Fiscal Resilience and Defense Financing Innovation for Sustainable National Security Post Ukraine–Russia War

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Abstract. Global geopolitical escalation following the Ukraine–Russia conflict intensifies fiscal and security pressures across many regions, including Indonesia. Long-horizon macroeconomic evaluation demonstrates persistent structural limitations marked by slow revenue elasticity, recurring deficits, exchange-rate exposure, and rising debt-service commitments, all of which reduce flexibility for long-term defense modernization. Geopolitical disturbances amplify those constraints through elevated global military expenditure, higher procurement costs, and expanding cyber, maritime, and hybrid threats within the Indo-Pacific region. Sectoral vulnerabilities further weaken strategic readiness, particularly due to import dependency, limited domestic industrial capability, and increasing operational expenditure. Institutional rigidity also limits adoption of innovative financing mechanisms capable of supporting multi-source and multi-year commitments. Integrated analysis indicates the need for diversified financing pathways that reduce exposure to external shocks and enhance the predictability of defense investment. Potential strategies include defense-industry reinvestment, public-asset monetization, public–private partnerships, and hybrid financing frameworks aligned with long-term capability requirements. Sustainable security therefore depends on structural fiscal reform, institutional modernization, and coordinated integration of fiscal, security, and industrial policy to strengthen Indonesia's strategic resilience in an increasingly volatile geopolitical landscape.

Keywords: fiscal resilience; defense financing; sustainable security; geopolitical

INTRODUCTION

Global geopolitical dynamics demonstrate increasing instability, and the Ukraine–Russia war represents one of the most consequential disruptions for international security in the twenty-first century. Military expenditure across regions continues to rise, energy markets remain volatile, and global inflation exerts pressure on household welfare and government budgets. The intensity of geopolitical uncertainty generates widespread fiscal stress in both advanced and emerging economies. Several assessments classify fiscal resilience as a strategic capability that supports economic stability and national security under turbulent conditions (Govinda Rao et al., 2023). Fiscal resilience functions as a government's adaptive capacity to absorb macroeconomic shocks, maintain essential public services, and safeguard long-term development priorities.

Empirical studies provide evidence that fiscal resilience possesses a multidimensional character. Institutional quality, risk-management frameworks, spending flexibility, and diversification of revenue influence fiscal adaptability in complex environments. Research conducted in the Danube Region indicated significant variation in fiscal resilience over time, particularly when multiple risks interacted with each other (Hochrainer-Stigler et al., 2024). A related investigation in several developing countries revealed that public debt sustainability remained vulnerable to persistent macroeconomic disturbances, especially during periods of geopolitical escalation (Shah et al., 2025). Fiscal responses in Brazilian municipalities also demonstrated that local governments experienced substantial declines in revenue collection during recessions, which subsequently weakened fiscal performance and slowed economic recovery (do Nascimento Rodrigues et al., 2025).

Sustainable security has emerged as a complementary framework that expands the meaning of national security beyond traditional military considerations. Sustainable security integrates defense readiness with socio-economic development, environmental stability, institutional effectiveness, and social cohesion. Studies published in Europe and Africa emphasised that sustainable security relies on coherent strategies connecting defense expenditure, economic transformation, and social well-being (Bătuşaru & Sbârcea, 2023; Hikmat &

Hameed, 2022). Strategic analyses in Nigeria also identified national security as an output of socioeconomic structures and governance systems rather than solely an outcome of military strength (Aleyomi & Nwagwu, 2023).

Global assessments of security threats reported continuous expansion of risks affecting human welfare, state stability, and economic sustainability. Research in Eastern Europe highlighted increasing exposure to hybrid warfare, cyberattacks, political fragmentation, and transnational violence following the escalation of the Ukraine–Russia conflict (Rudenko et al., 2023). A separate study on global governance concluded that transnational networks of terrorism evolved rapidly in response to globalisation, resulting in broader patterns of insecurity that required coordinated international responses (Islam et al., 2025). The reconstruction of Ukraine also illustrated the fiscal consequences of prolonged conflict for national and regional economies. Post-conflict expenditure, institutional rebuilding, and infrastructure restoration placed long-term pressure on fiscal systems in affected regions (Dincă & Țoca, 2024).

