“Measuring fiscal structural reform intensity: The case of Armenia”

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MEASURING FISCAL STRUCTURAL REFORM INTENSITY: THE CASE OF ARMENIA

Abstract

Fiscal structural reforms play a decisive role in strengthening macroeconomic stability, enhancing public sector efficiency, and improving institutional resilience in transition economies. Armenia represents a particularly relevant case, where successive reform waves have been closely linked to external adjustment programs and domestic political cycles. The purpose of this study is to measure the intensity of fiscal reforms in Armenia and to evaluate their dynamics over the period 1995–2024. For this purpose, a Fiscal Structural Reform Index (FSRI) is constructed, integrating revenue, expenditure, and institutional reforms based on IMF MONA benchmark data. Reforms are coded by significance (0.25 = minor, 0.50 = medium, 1.00 = major), adjusted for persistence through a geometric decay factor (0.8), and aggregated using Principal Component Analysis (PCA). The first principal component explains 71.2% of the total variance, ensuring the robustness of the composite index. The results indicate that reform intensity in Armenia exhibits a cyclical pattern, peaking during IMF-supported programs in 1999–2001, 2009–2011, and 2016–2018, and moderating during periods of political transition. Institutional reforms display the highest persistence, accounting for the largest share of the index, while revenue and expenditure reforms are more episodic. The analysis demonstrates that both external conditionality and internal political shifts strongly influence reform momentum. The FSRI provides a replicable framework for tracking fiscal reform intensity, supporting policy design, and strengthening structural diagnostics in transition and developing economies.

Keywords fiscal, reform, intensity, index, measurement, persistence, institutions, structural reform, Armenia

JEL Classification H20, H50, O23, C43

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INTRODUCTION

Over the past three decades, fiscal structural reforms have become a central element of macroeconomic adjustment strategies, particularly in transition economies facing systemic transformation. In Armenia, these reforms have spanned tax policy and administration, expenditure prioritization, public financial management, and institutional frameworks for budgeting and fiscal governance. Their relevance lies not only in ensuring fiscal sustainability but also in enhancing state capacity and resilience to external shocks.

Yet, despite their recognized importance, the scientific problem of measuring fiscal reform intensity remains unresolved. Existing approaches often rely on binary classifications or discrete event tracking, which reduces reforms to isolated episodes. Such methods obscure the fact that reforms are multi-dimensional, evolve incrementally over multiple years, and produce overlapping institutional, revenue, and expenditure effects. This limitation is particularly acute in small post-Soviet economies, where political cycles, administrative constraints, and external conditionalities jointly shape reform dynamics.

The core research problem, therefore, lies in the absence of a standardized, time-consistent, and empirically grounded framework for quantifying fiscal structural reforms. Unlike monetary or trade liberalization measures, fiscal reforms tend to follow non-linear trajectories and exhibit persistence effects that extend beyond the year of implementation. This raises a fundamental methodological challenge: how to capture both the depth and durability of reform efforts over time, while distinguishing the contributions of revenue-side, expenditure-side, and institutional reforms to the overall reform trajectory.

1. LITERATURE REVIEW

Fiscal structural reforms have become a subject of extensive investigation in political economy, public finance, and institutional development due to their transformative impact on macroeconomic stability, fiscal sustainability, and state capacity. Particularly in post-Soviet and transition economies like Armenia, fiscal reforms are not only economic adjustments but also institutional restructurings that address the legacies of centralized systems. The challenge of measuring these reforms – especially in a way that captures their depth, continuity, and cross-sectoral complexity – remains an unresolved scientific problem. This literature review critically synthesizes the evolving body of research on fiscal reform theory, quantification methodologies, and empirical approaches to linking reforms with macroeconomic outcomes.

The conceptual basis for fiscal structural reform draws on both classical and modern traditions in public finance and institutional economics. Afonso et al. (2005) showed how the quality and composition of public finances – including tax and expenditure structures – directly affect allocative efficiency and sustainable growth. Tanzi and Zee (1997) and Allen et al. (2013) highlight the long-term importance of fiscal architecture for growth and governance quality. On the revenue side, reforms seek to broaden tax bases, rationalize rates, and modernize collection systems (Keen, 2012; Bird & Zolt, 2014; Crandall, 2010). Expenditure-side reforms aim to reduce allocative inefficiencies, promote performance-based budgeting, and restructure subsidies and wages (Schick, 2009; Rajkumar & Swaroop, 2008; World Bank, 2023). Institutional innovations such as fiscal rules, Treasury Single Accounts (TSAs), and Medium-Term Expenditure Frameworks (MTEFs) are discussed by Gollwitzer et al. (2010) and Cangiano et al. (2013), who underscore their role in enhancing fiscal discipline.

