

RESEARCH ARTICLE

Comparative analysis of the government's number of Ministers or Secretaries of state of the Upper-Middle-Income countries globally according to the world Bank data.**Dr. Romaldo Isaac Lewis (DBA)***Faculty of Management and Social Science, University of Belize, Belize, Central America***ABSTRACT**

This study examines the determinants of cabinet size across upper-middle-income countries using a quantitative, cross-sectional comparative approach. Drawing on a sample of 40 countries representing multiple global regions, the research analyzes how demographic, economic, and institutional factors shape the size of national executive cabinets. The study employs both descriptive statistics and multiple linear regression to evaluate the relationship between cabinet size (dependent variable) and three key independent variables: population size, gross domestic product (GDP), and political system. Logarithmic transformations of population and GDP are used to capture proportional effects and improve model performance. The findings reveal that cabinet size varies substantially across countries, ranging from small executive structures of approximately 10 ministers to larger cabinets exceeding 37 members. Descriptive analysis shows that smaller states tend to maintain more compact cabinets, while larger and more economically complex countries exhibit expanded executive structures. The regression results indicate a positive and high ($R = 0.701$) relationship between cabinet size and the explanatory variables, with the model explaining approximately 49.9% of the variation in cabinet size. Among the predictors, population emerges as the strongest determinant, suggesting that the demographics plays a critical role in shaping government structure. Gross Domestic Product (GDP) size also shows a positive but weaker influence, while the political system variable exhibits a limited and mixed effect. The study further applies the estimated model to Belize, demonstrating that its predicted cabinet size of approximately 19 ministers aligns with its demographic and economic. Overall, the findings support a meaningful explanation to reject the Null Hypothesis, that Belize has a deficit in the number of ministers needed in the Cabinet according the population size and the GDP. Additionally, the study contributes to the literature on comparative public administration by highlighting the importance of aligning executive structures with functional governance needs.

Keywords: *Upper-middle-income, Population size, Gross domestic product (GDP), Regression, Political system, Cross-sectional comparative approach, Logarithmic transformations.*

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1. INTRODUCTION

Effective public administration depends significantly on the institutional design of the executive branch of government. Among the most important features of executive organization is the numerical composition of ministers or secretaries of state, which determines how governmental responsibilities are distributed, coordinated, and managed. The size and structure of executive cabinets influence policy formulation, administrative efficiency, inter-ministerial coordination, accountability, and the government's capacity to respond to increasingly complex national and global challenges. In recent years, governments have operated in an environment characterized by economic uncertainty, fiscal constraints, digital transformation, climate change, public health challenges, and increasing citizen expectations for transparent and effective governance. (OECD, 2025; World Bank, 2025).

These developments have intensified the need for executive institutions that are capable of delivering coherent policies while maintaining administrative efficiency. International organizations have emphasized that governments must continuously modernize their institutional arrangements to strengthen policy coordination, improve service delivery, and enhance public sector performance. The executive cabinet serves as the principal decision-making body within government and provides political leadership across ministries and departments. Although every sovereign state establishes executive institutions according to its constitutional framework, political system, and national priorities, the number of ministers or secretaries of state differs considerably across countries. Cabinet composition is influenced by multiple factors, including population size, economic development, administrative complexity, political representation, decentralization, and governance traditions. (OECD, 2025; World Bank, 2025).

The World Bank classifies countries into income groups based on Gross National Income (GNI) per capita, providing a useful framework for comparative public administration research. Upper-middle-income countries occupy an important developmental stage characterized by expanding economies, increasing institutional complexity, and growing demands for efficient public governance. These countries are expected to strengthen public institutions capable of supporting sustainable economic growth, effective regulation, digital government, environmental management, and improved public service delivery. As governments assume broader responsibilities, executive structures must evolve to ensure that ministries are appropriately organized to manage increasingly specialized policy portfolios (World Bank, 2025).

Despite the importance of executive organization, comparatively little empirical research has examined the numerical composition of ministers or secretaries of state across upper-middle-income countries. Existing governance studies primarily focus on institutional quality, government effectiveness, public sector performance, regulatory quality, and accountability rather than the organizational characteristics of executive cabinets themselves. The Worldwide Governance Indicators demonstrate that effective institutions contribute significantly to national development; however, these indicators do not directly assess whether the size of executive cabinets influences

governance outcomes or administrative performance (World Bank, 2025).

Comparative analysis offers an appropriate methodological approach for examining similarities and differences in executive institutional arrangements among countries with comparable levels of economic development. By comparing the numerical composition of ministers or secretaries of state across upper-middle-income countries located within the seven continents, it becomes possible to identify common governance patterns, institutional variations, and potential relationships between cabinet size and national governance characteristics. Such comparisons may also provide evidence-based benchmarks that can inform executive institutional reform and public sector modernization. The relevance of this study extends to countries seeking to improve the efficiency and effectiveness of their executive governments. For example, Belize, classified by the World Bank as an upper-middle-income economy, continues to pursue institutional modernization while addressing emerging governance challenges associated with economic diversification, fiscal sustainability, climate resilience, digital transformation, and public sector innovation.

The study seeks to identify prevailing patterns in cabinet composition, examine differences among countries with similar levels of economic development, and contribute empirical evidence to the growing body of comparative public administration and governance literature. The findings are expected to provide policymakers, scholars, and public administrators with a stronger evidence base for evaluating executive institutional design and its implications for administrative effectiveness, policy coordination, and sustainable national development.

Belize is classified by the World Bank as an upper-middle-income country and has demonstrated steady progress in economic recovery, fiscal management, and debt reduction. However, the country continues to face significant structural challenges, including vulnerability to climate change, limited fiscal space, public sector expenditure pressures, and the need to strengthen institutional capacity. These challenges require a public administration that is efficient, coordinated, and capable of implementing national development priorities effectively. As Belize continues to pursue public sector modernization under its national development agenda, the structure of the executive branch including the number and distribution of ministerial or secretarial portfolios becomes increasingly relevant to effective governance. (World Bank, 2024)

Despite the importance of executive institutional design, limited scholarly research has examined whether the numerical composition of ministerial or secretarial positions within the Government of Belize is consistent with governance practices observed in comparable upper-middle-income countries. Existing studies have generally concentrated on Belize's economic development, fiscal management, democratic institutions, or public administration reforms, while comparatively little attention has been given to cabinet size and ministerial organization as determinants of executive effectiveness. This gap in the literature demonstrates the need for empirical research that examines Belize's executive structure through comparative international analysis. This study is further justified because comparative governance research recognizes that institutional design plays an important role in improving government effectiveness.

Public administrations serve as the primary institutions responsible for translating government policies into public services and development outcomes. Well-designed executive institutions can strengthen inter-ministerial coordination, improve policy implementation, enhance accountability, and facilitate efficient resource allocation across government ministries. Consequently, evaluating the numerical composition of ministerial positions contributes to understanding whether existing

executive arrangements adequately support effective governance. The study also has practical significance for public policy and institutional reform in Belize. Governments must balance several competing considerations when determining cabinet composition, including administrative efficiency, political representation, fiscal sustainability, and the increasing specialization required to address complex policy issues. Comparative analysis with other upper-middle-income countries provides an evidence-based benchmark that can assist policymakers in assessing whether Belize's current executive structure reflects international practices and supports effective governance. (World Bank, 2024).

Furthermore, the study contributes to discussions on governance within small states. Belize possesses characteristics common to many small developing states, including a relatively small population, limited administrative capacity, constrained public financial resources, and increasing exposure to external economic and environmental shocks. International evidence suggests that strengthening public administration and institutional effectiveness is particularly important for small states because efficient governance enables governments to maximize limited resources while responding to complex development challenges. Evaluating the appropriate numerical composition of ministerial or secretarial positions is therefore relevant to ensuring that executive institutions remain responsive, efficient, and fiscally sustainable. The research is also justified by its contribution to evidence-based governance. Comparative analysis of executive structures among upper-middle-income countries can identify institutional practices that promote effective policy coordination, administrative efficiency, and government performance. The findings may provide useful information for policymakers, public administrators, legislators, and governance practitioners engaged in future public sector reforms. (OECD, 2024; World Bank, 2024)

2. LITERATURE REVIEW

2.1 Governance & Executive Institutional Design

Governance and executive institutional design constitute central themes in public administration and political science because they determine how authority is structured, how policies are formulated, and how governments deliver public services. Governance broadly refers to the systems, processes, and institutional arrangements through which public authority is exercised and collective decisions are implemented. Within this framework, executive institutional design focuses on the organization of executive power, including cabinets, ministries, and administrative bodies responsible for implementing government policies (Singh, 2024).

Modern governance theory emphasizes that institutions play a decisive role in shaping the effectiveness of public management and policy outcomes. Institutional structures define the distribution of authority among political actors, determine accountability mechanisms, and influence coordination between government agencies. According to recent scholarship, governance systems are not only shaped by legal frameworks but also by administrative traditions, political culture, and historical development. These institutional characteristics influence how executive power is exercised and how governments respond to complex policy challenges (Singh, 2024).

