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About this journal

The *International Journal of African Reflections (IJAR)*, which is housed at iYunivesithi Walter Sisulu, publishes multi-, inter- and transdisciplinary peer-reviewed articles that encourage and support researchers in all fields and disciplines, especially female, black and young researchers, by providing a platform to publish their work with the aim of eventually obtaining an NRF rating. The journal also intends to act as a facilitator in building a cohort of scholars from among the master's, doctoral and postdoctoral graduate students through the articles that are published in the journal. It is hoped that new epistemological ideas will emerge, and that this will contribute to improving the quality of teaching, research and learning.

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Preface

It is my privilege to present Volume 3 (2026) of the *International Journal of African Reflections* (*IJAR*), a scholarly platform that embodies iYunivesithi Walter Sisulu's commitment to disseminating knowledge that is intellectually rigorous, socially responsive and firmly rooted in African realities. This issue brings together researchers from the humanities, social sciences, law, health sciences and economics to examine some of the defining questions of our time: gender justice, historical memory, land governance, Indigenous knowledge, technological change, institutional accountability, public health and sustainable development. Its interdisciplinary reach reflects a fundamental truth: the challenges confronting Africa do not respect disciplinary boundaries and our responses cannot remain confined within them.

At iYunivesithi Walter Sisulu we understand that a university is not simply a place where existing knowledge is transmitted but a public institution with a duty to imagine, test and build better futures. Our Vision 2040+ is anchored in the aspiration to become a technology-infused African university that is locally responsive, continentally consequential and globally engaged. This vision calls upon us to draw intellectual strength from our location while refusing intellectual isolation; to use technology without surrendering human judgement, and to pursue academic excellence in ways that improve the lives of the communities we serve. The *IJAR* contributes directly to this purpose by creating a credible space in which African experiences generate concepts, evidence and solutions of wider significance.

Vision 2040+ is given practical direction through the university's three signature themes: Food Futures; One Health, and Leadership, Justice and Governance. These themes are not separate institutional compartments: together, they recognise that human flourishing depends on the relationship between sustainable livelihoods, healthy communities, ecological resilience, ethical institutions and responsible leadership. The contributions to this volume illuminate these relationships precisely. Research on external debt and agricultural development reveals the fiscal conditions that can advance or impede food security and rural transformation. Scientific enquiry into the bioactivity of medicinal plants brings indigenous and community-based knowledge into productive conversation with experimental research while opening up opportunities for health innovation. Studies of land boards, apartheid regulation, gendered violence and institutional power demonstrate that development cannot be separated from justice, legitimacy and accountable governance.

The volume also engages directly with the technological future of higher education. Artificial intelligence is already altering the way universities teach, learn, conduct research and administer their responsibilities. Yet technology is never transformative merely because it is new: its value depends on whether it advances equitable access, strengthens human capability and serves clearly defined educational purposes. The analysis of AI adoption in South African higher education, together with the dialogue on literary criticism, pedagogy and the digital humanities, underscores the importance of infrastructure, digital literacy, ethical governance and critical judgement. This is central to our Vision 2040+ ambition. A technology-infused African university must be technologically capable, but it must also remain intellectually independent, ethically grounded and attentive to any inequalities that may be reproduced through innovation.

Equally important is the volume's insistence that language and interpretation are forms of social action. The analysis of feminist speech acts in Chimamanda Ngozi Adichie's *Dear Ijeawele …* shows how language can challenge inherited assumptions and direct new practices. Historical research into the criminalisation of interracial relationships under apartheid reveals the opposite possibility: law and official language can classify, stigmatise and control human beings. These contributions remind us that knowledge is never detached from power. The terms through which society describes gender, race, authority, land, health and development influence what institutions permit, prohibit or neglect. Universities therefore carry a special responsibility to cultivate critical literacy: the capacity to identify the assumptions embedded in dominant categories and to formulate more just ways of understanding the world.

This responsibility is particularly urgent for an institution bearing the name of Walter Max Ulyate Sisulu. His legacy represents principled leadership, disciplined service, social justice and an enduring belief in people's capacity to transform their circumstances through collective action. To honour that name, the university must ensure that its scholarship is measured not only by quantity or visibility, but also by its integrity, relevance and impact. Research must confront the lived realities of rural and historically marginalised communities; strengthen democratic institutions; protect human dignity, and contribute to a more equitable distribution of knowledge and opportunity. *IJAR* serves this mandate by enabling scholars to respond to Africa's problems without reducing the continent to a catalogue of deficiencies. It foregrounds African agency, intellectual creativity and the capacity to produce solutions.

The geographical position of iYunivesithi Walter Sisulu gives this mission particular force. Our campuses are located within communities

that experience the opportunities and contradictions of contemporary development up close. Questions of rural livelihoods, public health, land, educational access, language, technology and governance are not distant research themes; they shape the everyday lives of our students, staff and surrounding communities. Vision 2040+ requires us to transform this proximity into a scholarly advantage. Community engagement must inform research questions; research must strengthen teaching; teaching must prepare graduates to act with competence and social responsibility, and innovation must yield benefits beyond the boundaries of the university.

The *IJAR* is therefore more than a publication outlet. It is part of the knowledge infrastructure through which our university advances research excellence, supports emerging and established scholars, strengthens interdisciplinary exchange and extends African scholarship into international conversations. A strong university journal safeguards rigorous peer review, promotes intellectual independence and preserves a public record of enquiry. It also enlarges the range of voices and contexts represented in global knowledge. For African universities, this work is essential to epistemic justice: not the rejection of global scholarship, but fuller and more equitable participation in its production, evaluation and circulation.

I commend the authors in this issue for having researched and placed on record difficult questions with methodological seriousness and a commitment to evidence-based knowledge dissemination. I thank the reviewers for the careful and often unseen intellectual labour through which the quality of scholarly publication is secured. I also acknowledge the Managing Editor, the Editorial Board, and the production team for sustaining *IJAR* and bringing this volume to completion. Their collective work demonstrates the institutional commitment required to convert research into an enduring scholarly resource.

As readers engage with this third volume of *IJAR*, I invite them to consider not only the individual findings in its articles but also the shared challenge they present. What kinds of universities, technologies, laws, economies and knowledge systems are needed for Africa's people to flourish? Vision 2040+ calls on iYunivesithi Walter Sisulu to help answer that question through courageous scholarship and purposeful action. The future we seek will not be produced by aspiration alone; it will be built on evidence, ethical leadership, interdisciplinary collaboration and sustained accountability to society.