Yet, despite theoretical advances, the empirical literature continues to struggle with operationalizing reform measurement. Ostry et al. (2009), Alesina et al. (2017), and D'Costa et al. (2019) point out that binary reform coding underestimates sequencing, reform fatigue, and delayed impacts. Well-known reform indices, such as those by Lora (2001) and Duval et al. (2018), capture reform episodes but often fail to address multidimensionality or persistence. More recent composite reform indices (Campos & Horváth, 2011; Ciminelli et al., 2019; Elgin et al., 2021) attempt to integrate structural metadata into quantitative constructs; however, fiscal components are frequently aggregated or treated superficially, which limits their ability to reflect the institutional and sectoral heterogeneity of fiscal reforms.

Another line of scholarship emphasizes reform credibility, durability, and institutional absorption. Bonfiglioli and Gancia (2013), Prati et al. (2012), and Everaert and Schule (2008) analyze reform inertia and synchronization across policy domains. Campos et al. (2014), Hausmann et al. (2005), and Rodrik (2000) argue that credibility and political economy constraints shape reform trajectories. Acemoglu et al. (2005) and Fratzscher (2008) stress institutional maturity as a mediating factor, while Ghosh et al. (2013), Hallerberg et al. (2009), and Mauro (1998) explore the role of transparency and governance in ensuring fiscal sustainability.

Recent studies highlight the importance of designing indices that are not only methodologically rigorous but also empirically relevant for evaluating macroeconomic consequences. Kraay (2012), Nozaki et al. (2011), and Panizza and Presbitero (2013) demonstrate that composite indices, when linked with econometric models, provide a dynamic lens for analyzing the long-run effects of reform. This methodological perspective has been extended by IMF and World

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Bank research, which underscores the use of reform indices in forecasting, fiscal surveillance, and program evaluation.

In conclusion, the scholarly debate increasingly converges on the need for multidimensional and temporally sensitive indices capable of moving beyond binary classifications to capture the depth, persistence, and complexity of reform processes with greater statistical precision. Despite such progress, an important gap remains in the literature – particularly in relation to transition economies – regarding the systematic application of such indices to the evaluation of the macroeconomic consequences of fiscal reforms. Eliminating or mitigating this gap requires not only the methodological refinement of measurement frameworks but also the establishment of clear analytical linkages between reform intensity and core macroeconomic outcomes, including economic growth, inflation dynamics, and fiscal credibility.

Within this comprehensive evaluative framework, the present study advances its methodological contribution and aims to measure the intensity of fiscal reforms in Armenia and to evaluate their dynamics over the period 1995–2024.

2. METHODS

This study develops a structured, multi-step methodological framework to measure fiscal structural reform intensity in Armenia over the period 1995–2024. Recognizing that fiscal reforms are not discrete interventions but gradual, path-dependent institutional processes, the methodology integrates established statistical techniques with context-specific modeling innovations.

The methodological process includes the following key stages:

- extraction and classification of fiscal reforms;
- scoring by intensity;
- continuity adjustment for multi-year reforms;
- geometric decay modeling of reform persistence;
- standardization using *z*-scores;
- dimensional aggregation using Principal Component Analysis (PCA).

A core component of this study's methodology involved classifying fiscal structural reforms into three analytically distinct categories: revenue-side, expenditure-side, and institutional reforms. This classification scheme is grounded in international literature (e.g., IMF, World Bank, OECD) and reflects the multidimensional nature of fiscal policy instruments. Each category captures a functionally specific domain of fiscal governance, allowing for disaggregated tracking and subsequent aggregation of reform efforts.

Table 1. Classification of fiscal structural reform components

Reform Category	Subcomponents Included
Revenue Reforms	Reforms to direct taxes (PIT, CIT), indirect taxes (VAT, excise), tariff rationalization, tax exemptions removal, tax administration reforms, compliance and enforcement modernization, e-filing systems
Expenditure Reforms	Reforms to public wage bill policy, social safety net restructuring, subsidy reduction (fuel, electricity, food), capital investment efficiency, healthcare and education expenditure reprioritization, performance-based allocation mechanisms
Institutional Reforms	Introduction or revision of fiscal rules, implementation of Medium-Term Expenditure Frameworks (MTEF), adoption of Treasury Single Account (TSA), program- and performance-based budgeting, audit and oversight mechanisms, public financial management (PFM) systems upgrades
Composite Fiscal Structural Reform Index	Aggregated using PCA from standardized sub-indices, capturing overall fiscal reform effort across dimensions with continuity and decay weighting

Reform actions were extracted from the IMF Monitoring of Fund Arrangements (MONA) database. These reforms were coded annually into three dimensions: revenue-side reforms (e.g., tax changes and administrative modernization), expenditure-side reforms (e.g., rationalization of spending and transfer programs), and institutional fiscal reforms (e.g., fiscal rules, medium-term frameworks).

