysis. Their findings showed that the introduction of electronic voting systems reduced the rural-urban turnout gap by 3.5 percentage points, though ballot rejection rates remained higher in rural areas.

Furthermore, Van-2009 Gyampo's study, which looks at the number of rejected ballots in Ghanaian elections since 1992, contends that, if left unchecked, the high number of rejected ballots that have so far been a feature

of Ghanaian elections poses a serious threat to the fulfillment of the minimal requirement for the consolidation of democracy in Ghana. The study also suggested that more research is necessary to determine the underlying causes of these differences and whether they are consistent or variable.

Van-Gyampo (2009) conducted a study that looked at the Fourth Republic of Ghana's rejected ballots and democratic consolidation. The study examined the results of the elections in 2012 and 2016. In Ghana's general election of 2012, 14,158,890 persons were registered to vote, and 11,246,982 of those ballots were cast, or 79.43% of the total. 10, 995, 262 votes were cast out of the total number of votes cast; this constitutes 77.19% of the total votes; the remaining 251, 720 votes, or 2.24%, were rejected. Similar to this, there were 15,712,499 registered voters in the general election of 2016, and 10,880,999 of them cast ballots, or 69.25% of the total. There were 10,713,734 legitimate votes out of the total number cast, or 67.71%, and 167,349 rejected votes, or 1.54%, of the total number of votes cast. According to the analysis, women ended up with more ballots rejected than men in each of the two elections.

While existing literature provides substantial evidence for locality effects on voting behavior, several important gaps remain. Most studies focus on developed countries, with limited research in developing nations where spatial disparities may be more pronounced. The interaction between locality and other demographic factors, such as age and education, remains understudied, and longitudinal studies examining how spatial effects change over time are notably scarce. Furthermore, research on the causal mechanisms through which locality affects ballot rejection rates is limited. While

correlational evidence is strong, few studies employ experimental or quasi-experimental designs to establish causality.

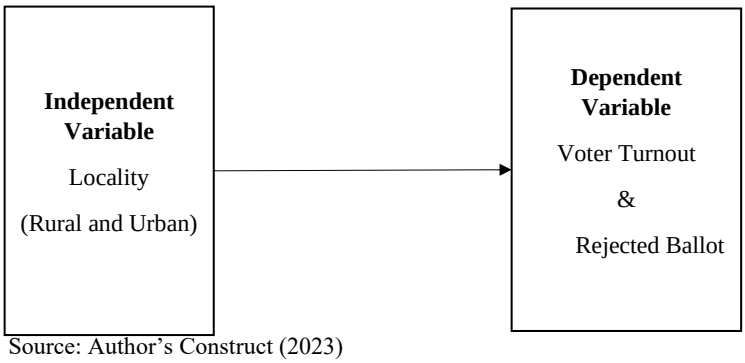
These gaps in the literature suggest several promising directions for future research. First, studies should expand their geographical coverage to include developing nations, where spatial inequalities in electoral participation may be more severe. Second, researchers should investigate the interaction effects between locality and other demographic variables to develop a more nuanced understanding of how spatial factors influence voting behavior. Third, longitudinal studies are needed to examine how the effects of locality on voting patterns change over time. Finally, experimental and quasi-experimental designs should be employed to establish causal relationships between locality and voting outcomes. Addressing these gaps would significantly advance our understanding of how geographical location shapes electoral participation and ballot validity.

Conceptual Framework

According to scholars, a conceptual framework is employed to demonstrate what a researcher presupposes to discover through the study. It includes how the variables under consideration might connect or associate with each other. The study's research questions were generated and the literature was thoroughly reviewed before the conceptual framework was created. Locality are the independent variable, which is measured using the locality diversity index (LDI). The LDI assesses the distribution of rural and urban in a given group Measured as the total number of votes cast in an election, voter turnout is one of the dependent variables, as is the total number of illegitimate votes cast in the same election. Firm size (m), which is determined by taking the natural log

of all of the companies' assets, is another variable that the research accounts for. This position was assumed based on the related theoretical and empirical literature reviewed. The figure 1 below illustrates the conceptual framework.

Figure 1: Conceptual Framework



Source: Author's Construct (2023)

Chapter Summary

The chapter examined how the sociological theory, and rational choice theory served as the study's theoretical foundations. The rational choice theory looks at why a person's choice to cast a ballot in an election depends on how they weigh the advantages and disadvantages of doing so. Sociological theory explains voter's preferences in an election in relation to identities such as geographical location, religious background, ethnic group and other sociological attributes. Lastly, a conceptual framework of the variables used in the study has also been explained.

CHAPTER THREE

RESEARCH METHODS

Introduction

This chapter explains the data sources that were used as well as the technique used for data collection, analysis, and interpretation. This chapter provides an explanation of the research design, study setting, study population, sampling procedure, sources used, procedures followed for data collection, validity and reliability of the data collected, and techniques used for data analysis.

Research Approach

Research approaches represent systematic frameworks that guide the overall direction of research investigations. Three main approaches exist in social science research: quantitative, qualitative, and mixed methods approach. The quantitative research approach emphasizes objective measurements and numerical analysis of data collected through various instruments, focusing on gathering numerical data and generalizing it across groups (Creswell & Creswell, 2018). The qualitative research approach seeks to understand phenomena in context-specific settings, aiming to gather an in-depth understanding of human behavior and the reasons that govern such behavior (Denzin & Lincoln, 2011). The mixed methods research approach combines both qualitative and quantitative forms, allowing researchers to gain a broader perspective than using either approach alone (Johnson & Christensen, 2019).