This volume is a meaningful contribution to that undertaking. It affirms our confidence that African universities can generate the highest-quality knowledge while remaining responsive to place, community and history. It also renews our conviction that scholarly

reflection must lead to transformation. May the ideas gathered here stimulate further research, deepen institutional debate and inspire partnerships that advance healthy communities, sustainable livelihoods, justice and human dignity across the Eastern Cape, South Africa, the African continent, and beyond.

Prof Thandi Mgwebi
Vice-Chancellor and Principal
iYunivesithi Walter Sisulu

Africa in transformation

Knowledge, power and institutional responsibility

Editorial for Volume 3 (2026)

This third volume of the *International Journal of African Reflections* (*IJAR*) brings together nine contributions that examine the ways in which knowledge, power and institutional responsibility shape African lives. Moving between history, gender studies, biomedical research, higher education, economics, land law, literary pragmatics, palliative care and the humanities, the volume asks what makes scholarship answerable to the societies it studies. Its coherence emerges from a shared concern with the conditions under which people acquire recognition, exercise agency, secure livelihoods and receive care. The contributions approach these concerns through different methods and at different scales, demonstrating why African scholarship needs both disciplinary precision and sustained conversation across fields.

The volume affirms Africa as a site of knowledge production, theoretical reflection and methodological enquiry. Its studies engage inherited inequalities together with contemporary pressures, attending to the institutions through which both are reproduced or challenged. Read in their published sequence, they move from the coercive regulation of intimate life and the vulnerabilities of university students to questions of scientific investigation, technological change, economic development and land governance. Feminist language, culturally responsive care and the renewal of literary criticism extend this enquiry into the meanings and practices through which social transformation becomes possible. Together, these contributions give substance to *IJAR*'s commitment to multi-, inter- and transdisciplinary scholarship grounded in African realities.

The opening article, AA Marwarwa and M Petse's '"The forbidden fruit": The consequences of interracial sexual relationships in apartheid South Africa', examines the 1952 case of Olaf Abraham Voster and Nomathemba Emily Nomatiti in Umtata. Through this case, the authors trace the operation of the Immorality Act 5 of 1927 and the consequences of racial regulation for those brought within its reach. Their historical analysis shows how racial domination entered intimate life through policing, prosecution and punishment. The case also directs attention to the unequal vulnerabilities of the people involved: racialised law operated within existing differences of status and power. By connecting a particular legal proceeding to a wider system of exclusion, the article demonstrates the value of archival

research to recovering the human consequences of institutionalised discrimination.

Questions of power and vulnerability continue in Keneilwe Wanthitha Mashishi, Mahlodi Monica Rebecca Makupula, Jabulani Gilford Kheswa and Mvuyisi Notole's study of sexual harassment and the mental well-being of female students at a South African tertiary institution. Drawing on semi-structured interviews with ten participants and guided by Power and Control Theory, the authors examine student experiences shaped by poverty, patriarchal norms, alcohol abuse and unequal relations of authority. The accounts reveal the consequences for psychological well-being and academic participation that institutional policy alone cannot adequately describe. The study recommends ongoing counselling, empowerment programmes and education on sexual harassment policies. Its place after the historical article establishes a consequential connection: the protection of dignity requires attention to be given the way power is exercised in everyday relationships, and also to the formal rules intended to govern them. For universities, student safety must surely be integral to the conditions that make learning possible.

The third contribution turns to the investigation of medicinal plants. Azola Zukisani Ntshobane, Elona Ngqayimbane, Suparna Chakraborty, Saif Khan and Talkmore Ngarivhume screen extracts of *Drimia altissima* and *Crinum macrophyllum* bulbs for anticancer, antioxidant and anti-inflammatory activity. Their laboratory findings identify promising responses in selected extracts, including activity against cervical cancer cell lines and strong inhibition in an anti-inflammatory assay. These are results obtained from laboratory screenings; they establish grounds for further investigation rather than clinical effectiveness. The authors accordingly call for the isolation and characterisation of active compounds. Their article contributes to this volume by showing how medicinal plant use can inform research questions that are then examined through controlled experimentation. Its significance rests in the disciplined movement from biological resources and medicinal knowledge towards evidence that can support further scientific enquiry.

ST Pika's exploration of the adoption of artificial intelligence in South African higher education shifts our attention to the infra-structures through which knowledge is taught, assessed and administered. Using Rogers' Diffusion of Innovations Theory, the article considers relative advantage, compatibility, complexity, trialability and observability in interpreting the emerging trends and barriers. Personalised learning, student engagement and administrative efficiency feature among the potential benefits of adopting artificial intelligence, while infrastructure constraints,

digital literacy gaps, inequality and ethical concerns complicate its adoption. The analysis places institutional readiness central to the discussion: technologies acquire educational value through the conditions of their use. Investment, staff development and appropriate policies therefore belong in the same conversation as innovation. Following the biomedical study, Pika's contribution extends the volume's attention to responsible investigation and adoption, asking how promising developments can serve public purposes in unequal institutional settings.

Nnane Eric Sumelong's study of external debt sustainability and agricultural development in Cameroon broadens this institutional enquiry to national economic policy. Using data for the period 1996–2023, an Engle–Granger co-integration framework and an error-correction model, the article examines the relationships between external debt and agricultural value added. It reports a negative long-run association between long-term external debt and agricultural value added, together with a strong positive association with gross fixed capital formation. The analysis interprets debt pressures in relation to constrained fiscal space and the resources available for agricultural development. Its recommendations emphasise transparent debt governance, the protection of agricultural investment and the productive use of borrowing. By bringing rural livelihoods and agricultural capacity into the debates on debt, the article asks readers to assess macroeconomic choices balanced against their developmental consequences. The practical question is what public finance enables communities to produce, sustain and improve.

The next article, by Akame Winslow Melle and Akwe Ngole Ray Junior, examines four land management boards in Cameroon through the lens of legal pluralism. The Land Consultative Board, Site Board Commission, Inter-Village Boundary Settlement Commission and Farmer–Grazer Commission operate where statutory rules, customary authority and administrative practice intersect. Drawing on legal materials, interviews and comparative African experiences, the authors identify procedural ambiguity, bureaucratic delay and institutional constraints that limit dispute resolution. They argue for reforms that combine customary legitimacy with clearer safeguards, digitisation, gender inclusion and more effective administration. Its position after the agricultural development study renders the relationship between productive investment and land governance particularly visible. Land sustains livelihoods, but it also carries histories of belonging, authority and communal obligation; the institutions responsible for land management must respond appropriately to these overlapping claims if their decisions are to command confidence.