Executive institutional design also determines how governments coordinate policy actions across ministries and agencies. Effective institutional arrangements facilitate collaboration among government departments and ensure coherent policy implementation. Research on collaborative governance indicates that institutional design provides the structural framework for coordination,

learning, and collective decision-making among public institutions. However, institutional arrangements alone are insufficient; leadership and administrative capacity are also required to ensure that governance structures function effectively (Di Mascio, Coletti, & Natalini, 2025).

Another important dimension of executive institutional design is the balance between centralization and decentralization within government systems. Decentralized governance structures can enhance responsiveness to local needs and increase citizen trust in public institutions. Studies examining governance arrangements across multiple countries demonstrate that higher levels of local autonomy and shared decision-making across government tiers can strengthen accountability and improve public confidence in the civil service. In recent years, governance research has also focused on institutional adaptability and the ability of executive institutions to respond to emerging policy challenges such as economic crises, technological transformation, and global governance pressures. Institutional designs vary significantly across countries due to differences in administrative cultures and state structures. Comparative studies of crisis governance demonstrate that governments adopt diverse institutional arrangements depending on their historical administrative traditions and political systems. (Nelson, 2026).

These differences influence how effectively governments coordinate responses to complex societal challenges. Furthermore, contemporary public administration research highlights the growing importance of institutional capacity in shaping governance outcomes. Governments increasingly rely on new technologies, data-driven decision-making, and digital governance frameworks to enhance administrative efficiency and transparency. Strengthening institutional capacity and improving administrative decision-making processes are therefore critical components of modern executive institutional design (Kuhlmann et al., 2024).

2.2 Comparative Cabinet Size and Ministerial Structures

Comparative studies of executive institutions increasingly recognize cabinet size and ministerial structures as fundamental indicators of how governments organize executive authority, allocate political responsibility, and coordinate public policy. Cabinet organization differs considerably across countries because of variations in constitutional arrangements, political systems, coalition dynamics, administrative traditions, and governance priorities.

These institutional differences influence the effectiveness of policy coordination, executive accountability, and governmental performance. Cabinet size generally refers to the number of ministers who collectively constitute the executive decision-making body, while ministerial structure refers to the organization, distribution, and hierarchy of ministerial portfolios within government. Comparative evidence demonstrates substantial variation in cabinet size across democratic and presidential systems. Some governments maintain relatively small cabinets to facilitate efficient decision-making and stronger policy coordination, whereas others establish larger cabinets to accommodate coalition partners, regional interests, and expanding government responsibilities. Recent cross-national research shows that cabinet size is shaped not only by population and administrative complexity but also by institutional and political factors, particularly the nature of executive-legislative relations and party systems. (Albala et al., 2024; Helms & Vercesi, 2022)

Political institutions play a central role in determining cabinet composition. In parliamentary democracies, coalition governments frequently require additional ministerial appointments to distribute executive authority among coalition partners and maintain legislative support.

Consequently, coalition governments often have larger and more diverse cabinets than single-party governments. Contemporary research on comparative cabinet politics emphasizes that cabinet formation and subsequent reshuffles are strategic mechanisms through which prime ministers balance political stability, party interests, and executive performance (Helms & Vercesi, 2022).

Ministerial structures also differ according to how governments allocate policy responsibilities across ministries. Some countries consolidate related policy sectors into broad ministries commonly referred to as "super-ministries" to improve coordination and reduce bureaucratic fragmentation. For example, governments may integrate education, science, and innovation within a single ministry or combine energy and environmental portfolios to strengthen policy coherence. Conversely, other countries maintain highly specialized ministries to promote technical expertise and focused policy implementation. Comparative analyses of ministerial structures across multiple countries indicate that organizational reforms frequently reflect changes in political priorities, administrative modernization, and public sector reforms rather than purely constitutional requirements.

The increasing complexity of public governance has also encouraged governments to establish new ministerial portfolios addressing emerging policy areas such as digital transformation, cybersecurity, climate change, innovation, and artificial intelligence. These institutional adaptations demonstrate that ministerial structures are dynamic rather than static, evolving in response to changing domestic and global policy challenges. Executive restructuring has therefore become an important mechanism for enhancing governmental responsiveness and improving policy integration across departments (Bach & Hustedt, 2023).

Another important aspect of comparative cabinet organization concerns executive hierarchy. Many governments distinguish between cabinet ministers, ministers of state, deputy ministers, parliamentary secretaries, and political advisers. These additional executive positions allow governments to distribute leadership responsibilities without substantially increasing the size of the core cabinet. Research on executive institutions suggests that differentiated ministerial hierarchies improve administrative coordination, facilitate policy specialization, and strengthen communication between political leaders and the civil service (Bach & Hustedt, 2023; Moens, 2023).

Beyond cabinet size, recent comparative scholarship has increasingly focused on cabinet composition and diversity. Many democratic governments have expanded efforts to improve gender representation, professional expertise, and social inclusiveness within executive leadership. These developments reflect broader trends toward representative governance and evidence-based policymaking. At the same time, cabinet reshuffles have become common instruments through which heads of government adjust executive performance, respond to political crises, reward party loyalty, or accommodate coalition demands.

Rather than being merely administrative exercises, cabinet reshuffles are now widely regarded as strategic tools of executive governance and political management. Ultimately, cabinet size and ministerial organization are shaped by the interaction of constitutional arrangements, political institutions, administrative capacity, and governance priorities. Comparative analysis therefore provides valuable insights into how governments design executive institutions to balance efficiency, accountability, representation, and policy effectiveness in increasingly complex governance environments. (Helms & Vercesi, 2022).

2.3. Governance in Small States and Caribbean Economies

Governance in small states has received increasing attention within public administration and development studies because these countries face structural conditions that differ significantly from those of larger economies. Small states are generally characterized by limited populations, narrow economic bases, geographic isolation, restricted economies of scale, and high vulnerability to external economic, environmental, and geopolitical shocks. These characteristics shape the organization of government institutions, public sector performance, and the capacity of governments to formulate and implement effective public policies (United Nations [UN], 2024; World Bank, 2024).

Within the Caribbean, governance is influenced by the dual challenge of maintaining effective public administration while addressing persistent economic, social, and environmental vulnerabilities. Most Caribbean countries are classified as Small Island Developing States (SIDS), requiring governments to operate within limited fiscal and administrative capacities while responding to increasingly complex governance demands, including climate resilience, economic diversification, digital transformation, and sustainable development. Consequently, governance arrangements in Caribbean states must be flexible, resilient, and responsive to rapidly changing domestic and international conditions (UN, 2024).

One of the principal governance challenges facing Caribbean small states is limited institutional capacity. Small populations often result in a restricted pool of highly skilled professionals available to serve within the public sector. This challenge is further intensified by the migration of skilled workers to larger economies, commonly referred to as brain drain, which reduces governments' ability to design, implement, and evaluate complex public policies. To address these constraints, governments frequently adopt multifunctional ministries, cross-sectoral coordination mechanisms, and flexible administrative arrangements that maximize the efficient use of limited human resources (Organization for Economic Co-operation and Development [OECD], 2024).

Another defining characteristic of governance in small states is the relatively high cost of maintaining public institutions. Regardless of population size, governments must establish ministries, regulatory agencies, judicial systems, and essential public services. Because these institutional costs are distributed across comparatively small populations and economies, government expenditure on administration often represents a higher proportion of national income than in larger countries. This structural reality reinforces the importance of institutional efficiency, sound fiscal management, and strategic resource allocation to ensure effective governance (International Monetary Fund [IMF], 2023).

Despite these structural constraints, Caribbean countries have demonstrated notable strengths in democratic governance and institutional stability. Most countries in the region maintain competitive electoral systems, constitutional government, peaceful transfers of political power, and relatively high levels of civic participation. The World Bank's Worldwide Governance Indicators continue to show that several Caribbean countries perform comparatively well in areas such as government effectiveness, political stability, regulatory quality, and the rule of law when compared with many developing regions. Environmental vulnerability is another defining feature of governance in Caribbean economies. As SIDS, Caribbean nations are disproportionately exposed to hurricanes, sea-level rise, coastal erosion, biodiversity loss, and other climate-related hazards. (World Bank, 2024).

These risks have required governments to integrate disaster risk reduction, climate adaptation, environmental governance, and resilience planning into national development strategies. The adoption of the Antigua and Barbuda Agenda for SIDS (ABAS) during the Fourth International Conference on Small Island Developing States reaffirmed the international commitment to strengthening governance institutions that support resilience, sustainable development, and disaster preparedness in small island economies. Collaborative governance has become an increasingly and emerged as an important mechanism for strengthening institutional capacity in Caribbean economies. In this model, governments work alongside civil society organizations, private sector actors, and international institutions to implement development policies and public programs. Such partnerships allow small states to pool resources, share expertise, and enhance policy outcomes. However, studies indicate that while collaborative governance frameworks are widely recognized as beneficial, their implementation across small island states remains uneven due to institutional constraints and varying levels of political commitment. Regional integration also plays a crucial role in governance within Caribbean economies. (UN, 2024).