The literature on public administration repeatedly identifies fiscal resilience as a product of institutional design and policy adaptation. Regions in the Russian Federation demonstrated varying levels of resilience during economic downturns due to differences in institutional capacity and public-finance management practices (Klimanov et al., 2020). A study on Austrian local governments found that social-infrastructure spending played a significant role in shaping long-term fiscal sustainability, suggesting that expenditure patterns influenced fiscal health in ways not captured by revenue alone (Neuhuber et al., 2025). Political-economy analyses also underscored the importance of fiscal discipline, credible public institutions, and coordinated budgeting systems. Observations in South Asia showed that political dynamics and economic cycles strongly influenced fiscal performance and resilience-building strategies (Rai & Salwan, 2021).

Regional security studies highlight that state capability plays a fundamental role in managing national security challenges. A grounded-theory investigation in Haiti documented the consequences of diminishing state capacity, including loss of territorial control and weakening of legitimate authority (Noel, 2024). Security analyses in Laos reported persistent structural challenges in defense governance, ranging from limited resources to fragmented strategic coordination (Howe, 2023). These empirical findings demonstrate the necessity of integrating fiscal resilience with national security planning, particularly for states with limited institutional resources or high exposure to external shocks.

The convergence of global geopolitical disruptions, domestic fiscal fragility, and expanding security risks presents a complex policy environment for Indonesia. Indonesia relies heavily on imported defense technologies, is exposed to currency volatility, and operates under long-standing constraints associated with a deficit-financing model. The Indo-Pacific region remains highly competitive, and Indonesia faces persistent demands for modernization of maritime surveillance, cyber-defense capabilities, and air-defense infrastructure. Rising global military spending and increasing procurement costs place Indonesian defense planning under substantial fiscal pressure.

Existing fiscal structures offer limited flexibility for large-scale modernization efforts, especially during periods of heightened uncertainty. Extensive dependence on annual budget cycles restricts long-term planning, and competing sectoral priorities reduce the availability of resources for defense. The intensifying geopolitical environment requires diversification of financing mechanisms that support long-term predictability, risk mitigation, and adaptive planning. Scholarly debates across multiple regions increasingly recommend innovative financial instruments, performance-based budgeting, asset-optimization frameworks, and public-private partnerships as potential strategies for strengthening fiscal capacity in uncertain environments.

A growing consensus in the international literature suggests that sustainable security cannot be achieved without robust and adaptive fiscal structures. Fiscal resilience supports national security by ensuring continuity of defense operations, enabling long-term modernization, and reducing exposure to external financial shocks. The analytical context presented by global studies demonstrates that sustainable and innovative defense financing models are essential for countries operating within volatile geopolitical landscapes. Indonesia represents one of the countries that require such innovations to maintain national security while safeguarding fiscal sustainability and development commitments.

The present study addresses this gap by examining fiscal vulnerabilities affecting

Indonesian defense financing in the aftermath of the Ukraine–Russia war. The aim of the study to innovation framework designed to enhance fiscal resilience and support sustainable national-security strategies.

METHODS

A methodological structure grounded in historical macroeconomic evaluation, geopolitical analysis, and policy-oriented synthesis supports a comprehensive examination of Indonesian fiscal resilience and defense-financing innovation. A long-horizon dataset covering 2003–2023 is employed to identify structural patterns in public revenue, expenditure, debt dynamics, exchange-rate behavior, and fiscal-space allocation. A descriptive–analytic orientation guides interpretation of recurring deficits, revenue rigidity, currency sensitivity, and import-dependency risks associated with defense procurement. Several earlier studies on fiscal responses during recessions and global shocks provided comparative benchmarks for identifying long-term vulnerabilities in Indonesian public-finance performance.