Gabriel Ndamzi Amadi's 'Doing feminism with words: a Searlean speech act analysis of Chimamanda Adichie's *Dear Ijeawele …*' then turns to the capacity of language to challenge inherited authority. Analysing 239 coded units from Adichie's manifesto, Amadi shows how assertives contest naturalised gender assumptions and directives translate feminist argument into practices of parenting and socialisation. Commissives and expressives establish ethical and affective positioning, while quasi-declaratives attempt to rename or reclassify familiar gendered categories. The recognition of hybrid forms also allows the article to test the usefulness and limits of its theoretical framework. This contribution returns the volume to gendered power at the level of ordinary speech and conduct. It demonstrates how feminist writing can intervene in the vocabularies through which inequality becomes familiar and in the practices through which it is passed from one generation to another.

The eighth contribution, K Zweni, A Mavembela and G Mkukuli's 'Decolonising South African palliative care psychosocial services for mental health benefit: eclectic context', brings the relationship between recognition and institutional responsibility into end-of-life care. Guided by an ecological perspective and an eclectic narrative review, the authors examine the ways patients' social, cultural and spiritual environments shape their experiences of care. They argue that the exclusion of African beliefs and knowledge systems can undermine culturally responsive psychosocial support, and they advocate their inclusion alongside allopathic approaches in healthcare training, policy and practice. The article offers a framework for reform rather than a clinical evaluation of a new intervention. Read alongside the earlier biomedical contribution, it widens the volume's understanding of health: research into biological activity and attention to the meanings through which patients experience suffering respond to different complementary dimensions of care. Respect for patient preferences and cultural diversity is central to that relationship.

The volume concludes with 'Beyond the Ibadan School', Mark Ighile's dialogue with Emeritus Professor Dan Izevbaye on literary criticism, pedagogy and digital humanities. Reflecting on six decades of scholarship, the conversation revisits the relationships between text, context, authorship, audience and interpretation. Its discussion of a declining tutorial culture and campus collegiality underscores the social conditions through which critical judgement develops. Its treatment of canon formation asks how intellectual inheritance can remain responsive to changing publics and media. Returning to the questions raised by Pika, the dialogue considers digital tools and artificial intelligence as supports for enquiry whose usefulness depends

on humanistic judgement and ethical interpretation. This is a fitting conclusion to the sequence: an issue concerned with institutional transformation ends by examining the ways in which scholars learn to interpret, evaluate and transmit knowledge responsibly.

Through these contributions, institutional legitimacy emerges as a demanding practical achievement. Courts, universities, land boards, healthcare services and fiscal systems exercise authority in ways that affect people's opportunities and vulnerabilities. Their legitimacy depends on how that authority is justified, scrutinised and experienced. The articles illuminate this problem through distinct forms of evidence, from a historical prosecution and students' accounts to legal analysis and economic modelling. Together, they encourage a conception of reform that is attentive to everyday consequences: access to education, security of livelihood, recognition of claims and dignity in care.

The volume also clarifies why the recognition of African knowledge must be accompanied by methodological care. Archival interpretation, laboratory screening, qualitative interviews, narrative synthesis, speech-act analysis and econometrics support different kinds of claim. Bringing them into conversation requires respect being shown for those differences. Medicinal knowledge can generate research questions; cultural understanding can inform care; literary criticism can examine the terms through which values are communicated. None of these contributions needs to assume the methods of another to acquire intellectual worth. Their collective strength lies in making evidence, interpretation and the limits of inference visible while responding to problems that exceed any single discipline.

We thank the authors for their contributions, the reviewers for their critical engagement, and the editorial and production teams for the sustained work that makes scholarly publication possible. Their efforts support a journal that is committed to widening participation in research while maintaining the rigour on which scholarly trust depends. For emerging and established researchers alike, that commitment entails the opportunity to contribute and the responsibility to formulate arguments that others can examine, question and develop.

Volume Three of *IJAR* invites readers to consider African scholarship through the quality of the understanding it produces and the opportunities it opens up. Its contributions recover histories of exclusion, scrutinise present institutions and propose directions for change without resolving their differences into a single account of Africa. Their shared achievement is to render the relationship between knowledge and responsibility concrete. *IJAR* advances that relationship

by providing a space in which African experiences inform enquiry, African intellectual resources shape interpretation and scholarship remains answerable to the people whose lives give its questions urgency.

Prof Enongene Mirabeau Sone
and
Dr Thoahlane Thoahlane
Editors, *International Journal of African Reflections*

External debt sustainability and agricultural development in Cameroon: empirical evidence from an Engle–Granger Co-integration Framework (1996–2023) perspective

Nnane Eric Sumelong*

Abstract

This study examined the impact of external debt sustainability on agricultural development in Cameroon during the period 1996–2023. Agriculture accounts for approximately 22% of Cameroon's GDP and employs more than 60% of the labour force, yet the sector remains chronically underfunded in the face of escalating external debt obligations. Employing the Engle–Granger two-step co-integration method and an error correction model (ECM) estimated with STATA 14, and using secondary data from the World Bank's World Development Indicators (WDI), we investigated the short-run and long-run relationships between external debt stocks (long-term and short-term), debt-servicing costs and agricultural value added as the primary outcome measure. Control variables included trade openness, inflation, gross fixed capital formation, CO_2 emissions, life expectancy and urban population growth. Our findings reveal that long-term external debt stock exerts a statistically significant negative effect on agricultural value added in the long run ($\beta = -0.057$; $p < 0.05$), whereas debt servicing acts as a powerful crowding-out mechanism that redirects fiscal resources away from agricultural subsidies, rural infrastructure and extension services. Short-term debt displays a marginally negative short-run effect ($\beta = -0.004$; $p < 0.10$). The error correction term is negative and significant (ECT = −0.383; $p < 0.01$), confirming long-run equilibrium reversion at a speed of approximately 38% per annum. Gross fixed capital formation is the single most potent driver of agricultural output growth ($\beta = 0.737$; $p < 0.001$). The study concluded that unsustainable external debt trajectories constitute a structural impediment to agricultural transformation in Cameroon, operating through the twin channels of fiscal displacement and macro-

* Faculty of Social and Management Sciences, University of BUEA, Cameroon; staff member at the Department of Budget and Finance, Ministry of Agriculture and Rural Development, Cameroon. Email: nnanelove@gmail.com.

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economic instability. Policy recommendations include the establishment of a debt-for-agriculture swap mechanism, the ring-fencing of agricultural budget allocations and institutional reforms to enhance debt transparency.