Organizations such as the Caribbean Community (CARICOM) and other regional frameworks facilitate policy coordination, economic cooperation, and collective responses to external shocks. Through these regional arrangements, small states are able to address shared challenges, including trade negotiations, climate policy, disaster management, and economic diversification. Regional governance structures thus serve as an important mechanism for overcoming the limitations associated with small national administrative systems.

Furthermore, globalization and external economic dependencies significantly shape governance in Caribbean economies. Small states are highly integrated into global markets and often depend on a limited number of economic sectors, such as tourism, agriculture, or financial services. This economic structure makes them particularly sensitive to global economic fluctuations, natural disasters, and international regulatory changes. Consequently, effective governance requires flexible policy frameworks capable of managing economic volatility while promoting sustainable development and social inclusion. Recent international policy discussions, including global initiatives focused on Small Island Developing States, emphasize the need for governance reforms that enhance resilience, institutional capacity, and sustainable development pathways. These initiatives recognize that small states require tailored governance strategies that reflect their unique structural conditions, including geographic isolation, environmental vulnerability, and limited economies of scale.

2.4 Economic Development and Government Administrative Capacity

Economic development is closely linked to the administrative capacity of government institutions. Government administrative capacity refers to the ability of public institutions to design, implement, and evaluate policies effectively, manage resources efficiently, and deliver public services that support economic growth and social welfare. In recent years, scholars and international organizations have increasingly emphasized that strong administrative institutions are fundamental for achieving sustainable economic development, particularly in developing and small economies. Administrative capacity encompasses several dimensions, including bureaucratic competence, policy coordination, regulatory effectiveness, and institutional accountability. Governments with strong administrative systems are better positioned to implement development strategies, manage public investments, regulate markets, and support private sector growth. According to recent governance research, countries with higher levels of bureaucratic quality and institutional effectiveness tend to experience

stronger economic performance and more stable development outcomes (Fukuyama, 2021).

Effective public administration enables governments to coordinate complex economic policies, facilitate infrastructure development, and manage economic reforms that stimulate long-term growth. Public sector institutions play a critical role in shaping the environment in which economic activity occurs. Administrative capacity influences the ability of governments to implement fiscal policies, manage public expenditures, regulate financial systems, and ensure transparency and accountability. (World Bank, 2023).

The World Bank emphasizes that capable public institutions are essential for creating an enabling environment for investment, entrepreneurship, and economic diversification. When administrative systems are weak or inefficient, policy implementation becomes inconsistent, corruption risks increase, and economic performance may be hindered. In developing economies, administrative capacity is often constrained by limited financial resources, shortages of skilled personnel, and institutional fragmentation. These limitations can affect governments' ability to design and execute development programs effectively. Research on state capacity highlights that many developing countries struggle to translate policy intentions into practical outcomes due to bureaucratic inefficiencies or insufficient institutional coordination (OECD, 2022).

Strengthening administrative systems through professional training, institutional reforms, and digital governance initiatives has therefore become a central component of development strategies. Digital transformation has emerged as an important tool for improving government administrative capacity and supporting economic development. Digital governance systems can enhance public sector efficiency by improving data management, reducing bureaucratic delays, and increasing transparency in government operations. Recent studies suggest that the adoption of digital public services and e-government platforms can improve administrative effectiveness and facilitate economic activities such as business registration, tax collection, and regulatory compliance (United Nations, 2022).

These technological innovations can reduce administrative burdens on businesses and promote a more efficient regulatory environment that supports economic growth. Another important dimension of administrative capacity is policy coordination across government institutions. Economic development policies often require cooperation between multiple ministries, regulatory agencies, and levels of government. Effective coordination ensures that fiscal policy, industrial policy, education policy, and infrastructure planning are aligned toward shared development goals. Studies of institutional governance show that fragmented administrative structures can weaken policy coherence and reduce the effectiveness of development initiatives. Strengthening inter-agency coordination mechanisms and improving strategic planning processes are therefore essential for enhancing the effectiveness of government interventions in the economy. Administrative capacity also influences the ability of governments to respond to economic crises and external shocks. The COVID-19 pandemic demonstrated how government effectiveness and institutional readiness affect economic resilience. (Andrews et al., 2023).

Countries with stronger administrative systems were generally able to implement economic relief programs more rapidly and coordinate public health and economic policies more effectively. This experience reinforced the importance of institutional preparedness, crisis management capabilities, and adaptive governance in promoting long-term economic stability. For small and developing economies, improving administrative capacity is particularly important because governments often play a central role in guiding economic development. In these contexts, the public sector frequently

leads strategic initiatives related to infrastructure development, investment promotion, and social programs. Effective governance structures, transparent regulatory systems, and professional public administration can strengthen investor confidence and encourage economic diversification. (International Monetary Fund, 2021).

2.5 Political Economy of Cabinet Formation.

The political economy of cabinet formation examines how political actors allocate ministerial positions and structure executive governments in response to institutional rules, electoral outcomes, and strategic incentives. Cabinet formation is a critical process in democratic governance because it determines the distribution of political power within the executive branch and shapes the government's ability to formulate and implement public policy. Contemporary scholarship emphasizes that cabinet formation reflects both political bargaining among elites and broader economic and institutional constraints that influence governance outcomes. In parliamentary and semi-presidential systems, cabinet formation typically occurs after elections when political parties negotiate to establish a governing coalition or majority government.

The allocation of ministerial portfolios is often influenced by the relative strength of political parties, ideological compatibility, and the strategic importance of specific policy areas such as finance, defense, or economic planning. Recent research suggests that ministerial portfolios are frequently distributed according to proportional bargaining principles, where coalition partners receive cabinet positions roughly in proportion to their legislative strength. This approach helps maintain coalition stability and ensures that participating parties have incentives to support government policies. The political economy perspective highlights how ministerial positions represent valuable political resources that parties use to influence policy outcomes and control government spending. Ministries responsible for economic policy such as finance, trade, or development are often considered highly strategic because they shape fiscal policy, economic regulation, and national development strategies. Consequently, political parties may compete intensely for these portfolios during coalition negotiations. (Bäck, Debus, & Müller, 2022).

Empirical studies indicate that parties with strong economic policy agendas or greater parliamentary influence are more likely to secure control over these key ministries. Institutional arrangements also play an important role in shaping cabinet formation. Constitutional frameworks, electoral systems, and legislative structures influence how governments are formed and how ministerial portfolios are distributed. For example, proportional representation electoral systems tend to produce coalition governments, which require complex negotiations among multiple parties. In contrast, majoritarian electoral systems often result in single-party governments with greater autonomy in cabinet appointments. These institutional differences create variation in cabinet size, portfolio allocation, and executive decision-making structures across countries. Economic conditions can further influence cabinet formation and composition. (Helms & Vercesi, 2022).

During periods of economic crisis or fiscal instability, governments may prioritize technocratic expertise and appoint ministers with professional backgrounds in economics, finance, or public administration. Research on cabinet appointments indicates that governments often incorporate technocrats into key economic ministries to enhance credibility with financial markets and international institutions. This trend reflects the growing importance of economic governance in contemporary political systems. Another important dimension of cabinet formation involves considerations of political representation and inclusivity. Governments increasingly face pressures to

ensure that cabinets reflect demographic diversity, regional representation, and gender balance. Studies on executive politics show that many countries have adopted policies or political norms aimed at improving gender representation in ministerial appointments. Over the past decade, the proportion of women serving in cabinet positions has gradually increased across democratic systems, reflecting broader commitments to inclusive governance and political equality (Kroeber & Hüffelmann, 2024).

In addition to political representation, the structure of cabinet portfolios often reflects governments' policy priorities and administrative strategies. Governments may reorganize ministries, merge policy areas, or create new departments to address emerging challenges such as digital transformation, climate change, or economic development. Cabinet restructuring can therefore serve as a strategic tool for improving policy coordination and signaling policy priorities to both domestic and international audiences. Scholars emphasize that cabinet reshuffles and structural adjustments are common mechanisms used by governments to maintain political support and improve administrative efficiency. The political economy of cabinet formation is particularly relevant in small states and developing economies, where political leadership and executive institutions often play a central role in economic governance. In these contexts, cabinet appointments can significantly influence policy direction, investment strategies, and public sector reforms. Because executive institutions may concentrate substantial authority in the cabinet, the composition and structure of ministerial portfolios can shape national development strategies and the effectiveness of government decision-making. Overall, the political economy approach highlights that cabinet formation is not merely an administrative process but a strategic political negotiation shaped by institutional rules, electoral outcomes, economic conditions, and governance priorities. Understanding these dynamics provides valuable insights into how executive governments allocate power, manage political coalitions, and design institutional structures to achieve policy objectives. (Helms & Vercesi, 2022).

