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Fiscal Sustainability and Public Debt Risks: A Comparative Macroeconomic Study of Advanced and Emerging Economies

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Abstract. In the post-pandemic world economy, public debt has reached unprecedented levels. Fiscal sustainability and debt risk management have thus become central to macroeconomic stability. This paper reviews theoretical and empirical perspectives on fiscal sustainability and compares how advanced economies and emerging market economies differ in debt dynamics, risk structures, and policy responses. It discusses key indicators such as the debt-to-GDP ratio, fiscal deficit, and the interest-growth differential (r-g). The findings reveal that while advanced economies can sustain high debt levels due to institutional credibility and negative r-g, emerging markets remain vulnerable to external shocks and refinancing pressures. This comparative analysis underscores the necessity of context-specific, multi-dimensional frameworks for assessing fiscal health, moving beyond a one-size-fits-all approach based solely on debt thresholds. The paper concludes with suggestions for future research directions, including the integration of institutional quality and climate-related fiscal risks into sustainability analysis.

Keywords: Fiscal Sustainability, Public Debt, Sovereign Risk, Interest-Growth Differential (r-g)

1. Introduction

Traceable to post-pandemic interventions, fiscal responses witnessed across national regimes evince one of the most substantial expansions recorded in contemporary annals—a pattern compounding a pre-existing arc of increased public borrowing subsequent to the 2008 Global Financial Crisis. Initiatives oriented toward the stabilization of macroeconomic livelihoods, employment retention, and health infrastructure, it is evident, were universally enacted. Consequent data, released under IMF auspices, indicate by 2023 an aggregate government sector indebtedness reaching approximately ninety-three percent of global output [1]. This escalatory dynamic renders salient again questions regarding the endurance of current fiscal-political constellations absent threats to solvency or systemic stability.

Complexity characterizes saliently the issue of debt sustainability, observable in substantial differentiation across various economies. Debt levels surpassing 100% of GDP are regarded as maintainable among advanced economies—exemplified by the United States and Japan—where stability persists at high thresholds; that such conditions do not generalize globally is evidenced within emerging markets typified by Brazil or India, where crisis phenomena manifest frequently

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even under comparatively moderate indebtedness ratios. Central remains a question which cannot be blueuced to quantifying aggregate state liabilities. Rather, determinative has proven the assessment of whether existing debt burdens can be rendeblue sustainable in light of endogenous growth rates, prevailing interest differentials, and those institutional parameters framing fiscal operation.

This paper is animated by a systematic goal: the one directed towards providing a comparative analysis including both fiscal sustainability and debt-related risks, namely, discriminating between developed and developing national backgrounds. Integration described in this case unites theoretical paradigms and descriptive data, and aims at solidifying key indicators defining the concept of sustainability, and explaining policy responses. Clues to true insights on the basis of academic synthesis alongside modern statistical modelizations are effectively utilized to expound an argument in that risk connotation is not always linearly related to the accumulation of gross debt: this interaction how variability in macroeconomic management and institutional evolution mediate divergent fiscal trajectories depending on development stage. It is a need, therefore, of methodologically based research on interdependencies which form debt exposure, underlying fundamentals, and administrative architectures a project which is being considered fundamental in prefiguring prudent policy development henceforth.

The structure adopted proceeds initially via a historical-theoretical review detailing the intellectual roots and unfolded conceptualizations concerning fiscal sustainability. Thereafter, the construction follows of an evaluative schema pblueicated upon key operationalized metrics, which subsequently anchors a deep-dive comparative investigation spanning developed vis-à-vis emergent settings.

2. Literature review and theoretical background

In recent decades, the concept of fiscal sustainability has undergone substantial redefinition, with considerable changes evident particularly since the late twentieth century. An early reference point presented itself when Blanchard [2] articulated sustainable stance in terms of dynamic debt-to-GDP ratio stabilization—so long as escalation tendencies remain absent, fiscal conduct could be denominated robust. Later [3] contributions included empirical refinements espoused by Bohn, who implemented diagnostic tests correlating primary balance adjustments against observed public debt ratios. Sustains fiscal soundness, he contended, where governmental behavior reflects increased surplus generation proportionate to elevated liabilities, thus providing evidence for ongoing policy discipline rather than prospective instability.