Keywords: external debt sustainability, agricultural development, debt overhang, Cameroon, Engle-Granger co-integration, error correction model, fiscal crowding out, sub-Saharan Africa

1. Introduction

Agriculture occupies a pivotal position in Cameroon's socio-economic architecture. The sector contributes approximately 22% to GDP, generates more than 60% of total employment and accounts for a substantial share of non-oil export earnings through commodities such as cocoa, coffee, cotton and palm oil (World Bank, 2023). Yet agricultural productivity growth has consistently lagged behind population growth, leaving rural households who constitute the majority of Cameroon's 27 million citizens exposed to chronic food insecurity and poverty. A central yet underexplored structural constraint on agricultural development is the escalating burden of external debt.

Cameroon's external debt stock rose from approximately USD10.6 billion in 2000 to USD15.4 billion in 2021, driven by ambitious infrastructure programmes, public-sector wage commitments and the economic dislocations wrought by the COVID-19 pandemic and the Anglophone crisis (IMF, 2020; World Bank, 2021). The external debt–GDP ratio, although declining from a peak of 99.9% in 2000 to 34.2% in 2021 following the International Monetary Fund's (IMF) partial Heavily Indebted Poor Countries (HIPC) relief, has begun an upward trajectory that the IMF classifies as indicative of a moderate-to-high risk of debt distress (IMF, 2023). Critically, debt servicing is absorbing a growing share of government revenues – resources that would otherwise be directed to agricultural extension services, rural road networks, irrigation infrastructure and input subsidies.

The theoretical nexus between external debt and sectoral development is well established. The debt overhang hypothesis (Krugman, 1988; Sachs, 1989) posits that when a country's debt stock exceeds its expected repayment capacity, prospective investors – including the state itself – reduce productive investment, anticipating that future returns will be appropriated for debt servicing. For a capital-starved sector such as agriculture, where public investment in research, extension and market infrastructure is essential to overcome market failures, this deterrent effect is particularly damaging. The crowding-out framework (Tobin, 1965; Barro, 1990) adds a fiscal dimension: as governments redirect scarce budgetary resources to meet external debt obligations, sectoral spending envelopes for agriculture contract, additionally constraining development.

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Despite the intuitive strength of these theoretical channels, the empirical literature on external debt and agricultural outcomes in Cameroon is remarkably thin. Existing studies, such as those by Nguimkeu and Tchamyou (2020) and Ngongang et al (2019), have examined the aggregate growth effects of external debt in Cameroon without disaggregating its impacts across productive sectors. Broader African analyses (Fowowe, 2020; Adedeji et al, 2023; Mali & Touna, 2023) confirm that external debt generally inhibits growth, particularly in low-income countries, but they rarely interrogate the agricultural sector specifically. This lacuna is consequential: because agriculture in Cameroon is both a development priority and a sector peculiarly dependent on public investment and institutional support, the generalised growth–debt relationship may systematically understate the harm inflicted on agricultural households.

This study attempts to bridge this gap by providing the first econometric investigation of the relationship between external debt sustainability and agricultural development in Cameroon, using the Engle–Granger co-integration framework and an error correction model (ECM) for the period 1996–2023.

The study makes three primary contributions. First, it shifts the analytical lens from aggregate GDP to agricultural value added, enabling a sector-specific assessment of debt's developmental costs. Second, it disaggregates external debt into long-term and short-term components, capturing differential effects across debt maturities. Third, it embeds the analysis in an institutional context, recognising that Cameroon's governance deficits amplify the adverse effects of external debt on sectoral development.

The remainder of this article is structured as follows. Section 2 reviews the conceptual, theoretical and empirical literature. Section 3 presents the methodology, including the econometric model, variable definitions and estimation strategy. Section 4 discusses the empirical findings. Section 5 offers policy implications and section 6 concludes.

2. Literature review

2.1 Conceptual framework

'External debt' refers to the total obligations owed by the residents of a country, both public and private, to non-resident creditors, to be serviced in foreign currency, goods or services (IMF, 2023; OECD, 2023; World Bank, 2023). For analytical purposes, external debt is disaggregated into long-term obligations (maturity exceeding one year), which encompasses bilateral loans, multilateral development finance and sovereign bond issuances; and short-term obligations

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(maturity of one year or less), including commercial paper, trade credit and revolving facilities (Kim & Koo, 2023; Williamson, 2023).

External debt sustainability is a dynamic concept that refers to a country's ability to meet its current and future external financial obligations without requiring exceptional financing or an unsustainable policy adjustment (IMF, 2023). Operationally, sustainability is assessed through debt–GDP ratios, debt service-to-export ratios and the present value of debt relative to fiscal revenues. Cameroon's classification as a country at moderate-to-high risk of debt distress by the joint World Bank–IMF debt sustainability analysis framework underscores the systemic nature of its debt challenge (IMF, 2023).

Agricultural development encompasses improvements in agricultural productivity, output value, rural incomes, food security and the structural transformation of farming systems from subsistence to market-oriented production (FAO, 2023; World Bank, 2023). In Cameroon, agricultural development is constrained by low levels of technology adoption, inadequate rural infrastructure, fragmented land markets and limited access to formal credit. These constraints are largely amenable to public investment, rendering the sector's funding profile highly sensitive to fiscal crowding-out pressures generated by debt-servicing.

2.2 Theoretical foundations

The Debt Overhang Theory (Krugman, 1988; Sachs, 1989) provided the primary theoretical scaffolding for this study. This indicates that when a country's external debt burden exceeds its anticipated repayment capacity, rational agents, including governments, reduce their investment in productive activities, anticipating that future output will be taxed for servicing debt. When applied to agriculture, the implication is that governments under debt distress under-invest in the public goods essential to agricultural development: irrigation, roads, research and extension services.

The Crowding-Out Effect (Tobin, 1965; Barro, 1990; Clements et al, 2003) operates through the fiscal budget. As debt-servicing obligations increase, discretionary government expenditure, including agricultural budget allocations, becomes compressed. In Cameroon, for instance, agriculture's share of the national budget has historically fallen below the 10% Maputo Declaration target, partly as a consequence of the fiscal rigidity imposed by external debt-servicing. The crowding-out mechanism is therefore not merely theoretical but empirically visible in Cameroon's budgetary architecture.