Each reform was scored based on its type and magnitude. To quantify fiscal reforms, a scale from 0 to 1 was used to reflect their degree of implementation, where 1 represented full implementation, 0.5 represented partial implementation, and 0 represented no implementation. Additionally, where available, reforms were assigned specific weights

– 0.25 for minor, 0.50 for medium, and 1.00 for major – based on their nature, importance, and urgency, following internationally recognized practices from IMF-supported program assessments and reform monitoring literature. Annual intensity scores were computed for each dimension, forming the base of three raw reform series.

To account for the multi-year implementation nature of reforms, we apply a continuity-weighting adjustment to distribute the reform's impact over its implementation horizon, thereby avoiding artificial spikes. Next, we model reform persistence by using a geometric decay function:

$$\begin{aligned} &Adjusted\ Reform\ Index_t \\ &= R_t + b \cdot Adjusted\ Reform\ Index_{t-1}, \end{aligned} \quad (1)$$

where R_t is the continuity-adjusted score in year t and $\delta = 0.8$ is a decay factor calibrated based on IMF reform cycles and Armenia's medium-term institutional response horizon. This value reflects moderate institutional durability and is consistent with similar empirical settings (Duval et al., 2018; Ostry et al., 2009). The decay-adjusted sub-indices are then standardized via z-score normalization.

To construct the composite FSRI, we apply Principal Component Analysis (PCA), a well-established technique for index construction (Jolliffe & Cadima, 2016). PCA is not used here just for dimensionality reduction, but for its ability to extract the most informative linear combination of reform indicators that captures the largest share of common variance across components. In the context of fiscal structural reform, PCA helps assign data-driven weights to revenue, expenditure, and institutional reform efforts based on their empirical contribution to the overall variance in reform activity.

The theoretical justification for using PCA is in its capacity to identify latent patterns of policy implementation that are otherwise unclear in raw or equally weighted indices. By maximizing the variance captured in the chosen principal component, PCA constructs a reform index that reflects the dominant trajectory of structural reform behavior over time. This statistical technique ensures that sub-indices are not treated as equally influential by default, but instead are weighted according to their explanatory relevance. This step allows us to create a composite index without arbitrarily imposing weights on subcomponents.

$$FSRI_t = \lambda_1 \cdot Z_{rev,t} + \lambda_2 \cdot Z_{\exp,t} + \lambda_3 \cdot Z_{inst,t}, \quad (2)$$

where $Z_{i,t}$ is the standardized score of each reform type and λ_i is its PCA loading. Component-wise contributions are calculated to trace the relative importance of each reform type annually.

This methodology allows us to generate a dynamic, high-resolution index that reflects reform intensity, depth, and persistence across time. It supports econometric analysis and provides policy-relevant diagnostics for reform monitoring. While the PCA and decay-based modeling follow established procedures, the integrated FSRI architecture, including its scoring system, continuity adjustment, and calibration to Armenia's reform experience, constitutes an original contribution of this study.

The FSRI improves explanatory power in assessing macroeconomic dynamics in econometric models compared to unidimensional indices.

3. RESULTS

The application of the Fiscal Structural Reform Index (FSRI) to Armenia over the period 1995–2024 reveals several important empirical patterns. These patterns not only validate the multidimensional and dynamic structure of the index but also offer critical insights into the political economy and institutional evolution of fiscal governance in a transition context.

The Principal Component Analysis (PCA) conducted as part of this study provided a clear empirical basis for constructing the FSRI. The first principal component (PC1) had an eigenvalue of 2.14, exceeding the Kaiser criterion threshold of 1.0, which indicates that it explains more variance than any individual reform sub-index. Specifically, PC1 accounts for 71.2% of the total variance in the standardized sub-indices of revenue, expenditure, and institutional reforms, affirming the internal consistency of these dimensions in capturing a unified reform trend.