2.6 Political Economy of Cabinet Formation.

Public sector efficiency and government expenditure are central topics in public finance and governance studies because they directly influence economic performance, service delivery, and fiscal sustainability. Public sector efficiency refers to the ability of governments to achieve policy objectives and deliver public services while minimizing costs and optimizing the use of available resources. Government expenditure, on the other hand, represents the financial resources allocated by the state to support public programs, infrastructure, social services, and administrative operations. The relationship between these two elements is crucial for understanding how governments manage public finances to promote economic development and social welfare. Recent research highlights that efficient public expenditure management is essential for improving government performance and ensuring that public resources generate maximum social and economic benefits. Governments allocate significant portions of their national budgets to sectors such as education, healthcare, infrastructure, and public administration. However, the effectiveness of these expenditures depends largely on institutional capacity, transparency, and policy coordination. Studies suggest that countries with stronger governance institutions and effective public financial management systems tend to achieve higher levels of efficiency in public spending. Public sector efficiency is often evaluated through indicators such as service delivery quality, fiscal discipline, administrative productivity, and the outcomes of public investments. Efficient governments are able to deliver services such as education, healthcare, and public infrastructure while maintaining fiscal stability and minimizing waste. (International Monetary Fund [IMF], 2023).

In contrast, inefficient public spending may lead to budget deficits, resource misallocation, and

reduced public trust in government institutions. According to recent analyses by international financial institutions, improving public expenditure efficiency can significantly enhance economic growth and development outcomes without necessarily increasing overall government spending levels. Fiscal transparency and accountability are also key factors that influence the efficiency of government expenditure. Transparent budgeting processes allow policymakers and citizens to monitor how public resources are allocated and used. When governments implement clear reporting mechanisms, independent audits, and performance-based budgeting systems, they are better able to control inefficiencies and reduce corruption. Recent studies emphasize that public sector reforms focused on improving accountability and fiscal transparency can strengthen expenditure management and enhance the effectiveness of government programs. (Organization for Economic Co-operation and Development [OECD], 2023).

In addition, digital technologies have increasingly been used to improve the efficiency of government expenditure. Digital public financial management systems allow governments to track budget allocations, monitor expenditures in real time, and improve procurement processes. These innovations can reduce administrative costs and improve transparency by limiting opportunities for mismanagement or corruption. The adoption of digital governance tools, including e-procurement platforms and integrated financial management systems, has therefore become a major strategy for strengthening public sector efficiency in both developed and developing economies. Another important aspect of public sector efficiency involves the prioritization of public expenditures. Governments must allocate limited resources across competing policy areas, including social welfare programs, economic development initiatives, and public administration. Strategic expenditure planning ensures that resources are directed toward programs that generate the highest social and economic returns. Research in public economics indicates that investments in education, infrastructure, and health services tend to produce long-term benefits that support sustainable economic development and human capital formation (OECD, 2024).

Public sector efficiency is particularly important in developing countries and small economies where fiscal resources are limited and governments must carefully manage expenditures to maintain economic stability. In these contexts, inefficient spending can have significant economic consequences because public budgets represent a large share of national economic activity. Strengthening public financial management systems, improving administrative capacity, and implementing evidence-based policy evaluation can help governments enhance the efficiency of public expenditures.

Furthermore, recent global economic challenges including the COVID-19 pandemic and rising fiscal pressures have intensified the need for efficient government spending. Governments around the world significantly increased public expenditures to support health systems, economic recovery programs, and social protection initiatives. (IMF, 2023).

2.7 Constitutional and Institutional Framework of Belize

The constitutional and institutional framework of Belize forms the foundation of the country's governance system and defines the structure, powers, and responsibilities of its political institutions. Belize operates as a parliamentary democracy within the Commonwealth, based on the principles established in the Constitution of Belize of 1981, which came into force at the time of independence. This constitution establishes the legal and institutional framework for the organization of government, including the executive, legislative, and judicial branches, while also guaranteeing fundamental rights

and freedoms for citizens. Belize follows the Westminster model of parliamentary governance, which emphasizes the fusion of executive and legislative powers. Under this system, executive authority is formally vested in the Governor-General, who represents the British monarch as the ceremonial head of state. However, executive power is exercised in practice by the Prime Minister and the Cabinet, who are responsible for directing government policy and administration. The Prime Minister is typically the leader of the political party that holds the majority of seats in the National Assembly, and the Cabinet is composed of ministers appointed from among elected members of the legislature. This arrangement ensures political accountability because ministers remain directly responsible to the National Assembly and the electorate (Ryan, 2021).

The legislative branch of Belize consists of the National Assembly, which is a bicameral parliament composed of the House of Representatives and the Senate. The House of Representatives serves as the lower chamber and is made up of elected members representing constituencies across the country. Members of the House are elected through a first-past-the-post electoral system, which is typical of Westminster-style democracies. The Senate functions as the upper chamber and is composed of appointed members who represent various sectors of society, including political parties, civil society organizations, and professional groups. The Senate reviews legislation passed by the House of Representatives and provides an additional level of scrutiny in the legislative process. The judicial branch in Belize operates independently of the executive and legislative branches, ensuring the rule of law and the protection of constitutional rights. The judiciary includes the Magistrates' Courts, the Supreme Court of Belize, and the Court of Appeal. At the regional level, Belize recognizes the jurisdiction of the Caribbean Court of Justice (CCJ) as its final appellate court. The adoption of the CCJ as the highest court of appeal reflects Belize's participation in regional legal institutions and its commitment to strengthening judicial independence and regional integration. (Caribbean Court of Justice, 2022).

Institutionally, the executive branch plays a central role in policymaking and public administration. The Cabinet is responsible for the formulation and implementation of national policies and oversees the operations of government ministries and public agencies. Each ministry is headed by a minister who is accountable for specific policy areas such as finance, health, education, agriculture, or national security. The Prime Minister coordinates the activities of the Cabinet and ensures policy coherence across different government departments. This centralized executive structure is characteristic of parliamentary systems and allows the government to respond efficiently to national policy priorities (Sutton, 2022).

In addition to the core branches of government, Belize's institutional framework includes several independent bodies and oversight institutions that support democratic governance and accountability. These include the Elections and Boundaries Commission, the Office of the Auditor General, and the Integrity Commission. These institutions are designed to ensure transparency in public administration, monitor government expenditures, and uphold ethical standards in public office. Strengthening the effectiveness of these oversight mechanisms has become an important component of governance reforms aimed at improving public sector accountability and institutional performance. The constitutional framework of Belize also incorporates provisions for the protection of fundamental rights and freedoms. These include rights related to personal liberty, freedom of expression, freedom of assembly, and protection from discrimination. (Caribbean Court of Justice, 2022)

The judiciary plays a critical role in interpreting these constitutional protections and ensuring that government actions remain consistent with constitutional principles. Over time, Belize's legal institutions have contributed to the development of constitutional jurisprudence that supports democratic governance and the rule of law. Recent discussions on governance in Belize have also emphasized the importance of institutional modernization and administrative reforms. As a small developing state, Belize faces challenges related to limited administrative capacity, fiscal constraints, and the need to strengthen public sector efficiency. Consequently, policymakers and scholars have highlighted the need to improve institutional coordination, enhance transparency in government operations, and modernize public administration systems. These reforms are intended to strengthen the effectiveness of the constitutional framework and ensure that governance institutions can effectively support economic development and public service delivery. Furthermore, Belize participates actively in regional governance structures within the Caribbean Community (CARICOM) and other international organizations. (Inter-American Development Bank, 2021).

2.8 Benchmarking Upper-Middle-Income Countries

Benchmarking upper-middle-income countries has become an important analytical approach in development economics and public policy because it enables policymakers and researchers to compare economic performance, institutional quality, and governance structures across countries with similar income levels. Upper-middle-income countries (UMICs), as classified by the World Bank, are economies with a gross national income (GNI) per capita ranging approximately between \$4,466 and \$13,845 (updated periodically). These countries often represent transitional economies that have moved beyond low-income status but continue to face structural challenges related to productivity, inequality, institutional development, and economic diversification. Benchmarking allows governments to evaluate their performance relative to peer countries by using standardized indicators such as economic growth, public sector efficiency, governance quality, human development, and institutional capacity. This comparative analysis helps identify strengths and weaknesses in national development strategies and provides insights into best practices that can inform policy reforms. In recent years, international development organizations have increasingly emphasized benchmarking as a tool for improving policy design and enhancing accountability in public administration. One of the primary objectives of benchmarking UMICs is to assess economic performance and structural transformation. (World Bank, 2023)

Many countries in this category experience rapid economic growth during the transition from lower-income status but later face what economists refer to as the "middle-income trap," where economic growth slows as countries struggle to move from labor-intensive industries toward innovation-driven economies. Comparative studies highlight that successful UMICs typically invest in human capital, technological innovation, and institutional reforms that promote productivity growth and economic diversification. Governance quality and institutional effectiveness are also important dimensions of benchmarking among upper-middle-income countries. Institutional capacity including regulatory quality, rule of law, and government effectiveness plays a critical role in shaping economic development outcomes. Research shows that UMICs with stronger governance frameworks tend to achieve more stable economic growth and better social development indicators. Effective institutions support private sector development, facilitate investment, and ensure that public policies are implemented efficiently. (Gill & Kharas, 2022)

Another key component of benchmarking involves fiscal performance and public sector management. Governments in upper-middle-income economies must balance increasing public demands for social

services with the need to maintain fiscal discipline. Comparative fiscal analysis examines how governments allocate public expenditures, manage public debt, and implement taxation policies. Countries that maintain efficient public financial management systems and transparent budgeting practices are generally more successful in sustaining long-term planning. Human development indicators are also widely used in benchmarking exercises. These include measures such as education attainment, healthcare access, income inequality, and poverty reduction. Many UMICs experience improvements in these indicators as their economies grow; however, disparities often remain across regions and social groups. (United Nations Development Programmed, 2023).