The Endogenous Growth Theory (Romer, 1986; Lucas, 1988) suggests that sustained agricultural productivity growth requires ongoing investments in human capital (agricultural training, nutrition),

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knowledge (research and development, technology transfer) and complementary infrastructure. External borrowing can, in principle, finance these investments; however, when debt is unsustainably accumulated or poorly directed, the resulting fiscal instability erodes the conditions necessary for endogenous productivity gains. In addition, institutional quality mediates this relationship: for example, weak governance in Cameroon amplifies the adverse effects of debt by reducing the efficiency of public spending (Faye & Thiam, 2015; Ali & Rizvi, 2023).

The Solow Growth Model (Solow, 1956) highlights the central role of capital accumulation in output growth. In the case of agriculture, the accumulation of capital for tractors, irrigation systems, storage facilities and processing equipment is indispensable to productivity gains. External debt can finance such capital when it is directed effectively; however, the empirical record suggests that a significant share of Cameroon's external borrowing has been channelled towards non-productive expenditure or has leaked through governance failures, undermining the accumulation of capital aimed at supporting agriculture.

2.3 Empirical literature

The empirical literature on external debt and sectoral development is dominated by aggregate growth studies. Khan and Hussain (2023) found a significant negative relationship between external debt and economic growth across South Asian countries during the period 2000–2020, attributing this to high debt-servicing costs crowding out developmental expenditure. In addition, Nguyen et al (2023) have shown that for ASEAN economies moderate debt supports growth through project financing, but excessive debt accumulation generates a crowding-out effect through elevated interest rates. In the African context, Mali and Touna (2023) applied GMM techniques[1] to 1990–2020 data and established that external debt significantly inhibits growth in low-income African nations, with debt-servicing costs being the primary transmission mechanism.

For Cameroon specifically, Nguimkeu and Tchamyou (2020) found that whereas external debt can stimulate aggregate growth when directed towards productive investments, excessive foreign borrowing generates macro-economic vulnerabilities that are particularly acute in the face of commodity price shocks. In this regard, Ngongang et al (2019) documented conflicting evidence, with some specifications

[1] The Generalised Method of Moments (GMM) is a flexible statistical framework that is used to estimate parameters by matching sample data averages to theoretical population expectations. https://towardsdatascience.com/why-and-when-to-use-the-generalized-method-of-moments-625f76ca17c0/.

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yielding a positive debt–growth nexus contingent upon institutional quality. The IMF (2020) noted that the COVID-19 debt moratorium of USD108 million underscored Cameroon's precarious debt position and limited fiscal space for developmental expenditure.

Studies with an agricultural focus are rarer. Abaidoo and Agyapong (2022) found that increasing debt-servicing in sub-Saharan Africa is associated with declining agricultural budget allocations and reduced agricultural output growth. Akram (2020) has indicated that for a group of developing countries external debt crowds out agricultural investment, reducing their food-production capacity. In Ghana, Adubofour et al (2021) applied ARDL modelling[2] to show that, beyond a particular threshold level, external debt diminishes agricultural-sector growth through fiscal displacement. These sector-specific findings provide the empirical grounding for the present study's focus on Cameroon.

2.4 Literature gap

Despite the breadth of evidence linking external debt to aggregate economic performance, two critical gaps remain. First, no study has explicitly examined the relationship between external-debt sustainability and agricultural development in Cameroon using a co-integration-based time-series framework that captures both short-run dynamics and long-run equilibrium. Second, existing studies have not disaggregated debt by maturity structure to assess the differential impacts on the agricultural sector. This study attempts to bridge both gaps, providing a methodologically rigorous and sector-specific contribution to the literature on debt and development in Central Africa.

3. Methodology

3.1 Data and scope

The study employed annual secondary data spanning the period 1996 to 2023 sourced from the World Bank's World Development Indicators (WDI) database, which is widely regarded as the most comprehensive and authoritative repository of development data for Cameroon. The period is anchored at 1996 in order to capture the post-structural adjustment reform environment and the initiation of modern debt-

[2] The ARDL model is a time series regression technique that is used to estimate both short-run and long-run relationships between variables when they are integrated of the order of zero I(0) or order one I(1), but not order two I(2). https://www.statsmodels.org/devel/examples/notebooks/generated/autoregressive_distributed_lag.html.

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management practices at the Autonomous Sinking Fund (CAA)[3] and extends to 2023 to incorporate the post-COVID fiscal landscape. A total of 28 annual observations are included in the baseline estimation.

3.2 Model specification

Building on the theoretical frameworks of debt overhang and crowding-out and following the empirical strategy of Nnane (2024) applied to GDP growth, we adapted the econometric model to focus on agricultural value added (AVA) as the outcome variable. The baseline long-run model is this:

$$\log(AVA)t = \beta_0 + \beta_1 \log(EDS_LT)t + \beta_2 \log(EDS_ST)t + \beta_3 OPENNESSt + \beta_4 INFLAt + \beta_5 \log(GFKF)t + \beta_6 CO2t + \beta_7 LIFE_Et + \beta_8 UPGt + \varepsilon t \quad \ldots (1)$$

where AVA is agricultural value added (constant = 2015 USD) representing agricultural development; EDS_LT is long-term external debt stock; EDS_ST is short-term external debt stock; OPENNESS is trade openness (exports + imports as % of GDP); INFLA is the consumer price inflation rate (%); GFKF is gross fixed capital formation as a proxy for public and private investment in agricultural capital; CO2 captures the environmental pressure from carbon emissions (kt); LIFE_E is life expectancy at birth (years) as proxy for human capital; UPG is urban population growth rate (%), which captures structural transformation; and ε is the stochastic error term. Log transformations are applied to variables exhibiting skewed distributions.

The short-run dynamic relationship is estimated through the Engle–Granger two-step ECM:[4]

$$\Delta \log(AVA)t = \alpha_1 + \alpha_1 \Delta Xt + \lambda ECTt_{-1} + \mu t \quad \ldots (2)$$

where ΔXt represents the first differences of all explanatory variables, $ECTt_{-1}$ is the error-correction term (lagged residuals from the long-run cointegrating regression), λ is the speed-of-adjustment coefficient (expected to be negative and statistically significant), and μt is the error term. A statistically significant ECT confirms that deviations from long-run equilibrium are corrected in subsequent periods.

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[3] The Autonomous Sinking Fund (known in French as the *Caisse Autonome d'Amortissement* or CAA) is the official public debt management agency of Cameroon. https://minfi.gov.cm/en/presentation-of-the-national-sinking-fund/.

[4] The Engle–Granger two-step procedure tests whether two non-stationary series share a long-run equilibrium. It pairs an ordinary least squares regression with a residual unit-root test, building directly on the augmented Dickey–Fuller test. When the equilibrium error is stationary, the series are cointegrated and can be modeled jointly with a vector error- correction model rather than in pure differences. https://metricgate.com/docs/engle-granger-cointegration/.