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Table 2. Principal components analysis result (PCA)

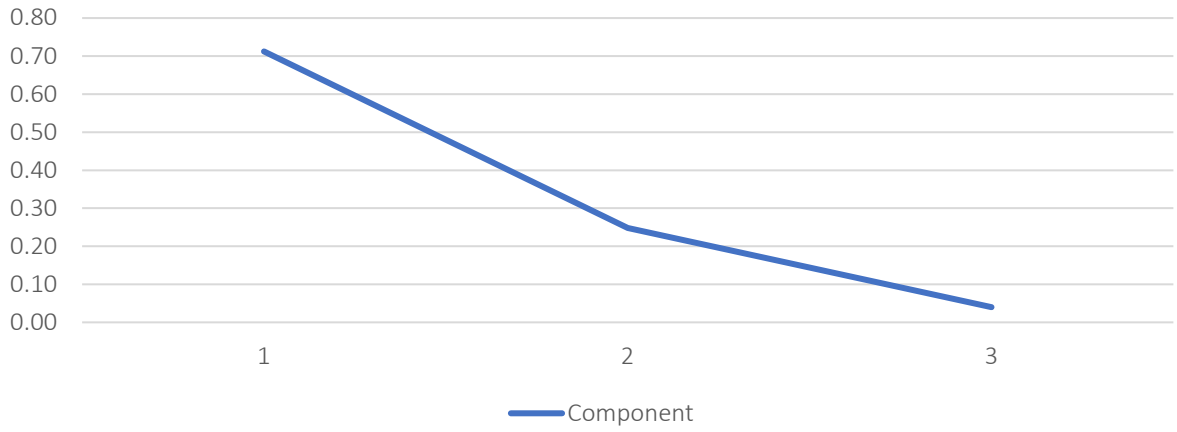
Principal Components Analysis
Sample: 1995–2024
Included observations: 30
Computed using: Ordinary correlations
Extracting 3 of 3 possible components
Eigenvalues: (Sum = 3, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion
1	2.136551	1.392926	0.7122	2.136551	0.7122
2	0.743625	0.623800	0.2479	2.880175	0.9601
3	0.119825	–	0.0399	3.000000	1.0000

Eigenvectors (loadings)			
Variable	**PC 1**	**PC 2**	**PC 3**
Revenue reforms (Z_REV_REF)	0.527119	0.716026	0.457659
Expenditure reforms (Z_EXP_REF)	0.534528	–0.698043	0.476461
Institutional reforms (Z_INST_REF)	0.660624	–0.006520	–0.750688
Ordinary correlations			
Variable	**Z_REV_REF**	**Z_EXP_REF**	**Z_INST_REF**
Z_REV_REF	1.000000	–	–
Z_EXP_REF	0.256448	1.000000	–
Z_INST_REF	0.699368	0.714990	1.000000

The corresponding scree plot (Figure 1) visually supports this finding. It displays a sharp decline in eigenvalues after PC1, followed by a flattening of the curve, suggesting diminishing marginal contributions of subsequent components. This view of the curve reinforces the relevance of using only the first component for index aggregation.

The PCA eigenvectors (component loadings) also reveal the relative importance of each reform dimension in shaping the FSRI. Institutional reforms recorded the highest loading on PC1 (0.661), followed by expenditure reforms (0.535) and revenue reforms (0.527). This ordering suggests that institutional reforms were not only more persistent but also more central to Armenia's overall fiscal reform trajectory, consistent with the design of IMF-supported programs and long-term public financial management strategies. The higher explanatory weight of institutional subcomponents in the PCA structure confirms similar trends noted in the empirical literature, where fiscal rules, MTEFs, and treasury modernization have shown stronger associations with fiscal sustainability than discrete tax or spending reforms (Prati et al., 2012; Everaert & Schule, 2008).



Note: This chart displays the proportion of variance explained by each principal component.

Figure 1. Scree plot of principal components derived from fiscal reform subcomponents

Table 3. Key variables and calculated dataset for the Fiscal Structural Reform Index (FSRI)