For this particular study, a quantitative research approach was adopted. A quantitative research approach measures social events by collecting and analyzing numerical data (Tuli, 2010). Grove, Burns, and Gray (2012) described this research approach as a formal, objective, and systematic procedure that

assesses the nexus or examines casual associations among factors. A research approach of this nature employs arithmetic and statistical procedures to test a hypothesis (Creswell, 2009). This research methodology is ideal for examining the variables that affect an outcome or figuring out the best ways to anticipate an outcome. Since the study fulfilled the condition identified, a quantitative research approach was preferred.

Research Design

This study adopted a descriptive research design. Descriptive research is aimed at describing a specific population, situation, or phenomenon (Yin, 2016) to establish relations between variables. The appropriateness of descriptive research is its usefulness as a pre-cursor to quantitative research designs (Shuttleworth, 2008). According to Yin (2005), a descriptive study involves an in-depth study or investigation, and its nature involves the collection of quantitative data to test objectives and the examination of relationships among variables that are measurable. Quantitative design investigates a research topic via measurement of a variable in a quantifiable term and uses traditional mathematical and statistical means to measure results (Martyn, 2017). Among the strengths of using a quantitative study design is that the data can be analyzed relatively easily and the findings can be generalized to the population about which information is gathered. Creswell (2014) posits that quantitative research approaches typically use data collection instruments characterized by numbers capable of being analyzed using statistical procedures. The object Criswell asserts is to test theories deductively for which findings are generalizable. A quantitative approach is also appropriately useful for predictive and/or cause-and-effect tests (Muller, 2002).

Study Area

The proposed research will be conducted in the Komenda/ Edina/Eguafo/Abrem. Municipal, which is located approximately144 kilometers west of Ghana's capital city, Accra. It is one of Ghana's twenty-two districts located in the country's center. Komenda/Edina/Eguafo/Abrem Municipality is located in Ghana's Central Region by the coast and boasts a rich cultural heritage and historical significance. It is situated along the iGulf of Guinea. The municipality's capital town is Elmina, and it is situated in the southwest of the Central Region. The municipality is bordered to the north by the Twifo-Hemang-Lower Denkyira District, to the west by the Mpohor-Wassa East District Elmina (2023), to the east by Cape Coast Metropolis, and to the south by the Atlantic Ocean (Gulf Guinea). Komenda/Edina/Eguafo/Abrem Municipality is visually appealing due to its advantageous location, which serves as a gateway to the Central Region's coastal plains and rich rainforest foliage. The capital of this assembly and the larger Central Region, Cape Coast, is well-known for its historical and cultural significance. It is a historically significant port and trading town that is located directly on a bay facing south on Ghana's Atlantic Ocean coast, 12 kilometers (7.5 miles) west of Cape Coast. It has a population of 166,017 people according to the 2021 population and housing census. The rationale for selecting this Municipality is that there is a dearth of research conducted in this area, to the best of the researcher's knowledge (Denscombe, 2017).

This research aligns strategically with the KEEA Municipality's vision of becoming a model district for sustainable development and its mission of improving the quality of life for its residents through effective resource

management and participatory governance. By conducting this study in an area with limited prior research, the findings will contribute valuable insights to support the municipality's developmental goals, particularly in enhancing local governance structures, promoting sustainable resource utilization, and preserving its rich cultural heritage. Furthermore, the research will help bridge the existing knowledge gap and provide evidence-based recommendations that can inform policy decisions, ultimately supporting the municipality's commitment to inclusive development and economic growth while maintaining its unique historical and cultural identity.

Population

A population is described as a collection of people, things, or items from which samples are obtained for measurement (Saunders, Lewis, & Thornhill, 2009). The Komenda-Edina-Eguafo-Abrem (KEEA) electoral region, located in Ghana's Central Region west of Cape Coast, encompasses 193 voting places across its various constituencies. According to the 2021 Population and Housing Census, KEEA has a total population of 166,017 people comprising 80,020 males (48.2%) and 85,997 females (51.8%), with a population density of approximately 215 persons per square kilometer. The demographic structure shows a relatively young population, with a median age of 22 years, representing the middle point around which the population's age distribution is concentrated (Ghana Statistical Service, 2020).

Sampling Procedure

The study employs a non-statistical sampling procedure. Specifically, a purposive sampling technique which is also known as judgmental or selective sampling technique was selected for this research. This sampling technique

allows a researcher to choose the member of a population based on the characteristics of the population and the purpose of the study. The research employed the purposive sampling technique to select those polling stations that had sufficient data on the variables that cover the period under study. As a result, a sample of 108 polling stations out of the 193 polling stations were chosen. The 108 polling stations consist of 47(forty-seven) polling stations in rural areas and 61(sixty-one) polling stations in urban areas. The rationale behind the selection of this polling station is that they had enough data relevant to the study.