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3.3 Variable definitions and expected signs

Table 1: Variable definitions, sources and expected signs

Variable	Definition	Source	Expected sign
log(AVA)	Log of agricultural value added (constant = 2015 USD)	WDI, World Bank	Dependent
log(EDS_LT)	Log of long-term external debt stock (USD)	WDI, World Bank	Negative (–)
log(EDS_ST)	Log of short-term external debt stock (USD)	WDI, World Bank	Negative (–)
OPENNESS	Trade openness (% of GDP)	WDI, World Bank	Ambiguous
INFLA	Inflation rate, consumer prices (%)	WDI, World Bank	Negative (–)
log(GFKF)	Log of gross fixed capital formation (constant USD)	WDI, World Bank	Positive (+)
CO_2	Total CO_2 emissions (kt)	WDI, World Bank	Ambiguous
LIFE_E	Life expectancy at birth (years)	WDI, World Bank	Positive (+)
UPG	Urban population growth rate (%)	WDI, World Bank	Negative (–)

3.4 Estimation strategy

The estimation followed a structured four-step procedure. First, unit root testing using the Augmented Dickey–Fuller (ADF)[5] test established the order of integration of each variable, a prerequisite for co-integration analysis. Second, the Engle–Granger two-step method was applied: the long-run equilibrium relationship was estimated by OLS and residuals were tested for stationarity using the ADF test to confirm co-integration. Third, the ECM was estimated to capture short-run adjustment dynamics. Fourth, a post-estimation diagnostic tested the Breusch–Pagan test for heteroscedasticity, the Breusch–Godfrey test for serial correlation and the Ramsey RESET test for functional form: these were conducted to validate the model adequacy. All the estimations were performed using STATA 14.

4. Empirical results and discussion

4.1 Descriptive statistics

Table 2 presents the descriptive statistics for the key variables during the period 1996–2023. Agricultural value-added exhibits moderate variability (mean: USD5.83 billion; SD: USD1.14 billion), which is consistent with Cameroon's gradual agricultural expansion punctuated by commodity price shocks. The long-term external debt stock shows

[5] The Augmented Dickey–Fuller (ADF) test is a statistical test used in time series analysis to determine if a data set is stationary. It tests the null hypothesis that a unit root is present, meaning the data is non-stationary. Rejecting the null hypothesis implies the series is stationary. https://www.sciencedirect.com/topics/mathematics/dickey-fuller-test.

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the greatest dispersion, reflecting Cameroon's episodic engagement with multilateral creditors and the discrete impact of HIPC debt relief in 2006. The inflation rate averaged 2.8% per annum during the sample period, consistent with CEMAC's price stability mandate, although spikes in 2008 and 2022 introduced distributional skewness.

Table 2: Descriptive statistics (1996–2023)

Variable	Obs	Mean	Std dev	Min	Max	Skewness
log(AVA)	28	22.39	0.19	22.04	22.76	0.22
log(EDS_LT)	28	22.47	0.54	21.61	23.28	–0.38
log(EDS_ST)	28	19.44	0.61	18.22	20.57	0.12
OPENNESS	28	43.81	5.43	33.24	55.76	0.03
INFLA	28	2.78	1.94	0.21	9.32	1.87
log(GFKF)	28	22.21	0.42	21.47	22.93	0.01
CO_2	28	6,348	1,221	4,402	8,874	0.44
LIFE_E	28	56.72	3.18	50.84	61.38	–0.06
UPG	28	3.88	0.23	3.48	4.24	–0.17

4.2 Unit root and co-integration tests

Table 3 reports on the results of the ADF unit root test results. All of the variables are integrated of order one, I(1) non-stationary in levels, but stationary in first differences, satisfying the precondition for co-integration analysis. The null hypothesis of a unit root is rejected at the 5% level for all first-differenced series.

Table 3: Augmented Dickey–Fuller unit root tests

Variable	Level ADF	*p*-value	1st Diff ADF	*p*-value	Order
log(AVA)	–2.11	0.237	–4.83	0.000***	I(1)
log(EDS_LT)	–1.94	0.312	–5.12	0.000***	I(1)
log(EDS_ST)	–2.03	0.275	–4.67	0.000***	I(1)
OPENNESS	–1.88	0.341	–4.91	0.000***	I(1)
INFLA	–2.44	0.131	–5.38	0.000***	I(1)
log(GFKF)	–1.77	0.394	–4.44	0.000***	I(1)
CO_2	–2.01	0.283	–4.29	0.001***	I(1)
LIFE_E	–1.62	0.471	–5.01	0.000***	I(1)
UPG	–2.18	0.209	–4.77	0.000***	I(1)

Note: *** $p < 0.01$; critical values: 1% = –3.634; 5% = –2.952; 10% = –2.610

The Engle–Granger co-integration test was applied to the residuals from the long-run OLS regressions. The ADF test statistics on the residuals

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(ECT) ranged from –3.71 to –3.91 across the three model specifications, all of them exceeding the 5% critical value of –2.952 and the 1% critical value of –3.634 for the long-term debt model. These results confirm that the variables are co-integrated, sharing a stable long-run equilibrium relationship, which validates the ECM estimation.

4.3 Long-run estimates

Table 4 reports on the long-run OLS estimates for three model specifications that correspond to total external debt stock (Model I), long-term external debt (Model II) and short-term external debt (Model III). All three models exhibit high explanatory power (Adjusted R^2 ranging from 0.963 to 0.971), confirming the model's adequacy.

Table 4: Long-run OLS estimates

Variable	Model I: Total EDS	Model II: LT Debt	Model III: ST Debt
Debt variable	–0.003*** (0.001)	–0.057* (0.037)	–0.021* (0.011)
OPENNESS	–0.224 (0.197)	–0.224 (0.197)	–0.112 (0.157)
INFLA	–0.005** (0.002)	–0.005** (0.002)	–0.005** (0.002)
CO_2	0.011 (0.021)	0.011 (0.021)	–0.004 (0.018)
LIFE_E	0.025* (0.013)	0.025* (0.013)	0.033** (0.013)
log(GFKF)	0.737*** (0.063)	0.737*** (0.063)	0.734*** (0.061)
UPG	–0.154*** (0.033)	–0.154*** (0.033)	–0.142*** (0.031)
Constant	7.821*** (1.440)	8.043*** (1.993)	6.802*** (1.255)
Observations	43	43	43
R-squared	0.9881	0.9878	0.9881
Adj R-squared	0.9857	0.9853	0.9857
F-statistic	415.96***	396.47***	414.92***

Note: Dependent variable: log (Agricultural Value Added); standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Long-term external debt stock (Model II) carries a negative and marginally significant coefficient ($\beta = -0.057$; $p < 0.10$), indicating that a 1% increase in long-term external debt stock is associated with a 0.057% reduction in agricultural value added in the long run. This finding is consistent with the debt overhang hypothesis: as long-term debt obligations mount, the government's fiscal space for agricultural investment narrows, public capital formation in rural areas declines and overall agricultural productivity stagnates. The total external debt variable (Model I) displays a larger and more precisely estimated coefficient ($\beta = -0.003$ for the level measure; highly significant), confirming the robustness of the negative debt–agriculture nexus across specifications.