A geopolitical-impact assessment extends the historical foundation by analyzing global disturbances generated by the Ukraine–Russia war. Several international studies reported substantial increases in military spending, intensified energy-market volatility, disrupted supply chains, and widespread inflationary pressure following the conflict. Global security scholarship also documented the expansion of hybrid warfare, cyber risks, and transnational threats affecting regional stability. Such evidence informs evaluation of external pressures influencing Indonesian defense requirements, including rising procurement costs, elevated strategic uncertainty in the Indo-Pacific region, and increasing demand for maritime surveillance, cyber-defense strengthening, and modernization of air-defense infrastructure. A qualitative synthesis method is applied to interpret geopolitical patterns and fiscal transmission channels relevant to Indonesian security planning.

A policy-oriented framework is developed to identify sustainable financing pathways that align with long-term resilience objectives. Four thematic dimensions shape the framework: domestic defense-industrial strengthening, public-asset utilization, public–private financing mechanisms, and hybrid models integrating multiple revenue sources. Each dimension is evaluated through a critical-analytic lens emphasizing feasibility, sustainability, fiscal diversification, institutional capacity, and alignment with national-security priorities. Cross-pillar integration connects historical constraints, geopolitical pressures, and prospective financing strategies into a deductive structure that supports formulation of an innovation-based approach to sustainable defense financing in Indonesia.

RESULTS AND DISCUSSION

A multidimensional evaluation of Indonesian fiscal conditions reveals several structural limitations that influence national-security financing under global geopolitical disruptions. Long-horizon macroeconomic analysis covering 2003–2023 indicates persistent budget deficits, limited revenue elasticity, high exposure to currency volatility, and sustained dependency on imported defense technologies. Fiscal capacity demonstrates slow growth relative to expenditure expansion, resulting in constrained fiscal space for modernization of defense capabilities. Inflationary pressure, commodity-price fluctuations, and rising debt-service burdens further restrict the government's ability to allocate predictable long-term funding for defense planning.

Structural Fiscal Conditions (2003–2023)

Historical data shows continuous deficit patterns with limited periods of consolidation. Revenue growth remains heavily influenced by commodity cycles and global market conditions. Public-expenditure expansion grows at a faster rate than revenue, contributing to long-term structural imbalance. Currency depreciation episodes occur frequently and exert a significant impact on procurement costs for imported defense equipment. Debt indicators indicate rising commitments, particularly in the form of interest payments and multiyear obligations. The following table summarizes core findings from the historical macroeconomic assessment showed Table 1.

Geopolitical Transmission Channels Affecting Fiscal Burden

Geopolitical disruptions generated by the Ukraine–Russia war produce significant global ripple effects. Several international assessments recorded rapid military-expenditure increases across Europe, North America, and East Asia. Higher demand for defense equipment influences global market prices, elevating procurement costs

Table 1. Key Fiscal Indicators Influencing Defense Financing (2003–2023)

Fiscal Dimension	Empirical Pattern	Implications for Defense Financing
Budget Balance	Persistent deficits across 20 years	Limited discretionary funds for modernization initiatives
Revenue Elasticity	Slow and cyclical growth	Reduced ability to respond to sudden security needs
Expenditure Growth	Rapid expansion across social and infrastructure sectors	Competition for budget allocations
Exchange-Rate Sensitivity	Frequent currency depreciation episodes	Rising costs for imported equipment
Debt-Service Ratio	Increasing proportion of expenditure	Reduced long-term fiscal flexibility
Import Dependency	High reliance on foreign defense systems	Elevated exposure to global price shifts

for equipment purchased in foreign currency. Energy-market volatility also contributes to inflationary pressure, which increases operational costs in multiple sectors of government administration.

Geopolitical risks extend beyond military dynamics and influence broader economic activity. Global supply-chain fragility, cyber threats, hybrid warfare, and strategic competition heighten the importance of national security planning. Indonesia experiences heightened security demands due to increased strategic competition in the Indo-Pacific region. Expanded surveillance requirements, cyber-defense strengthening, and modernization of maritime assets generate significant funding needs. Table 2 synthesizes geopolitical transmission channels that exert fiscal pressure on Indonesian defense-financing capacity.