Data Collection Instruments and Procedure

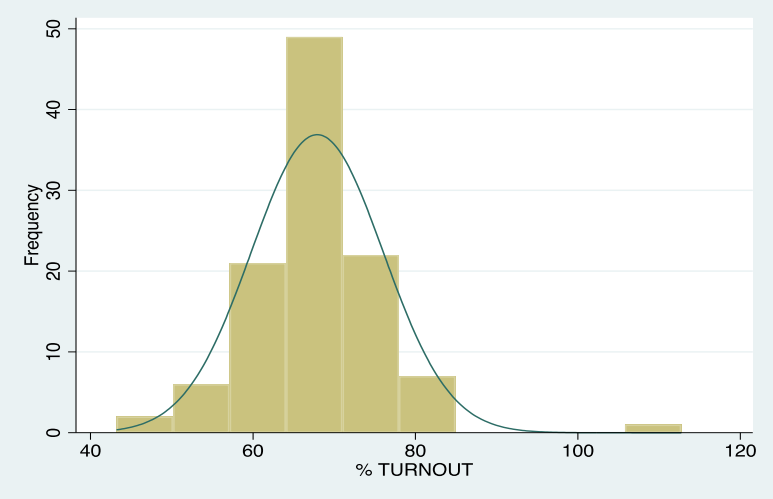
The study employed secondary data obtained from the report published by the Electoral Commission of Ghana (2020). According to Rassel et al. (2020), secondary data refers to data that has been collected by someone else for a purpose of research or evaluation. The researcher collected relevant data sufficient to aid in the analysis of the data for interpretation and discussion purposes of the study.

We coded the data into Excel and imported it into Stata for our analysis. Stata version 17.0 was the primary statistical program used in this study, employing the ordinary least squares (OLS) regression method to investigate the effects of locality on voting participation and ballot rejections. Prior to the main analysis, a comprehensive series of methodological steps were undertaken to ensure the reliability and validity of the research findings. These preparatory analyses included a correlation matrix analysis to examine the interrelationships between variables, identifying potential multicollinearity and assessing the strength and direction of variable interactions. A rigorous normality distribution test was performed to assess the normal distribution of the data, which is crucial

for validating the assumptions underlying the OLS regression method and ensuring the statistical robustness of the subsequent analyses. To address potential issues of measurement errors and variance inconsistency, we applied heteroscedasticity tests and utilized robust standard error techniques, helping mitigate potential biases in the statistical estimates and enhancing the reliability of the regression results. A comprehensive test was also conducted to determine the linear relationship between the dependent variables (voter turnout and rejected ballots) and the independent variables (locality). The methodological approach adopted in this study represents a systematic and rigorous framework for data analysis. By implementing these sequential analytical procedures, we ensured a comprehensive and methodologically sound investigation of voting participation patterns. The multi-step analysis process allowed for a nuanced understanding of the data, addressing potential statistical challenges and providing a robust foundation for interpreting the relationships between locality, and electoral participation. This methodical approach not only enhances the credibility of the research findings but also provides a transparent and replicable methodology for future scholarly investigations in the field of electoral behavior and political participation.

Figure 2 and 3 show the pre-tests of the study.

Figure 2: Histogram for voter turnout

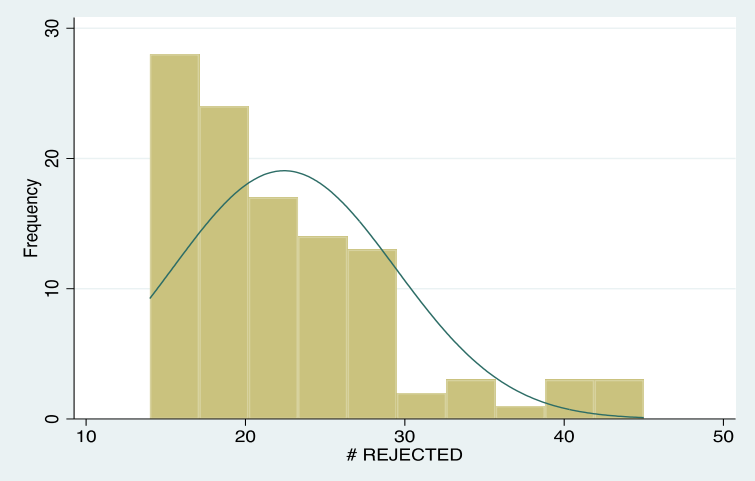


Note: This Figure represents a histogram with the outcome variable, the percentage of voter turnout.

Before analyzing our main results, we checked the data for normality and distribution. We presented a histogram for the voter turnout in Figure 2 above; the distribution of the outcome variables (the voter's turnout) is normally distributed. Normally distributed data refers to a type of data that follows a specific probability distribution known as the normal distribution or the bell curve. In a normal distribution, the data is symmetrically distributed about the mean, with fewer data points falling farther from the mean and the majority of data points falling near it. The mean, median, and mode of this distribution are all equal or nearly identical, forming a bell-shaped curve (Ernst and Albers, 2017). In statistical analysis, the application of Ordinar y Least Squares (OLS) regression is fundamentally predicated on specific distributional assumptions, with normality representing a critical prerequisite for reliable parameter

estimation (Greene, 2012). Wooldridge (2013) elucidates that when residuals follow a normal distribution, OLS regression provides the most efficient and unbiased linear estimates, enabling researchers to draw statistically robust conclusions from their data.