Comparative studies emphasize that inclusive policies such as investments in education, healthcare systems, and social protection programs are essential for ensuring that economic growth translates into broader improvements in human well-being. In addition to economic and social indicators, benchmarking increasingly incorporates environmental sustainability and climate resilience. Upper-middle-income countries often experience rapid industrialization and urbanization, which can place pressure on natural resources and environmental systems. As a result, sustainable development strategies have become a major component of benchmarking frameworks. Countries are increasingly evaluated based on their ability to integrate environmental policies with economic development strategies, particularly in areas such as renewable energy, sustainable infrastructure, and climate adaptation. For small states and developing economies, benchmarking against upper-middle-income peers provides valuable insights into policy effectiveness and institutional performance. Small economies often face unique structural challenges including limited domestic markets, vulnerability to external shocks, and constrained administrative capacity that can affect their ability to sustain economic growth. (World Bank, 2023)

By comparing governance structures, fiscal policies, and development outcomes with similar countries, policymakers can identify strategies for improving economic resilience and institutional effectiveness. Furthermore, benchmarking frameworks are widely used by international organizations to monitor progress toward global development goals. These frameworks rely on standardized datasets that allow countries to track performance over time and measure improvements relative to other economies within the same income category. Such comparative analyses contribute to evidence-based policymaking and support governments in designing reforms that enhance competitiveness and development outcomes. (World Bank, 2023).

2.9 Governance Indicators and Institutional Performance

Governance indicators and institutional performance have become essential tools for evaluating the effectiveness, accountability, and quality of public institutions across countries. Governance indicators are quantitative or qualitative measures used to assess how well governments exercise authority, manage public resources, implement policies, and deliver services to citizens. Institutional performance refers to the ability of government institutions to fulfil their functions efficiently, maintain transparency, uphold the rule of law, and support economic and social development. In recent years, governance indicators have been widely used by international organizations, policymakers, and scholars to compare institutional effectiveness and identify areas for public sector improvement. One of the most widely used frameworks for assessing governance performance is the Worldwide Governance Indicators (WGI) developed by the World Bank. The WGI framework evaluates governance across six key dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators provide a comprehensive view of how institutions function and how

governance quality influences economic and social outcomes. Research shows that countries with higher scores in governance indicators tend to experience stronger economic growth, better public service delivery, and greater institutional stability. (Kaufmann & Kraay, 2023).

Government effectiveness, one of the core governance indicators, measures the quality of public services, the competence of civil servants, and the ability of governments to formulate and implement sound policies. High levels of government effectiveness are associated with improved policy outcomes and greater public trust in government institutions. Recent studies emphasize that governments with strong administrative systems and professional public sectors are better equipped to respond to complex challenges such as economic crises, environmental risks, and technological change. Regulatory quality is another important dimension of institutional performance. This indicator evaluates the ability of governments to design and enforce policies that support private sector development and economic competitiveness. Effective regulatory systems help ensure fair market competition, protect consumers, and promote innovation. Research in institutional economics highlights that regulatory quality is strongly associated with investment flows, business development, and economic productivity. Countries with well-functioning regulatory institutions tend to attract greater domestic and foreign investment, which contributes to economic growth and development. (Organisation for Economic Co-operation and Development [OECD], 2023).

The rule of law is also a fundamental component of governance assessment. This indicator measures the extent to which citizens and institutions have confidence in legal systems, contract enforcement, property rights, and the judiciary. Strong legal institutions provide the foundation for stable economic activity by ensuring that laws are applied consistently and disputes can be resolved fairly. Studies have shown that improvements in rule of law are closely linked to reductions in corruption, stronger investor confidence, and higher levels of economic development. Control of corruption is another critical governance indicator because corruption can undermine institutional performance and weaken public trust in government. Corruption diverts public resources, reduces the effectiveness of government spending, and distorts policy priorities. Governments that implement strong accountability mechanisms, transparent budgeting systems, and independent oversight institutions are generally more successful in controlling corruption and improving institutional integrity. Anti-corruption reforms, including digital transparency initiatives and independent audit systems, have therefore become central components of governance improvement strategies worldwide. (United Nations Development Programme, 2023).

Governance indicators are also widely used to assess institutional performance in developing economies and small states. In these contexts, institutional capacity constraints may affect governments' ability to implement policies effectively or manage public resources efficiently. Comparative governance analysis allows policymakers to evaluate their country's performance relative to other nations with similar economic and institutional characteristics. Such benchmarking can help identify institutional weaknesses and guide reforms aimed at strengthening governance systems. In addition, governance indicators have become increasingly important for monitoring progress toward global development goals. International organizations use governance metrics to evaluate the effectiveness of development programs and support policy reforms in areas such as public financial management, administrative capacity, and regulatory governance. These indicators provide evidence-based insights that assist governments in designing policies that improve institutional performance and promote sustainable development outcomes. Recent research also highlights the growing role of data-driven governance and digital technologies in improving institutional performance measurement. Digital governance platforms enable governments to collect

and analyze large amounts of administrative data, which can enhance policy evaluation and public sector accountability. By integrating digital tools into governance monitoring systems, governments can improve transparency, track performance outcomes more effectively, and strengthen citizen engagement in public decision-making. (United Nations, 2022).

2.10 Outlook for Ministerial or Secretarial Number composition for Upper-Middle-Income Countries in the Next 50 Years

The composition of ministerial or secretarial positions in upper-middle-income countries is expected to evolve over the next five decades in response to institutional reforms, economic transformation, technological advancement, demographic change, and emerging global governance challenges. While the precise structure of future executive governments cannot be predicted with certainty, recent comparative governance research indicates that executive institutions will continue to pursue an appropriate balance between administrative efficiency, political representation, policy specialization, and fiscal sustainability (Organization for Economic Co-operation and Development [OECD], 2025; World Bank, 2024).

The organization of executive cabinets has historically reflected the interaction of constitutional arrangements, political systems, coalition dynamics, administrative capacity, and national development priorities. Parliamentary governments generally possess greater flexibility to reorganize ministerial portfolios than presidential systems, while coalition governments frequently require broader cabinet representation to accommodate multiple political parties. At the same time, public sector modernization initiatives increasingly encourage governments to consolidate ministries with overlapping responsibilities, strengthen coordination mechanisms, and improve policy coherence across government institutions. Current international patterns suggest that upper-middle-income countries generally maintain executive cabinets consisting of approximately 15 to 25 senior ministers or secretaries, although larger executive structures continue to exist in countries where coalition politics, regional representation, or constitutional arrangements require broader political inclusion. (OECD, 2025; United Nations Department of Economic and Social Affairs [UN DESA], 2024).

Rather than reflecting administrative inefficiency alone, cabinet size often represents a compromise between effective governance, political legitimacy, and national representation. Nevertheless, contemporary public administration literature emphasizes that excessively large executive structures may complicate policy coordination, increase administrative costs, and reduce accountability, thereby encouraging governments to periodically review and rationalize ministerial arrangements (OECD, 2025; World Bank, 2024).

Over the next fifty years, several structural trends are likely to influence the future composition of ministerial or secretarial positions in upper-middle-income countries. First, administrative efficiency and fiscal sustainability will continue to shape executive organization. Governments are increasingly required to deliver high-quality public services while operating under fiscal constraints arising from population ageing, infrastructure investment, climate adaptation, and rising public expectations. Consequently, executive reforms are expected to emphasize the consolidation of overlapping portfolios, improved inter-ministerial coordination, and performance-based public administration rather than continuous expansion of cabinet size. Such reforms are intended to strengthen accountability, reduce duplication, and improve government effectiveness (OECD, 2025; International Monetary Fund, 2024).

Second, the growing complexity of public policy will require greater functional specialization within executive government. Emerging policy domains including artificial intelligence governance, cybersecurity, digital transformation, climate resilience, renewable energy, biotechnology, food security, and public health preparedness are likely to demand dedicated leadership at the ministerial or secretarial level. Rather than establishing entirely new ministries for each emerging issue, many governments may strengthen existing institutions by appointing ministers of state, deputy ministers, or specialized secretaries responsible for coordinating cross-cutting policy areas. This approach enables governments to respond to new challenges while maintaining manageable cabinet structures (UN DESA, 2024; OECD, 2025).

Third, advances in digital government are expected to transform executive governance. The increasing integration of digital technologies, artificial intelligence, interoperable government databases, and evidence-based policymaking will enhance collaboration across ministries and improve policy coordination. Digital transformation is likely to reduce administrative fragmentation by enabling ministries to share information more efficiently, monitor policy implementation in real time, and deliver integrated public services. Consequently, governments may increasingly rely on technology-enabled coordination rather than expanding the number of ministerial portfolios (OECD, 2025; UN DESA, 2024).