Year	Standardized score of each reform			PCA loadings			Contributions to Fiscal structural reforms			FSRI
	revenue	expenditure	institutional	revenue	expenditure	institutional	revenue	expenditure	institutional	
1995	–1.7	–1.4	–1.2	0.5	0.5	0.7	–0.9	–0.7	–0.8	**–2.5**
1996	–1.5	–1.2	–1.2	0.5	0.5	0.7	–0.8	–0.6	–0.8	**–2.3**
1997	–1.3	–1.1	–1.2	0.5	0.5	0.7	–0.7	–0.6	–0.8	**–2.1**
1998	–1.1	–1.1	–1.2	0.5	0.5	0.7	–0.6	–0.6	–0.8	**–2.0**
1999	–1.0	–1.0	–1.1	0.5	0.5	0.7	–0.5	–0.6	–0.8	**–1.8**
2000	–1.1	–1.1	–1.2	0.5	0.5	0.7	–0.6	–0.6	–0.8	**–2.0**
2001	–1.1	–0.7	–1.2	0.5	0.5	0.7	–0.6	–0.4	–0.8	**–1.8**
2002	–1.0	–0.4	–1.2	0.5	0.5	0.7	–0.5	–0.2	–0.8	**–1.6**
2003	–1.0	–0.1	–1.2	0.5	0.5	0.7	–0.5	–0.1	–0.8	**–1.4**
2004	–1.0	0.1	–1.2	0.5	0.5	0.7	–0.5	0.0	–0.8	**–1.3**
2005	0.0	–0.2	–0.8	0.5	0.5	0.7	0.0	–0.1	–0.5	**–0.7**
2006	0.7	–0.4	–0.5	0.5	0.5	0.7	0.4	–0.3	–0.3	**–0.2**
2007	1.3	–0.6	–0.2	0.5	0.5	0.7	0.7	–0.4	–0.2	**0.2**
2008	1.8	–0.8	0.1	0.5	0.5	0.7	1.0	–0.4	0.0	**0.5**
2009	1.2	–0.9	0.1	0.5	0.5	0.7	0.7	–0.5	0.1	**0.2**
2010	1.2	–0.6	0.7	0.5	0.5	0.7	0.7	–0.3	0.4	**0.7**
2011	1.2	–0.4	1.1	0.5	0.5	0.7	0.7	–0.2	0.7	**1.1**
2012	1.1	–0.2	1.0	0.5	0.5	0.7	0.6	–0.1	0.7	**1.1**
2013	0.9	0.0	1.0	0.5	0.5	0.7	0.5	0.0	0.6	**1.1**
2014	0.8	0.7	1.0	0.5	0.5	0.7	0.4	0.3	0.6	**1.4**
2015	0.7	1.3	1.0	0.5	0.5	0.7	0.4	0.6	0.6	**1.6**
2016	0.6	1.8	1.0	0.5	0.5	0.7	0.3	0.9	0.6	**1.8**
2017	0.5	2.1	0.9	0.5	0.5	0.7	0.3	1.1	0.6	**1.9**
2018	0.0	1.4	0.5	0.5	0.5	0.7	0.0	0.7	0.3	**1.0**
2019	0.0	1.0	0.7	0.5	0.5	0.7	0.0	0.5	0.5	**1.0**
2020	0.0	0.7	0.9	0.5	0.5	0.7	0.0	0.3	0.6	**0.9**
2021	0.0	0.4	1.0	0.5	0.5	0.7	0.0	0.2	0.7	**0.8**
2022	0.1	1.0	1.4	0.5	0.5	0.7	0.0	0.5	0.9	**1.4**
2023	–0.2	1.5	1.1	0.5	0.5	0.7	–0.1	0.8	0.7	**1.4**
2024	–0.4	1.9	0.8	0.5	0.5	0.7	–0.2	1.0	0.5	**1.3**

These loadings were then used to calculate weighted contributions to the composite FSRI for each year in the dataset.

The application of the FSRI methodology gives several important analytical insights. First, the FSRI confirms that fiscal structural reform activity in Armenia is non-linear and asymmetric across reform types. Institutional reforms consistently dominate the composite index throughout the period, reflecting their longer implementation horizon and sustained macro-fiscal effects (see Figure 2). For example, the introduction of medium-term budgetary frameworks and the gradual institutionalization of fiscal rules contributed significantly to FSRI scores in the early 2000s and again after 2018. Revenue reforms show high volatility, often clustered around tax code overhauls (2001, 2014) and VAT policy changes (2009, 2020). In contrast, expenditure reforms display greater inertia, with momentum occurring primarily during IMF program cycles (e.g., 2009–2011, 2016–2018). This pattern likely reflects the differing political costs and administrative complexity associated with each reform type.

Figure 2 presents the normalized trajectories of revenue-side, expenditure-side, and institutional fiscal reforms over the sample period. It reveals temporal asymmetries in reform activation, supports the non-linear nature of reform implementation, and illustrates the sequencing of structural changes.

The empirical evolution of the FSRI from 1995 to 2024 reveals strong temporal patterns that correspond closely with Armenia's macroeconomic developments and political shifts. Reform intensity

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Source: Authors' calculations based on the IMF MONA database.