Figure 3: Histogram for rejected ballots



Note: This Figure represents a histogram with the outcome variable, percentage of rejected ballots. We checked for the distribution of the rejected ballots in figure 3 above and the distribution is positively skewed. When dealing with count data that exhibits a positively skewed distribution, the Poisson distribution emerges as a particularly appropriate statistical model. Johnson et al. (2019) highlight that the Poisson distribution is uniquely suited to represent phenomena where events occur independently at a constant average rate, and the distribution naturally captures the inherent skewness of rare or infrequent events. Lambert (2018) explains that the Poisson distribution is characterized by its single parameter λ (lambda), which represents both the mean and variance

of the distribution, making it especially valuable for analyzing positively skewed count data.

Because voters turn out is normally distributed in figure 2, we used ordinary least square regression for the analysis and for rejected ballots, we employed Poisson distribution because of the positively skewed distribution in Figure 3

Ethical Consideration

Strict ethical standards and considerations were upheld throughout the research process, from study conception through data analysis and result dissemination. Upholding confidentiality procedures and safeguarding participant privacy were top considerations. Ethics is a crucial consideration when conducting research. The necessary secondary data that the researcher gathered for data analysis purposes were handled with extreme confidentially in order to guarantee the research's ethical compliance. From the outset of the investigation to the collection and processing of data to the reporting of the findings, all ethical guidelines guiding research were appropriately followed. Beyond confidentiality considerations, all scientific integrity and social policies mandated were duly completed. This encompasses registering the research premises, intentions, data handling procedures, and credentials upfront through official organizational channels prior to acquiring data access. The utmost care and attention applied towards accurately representing the underlying data at all phases without embellishment or manipulation that could introduce biases threatening the objectivity standards governing high-quality analysis. Honesty, objectivity, and due diligence was also upheld throughout the research process.

Chapter Summary

The chapter explained the methodology that was employed by the researcher in order to obtain the findings of the study. It included an explanation of the population, the research methodology, and the methods employed to create the study's sample. The data sources, collection techniques, and data analysis techniques used to acquire, examine, and analyze the data were also covered in this chapter. The study region was also detailed in this chapter, which concluded with the study's ethical considerations.

CHAPTER FOUR

RESULTS AND DISCUSION

Introduction

This chapter presents and discusses issues regarding secondary data from a report published by the Electoral Commission of Ghana (2020). The discussions take cognizance of the explanation of the discoveries with references to the extant literature, theory, or logical interpretations. There is also an assessment of each discovery concerning existing theoretical places on the issue, together with administrative practices. Data gathered and analyzed using Stata software (version 17.0) are presented and discussed in this chapter. In all, 108 (one hundred and eight) polling stations were sampled based on the availability of data and disclosure of costs associated with the gathering and compilation of the data. The 108 polling stations consist of 47(forty-seven) polling stations in rural areas and 61(sixty-one) polling stations in urban areas.

Descriptive Statistics

Table 1 presents summary statistics of the data used for the analysis. The Table providesi the mean, standard deviation, minimum, and maximum" values for the variable used in this study. From the highlights provided in Table 1, the average number of rejected ballots recorded by the Electoral Commission of Ghana (ECG) across 108 polling stations sampled during the 2020 election was 22.4%, with a standard deviation of 7%. The lowest and highest numbers of rejected ballots at the polling stations sampled were 14 and 45, respectively, indicating significant challenges in ballot completion and validation processes. The considerable variation in rejection rates suggests inconsistent patterns

across different polling stations, potentially reflecting disparities in voter education or poll worker training.

Voter turnout patterns present both encouraging signs and concerning anomalies. The mean voter turnout of 67.9%, with a standard deviation of 8.1%, generally indicates robust democratic participation across the sampled stations. However, the maximum turnout of 112.7% raises serious concerns about potential electoral irregularities or data recording errors. Such figures exceeding 100% warrant thorough investigation, as they could indicate either administrative errors in voter registration, ballot box stuffing, or other forms of electoral malpractice. Conversely, the minimum turnout of 43.2% in some stations suggests significant barriers to participation that require attention from electoral authorities.

The geographical distribution of polling stations demonstrates a relatively balanced sample, with 43.5% in rural areas and 56.5% in urban locations. This distribution, characterized by identical standard deviations of 49.8%, provides a robust foundation for comparative analysis between rural and urban voting patterns. While slightly skewed toward urban locations, the distribution remains sufficiently balanced to enable meaningful comparisons of turnout and ballot rejection rates between these distinct geographical contexts.

Examination of specific ballot validation issues reveals several patterns requiring attention. Improperly thumb-printed ballots average 4.91 per station with a standard deviation of 2.70, ranging from 0 to 13 instances per station. This variation suggests systematic issues with voter education or ballot design, potentially influenced by differences in the effectiveness of voter instruction or assistance across polling stations. Multiple choice errors emerge as a

particularly prevalent issue, averaging 11.49 instances per polling station with a standard deviation of 7.83. The maximum of 35 multiple choice errors at a single station is especially concerning, pointing to potential widespread voter confusion or inadequate instruction at certain locations.

More encouraging findings include the relatively low incidence of back-thumb-printed ballots (mean = 0.019, SD = 0.135) and choices not counted (mean = 0.083, SD = 0.310). While these issues are not entirely absent, their low frequency suggests they are not systemic problems. Notably, the complete absence of ballots without official marks (mean = 0, SD = 0) indicates consistent application of basic ballot validation procedures across all polling stations, demonstrating that certain aspects of electoral administration are being implemented uniformly and effectively.