Fourth, political inclusiveness and representative governance will remain important considerations in cabinet formation. International trends demonstrate continued progress toward greater gender equality and broader social representation within executive leadership. Future governments are therefore expected to place increasing emphasis on achieving balanced representation based on gender, geographic regions, professional expertise, and social diversity while maintaining merit-based appointments and effective executive leadership. Such developments are consistent with broader international commitments to inclusive governance and sustainable institutional development (UN Women, 2024; OECD, 2025).

A further development is the growing reliance on collaborative governance arrangements that extend beyond traditional ministerial structures. Cross-ministerial committees, cabinet policy councils, intergovernmental coordination mechanisms, strategic delivery units, and expert advisory bodies are becoming increasingly important in addressing complex policy challenges that span multiple sectors. These governance mechanisms strengthen whole-of-government coordination without necessarily increasing the number of cabinet ministers or secretaries, thereby preserving administrative efficiency while enhancing policy integration. Overall, available evidence suggests that upper-middle-income countries are unlikely to experience substantial long-term increases in the number of senior ministerial or secretarial positions. Instead, executive institutions are expected to evolve through portfolio reorganization, institutional modernization, digital integration, and greater specialization within existing governmental frameworks. (OECD, 2025; World Bank, 2024).

Although cabinet composition will continue to vary according to constitutional arrangements, political systems, and national development priorities, comparative governance trends indicate that future executive structures will likely retain relatively stable core cabinets of approximately 15 to 25 senior ministers or secretaries, supported by deputy ministers, ministers of state, permanent secretaries, and specialized executive agencies. Such an institutional model provides sufficient flexibility to respond to increasingly complex governance challenges while preserving administrative efficiency, fiscal responsibility, accountability, and effective policy coordination.

3. MATERIALES AND METHODS

3.1 Research Design

This study adopts a quantitative, cross-sectional comparative research design to analyze the numerical composition of ministers (cabinet size) across upper-middle-income countries globally. The design enables systematic comparison of multiple countries at a single point in time and facilitates the identification of relationships between cabinet size and selected political, economic, and institutional variables. A comparative approach is particularly suitable because the study examines variations across countries located in different continents, including Africa, Asia, Europe, Latin America and the Caribbean, North America, and Oceania. By focusing on countries classified as upper-middle-income by the World Bank, the study controls for economic classification while allowing other explanatory factors to be tested. Additionally, the study employs a deductive approach, where hypotheses are derived from existing theories in comparative politics and public administration. These hypotheses are then empirically tested using statistical techniques.

Theory → Hypotheses → Data → Testing → Findings

3.2 Objectives

3.2.1 General Objective

To analyze and compare the numerical composition of ministers (cabinet size) in upper-middle-income countries across the seven continents, and to identify the key political, economic, and institutional factors influencing variations in cabinet size.

3.2.2 Specific Objectives

1. Determine and document the number of ministers or secretaries of state in selected upper-middle-income countries across all continents.
2. Compare cabinet sizes across regions (Africa, Asia, Europe, Latin America and the Caribbean, North America, Oceania, and South America).
3. Analyze the influence of population size and economic structure (GDP and sectoral complexity) on cabinet composition.
4. Examine the relationship between political systems (presidential, parliamentary, hybrid) and cabinet size.
5. To conduct a focused analysis of selected countries (e.g., Belize, Malaysia, South Africa, Serbia) to illustrate how different variables interact in determining cabinet size.

3.3 Hypothesis

1.4.1 Null hypothesis

Ho= Population size has no significant relationship with cabinet size.

Ho = GDP has no significant relationship with cabinet size.

1.4.1 Alternative hypothesis

Ha = Population size significantly influences cabinet size.

Ha = GDP significantly influences cabinet size.

3.4 Significance of the study

This study contributes to both academic and policy-oriented discussions on public administration and governance. By providing a comparative analysis of cabinet size across UMICs, it offers insights into how institutional and political factors shape executive structures.

For policymakers, the findings can inform decisions on optimizing cabinet size to enhance efficiency, reduce public expenditure, and improve governance outcomes. For scholars, the study expands the literature on comparative politics by integrating cross-continental perspectives and multiple explanatory variables. Additionally, the study is particularly relevant for small states such as Belize, where resource constraints necessitate careful consideration of government structure.

3.5 Scope and Delimitation of the Study

The study focuses on upper-middle-income countries as classified by the World Bank. It covers countries across all seven continents and examines cabinet size in relation to selected variables, including political system, population, GDP, coalition status, diversity, and federalism. Furthermore, the countries that were considered are less than 100 years of independence. The study is limited to the numerical composition of ministers and does not extensively analyze the functional performance of individual ministries. Additionally, data availability and differences in governmental definitions of “minister” may pose challenges for standardization.

3.6 Sources of information

The primary sources of information were the data collected through secondary sources such as articles, electronic journals from countries that have previously carried out studies of this nature through bibliographic research as follows: a) Data from the world bank, b) Literature review from the world concerning development

3.7 Population and Sample

All countries classified as upper-middle-income by the World Bank.

Sample: A purposive sampling technique is used to select countries:

Representation from all seven continents

Availability of reliable data on cabinet composition

This ensures:

Geographic balance

Data comparability

3.8 Data Analysis

The study employs both descriptive and inferential statistics:

Descriptive Analysis

Mean, median, range of cabinet sizes

Regional comparisons (tables and charts)

Inferential Analysis

Multiple linear regression analysis to test relationships:

Cabinet Size = f (Political System, Population, GDP, Coalition, Federalism, Diversity, Region)

Hypothesis testing using significance levels ($p < 0.05$)

H_0 = Belize has a deficit in the number of ministers needed in the Cabinet according the population size and the GDP.

H_a = Belize has a Surplus in the number of ministers needed in the Cabinet according the population size and the GDP.

3.9 Analytical Model Specification:

The study specifies cabinet size as a function of political, economic, and institutional variables:

$$\text{Cabinet Size} = \beta_0 + \beta_1 \log(\text{POP}_i) + \beta_2 \log(\text{GDP}_i) + \beta_3 \text{Political System}_i + \varepsilon_i$$

Where:

Cabinet represents the size of the cabinet in country i (dependent variable)

$\log(\text{POP}_i)$ is the natural logarithm of population

$\log(\text{GDP}_i)$ is the natural logarithm of gross domestic product

Political System i captures the institutional structure of governance

ε_i = Error term (un observed factors)

This model is grounded in established literature that links institutional arrangements and socio-economic characteristics to government structure. The use of logarithmic transformations allows for the modeling of proportional relationships and helps mitigate issues related to heteroscedasticity.

Dependent Variable

Cabinet Size: Total number of ministers or secretaries of state in the national executive.

Independent Variables

Population: Total population (log-transformed)

GDP: Gross domestic product (log-transformed)

Political System: Dummy variable (Presidential republic = 1, Semi-presidential republic = 2, Parliamentary republic = 3, Parliamentary constitutional monarchy = 4, Socialist republic = 5, Parliamentary democracy = 6).

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the empirical analysis of the relationship between cabinet size and key structural variables, namely population size, economic size, and political system. The objective is to evaluate whether cabinet size is systematically influenced by demographic and economic factors, as well as institutional arrangements across countries classified within the upper middle-income category. Furthermore, this chapter presents the analysis and interpretation of data collected on the numerical composition of cabinets in selected upper-middle-income countries across the seven continents.

The analysis is guided by the study's objectives, research questions, and hypotheses. Both descriptive and inferential statistical techniques are employed to examine patterns and relationships between cabinet size and selected explanatory variables. Finally, the analysis is based on a cross-sectional dataset comprising 35 observations. The variables included in the model are cabinet size (dependent variable), the logarithm of population (LOG(POP)), the logarithm of gross domestic product (LOG(GDP)), and a categorical variable representing the political system.

Table No.1; Data collected from the excel spread sheet regarding the Cabinet size, GDP (USD), Population and Political System.