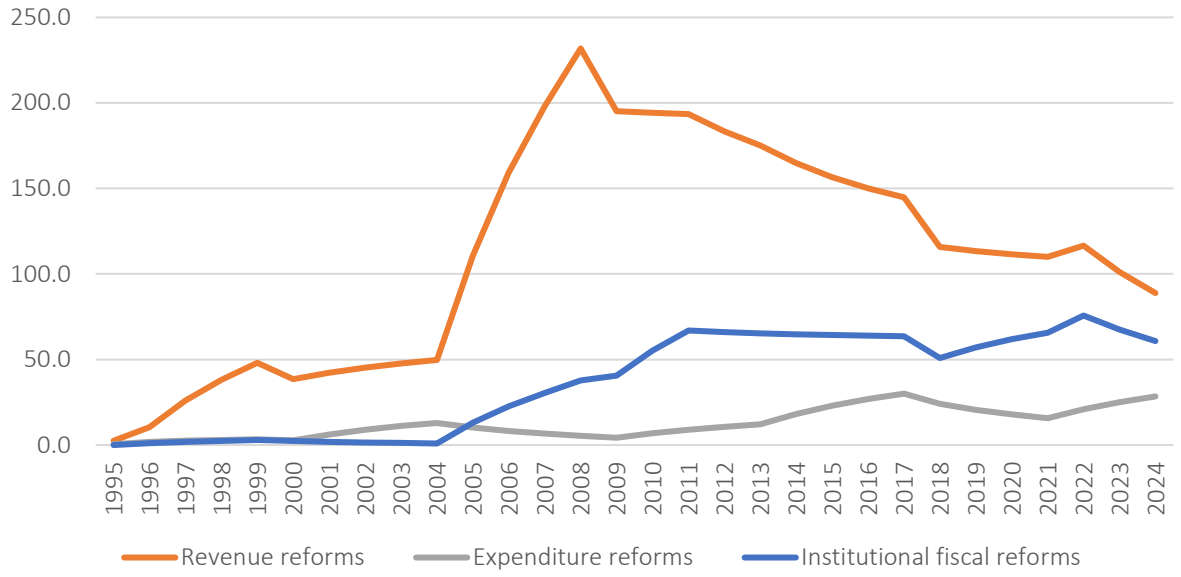


Figure 2. Trends in fiscal structural reform subcomponents (1995–2024)

is not evenly distributed: peaks are observed during IMF-supported programs, such as the structural adjustment phase from 2001–2004, the fiscal consolidation period in 2009–2011 following the global financial crisis, and the institutional modernization phase during 2016–2018. These surges coincide with economic stress, external support, and policy reform packages aiming to improve public financial management and macroeconomic credibility.

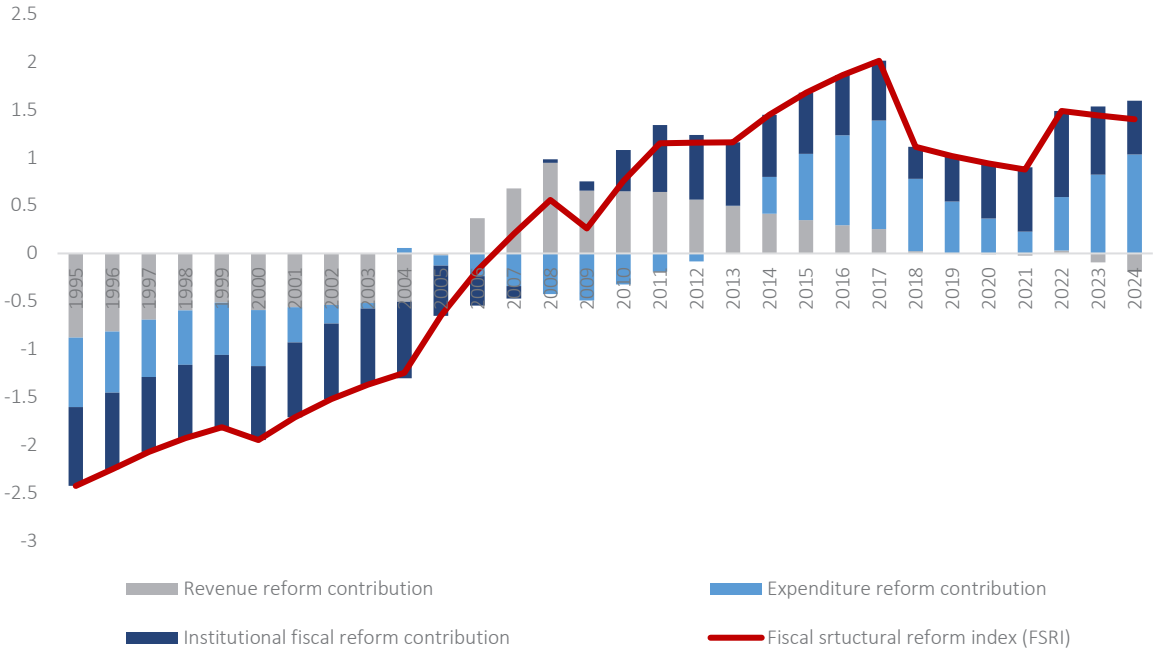
In contrast, periods of reduced FSRI values, such as 2005–2007 and 2012–2014, reflect political inertia, electoral uncertainty, or reform fatigue. Notably, the downturn in FSRI values in the years preceding parliamentary elections indicates political business cycle behavior, with governments hesitating to implement potentially unpopular fiscal reforms in the lead-up to elections.