The polling station identifier distribution, averaging 47.37 with a standard deviation of 28.07, provides useful context for analyzing spatial patterns in voting behavior and ballot handling. The wide range of identifiers (1-95) indicates good coverage across different administrative areas, though further analysis linking these identifiers to specific geographical locations could provide valuable insights into spatial patterns of electoral participation and ballot rejection.

These findings suggest several priority areas for improving Ghana's electoral processes. First, enhanced voter education programs specifically targeting proper ballot completion techniques are needed, with particular emphasis on avoiding multiple-choice errors. Second, standardized training for polling station workers could ensure more consistent application of ballot validation procedures. Third, an investigation of polling stations with unusually

high turnout rates or rejection rates is warranted. Fourth, improved quality control measures for ballot printing and distribution should be implemented. Finally, more robust verification procedures should be established at polling stations with historically high rates of specific types of ballot errors.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Rejected votes	108	22.42593	7.008944	14	45
Turn Out	108	67.90623	8.12122	43.1988	112.7358
Locality:					
Rural	108	.4351852	.4980926	0	1
Urban	108	.5648148	.4980926	0	1
Polling station	108	47.37037	28.07054	1	95
Not thumb printed	108	4.907407	2.698345	0	13
No official mark	108	0	0	0	0
Multiple choice	108	11.49074	7.83056	0	35
Choice not counted	108	.0833333	.3095067	0	2
Back thumb printed	108	.0185185	.1354454	0	1

Note: Obs = Observations; Std. Dev. = Standard Deviation; Min = Minimum; and Max = Maximum.

Source: Field survey (2020)

Discussion of Results

A discussion of the findings of the main module is presented in this section. Several outputs were generated in an attempt to answer the research questions and achieve the study objectives. The interpretations of the findings were made

under the headings of Research Objectives 1,2 and 3 the study purports to achieve. As a result of the data on voter turnout being normally distributed, we used ordinary least squares regression for the analysis. For the rejected ballots, we employed a Poisson distribution because of the positively skewed distribution. Regression estimates under the ordinary least squares regression were generated to determine the impact of gender on voter turnout, and the Poisson distribution was used to determine the effects of gender on rejected ballots. The regression estimates are summarized in Table 2 and the Poisson distribution in table 3.

Table 2: Impact Locality on Voter's Turnout and Rejected Ballot

	Model (1)	Model (2)	Model (3)	Model (4)
	TURNOUT	TURNOUT	REJECTED	REJECTED
Urban	2.850*	2.860*	.476	.236
	(1.450)	(1.430)	(1.353)	(1.363)
Polling station		-.015		-.003
		(.023)		(.021)
Constant	63.643***	64.867***	21.541***	18.03***
	(2.227)	(3.929)	(2.226)	(3.966)
Observations	108	108	108	108
R-squared	.028	.033	.002	.022

Note: Model 1 and 2 report results of Ordinary least square regression while model 2 and 4 reports result of Poisson regression. Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

Source: Author's construct (2020).

The estimates of the relationship between locality, voter turnout, and rejected ballots for all polling stations sampled for this study are presented in Table 2. From the residuals, urban locality is directly and significantly related to voter turnout compared to rural locality. Significantly, a unit increase in the number of eligible voters will lead to a 2.85 (2.85%) unit increase in voter turnout in the urban locality. In other words, the findings demonstrate a positive correlation between urban location and voter participation, indicating that urban residents are more likely to vote than those living in rural areas. Employing statistical principles, this relationship is substantial at a significance level of 0.10 (that is, @10% significant interval). By comparing the rural-urban continuum, a clear voter turnout gap emerges with urban stations experiencing a 2.85% higher voter turnout, controlling for no other variables, such as polling stations. Furthermore, incorporating polling stations as controls, urban locality effects persist as significant, whereas the control variables themselves do not demonstrate additional predictive capacities. Although it slightly increased after accounting for polling station characteristics, the urban area maintained a positive relationship with voter turnout, with an association of a 2.86% higher voter turnout, which reinforces the key role of geography and area traits in driving participation differences. This finding of the study is commensurate with the works of Kübler (2019) and Baekgaard (2014), who both found a significant positive relationship between urban locality and voter turnout. Kübler's study in Switzerland showed that newspaper audience and market congruence in urban areas increased turnout in local elections, while Barone's research in Italian municipalities found that a dual ballot system, which is more common in urban areas, increased participation. However, Monroe (2018) and

Preuss (2017) presented conflicting findings. Monroe's analysis of Illinois data revealed higher turnout in rural areas, while Preuss's study in the US suggested a negative relationship between urban locality and voter turnout.

In the rejected ballot rate analysis, Model 3 first assessed any rural-urban gap without other controls. Statistically, a positive but insignificant relationship appears between urban stations and rejected ballots; that is, urban stations increase rejected ballots by 47.6% compared to rural stations. However, adding station size in Model 4 reverses the coefficient, suggesting that urban location is associated with slightly fewer rejected ballots (23.6%), although not in a statistically significant manner. Polling stations have a negative and insignificant relationship with voter turnouts. Similarly, there is a negative and insignificant relationship between the location of the polling station and the rejected ballot. Statistically, the location of the polling station reduces voter turnout by 1.5% and rejected ballots by 0.3%.