Defense-Sector Vulnerabilities

Indonesian defense capability relies on a mix of imported platforms, foreign technologies, and domestic production with limited scale. Modernization requirements exceed current fiscal capacity, particularly for naval, air-defense, and cyber systems. Procurement schedules experience delays due to financial constraints. Long-term obligations create pressure on annual budgets, especially during currency depreciation periods.

Operational readiness also faces funding constraints. Maintenance requirements, personnel training, fuel expenses, and logistics-support systems require consistent expenditure. Expansion of digital and cyber infrastructure demands investment in new technologies, interoperability upgrades, and secure communications systems. Such needs exceed the flexibility offered by the current fiscal framework. Table 3 summarizes sectoral vulnerabilities.

Institutional Constraints and Fiscal Rigidity

Institutional features of Indonesian public finance limit adoption of flexible and innovative funding mechanisms. Budgeting regulations prioritize annual cycles rather than long-term defense commitments. Strict expenditure classifications restrict reallocations. Weaknesses in asset management reduce opportunities for generating non-budgetary income. Limited

Table 2. Geopolitical Channels Affecting Indonesian Fiscal Burden

Geopolitical Factor	Global Pattern	Fiscal Impact for Indonesia
Global Military Spending	Sharp increases post Ukraine-Russia conflict	Elevated cost of defense imports
Energy-Market Instability	Volatile price fluctuations	Increased operational and procurer expenditure
Inflationary Trends	High inflation across continents	Erosion of real public revenue
Indo-Pacific Competition	Increased regional militarization	Heightened need for modernization readiness
Cyber and Hybrid Risks	Expansion of nontraditional threats	Expanded budget allocation for dig security systems

Table 3. Defense-Sector Vulnerabilities Affecting Fiscal Resilience

Defense Area	Vulnerability Pattern	Consequences
Procurement	High reliance on imports	Exposure to currency and price volatility
Modernization	Significant demand for new platforms	Insufficient long-term fiscal provision
Cyber-Infrastructure	Rapidly evolving threat landscape	Urgent need for digital investment
Operational Costs	Rising fuel, logistics, and maintenance needs	Increased annual expenditure burden
Industrial Capacity	Limited domestic production scale	Slow progress toward self-reliance

partnership frameworks restrict cooperation with private entities or international investors.

Several studies on fiscal resilience emphasize the role of institutional adaptability in strengthening long-term fiscal stability. Regional evidence illustrates how jurisdictions with strong institutional capacity were able to absorb shocks more efficiently. Conversely, institutional rigidity increases exposure to external pressures and reduces policy responsiveness. Indonesian fiscal architecture displays characteristics consistent with constrained flexibility.

Integrated evidence indicates that Indonesian defense financing operates under deep structural pressures shaped by long-term fiscal patterns, geopolitical escalation, and institutional constraints. A deductive interpretation of findings points toward a fundamental mismatch between conventional budgeting systems and the financial demands of modern military capability development. Global scholarship on sustainable security emphasizes that strategic readiness in contemporary environments requires adaptive financial frameworks supported by diversified funding sources, fiscal resilience, technological autonomy, and industrial capacity strengthening (Bătuşaru & Sbârcea, 2023; Hikmat & Hameed, 2022; Aleyomi & Nwagwu, 2023). Structural dynamics affecting Indonesian fiscal sustainability therefore require evaluation in connection with global experience and theoretical discourse on sustainable security.

Long-term fiscal imbalance reduces the capacity of governments to allocate predictable resources for defense modernization. Persistent deficits, slow revenue elasticity, and rising debt-service obligations form major constraints on development of capital-intensive capabilities. Empirical studies in several regions show that fiscal weakness erodes state capacity to maintain essential public functions during crises (Govinda Rao et al., 2023; do Nascimento Rodrigues et al., 2025; Hochrainer-Stigler et al., 2024). Fiscal rigidity also influences Indonesia because multi-year procurement cycles depend on stable commitment capacity, while public budgets remain sensitive to commodity cycles, exchange-rate pressures, and administrative fragmentation.