Second, the continuity and decay-adjusted reform trajectories provide more policy-relevant signals than raw reform counts. The geometric decay function smooths out episodic spikes and amplifies multi-year institutional efforts, helping to identify periods of reform acceleration (e.g., 2008–2011) versus stagnation (e.g., 2012–2015). These dynamics would remain obscured using binary indicators alone. The model's ability to capture reform memory highlights the institutional stickiness of certain measures, particularly those implemented under IMF-supported programs.

Notably, the Armenian case provides empirical support for the hypothesis that reform fatigue and momentum are cyclical and externally influenced. Reform acceleration during IMF-supported programs (e.g., 2009–2011, 2016–2018) and stagnation during domestic political transitions mirror findings by Ciminelli et al. (2019) and D'Costa et al. (2019), who emphasize the interplay between donor conditionality and domestic reform capacity.

Fourth, the decomposition of FSRI into subcomponent contributions enables year-by-year reform diagnostics. Contribution analysis shows that reform momentum is often driven by one dominant pillar in each cycle: tax reform in the early 2000s, institutional reforms during the 2008–2012 and 2019–2022 periods, and expenditure rationalization under program conditionality (e.g., 2009–2011) (see Figure 4). This suggests that sequencing patterns are influenced by both external anchors (IMF conditionality) and domestic political economy constraints.

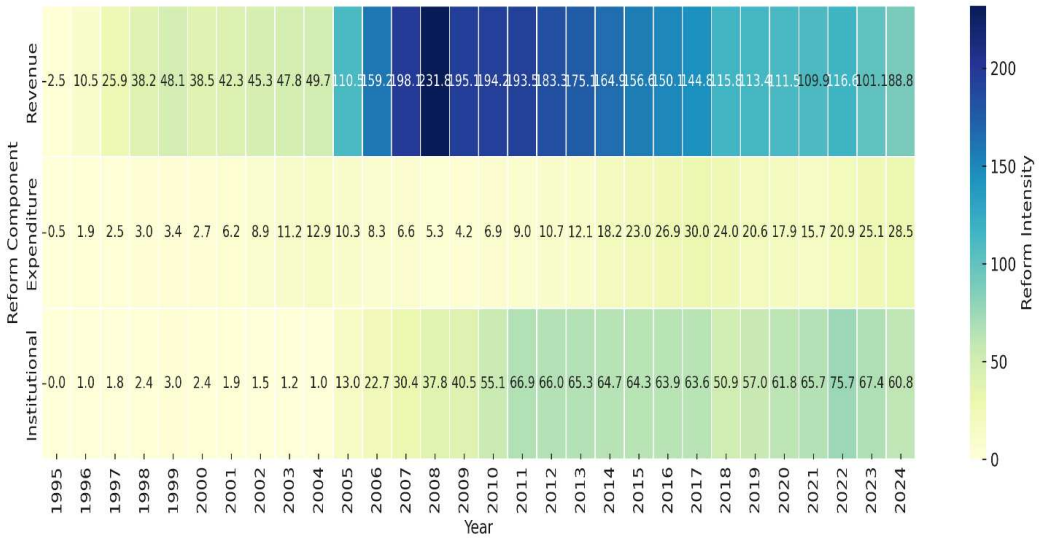
The heatmap provides a high-resolution view of reform clustering and stagnation across all three components. It visually confirms reform peaks, implementation gaps, and synchronized episodes driven by IMF programs or domestic initiatives.



Note: This stacked bar chart shows the annual contribution of each reform dimension in the overall FSRI. It highlights years where one reform type dominated the index and supports the identification of tax or institution-led reform episodes. Negative values in component contributions reflect years in which reform intensity in a given domain fell below its long-run standardized mean. This does not indicate the reversal of reform, but rather a relative absence of structural reform effort in that domain during the year.

Figure 3. Annual contribution of reform components to FSRI, 1995–2024

Finally, the FSRI offers high interpretability and readiness for use in econometric modeling. Its composite structure aligns well with quarterly macroeconomic indicators and offers a valid input for VAR or ARDL-based empirical testing. These findings provide policymakers with actionable insights: the FSRI enables the identification of reform fatigue, detection of lag effects, and tracking of long-term policy cycles. It also provides a replicable framework for monitoring fiscal reform in



Note: This figure visualizes weighted and decay-adjusted reform intensity scores across the three core fiscal reform dimensions – revenue, expenditure, and institutional – for Armenia during the period 1995–2024. Each cell reflects the relative strength of reform activity in a given year and component, with darker shades indicating higher reform intensity. The heatmap reveals clustered waves of reform, structural asymmetries between components, and temporal variation in reform momentum.