Table 3: Impact of locality on various types of rejections

	(1) STAINED BALLOT PAPER	(2) MULTIPLE CHOICE	(3) BACK THUMB PRINTED	(4) TOP THUMB PRINTED
Urban	-1.500*	2.032	-.017	.317
	(.709)	(1.337)	(.022)	(.288)
Polling station	-.013	-.007	0	-.001
	(.010)	(.023)	(0)	(.002)
Constant	12.107***	-1.501	.005	.307
	(1.956)	(3.344)	(.051)	(.402)
Observations	108	108	108	108
R-squared	.153	.125	.008	.012

Note: All the Models reports results of Ordinary least square regression. Standard errors are in parentheses. *** p<.01, ** p<.05, * p<.1

The residuals for various types of rejections are presented in Table 3. The residuals revealed a statistically significant but indirect relationship between urban locality and stained ballot paper at a significance level of 0.10 (that is, at $\alpha = 10\%$). This means that a unit increase in the number of people eligible to vote will lead to a 1.5 unit decrease in the number of stained ballot papers. The negative statistics indicate that on average, urban polling stations have 1.5(1.5%) fewer stained ballot papers than rural stations after controlling for locality**.** This finding is consistent with the study of Hodge (2015) which found a negative relationship between urban locality and stained ballot papers. He further found that urban electoral behavior is influenced by a combination of factors, including production and consumption relations, political legitimacy, and candidate credentials. These factors indirectly or negatively impact the condition of ballot papers, potentially leading to staining.

Although multiple-choice and top-thumb-printed ballot papers were revealed to have positive relationships with urban locality, these relationships were statistically non-significant. This indicates that urban localities were 2.03% and 31.7% higher than rural areas in terms of the number of multiple-choice and top-thumb-printed ballot papers, respectively. However, there was a negative and insignificant relationship between urban locality and back-thumb-printed paper. Urban polling stations had 1.7% fewer back-thumb-printed papers than rural stations.

By answering the 1st-research question “How does locality as a factor influence voter turnout?”, Objective 1 of this study was achieved. Using the residuals from Table 2, the community type was considered to be either urban or rural. The estimations generated from the study establish a positive or direct

and significant impact of the community or locality on voter turnout. The significance of the impact among the type of community was achieved at a relatively low (CI = 90%) and higher (10% or $\alpha = 0.10$) confidence level and margin of error, respectively. Urban locality had a positive relationship with voter turnout, with an association of a 2.86% higher voter turnout than rural locality, which means voter turnout in the urban locality is 2.86% higher than in the rural locality. In addition, there is a positive but insignificant relationship between urban locality and the rejected ballot. Statistically, urban locality is 23.6% higher than rural locality in terms of rejected ballot. This could explain why there is a higher voter turnout as well as rejected ballot in urban locality in general than in rural locality; however, based on our analysis, there is a positive relationship between urban locality and rejected ballot, but it is not significant.

By answering the 2-research question "How does locality affect the various types of rejected ballot?" Objective 3 was achieved in the present study. Residuals from Table 3 analyze the various reasons for ballot rejection. Based on our study, four reasons for rejection were considered: stained ballot paper, multiple choice, back thumb printed, and top thumb printed. Within the residuals, at a significance level of 0.10 (i.e., at $\alpha = 10\%$), there was an indirect but statistically significant association between urban location and stained ballot paper. The statistical analysis reveals that, even after accounting for polling station characteristics, there are, on average, 1.5 (1.5%) fewer discolored stained ballot papers at urban polling stations than at rural ones. Despite being statistically non-significant, it was found that multiple-choice and top-thumb-printed ballot papers were positively associated with urban locality. Accordingly, the percentage of multiple-choice and top-thumb ballot papers

printed in urban areas was 2.03 percent and 31.7 percent greater, respectively, than in rural regions. However, urban vicinity and back thumb-printed paper had a negative connection. The percentage of back thumb-printed papers at urban polling stations was 1.7% lower than that at rural ones. This could explain why in general the percentage of rejected ballots in rural areas is higher than in urban areas.

By answering research question 3" What are the possible interventive measures to solve the issues of voter turnout and rejected ballots in KEEA Municipal?", objective 3 was achieved.

The analysis of voter turnout and rejected ballots in the Electoral Commission of Ghana's data suggests several critical interventions necessary for improving electoral participation and reducing ballot rejection rates in the KEEA Municipal area. Given that urban areas demonstrated 2.86% higher voter turnout compared to rural areas, a targeted approach to rural voter mobilization is essential. This could involve implementing community-based voter education programs specifically designed for rural contexts, similar to what Kübler (2019) found effective in Swiss local elections. The significant presence of multiple-choice errors (averaging 11.49 instances per polling station) and improperly thumb-printed ballots (mean of 4.91 per station) indicates a pressing need for enhanced voter education initiatives. These programs should focus particularly on proper ballot completion techniques and voting procedures, with special attention to preventing multiple-choice errors which emerged as the most prevalent issue. Drawing from the insights of Hodge (2015), who found that urban electoral behavior is influenced by production and consumption relations,

the implementation of mock voting exercises in both rural and urban areas could help familiarize voters with proper voting procedures before actual elections.