Comparative studies in Austria, Brazil, Russia, and African regional governments demonstrate that jurisdictions with diversified revenue bases and strong institutional capacity manage financial shocks more effectively (Neuhuber et al., 2025; Klimanov et al., 2020; Klimanov et al., 2021; Jiang et al., 2025). Fiscal resilience therefore represents a precondition for national-security financing, particularly in contexts where strategic modernization requires long-term, predictable, and stable funding streams. Several assessments emphasize that governments with flexible fiscal systems maintain stronger defense-readiness levels during prolonged volatility (Rai & Salwan, 2021; Alfakeeh et al., 2022).

Geopolitical dynamics associated with the Ukraine–Russia war generate significant pressure on Indonesian fiscal conditions. Global military spending increased rapidly in Europe, North America, and East Asia, driving up procurement costs across defense markets (Dincă & Ţoca, 2024; Howe, 2023). Energy-market volatility intensified inflationary pressure, complicating public expenditure management and reducing purchasing power for imported systems (Alcántara-Ayala et al., 2022; Chebochok & Bayale, 2023). Elevated risk exposure across supply chains, cyber domains, and maritime routes also increases financial burdens on national-security institutions (Islam et al., 2025; Ghadi et al., 2021).

Studies focusing on Indo-Pacific geopolitics highlight persistent risks related to territorial contestation, maritime surveillance requirements, and expansion of cyberwarfare, amplifying the strategic urgency of modernization (Heiran-Nia, 2024; Kelly, 2025). Research in Africa and Eurasia similarly reports that regional insecurity amplifies fiscal obligations in low- and middle-income countries, especially where procurement costs escalate under global competition (Ibe-Ojiludu, 2023; Rudenko et al., 2023). Geopolitical escalation therefore pushes Indonesia toward more expensive modernization paths, while fiscal limitations restrict flexibility to respond effectively.

Multiple countries responding to similar pressures introduced innovative financing instruments, including sovereign security funds, industry-driven reinvestment schemes, and structured public–private partnerships (Ambika, 2024; Atvur & Vural, 2022; Garg et al., 2024). Comparative evidence demonstrates that diversified financing systems support stronger resilience under prolonged geopolitical tension.

Sector-specific vulnerabilities intensify Indonesian exposure to global volatility. Import dependency produces high sensitivity to currency depreciation, raising acquisition and maintenance costs for foreign defense platforms (Ali et al., 2023; Aliyu et al., 2022). Limited domestic industrial capability restricts technological autonomy and strengthens reliance on international suppliers (Jain et al., 2021). Operational expenditures increase steadily due to rising fuel prices, maintenance requirements, personnel expansion, and cost of cybersecurity enhancements (Iwendi et al., 2021; Rasool et al., 2022).

Evidence across regions shows that domestic industrial strengthening contributes to long-term sustainability by reducing procurement costs and enhancing technological independence (Ahmad et al., 2023; Kumar et al., 2025). Strategic partnerships with global defense companies, co-production frameworks, and targeted industrial investments accelerate technological upgrading and create domestic value-added structures. Research from developing economies highlights that industrial upgrading plays a key role in reducing vulnerability to global price shocks (David et al., 2024; Jiang et al., 2024).

Reform opportunities also emerge from asset-management improvements. Several countries generate long-term revenue by monetizing non-strategic land, transport nodes, or logistic facilities under regulated governance frameworks (Lasierra, 2022; Noel, 2024). Indonesian fiscal institutions hold similar potential but require structural improvements in valuation practices, transparency, and digital monitoring.

Institutional performance determines the effectiveness of fiscal resilience and national-security governance. Strong institutions enforce disciplined budgeting, transparent asset management, and procurement efficiency. Research demonstrates that weak institutions exacerbate fiscal risk and undermine security readiness (Phillips-Spencer, 2022; Niyitunga, 2024). Political-economy studies show that coherent regulatory frameworks improve resilience by enabling multi-source financing, managing risk-sharing schemes, and coordinating long-term investment (Okeke, 2021; Yakubu & Falode, 2022).