Among the analytical architectures shaping contemporary academic and policy discourse, there exists the IMF's Debt Sustainability Analysis (DSA)—a paradigm which does not remain confined to mere quantification of debt aggregates, but instead integrates layered macroeconomic landscapes, fluctuating interest-growth correlations, and variegated institutional robustness into its evaluative mechanisms. Presented within DSA frameworks are simulations wherein alternative macro-financial shocks inform projected sovereign debt paths, permitting insight as to whether fiscal trajectories preserve stability under pronounced stressors [4]. Not unconnected is the construct denoted "fiscal space"—this being construed as the measurable scope available to government entities for deploying expansionary budget measures without imperiling their access to funding markets nor compromising long-run solvency.

The intellectual foundations upon which fiscal sustainability arguments repose manifest in several orthodox economic doctrines. Be posited by the Ricardian Equivalence Proposition that aggregate demand responses to deficit-funded expenditures dissipate in contexts wherein forward-looking agents internalize future tax liabilities. Of particular pertinence also stands Fiscal Multiplier

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Theory, according to which countercyclical deficits modify output with impact magnitudes contingent on economy-specific idiosyncrasy. Quantitatively formalized, the so-termed Debt Dynamics Equation expresses public liability growth via: $(B/Y) = (r - g)(B/Y)_{t-1} + D_p$, wherethrough becomes observable—under $r < g$ regimes—a stabilization or diminution of the debt-to-output ratio arises exogenously.

Empirical investigations, deployed both at the single-country level as well as across broader samples, provide additional texture to conceptions of fiscal sustainability. Articulated by Reinhart and Rogoff [5], it has been contended that markedly diminished growth performance correlates with situations where state indebtedness surpasses 90% of GDP; yet, discernible from subsequent methodological critiques [6,7] as well as wider comparative evidence [1], neither constancy in critical thresholds nor universal effectivity obtains. Regularly revealed by such research is the mediating influence exerted by factors including institutional efficacy and financial system maturity, through whose presence greater tolerances for debt absorption in advanced economies emerge. Conversely, heightened exposure to refinancing pressures and currency risk typifies those jurisdictions characterized as emerging markets, an instability frequently interpreted via the theoretical prism of "original sin"—inability, evidenced therein, of sovereigns to secure external financing denominated in native monetary units.

It is discernible from the extant literature that sensitivity to abrupt reversals within capital flows, frequently termed "Sudden Stops" [8,9], has evinced profound implications for financial stability. The theoretical constructs referenced above have established a foundational framework upon which empirical interrogation may proceed with greater robustness. Upon this substratum of prior conceptual elucidation, recourse will be had in the ensuing segment to an array of principal indicators, these being selected and examined with particularity for the purpose of quantitatively interrogating fiscal sustainability across differentiated economies.

3. Principal indicators underpinning fiscal sustainability evaluation and debt-related risk

Accurate quantification regarding fiscal sustainability necessitates dependence upon several salient indicators, by whose measures both solvency and liquidity concerns are apprehended. Among such instruments, prevalence persists for public debt-to-GDP ratio as the benchmark variable most habitually invoked. During 2024, values averaged approximately 110% of GDP among advanced economic entities, whereas emerging market counterparts typically exhibited a mean near 70% [1]. The aforementioned ratio expresses indebtedness lagged upon the productive capacity signified by national output; characteristics relating to structural composition, residual term until maturity, or holder residency, however, remain uncaptured therein. By way of exemplificatory reference, observed has been that Japan's sovereign liabilities, though surpassing 250% relative to GDP, are predominantly domestically possessed—a circumstance seen to diminish exogenous vulnerability. Contrariwise—within some jurisdictions typified by Argentina—evidence points towards recurrent crises amid comparatively lower debt-to-GDP ratios, explanation residing in the significant presence of obligations denominated extraneously, i.e., in foreign currencies.