Given the maximum turnout of 112.7% in some stations, establishing robust verification mechanisms and digital voter registration systems could help prevent electoral irregularities and ensure accurate voter lists. The data also suggests the need for standardized training programs for polling station workers, particularly in rural areas where stained ballot papers were more prevalent (1.5% higher than in urban areas). This training should emphasize proper ballot handling procedures and consistent application of validation criteria. Furthermore, the implementation of modern voting equipment and improved lighting conditions at polling stations could help reduce the incidence of improperly marked ballots, particularly in rural areas where infrastructure may be lacking. These interventions should be complemented by regular monitoring and evaluation processes to assess their effectiveness and make necessary adjustments, ensuring sustainable improvement in both voter turnout and ballot validity rates across the KEEA Municipal area.

Chapter Summary

The chapter contained the results and the deliberations about the results from the secondary data collated from the Electoral Commission of Ghana (2020) of the polling stations used for the study. It started by presenting the descriptive statistics of the variables under study. It then proceeded to present Ordinary Least Square Regression to analyses the Impact of locality on voter turnout and rejected ballot and also poisson distribution to examine the impact of locality disparities on various types of rejections.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter provides a synthesis of the research findings, offering a comprehensive overview of the critical insights derived from the study. The chapter begins by summarizing the key elements of the preceding chapters, consolidating the research objectives, theoretical underpinnings, and methodological approaches. It then transitions into a detailed discussion of the findings, linking them to the research questions and broader theoretical frameworks. This chapter is structured to include the main conclusions drawn from the analysis, actionable recommendations for stakeholders, and suggestions for further research to address gaps identified in the study. Additionally, the subtopics addressed include the implications of locality on voter turnout and rejected ballots, as well as strategies to improve electoral processes in Ghana.

Summary of the Study

Chapter Two provided a robust theoretical foundation for the study, drawing on frameworks such as Rational Choice Theory and Sociological Theory. These theories were instrumental in explaining the decision-making processes of voters and the sociocultural dynamics that influence electoral participation. Rational Choice Theory highlighted the cost-benefit analyses that voters undertake, which are often shaped by geographical factors like the distance to polling stations and access to information. Sociological Theory offered insights into the role of social structures, such as education and community engagement, in shaping voter turnout and ballot rejection patterns.

Together, these perspectives formed the conceptual framework for the study, outlining how locality and demographic characteristics interact to influence electoral outcomes.

Chapter Three outlined the methodological approach employed to achieve the research objectives. A quantitative research design was adopted, with secondary data sourced from the Electoral Commission of Ghana's 2020 report. The study focused on 108 polling stations purposively selected within the KEEA Municipality, based on the availability and relevance of data. The variables analyzed included locality (urban or rural), voter turnout, and ballot rejection rates, with specific attention to the types of ballot errors recorded. Advanced statistical methods, including ordinary least squares regression and Poisson distribution models, were used to examine the relationships between these variables. Rigorous pre-analysis tests ensured the reliability and validity of the findings, including assessments of data normality and distribution.

Key Findings

The first objective was to assess whether the location of the voter has a significant influence on voter turnout and ballot rejection. The analysis revealed that urban polling stations recorded higher voter turnout compared to rural polling stations, with urban localities showing a positive and significant relationship with turnout. Specifically, urban areas were associated with a 2.86% higher voter turnout, indicating that locality plays a crucial role in determining electoral participation. Regarding rejected ballots, while urban localities showed a slightly higher rate of ballot rejection than rural areas, the relationship was not statistically significant. The findings suggest that while

urban areas facilitate greater voter participation, they also experience challenges with ballot validity, albeit to a lesser extent.

The second objective was to investigate the effect of locality on various dimensions of rejected ballots. The analysis categorized rejected ballots into types, including stained ballot papers, multiple-choice errors, back-thumb printing, and top-thumb printing. Urban polling stations exhibited fewer stained ballot papers compared to rural stations, with a statistically significant negative relationship. However, urban localities had slightly higher occurrences of multiple-choice errors and top-thumb printing, though these relationships were not statistically significant. Back-thumb printing was found to be lower in urban areas, indicating that urban voters made fewer such errors than rural voters. These findings highlight variations in the types of errors contributing to ballot rejection across localities.

The third objective was to recommend possible measures to address issues of voter turnout and rejected ballots in the KEEA Municipality. The findings underscored the importance of targeted voter education programs to reduce errors in ballot completion, particularly in rural areas where rejection rates were higher for specific types of errors like stained ballot papers. Additionally, improving access to polling stations and logistical support in rural areas was identified as critical for enhancing voter turnout. The findings also suggested the need for enhanced training for polling station officials to ensure consistent application of ballot validation procedures across localities.

These findings collectively emphasize the significant role locality plays in shaping electoral outcomes, with urban and rural areas exhibiting distinct patterns of voter participation and ballot rejection. The study's results provide

a basis for formulating targeted interventions to improve electoral processes and ensure greater inclusivity in democratic participation within the KEEA Municipality

Conclusions

The first objective sought to assess whether the location of the voter has a significant influence on voter turnout and ballot rejection. The study concludes that locality significantly impacts voter turnout, with urban polling stations recording higher participation rates than rural ones. This disparity suggests that urban areas provide better access to polling stations and voter education, factors that enhance voter engagement. However, the relationship between locality and ballot rejection, while present, was not statistically significant. This implies that while urban areas may face challenges with ballot validity, these are not substantial enough to differentiate them significantly from rural areas.