CONTINENT	COUNTRY	Age (2025)	POPULATION	GDP (BILLIONS USD)	CABINET	LOG(POP)	LOG(GDP)	POL. SYSTEM
AFRICA	Botswana	60	2,600,000	21,000,000,000	21	6.415	10.322	3
	Cabo Verde	51	530,000	2,800,000,000	17	5.724	9.447	2
	Equatorial Guinea	58	1,900,000	12,000,000,000	30	6.279	10.079	1
	Gabon	66	2,600,000	21,000,000,000	30	6.415	10.322	1
	Algeria	64	47,000,000	255,000,000,000	37	7.672	11.423	2
	Libya	74	7,500,000	55,000,000,000	33	6.875	10.740	1
	Mauritius	58	1,300,000	17,000,000,000	24	6.114	10.230	3
	South Africa	59	63,000,000	410,000,000,000	32	7.799	11.613	3
Average African continent		66	15,803,760	100,475,000,000	28	6.662	10.522	2
ASIA	Azerbaijan	35	10,200,000	78,000,000,000	18	7.009	10.892	1
	Armenia	35	3,000,000	27,000,000,000	12	6.477	10.431	3
	Georgia	35	3,700,000	35,000,000,000	23	6.568	10.544	3
	Kazakhstan	35	20,800,000	300,000,000,000	21	7.318	11.477	1
	Malaysia	69	35,700,000	470,000,000,000	28	7.553	11.672	4
	Iraq	54	46,000,000	255,000,000,000	23	7.663	11.423	3
	Jordan	80	11,500,000	61,600,000,000	32	7.061	10.790	4
	Thailand	54	71,600,000	577,000,000,000	36	7.855	11.761	4
	Maldives	61	530,000	7,000,000,000	23	5.724	9.845	1
	Turkmenistan	35	7,500,000	60,000,000,000	20	6.875	10.778	1
	Vietnam	81	101,000,000	500,000,000,000	27	8.004	11.699	5
	Belarus	35	9,300,000	75,000,000,000	30	6.959	10.875	1
	Bosnia & Herzegovina	34	3,200,000	29,000,000,000	10	6.505	10.462	6
Average Asian continent		57	26135833	200,560,000,000	24	7.047	10.980	3
EUROPE	Kosovo	18	1,600,000	11,500,000,000	23	6.204	10.061	3
	Moldova	35	2,400,000	18,500,000,000	14	6.380	10.257	3
	Montenegro	20	620,000	8,500,000,000	23	5.792	6.929	3
	North Macedonia	35	1,800,000	17,500,000,000	20	6.255	10.343	3
	Serbia	20	6,600,000	93,000,000,000	28	6.920	10.968	3
	Ukraine	35	37,900,000	290,000,000,000	23	7.574	11.462	2
Average European continent		27	8420000	71,751,416,667	22	6.504	9.989	3
LATIN AMERICA & THE CARIBBEAN	Belize	45	420,120	3,000,000,000	28	5.623	9.477	4
	Dominica	48	66,000	700,000,000	16	4.820	5.845	3
	Grenada	52	126,000	1,400,000,000	18	5.100	6.146	4
	Jamaica	64	2,800,000	20,500,000,000	20	6.447	10.312	4
	St. Lucia	47	380,000	2,300,000,000	20	5.255	9.362	4
	St. Vincent and the Grenadines	50	100,000	1,100,000,000	13	5.000	9.041	4
	Suriname	51	640,000	3,900,000,000	17	5.806	9.591	1
Average Latin American & Caribbean		51	6188.4	4,400,300,000	19	5.436	8.539	3
OCEANIA	Fiji	56	980,000	5,700,000,000	20	5.968	6.756	3
	Marshall Islands	40	36,000	308,000,000	11	4.556	5.489	3
	Micronesia (Federated States)	40	115,000	475,000,000	10	5.061	5.677	3
	Samoa	64	210,000	1,000,000,000	20	5.322	9.000	3
	Tonga	56	107,000	575,000,000	13	5.029	5.760	4
	Tuvalu	48	11,000	65,000,000	7	4.041	4.813	4
Average Oceania		51	234,893	167,853,833	14	4.996	6.249	3
GENERAL AVERAGES		50	10,242,658	75,498,914,100	21	6.129	9.256	3

Source: World bank

4.2 Descriptive Analysis of Cabinet Size

4.2.1 Distribution of Cabinet Size Across Countries

The data reveal considerable variation in cabinet size among the sampled countries. Cabinet sizes range from relatively small structures in countries such as Georgia (approximately 10–12 ministers) to significantly larger cabinets in countries such as Malaysia and Thailand (approximately 27–36 ministers). Small states such as Belize and Mauritius tend to maintain relatively compact cabinets, typically ranging between 24 and 28 ministers. In contrast, larger and more administratively complex countries, such as Gabon, Equatorial Guinea and Libia exhibit larger cabinet sizes exceeding 30 ministers.

4.2.2 Regional Comparison

A regional comparison indicates distinct patterns:

Africa: Cabinet sizes are generally moderate to large (17–37 ministers), reflecting diversity and governance complexity.

Asia: Exhibits the widest variation (12–36 ministers), influenced by political systems and economic scale.

Europe: Tends to have smaller cabinets (14–28 ministers), indicating streamlined governance structures.

Caribbean: Smaller cabinets (13–28 ministers), consistent with smaller populations.

Oceania: Moderate cabinet sizes (7–20 ministers), as observed in Fiji.

4.2.3 Measures of Central Tendency

A preliminary examination of the dataset provides insight into the distribution and variation of the variables under study. Cabinet size ranges from a minimum of 7 ministers to a maximum of 37, indicating substantial variation in government structure across countries. Mean cabinet size: Approximately 21.7 ministers. The logarithm of population varies between 4.041 and 8.004 meanwhile, the logarithm of GDP ranges from 4.813 to 11.761, The political system variable spans values from 1 to 6, reflecting diverse governance frameworks. The dispersion observed in cabinet size suggests that governments differ significantly in their administrative composition, which may be attributable to differences in population scale, economic complexity, and institutional design.

Table No.2; Summary output of the Multiple linear regression model

Regression Statistics	
Multiple R	0.701
R Square	0.491
Adjusted R Square	0.449
Standard Error	5.550
Observations	40

A multiple regression analysis was conducted to examine whether population size, economic size, and political system predict cabinet size. The analysis indicates that cabinet size increases with both

population and GDP. Population appears to be the strongest predictor, followed by GDP, while political system exhibits substantial variation and is expected to have a weaker effect. (Albala et al., 2024).

From an overall point of view, larger and wealthier countries tend to have larger cabinets. Additionally, the correlation coefficient value (0.701), indicate a positive and high correlation that exist between the dependable variable (Cabinet size) and the independent variables (Population, GDP and the Political System, as seen in Table No. 3 below as stated by Wisniewski, S. J., & Brannan, G. D. (2024).

Table No.3; Correlation coefficient values and level.

Correlation coefficient (r)	Level (Strength)
0.90 – 1.00	Very high
0.70 – 0.89	High
0.50–0.69	Moderate
0.30–0.49	Low
0.00–0.29	Negligible

Wisniewski, S. J., & Brannan, G. D. (2024)

To further evaluate the overall significance of the regression model, the Analysis of Variance (ANOVA) framework was employed. Furthermore, it is important to say that 49.1% of the variance in the cabinet size, is attributed to the contribution of the independent variables.

Table No.4; Analyses of Variation (ANOVA) Results for Cabinet Size Model.

ANOVA

Source of variation	df	SS	MS	F. Stat	Significance F
Regression	3	1070.266	356.755	11.584	1.83728E-05 **
Residual	36	1108.709	30.797		
Total	39	2178.975			

** Statistically significance

This approach decomposes the total variation in cabinet size into explained and unexplained components. According to the Analysis of Variation (ANOVA) of Table No 4, the computed F-statistic of 11.584 evaluates whether the model, as a whole, is statistically significant. Since the model was statistically significant, this provides a meaningful explanation to reject the Null Hypothesis, that Belize has a deficit in the number of ministers needed in the Cabinet according the population size and the GDP.

4.3 Empirical Results and Analysis

Table No.5; Ordinary Least Squares (OLS); Regression Results Determinants of Cabinet Size.

Sources	Coefficients	Standard Error	t Stat	P-value
Intercept	-6.624	6.464	-1.025	0.312
LOG(POP)	4.513	1.867	2.418	0.021 **
LOG(GDP)	0.258	0.932	0.277	0.783
POL SYSTEM	-0.878	0.727	-1.208	0.235

The overall regression model is statistically significant, $F(3,36) = 11.58$, $p < 0.001$, indicating that the predictors jointly explain a significant portion of the variation in cabinet size. (Albala et al., 2024). The model explains approximately 49.1% of the variation in cabinet size ($R^2 = 0.491$). Log (Population) is the only statistically significant predictor ($\beta = 4.512$, $p = 0.021$). Holding the other variables constant, a one-unit increase in log population is associated with an increase of about 4.5 cabinet members., whereas log GDP ($\beta = 0.258$, $p = .783$) and political system ($\beta = -0.878$, $p = .235$) were not statistically significant predictors as seen in Table No.5.

Application of the estimated Model

$$\text{Cabinet} = -6.624 + 4.513 * \log \text{POP} + 0.258 * \log \text{GDP} - 0.878 * (\text{Political System})$$

Step 1: Convert Belize's Data to Logs

Assuming your dataset uses log base 10 (consistent with your values):

- **Population = 420,120; log (POP) 10 (420120) ≈ 5.62**
- **GDP = 2.5 billion USD; Log (GDP)10(3,000,000,000) ≈ 9.477**

Step 2: Use the Estimated Model

Using the regression equation:

$$\text{Cabinet} = -6.624 + 4.513 * \log (\text{POP}) + 0.258 * \log (\text{GDP}) + (-0.878 * (\text{Political System}))$$

For Belize, the political system is parliamentary, so we assume:

$$\text{Political System} = 4$$

$$\text{Cabinet} = -6.624 + (4.513 * 5.62) + (0.258 * 9.477) + (-0.878 * 4)$$

$$\text{Cabinet} = -6.624 + (25.36) + (2.44) - (3.51)$$

$$\text{Cabinet} = -6.624 + 27.8 - 3.51$$

$$\text{Cabinet} = -6.624 + 24.29$$

$$\text{Cabinet} = 17.67 = \mathbf{18}, + 1, \text{ To break the tie, then} = 19$$

Table No.6; Comparison of actual Ministers compared to the needed job.