The fiscal deficit ratio, standing as another central quantity, denotes an imbalance observable over temporal flows that propels incremental accumulation of public debt. Enduring structural imbalances, especially when persistent, betray signals interpreted as long-run pressures bearing upon fiscal order. It is observable herein that advanced nations generally maintain moderate deficits (estimated at 3–5% of GDP), this functioning partly in support of countercyclical stabilization objectives. Emerging economies, on the other hand, are prone toward broader and more oscillatory

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shortfalls—phenomena implicitly reflective of rigid expenditure profiles concomitant with relatively fragile revenue frameworks.

Having a decisive role in shaping the direction of public sector indebtedness, the interest-growth differential (r-g) has found its frontal place of analysis in the debate of debt sustainability. The self-healing decline of debt-to-GDP ratios is apparent in times when r-g is negative that is, when economic growth exceeds the cost of servicing and thus, self-correcting. An average difference in r-g across economies quoted by the IMF [1] of -1.5 percentage points was a typical feature of advanced economies as at 20102023. On the contrary, emerging-market environments had been dominated by the positive differentials suggesting the significant worry about their ability to maintain solvency. As may be seen, becoming vulnerable to exchange-rate shocks increases with the accrual of external liabilities especially when these are negotiated in relatively stable or appreciating foreign liabilities. Statistics published by the World Bank outline the presence of an external debt factor in the range of 30 percent of the broad-based public-sector commitments in the emerging markets; in contrast to approximately below 10 percent in most of counterparts in the developed economies.

Besides, short-term risk exposure, magnifiable by increasing short-term debt ratios, can be explained by citing events like the 2013 taper tantrum, where sudden capital retrenchment took a disproportionate toll on emerging balances in the markets. The design of liability maturities is just as important to criticize: the constant need to rollover, as is the case with Turkey with relatively short maturity profile [10], exposes the sovereign finances to role over disruptions and price increases. The concept of fiscal fatigue [11] has been introduced into the recent academic analysis; it can be observed herein that beyond specific levels of debts, the policy authorities experience a reduction in the marginal returns of the adjustment actions as the political will and macroeconomic space is located away, thereby exacerbating the default risks. These diverse indicia espouse synthetic convergence to a multidimensional diagnostic model that can be used to explain fundamental divergences between national positions on the fiscal front. They gain a more definitional quality through such specification, and fundamental differences in the robustness of the various development levels of organizations of public finance become more definite.

4. Comparative framework—developed versus emerging economies

However, in spite of similar mathematical expression of the amount of headline debt ratios, the variation, on which the formation of respective risks is based, and the room of maneuver afforded to the authorities, is strikingly different between economies that found themselves at varying degrees of development. In this case, comparative exposition occurs through three main axes whose interplay is: (i) Interest rate-real growth interaction; (ii) monetary regime autonomy; and (iii) forex-based vulnerability of structural financial openness. The blame of gradual accumulation of debts, in the narrower sense of this term, lies within the domain of advanced economies and it is mainly due to the interactions behind r-g differentials and the choice in policy termed as epochs that are defined by reducing interest rates. Examples like those that are witnessed in Japan and the United States since 2008 provide evidence where large levels of fiscal imbalances existed with no sign of crisis-are explainable through continuing negative r-g set ups and mediated by central monetary authorities. Arising out of this opposition, instances such as Brazil or Turkey present occasional spikes in sovereign indebtedness that a long side with spurts of inflation and high rates of borrowing that exceeds output growth.