The second objective aimed to investigate the effect of locality on the various dimensions of rejected ballots. The study concludes that locality influences the types of errors contributing to ballot rejection. Urban polling stations showed fewer occurrences of stained ballot papers, a statistically significant finding, suggesting that better infrastructure or voter support in these areas reduces such errors. However, urban areas had slightly higher rates of multiple-choice errors and top-thumb printing, though these were not statistically significant. The study also concludes that back-thumb printing errors were lower in urban areas, indicating that locality-specific factors such as education and familiarity with the voting process reduce certain types of ballot errors.

The third objective was to recommend possible measures to address

issues of voter turnout and rejected ballots in the KEEA Municipality. Based on the findings, the study concludes that targeted interventions are necessary to address locality-based disparities in electoral participation. For rural areas, the lack of access to polling stations and limited voter education significantly hinder participation and contribute to higher rejection rates for certain ballot errors. Enhanced voter education programs, improved infrastructure, and consistent training for polling officials are critical measures to ensure equitable electoral participation across urban and rural localities. In summary, the study concludes that locality plays a decisive role in shaping electoral outcomes, influencing both voter turnout and the nature of ballot rejection errors. Addressing these disparities requires targeted policies and interventions to improve access, education, and support for voters in rural areas while ensuring consistency and fairness across all polling stations.

Recommendations

To address the disparities in voter turnout and ballot rejection identified in the study, targeted policy interventions are essential. Policymakers must prioritize the enhancement of voter education programs, particularly in rural areas where participation is lower and errors in ballot completion are more prevalent. These initiatives should include comprehensive demonstrations of correct voting procedures and the reasons for ballot rejection, with tailored messages that reflect the specific challenges of rural communities. Additionally, infrastructure improvements, such as increasing the number of polling stations in underserved areas, are critical to reducing the logistical challenges that discourage voter participation. Strengthening electoral procedures by mandating standardized training for polling officials will ensure consistency in

the application of rules across different localities, thereby minimizing errors and enhancing voter confidence in the electoral process. Furthermore, monitoring systems should be established to address any procedural inefficiencies in urban polling stations, where higher turnout may sometimes correlate with administrative oversights or increased ballot rejection.

From a practical standpoint, electoral industry stakeholders, including civil society organizations and the Electoral Commission, must adopt innovative approaches to address these challenges. Community-based voter education programs, developed in collaboration with local leaders and tailored to the linguistic and cultural contexts of rural communities, can effectively bridge knowledge gaps. The use of technology offers an additional opportunity to modernize voter education and engagement. Instructional videos, mobile applications, and virtual education sessions can enhance voters' understanding of the electoral process, especially in urban areas with higher digital penetration. Furthermore, deploying mobile electoral teams to conduct mock voting exercises and distribute educational materials in both rural and urban areas ahead of elections can familiarize voters with proper voting procedures. These hands-on interventions will not only reduce ballot errors but also enhance overall voter confidence and participation.

Academia has a critical role to play in addressing the challenges identified in this study. Researchers should prioritize longitudinal studies that examine how demographic and infrastructural changes influence voter turnout and ballot rejection over time, offering insights into evolving electoral dynamics. Focusing on localized studies within specific contexts, such as the KEEA Municipality, can uncover nuanced barriers to electoral participation and

provide data-driven recommendations for tailored interventions. Moreover, integrating behavioral research into electoral studies can illuminate why voters make specific types of errors, such as multiple-choice mistakes or improper thumb-printing. Understanding these patterns at a psychological level can inform the design of more effective voter education campaigns. By advancing research that blends demographic, infrastructural, and behavioral perspectives, academia can provide the foundational knowledge necessary to shape future electoral reforms.

Suggestions for Further Research

Building on the limitations identified in the study, several areas warrant further exploration to deepen understanding and address gaps in electoral research. Future studies could expand their scope by exploring voter turnout and ballot rejection patterns in diverse geographic settings beyond the KEEA Municipality. Comparative analyses involving other regions in Ghana with distinct socio-cultural and infrastructural characteristics would provide a broader perspective on the influence of locality on electoral outcomes. This approach could help uncover regional variations and contribute to more targeted policy interventions tailored to the unique needs of each area.

Additionally, longitudinal research examining changes in voter turnout and ballot rejection across multiple election cycles would be valuable. Such studies could reveal how demographic shifts, urbanization, and evolving voter education programs impact electoral participation over time. By analyzing trends rather than single-time observations, researchers could provide insights into the long-term effectiveness of interventions and the persistence of challenges such as ballot rejection due to technical errors. This type of analysis

would also help track the progress of electoral reforms and their impact on rural and urban voting dynamics.

Another promising area for further research involves exploring the behavioral and psychological factors that contribute to specific types of ballot errors. Understanding why voters make mistakes, such as multiple-choice errors or improper thumb-printing, could inform the design of more effective voter education initiatives. Behavioral studies could also examine the role of socio-economic factors, literacy levels, and familiarity with voting procedures in influencing voter behavior. Moreover, investigating the perspectives of polling officials and voters on the causes of ballot rejection could provide practical insights for refining electoral processes and education strategies. These areas of research would contribute significantly to the development of evidence-based solutions for enhancing voter participation and reducing ballot errors

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