CONTINENT	COUNTRY	YEARS	POP	GDP(BILLIONS USD)	POL.SYS	NEEDED	CURRENTLY	SURPLUS/DEFICIT
LAC	Belize	45	420,120	3,000,000,000	4	18	28	10
	Suriname	51	640,000	3,900,000,000	1	21	17	-4
AFRICA	Botswana	60	2,600,000	21,000,000,000	3	22	21	-1
	South Africa	95	63,000,000	410,000,000,000	3	29	32	3
ASIA	Azerbaijan	35	10,200,000	78,000,000,000	1	27	18	-9
	Belarus	35	9,100,000	75,000,000,000	1	27	30	3
EUROPE	Kosovo	18	1,600,000	11,500,000,000	3	21	23	2
	Ukraine	35	37,500,000	290,000,000,000	2	29	23	-6
OCEANIA	Fiji	56	930,000	5,700,000	3	19	20	1
	Tuvalu	48	11,000	65,000	4	9	7	-2

SURPLUS/DEFICIT (+/-) LAC=Latin America & the Caribbean

Table No.6 above, illustrates that Belize in red has 10 ministers more than that what the country needs, considering that the population is too small. Population size should be the lead criteria to determine the cabinet size as seen in the Model of Table No.5. The neighboring countries of Suriname and Botswana have a deficit in the number of ministers in the cabinet. South Africa and Belarus have an excess of three but can be justified with 1 to 2 due to the Population size as the most significant priority, then the economic factor of the Gross Domestic Product (GDP). The rests of the countries that are in green are in perfect state, considering that they are operating with the less than what is required or needed.

4.3.1 Empirical Results and Analysis

4.3.1 Relationship Between Population and Cabinet Size

Countries with higher values of LOG(POP), particularly those above 6.114, tend to exhibit larger cabinets, generally ranging between 17 and 37 ministers. In contrast, countries with smaller populations (LOG(POP) below 6.0) typically have cabinet sizes between 2 and 20. This suggests that population size contributes to administrative demand; however, the relationship appears moderate rather than strong. Population alone does not fully explain variations in cabinet size, indicating the influence of additional factors.

4.4.2 Relationship Between GDP and Cabinet Size

A stronger and more consistent relationship is observed between LOG(GDP) and cabinet size. Countries with higher GDP levels (LOG(GDP) above 11.4) tend to have larger cabinets, often exceeding 24 ministers and reaching up to 35. Conversely, countries with lower GDP levels (LOG(GDP) below 10.0) generally maintain smaller cabinets, in some cases as low as 10 ministers. This finding suggests that economic size and by extension, economic complexity is a key determinant of cabinet expansion. Larger economies require more specialized ministries to manage diverse sectors, thereby increasing cabinet size.

4.4.3 Influence of Political System

The political system variable exhibits mixed effects on cabinet size. Countries classified under system category 2 tend to maintain moderately sized cabinets, generally within the range of 17 to 37 ministers, indicating a degree of institutional consistency. In contrast, system category 1 shows considerable variability, with cabinet sizes ranging from as low as 17 to as high as 33. System category 4 appears to be associated with relatively smaller cabinets, often below 13 to 36 ministers, suggesting that certain governance structures may impose constraints on executive expansion. However, the variability across categories implies that the effect of political systems is not uniform and may interact with economic and demographic factors.

4.4 Discussion of Findings

The empirical analysis reveals that cabinet size is not randomly determined but is influenced by structural and institutional variables. Among these, population size emerges as the most significant determinant, followed by economic size. Political systems play a moderating role, shaping how demographic and economic pressures translate into cabinet composition. The stronger influence of GDP compared to population suggests that administrative complexity is more closely tied to economic diversification than to population scale alone. This aligns with theoretical expectations that governments in more developed economies require a broader range of ministries to manage specialized sectors such as finance, trade, technology, and social services. At the same time, the variation observed within political system categories highlights the importance of institutional flexibility and political decision-making. Similar economic and demographic conditions can yield different cabinet sizes depending on governance structures and political priorities.

4.5 Implications for Policy and Research

The findings have important implications for both policy and future research. For policymakers, particularly in small and developing economies such as Belize, cabinet size should be aligned with functional administrative needs rather than political considerations alone. While expansion may be justified by economic growth and diversification, excessive enlargement without corresponding increases in administrative demand may lead to inefficiencies. For researchers, the results underscore the importance of incorporating both structural and institutional variables in the analysis of government size. Future studies could enhance this model by introducing additional variables such as public expenditure, governance quality, or regional effects.

CONCLUSION

5.1 Analysis of the performance of the stakeholders

This chapter has examined the determinants of cabinet size using a cross-sectional dataset of upper middle-income countries.

- ☐ The analysis demonstrates that cabinet size is positively associated with both population and GDP, with economic size exerting a stronger influence.
- ☐ Overall, the findings support the hypothesis that cabinet size is a function of demographic, economic, and institutional factors.
- ☐ The regression analysis reinforces the central argument of this study: The cabinet size is

primarily shaped by with population size, economic structure, and institutional factors playing supporting roles.

- These findings are consistent with theoretical expectations in political economy and public administration, where governance complexity increases with economic diversification.
- The results provide a robust empirical foundation for policy discussion and further research, particularly in the context of small and developing economies such as Belize.
- Based on the above, Belize can create 23 electoral divisions or districts for election, so that a minister or secretary of state can represent each electoral division/district because of the economic size.
- An additional Minister to make it 24 need to be elected on the advice of the Prime minister to cover vacation or another emergency (Sickness, substitution, default etc.). **Kindy note this person cannot vote in cabinet since he/she was not elected by the people.**
- Readjust the districts if needed in the next 50 years considering that GDP and the population will grow.

RECOMMENDATIONS

6.1 Policy Recommendations

1. Align Cabinet Size with Economic Complexity

Governments should ensure that cabinet size reflects the population as well as the structure and complexity of the economy rather than purely political considerations. The strong positive relationship between population and cabinet size suggests that as economies diversify, there is a legitimate need for more **specialized ministries**. Unnecessary expansion without economic justification may lead to inefficiencies and increased fiscal burden.

2. Promote Efficiency in Cabinet Composition

While expansion may be necessary, governments should prioritize efficiency over size. The negative and significant effect of the political system variable indicates that some institutional arrangements successfully maintain smaller, more streamlined cabinets.

Policy makers should:

- ✓ Avoid duplication of ministerial roles
- ✓ Merge overlapping portfolios where feasible
- ✓ Emphasize performance and accountability within ministries

A lean but functional cabinet can improve decision-making and reduce administrative costs.

3. Fiscal Responsibility in Cabinet Expansion

Expanding cabinet size has direct implications for public expenditure. Governments should adopt a fiscally responsible approach, ensuring that:

- ☐ Cabinet growth is consistent with budgetary capacity.
- ☐ Public resources are allocated efficiently
- ☐ Administrative costs do not crowd out development spending

This is particularly important for small and developing economies with limited fiscal space.

4. Final Recommendation

Governments need to align cabinet structure with functional needs are more likely to achieve administrative efficiency, fiscal discipline, and effective policy implementation.

Recommended Electoral division

Electoral Division = Population = 420,150 = 28009

Cabinet = $18.2 = 19 + 4(\text{Internal Logistics}) = 23 \text{ Ministers}$

Table No.7; Districts, Population and Ministers required

Districts	%	Populations	Ministers	Average (Pop / Division)
Belize	26	109604	6	18267
Cayo	22	91335	5	18267
Corozal	13	54800	3	18267
Stann Creek	13	54,800	3	18267
Orange Walk	13	54,811	3	18267
Toledo	13	54,800	3	18267
Total	100	420150	23	

Table No.5 above; illustrates the distribution of the ministerial representation throughout the country. The Belize district, has the highest representation, followed by the Cayo District. The two Northern and Southern districts have 3 ministerial positions allocated because of logistical reason to move in the area. Table No.7 below; illustrates the proposed electoral division. The distribution of ministers in the country, in this way will provide equal opportunity for development and growth for the area as well as the country of Belize.

Table No.8; Propose electoral division base on the Districts, Population and Ministers required

No.	Proposed Electoral	Target	Ministers
1	Belize City North	18,267	6
2	Belize City Central	18,267	
3	Belize City South	18,267	
4	Belize City East / Islands	18,267	
5	Belize Rural North	18,267	
6	Belize Rural South	18,269	109,604
7	Cayo North	18,267	5
8	Cayo North East	18,267	
9	Cayo Central	18,267	
10	Cayo South	18,267	
11	Cayo West	18,267	91,335
12	Corozal North	18,267	3
13	Corozal Central	18,267	
14	Corozal South	18,266	54,800
15	Orange Walk North	18,267	3
16	Orange Walk Central	18,267	
17	Orange Walk South	18,266	54800
18	Stann Creek North	18,267	3
19	Stann Creek Central	18,267	
20	Stann Creek South	18,266	54800
21	Toledo North	18,270	3
22	Toledo Central	18,270	
23	Toledo South	18,271	54800

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