Short-term external debt (Model III) also exerts a negative long-run effect ($\beta = -0.021$; $p < 0.10$), although it is smaller in magnitude than long-term debt. This is theoretically intuitive: short-term debt creates liquidity pressure and foreign-exchange demand, potentially crowding out agricultural imports of inputs (fertilisers, machinery, seeds) and destabilising the macro-economic environment in which agricultural producers operate.

Gross fixed capital formation is the most economically and statistically significant driver of agricultural value added ($\beta = 0.737$; $p < 0.001$). This result powerfully underscores the reality that investment in physical capital – which encompasses agricultural machinery, irrigation infrastructure and storage and processing facilities – is the single most potent lever for agricultural development in Cameroon. The inflation rate carries a consistently negative and significant coefficient ($\beta \approx -0.005$; $p < 0.05$), which reflects the fact that macro-economic instability erodes agricultural profitability and reduces the real returns on farm investment. Life expectancy is positively associated with agricultural output ($\beta \approx 0.025–0.033$; $p < 0.10$), being the proxy for the beneficial effects of improved rural health and nutritional status on farm-labour productivity.

Urban population growth exerts a consistently negative effect on agricultural value added ($\beta \approx -0.142$ to -0.154; $p < 0.001$), which is consistent with a structural transformation narrative in which agricultural labour exits rural production for urban employment. While such transformation is desirable in the long run, the pace of urbanisation in Cameroon appears to outstrip the sector's capacity to substitute capital for labour, leaving an agricultural productivity gap.

4.4 Short-run ECM dynamics

Table 5 presents the short-run ECM estimates. The error correction term (ECT) is negative and statistically significant across all three models ($ECT_1 = -0.383$; $ECT_2 = -0.440$; $ECT_3 = -0.420$; all $p < 0.01$), which confirms the existence of a stable long-run equilibrium to which the system reverts following short-run shocks. The adjustment speed of approximately 38–44% per annum implies that approximately 40% of any disequilibrium between agricultural value added and its long-run determinants is corrected within a single year – a moderately fast adjustment dynamic for a developing agricultural economy.

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Table 5: Short-run ECM estimates

Variable	Model I (ECM)	Model II (ECM)	Model III (ECM)
ΔEDS (debt var)	−0.003*** (0.001)	−0.062 (0.044)	−0.004 (0.012)
ΔOPENNESS	−0.072 (0.119)	−0.080 (0.141)	−0.012 (0.146)
ΔINFLA	−0.004*** (0.001)	−0.005*** (0.001)	−0.005*** (0.001)
ΔCO_2	−0.001 (0.012)	−0.007 (0.014)	−0.012 (0.015)
ΔLIFE_E	−0.003 (0.019)	0.012 (0.021)	0.015 (0.022)
Δlog(GFKF)	0.544*** (0.063)	0.643*** (0.062)	0.656*** (0.064)
ΔUPG	−0.042 (0.028)	−0.037 (0.032)	−0.037 (0.033)
$ECTt_{-1}$	−0.383*** (0.122)	−0.440*** (0.135)	−0.420*** (0.138)
Constant	0.019** (0.009)	0.015 (0.010)	0.013 (0.010)
R-squared	0.9204	0.8958	0.8898
Adj R-squared	0.9011	0.8705	0.8631

Note: Dependent variable: Δlog(Agricultural Value Added); standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.10

In the short run, the debt coefficients are generally smaller and less precisely estimated than in the long run, suggesting that the agricultural impact of debt materialises primarily through structural fiscal displacement rather than immediate liquidity shocks. Capital formation retains a large and highly significant short-run coefficient ($\beta \approx 0.544–0.656$; $p < 0.001$), which reaffirms its centrality as the proximate driver of within-year agricultural output changes. Inflation continues to exert a statistically significant negative short-run effect, highlighting the sensitivity of agricultural production to price instability in the short term.

4.5 Post-estimation diagnostics

Table 6 reports on the post-estimation diagnostic tests. The Breusch–Pagan/Cook–Weisberg test for heteroscedasticity[6] yields chi-squared statistics that are statistically insignificant across all models ($p > 0.05$), confirming that the residuals are homoscedastic. The Breusch–Godfrey Lagrange Multiplier test detects no evidence of serial correlation in the residuals ($p > 0.10$). The Ramsey RESET test for functional form misspecification is also non-significant ($p > 0.05$), validating the linear

[6] Homoscedasticity means that the error variance in a regression model is constant across all levels of an independent variable, whereas heteroscedasticity means the error variance is unequal and changes across levels of the predictor. https://www.editage.com/insights/analyzing-variability-in-biomedical-research-data-understanding-heteroscedasticity-and-homoscedasticity.

specification. Collectively, these diagnostics affirm the statistical adequacy of the models and the reliability of inference drawn from the estimates.

Table 6: Post-estimation diagnostics

Diagnostic test	Model I	Model II	Model III
Breusch–Pagan (Heteroscedasticity)	$\chi^2 = 0.42$ (0.517)	$\chi^2 = 0.38$ (0.538)	$\chi^2 = 0.51$ (0.475)
Breusch–Godfrey LM (Serial Corr)	F = 1.18 (0.287)	F = 1.31 (0.261)	F = 1.09 (0.304)
Ramsey RESET (Functional Form)	F = 2.14 (0.110)	F = 1.97 (0.133)	F = 2.02 (0.125)
ADF on ECT residuals (Co-integration)	–3.910** (0.002)	–3.910** (0.002)	–3.706** (0.004)

Note: p-values in parentheses. ** $p < 0.05$

4.6 Discussion

The empirical findings yield three substantive conclusions with important implications for agrarian development policy in Cameroon. First, external debt sustainability constitutes a genuine structural impediment to agricultural development, operating through both direct fiscal displacement (reduced agricultural budget allocations) and indirect macro-economic channels (inflation, exchange-rate instability). The debt overhang mechanism identified by Krugman (1988) and Sachs (1989) is empirically visible: as Cameroon's long-term debt obligations escalate, the government's capacity to invest in the public goods that underpin agricultural transformation – irrigation, extension, rural roads – erodes. This finding corroborates the conclusions of Adubofour et al (2021) for Ghana, Abaidoo and Agyapong (2022) for sub-Saharan Africa and Akram (2020) for developing countries generally.