Endowments peculiar to advanced states—in particular, sovereignty over monetary issuance and developed domestic financial sectors—issue a degree of insulation from external volatility; their

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obligations are denominated almost exclusively in national currencies, within self-sustaining capital ecosystems. Reliance on extra-national finance distinguishes emerging markets, where the heightened exposure to exchange-rate fluctuation and exogenous investor disposition predicates pronounced macro-financial susceptibility. Seen through the lens of the “global financial cycle,” as posited by reference [12], transmission mechanisms radiate outward from core jurisdictions (particularly that of the United States), orchestrating capital movements whose scale routinely overshadows the remedial capacity of periphery countries’ autonomous monetary policies.

Interconnection between fiscal hazard and broader macroeconomic fragility becomes apparent. Evidence derived from advanced economies' brief inflationary interludes following the COVID-19 shock contrasts markedly with emergent market experiences: in these latter contexts, recurrent pressure events actuate procyclical retrenchment. Depreciation of local currencies—where liabilities index to foreign denomination—yields compounding escalations in debt ratios, circumstances less acute among so-called "safe haven" nations which passively absorb global risk aversion while peripheral economies amass precautionary reserves in defense against volatilities [13].

Differences embedded at the level of institutional architecture merit further attention. It is not uncommon for advanced regimes to operationalize flexibility underpinned by retained credibility; guidelines such as those embodied in the European Union’s Stability and Growth Pact serve more as adaptive benchmarks rather than binding directives, frequently yielding to imperatives political or economic in origin. Formalized constraints prevail in emergent environments—for example, the Brazilian Fiscal Responsibility Law, or China’s system of contingent debt quotas—with irregular enforcement introducing additional uncertainty. In parallel, demographic pathways dictate differentiated trajectories: for some advanced polities—Italy and Japan illustrative among these—the inexorable trend toward population aging portends escalating demands upon pension schemes and health expenditure, with unconcealed implications concerning the structural persistence of rising public sector obligations [14]. While some emerging markets currently enjoy a "demographic dividend," they too must prepare for future age-related spending to avoid a similar fiscal trap.

5. Conclusion

This paper has reviewed the theoretical foundations and comparative dynamics of fiscal sustainability across advanced and emerging economies. It finds that fiscal sustainability depends less on absolute debt levels than on macroeconomic conditions, institutional quality, and policy credibility.

The central finding of this study reveals that fiscal sustainability is not determined by a single level of debt, but rather is a multidimensional proposition shaped by the growth-interest rate dynamics, institutional credibility, and structural risks. Firstly, although global debt levels are generally high, developed economies maintain debt sustainability thanks to their negative interest rate-growth (r-g) differential and solid monetary policy credibility; in contrast, emerging markets are more vulnerable due to a positive r-g and dependence on external financing. Secondly, institutional and structural factors are crucial. Weak fiscal frameworks and widespread currency mismatches in emerging economies amplify their risk exposure when facing external shocks.

These findings yield distinct policy implications. For advanced economies, the primary challenge lies in managing the gradual normalization of interest rates and designing credible medium-term fiscal consolidation plans to rebuild buffers against future shocks. For emerging markets, the policy priorities should include deepening domestic capital markets, reducing currency mismatches, strengthening institutional credibility, and building larger fiscal buffers during good times.

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In the future, the fiscal sustainability study is desperately in need of new dimensions: first, institutional heterogeneity whereby the adaptability cost and green transition investments need to be explored further in regards to the changing long-term fiscal trends in developing nations; second, climate-related fiscal risks whereby more dynamic models of debt sustainability have to be models that incorporate the aspect of uncertainty, its feedback as well as nonlinear responses to world shocks. These are fiscal sustainability that maintains high debt, coherent macroeconomic management, credible institutions and adjustable fiscal policies that facilitate short term flexibility and long-term discipline.

Overall, we have two very distinct fiscal resilience rates, which are exerted by institutional credibility, monetary policy autonomy, and exposure to external shocks. This is a strong sign that size assessment of fiscal sustainability should not be just a mere aspect of the debt level, but a wider aspect of macro-institutional factors.

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