Institutional modernization in Indonesia remains essential for managing complex financing mechanisms. International cases illustrate that digital procurement platforms strengthen transparency, while independent asset-valuation processes reduce corruption risk and increase investor confidence (Pasquale et al., 2024; Williams, 2021). Clear guidelines for PPP implementation and oversight of defense-industry reinvestment improve coordination and reduce transaction failures across institutional boundaries.

Defense financing achieves long-term sustainability when aligned with fiscal priorities, security strategy, and industrial development. Fiscal authorities maintain macroeconomic stability, security institutions define capability needs, and industrial actors supply technology and maintenance structures. Global analyses emphasize the importance of cross-domain coordination for achieving predictable modernization outcomes (Shah et al., 2025; Long et al., 2025). Lack of coordination results in fragmented planning, redundant programs, and inefficient expenditure.

Industrial policy contributes significantly to long-term cost stability through domestic capability enhancement. Countries with maturing defense industries reduce dependency on foreign suppliers and retain greater fiscal autonomy during periods of geopolitical escalation (Miyachi et al., 2025; Mkuti, 2024). Integration of fiscal, security, and industrial objectives forms the conceptual foundation for sustainable defense funding.

Innovative financing mechanisms represent a viable pathway for Indonesia to address longstanding fiscal limitations. Defense-industry reinvestment transforms industrial revenue into capital for procurement, R&D, and capability upgrading, reducing reliance on state budgets (Rai & Salwan, 2021; Alfakeeh et al., 2022). Asset-utilization strategies provide alternative income sources through leasing, joint operations, and structured investments, supporting long-term expenditure commitments (Lasierra, 2022; Noel, 2024).

Public–private partnerships enable infrastructure financing, technological upgrading, and development of training facilities through risk-sharing arrangements (Garg et al., 2024; Ambika, 2024). Hybrid financing models integrate multiple revenue channels into a unified structure, enhancing fiscal stability under high uncertainty (Pasquale et al., 2024; Phillips-Spencer, 2022). Such mechanisms align with global transitions toward diversified and adaptive security-financing systems.

A sustainable defense-financing framework strengthens national resilience by providing predictable resources for readiness, modernization, and technological upgrading. Fiscal diversification reduces vulnerability to economic and geopolitical shocks, while strong institutions ensure effective governance and procurement efficiency. Strategic independence grows through industrial capacity development, reducing exposure to external supply-chain disruptions.

Indonesia occupies a central position in the Indo-Pacific region, where strategic competition continues to intensify. Long-term national security depends on sustained investment in maritime surveillance, air-defense enhancement, cyber readiness, and industrial strengthening. Diversified and innovative financing mechanisms provide the most viable path for achieving those objectives under fiscal constraints shaped by global uncertainty.

CONCLUSION

The reserach shows that long-term fiscal limitations, geopolitical disruptions, and institutional constraints generate substantial challenges for Indonesian defense financing, particularly within a strategic environment defined by accelerating competition, rising procurement costs, and expanding technological requirements. Persistent deficits, limited revenue elasticity, currency exposure risks, and increasing debt-service commitments restrict the ability of public authorities to sustain predictable investment in modernization, while global inflation and energy-market volatility intensify pressure on national budgets. Geopolitical dynamics associated with the Ukraine–Russia conflict amplify those pressures by driving rapid increases in global military spending and expanding demand for advanced defense systems, which elevates acquisition costs and complicates long-term planning. Sectoral vulnerabilities, including high import dependency, limited domestic industrial capability, and rising operational expenses, further weaken strategic readiness and underscore the need for structural reform. Institutional modernization emerges as a critical foundation for strengthening fiscal governance, ensuring effective coordination, and supporting complex financing mechanisms capable of managing multi-source revenue streams. Integration of fiscal, security, and industrial policy offers a coherent pathway for achieving sustainable modernization, while innovation through industry reinvestment, asset-utilization models, public–private partnerships, and hybrid financing frameworks provides practical mechanisms for expanding fiscal capacity and reducing exposure to external shocks. National resilience ultimately depends on the ability of public institutions to secure stable, diversified, and adaptable financing structures that support technological autonomy, strategic deterrence, and long-term capability development within an increasingly uncertain global landscape.

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