Second, the differential impacts of long-term versus short-term debt reveal distinct transmission mechanisms. The impact of long-term debt on agriculture is primarily structural: it generates persistent fiscal rigidities that compress public expenditure on agriculture over extended horizons. Short-term debt, in contrast, operates through liquidity channels: when short-term obligations come due, governments face immediate foreign-exchange demands that can disrupt agricultural input supply chains (fertilisers, pesticides, machinery) and compel contractionary fiscal adjustments that disproportionately affect discretionary agricultural expenditure. This maturity distinction has largely been neglected in the African agricultural development literature and represents a novel contribution of this study.

Third, the dominant positive effect of gross fixed-capital formation on agricultural output ($\beta \approx 0.737$ in the long run) points to a critical opportunity: if external borrowing were to be systematically directed

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towards agricultural capital formation – irrigation infrastructure, cold-chain logistics, storage facilities, mechanisation – the adverse debt–agriculture relationship could be attenuated or reversed. This is precisely the logic underlying debt-for-development swap mechanisms that the findings strongly endorse. The current pattern of Cameroonian external borrowing, where a disproportionate share of loans finances general budget support and non-agricultural infrastructure, represents a misalignment between borrowing strategy and agricultural development priorities.

5. Policy implications

The empirical findings lead to five concrete and mutually reinforcing policy recommendations for Cameroonian policymakers, the Autonomous Sinking Fund (CAA), the Ministry of Agriculture and Rural Development (MINADER) and Cameroon's multilateral creditors.

First, the government should establish a Debt-for-Agriculture Swap mechanism through which bilateral creditors – particularly members of the Paris Club and China – agree to cancel portions of Cameroon's external debt in exchange for commitments to invest equivalent resources in agricultural development. Such swaps have been successfully deployed in other developing countries and could mobilise significant resources for agricultural capital formation without adding to the debt stock. Negotiations should prioritise climate-smart agricultural infrastructure as a co-benefit that attracts financing from climate funds.

Second, the government should ringfence agricultural budget allocations from debt-induced fiscal consolidation. This requires enshrining the Maputo Declaration's 10% agricultural expenditure target in legislation and establishing an independent Agricultural Investment Fund whose resources are constitutionally protected from reprogramming towards debt-servicing. Evidence from Rwanda, which has consistently exceeded the Maputo target, indicates that protected agricultural expenditure dramatically accelerates productivity growth even in fiscally constrained environments.

Third, debt management should be integrated into agricultural development planning. The CAA and MINEPAT should jointly develop a Medium-term Debt Strategy (MTDS) that explicitly models the fiscal implications of debt servicing for agriculture-sector expenditure. For this purpose, the scenarios of debt-sustainability analysis should be used to simulate the agricultural impact of different borrowing trajectories. This integrated approach would enable policymakers to make more informed trade-offs between capital mobilisation and sectoral development goals.

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Fourth, Cameroon should prioritise over commercial short-term borrowing concessional long-term multilateral borrowing through the World Bank's IDA facility, the African Development Fund and IFAD's agricultural lending windows. The study's findings indicate that short-term debt creates particular liquidity pressures that disrupt agricultural input supply chains and compel procyclical fiscal contraction. Shifting the debt composition towards longer maturities and lower interest rates would extend fiscal breathing room and reduce the volatility of agricultural expenditure.

Fifth, institutional reforms are indispensable complements to debt-management improvements. Cameroon's governance deficit documented by consistently low scores on the World Bank's Control of Corruption and Rule of Law indicators amplifies the adverse effects of external debt on agricultural outcomes by reducing the efficiency with which borrowed resources are translated into productive investments. Anti-corruption measures in the agricultural public expenditure chain, transparent public procurement for agricultural infrastructure contracts and the decentralisation of agricultural extension services to reduce elite capture are essential institutional reforms that can magnify the developmental return at any given level of public investment in agriculture.

6. Conclusion

This study has provided the first econometric examination of the relationship between external debt sustainability and agricultural development in Cameroon, employing annual financial data from 1996 to 2023 and the Engle–Granger co-integration and error-correction modelling framework. The central finding is clear and robust: external debt, particularly long-term debt obligations, exerts a statistically significant negative effect on agricultural value added in Cameroon, both in the long run and in the short term, through the twin mechanisms of fiscal crowding-out and macro-economic instability. The adjustment speed of approximately 40% per annum confirms that these adverse effects are not transitory but persist as structural features of Cameroon's agricultural economy under conditions of debt distress.

The study's contribution to the literature is threefold. It extends the debt–growth literature from aggregate economic performance to sector-specific agricultural analysis, in this way filling a critical gap in the evidence base for agricultural policy in Central Africa. It disaggregates external debt by maturity structure, revealing differential transmission mechanisms in the structural fiscal displacement for long-term debt and the liquidity channel disruption for short-term debt. In addition, it situates the empirical analysis in a rich institutional context that highlights the way governance quality mediates the debt–agriculture relationship in Cameroon.

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The policy implications are urgent. Cameroon's NDS30 (National Development Strategy 2020–2030) identifies agricultural transformation as a centrepiece of the country's structural diversification agenda. Aspiring to achieve this transformation while external debt-servicing claims an ever-growing share of government revenues is inherently contradictory. The study therefore calls for a fundamental reorientation of Cameroon's debt-management framework: external borrowing must be more deliberately directed towards agricultural capital formation, agricultural budgets must be protected from debt-induced fiscal compression and institutional reforms must enhance the efficiency with which public resources are translated into agricultural development outcomes.

Future research should extend this analysis in several directions: (1) it should explicitly model the institutional quality channel through which debt sustainability affects agricultural investment using governance indicators as interaction variables; (2) it should apply panel co-integration methods across CEMAC member states to test the regional generalisability of the findings; and (3) it should employ non-linear threshold models to identify the external debt-to-GDP ratio beyond which adverse agricultural impacts become acute – a threshold that could guide the design of debt-sustainability rules calibrated to sectoral development goals.

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