Figure 4. Heatmap of fiscal reform intensity by type (1995–2024)

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other transition economies, where reform continuity and persistence are crucial for institutional convergence and macroeconomic resilience.

4. DISCUSSION

The results of this study reveal a strong interaction between fiscal reform intensity and Armenia's macroeconomic and political dynamics. Peaks in the FSRI coincide with periods of macro-fiscal stress, currency volatility, and external shocks – most notably during IMF-supported programs such as those in 1999–2001, 2009–2011, and 2016–2018. These reform surges often correspond to fiscal consolidation and institutional reorganization undertaken under conditionality pressure, supporting the view that reform momentum in small transition economies is frequently crisis-driven rather than the result of proactive long-term planning. Conversely, troughs in FSRI values align with politically sensitive periods such as electoral cycles and post-election transitions, when governments tend to delay politically costly measures.

From a political economy perspective, these patterns are consistent with the political business cycle theory (Nordhaus, 1975), which predicts the postponement of structural reforms before elections and their acceleration afterward or under external pressure. Similar findings have been reported by Ciminelli et al. (2018) and D'Costa et al. (2018), who emphasize the role of conditionality in catalyzing reform momentum. The FSRI captures these dynamics by integrating both policy announcements and sustained institutional follow-through through its decay-adjusted methodology, revealing not only the occurrence of reforms but also their persistence over time.

Economically, the findings reinforce the theoretical argument advanced by Gollwitzer et al. (2010) and Prati et al. (2012) that institutional reforms – such as fiscal rules, treasury modernization, and medium-term expenditure frameworks – act as durable anchors for macro-fiscal stability. The PCA results confirm this, with institutional reforms showing the highest loadings in PC1, indicating their dominant role in shaping the overall reform trajectory. In contrast, revenue- and expenditure-side reforms tend to be more episodic, often linked to short-term fiscal targets rather than long-term structural change.

The decay-weighted approach embedded in the FSRI offers a realistic representation of reform absorption, acknowledging that the effects of fiscal reforms materialize gradually and retain influence beyond their year of implementation. This feature aligns with IMF recommendations for tracking policy memory and with Duval et al. (2018), who advocate for incorporating reform persistence into measurement tools. By doing so, the FSRI avoids overstating the impact of one-off legislative changes and better reflects the cumulative effects of sustained reform processes.

From a policy standpoint, the FSRI can serve as both a diagnostic and strategic tool. Its temporal patterns highlight the risk of reform fatigue, the vulnerability of reform momentum to political cycles, and the dependency on external anchors for sustaining reform efforts. Policymakers could leverage these insights to better pace reforms, strengthen institutional absorption capacity, and embed reforms into the legal and administrative framework to prevent backsliding during politically sensitive periods.

Internationally, the FSRI's structure makes it a viable instrument for benchmarking fiscal reform performance across countries. Its compatibility with econometric frameworks, such as structural VAR models and fiscal reaction functions, allows it to be integrated into forecasting and policy evaluation tools used by the IMF, World Bank, and national ministries of finance. The methodology is also transparent and replicable, enabling cross-country comparisons while respecting the specificity of national contexts.

Overall, the FSRI bridges a methodological gap in reform measurement by combining economic theory – emphasizing reform persistence and institutional layering – with a statistically rigorous and policy-relevant index. Its application to Armenia demonstrates how a multidimensional approach to reform tracking can illuminate the interplay between economic conditions, political incentives, and structural change, offering both academic and practical value for fiscal policy design in transition economies.

CONCLUSION

This study aimed to assess the intensity and trajectory of fiscal structural reforms in Armenia over the period 1995–2024, with a particular focus on their institutional durability, cyclical dynamics, and policy context. To conduct this evaluation in a systematic and empirically grounded manner, the analysis introduced a Fiscal Structural Reform Index (FSRI) as a methodological tool that integrates reform depth, persistence, and multidimensionality into a single composite framework.

The results demonstrate that institutional reforms, particularly those involving fiscal rules, treasury systems, and medium-term expenditure planning, exhibit the strongest durability and account for the largest share of Armenia's fiscal reform trajectory. Reform intensity was found to be cyclical, strengthening during IMF-supported adjustment programs and weakening during periods of domestic political transition. These findings underscore the decisive role of sequencing, external anchors, and political context in shaping fiscal transformation.

The study further shows that a structured index can serve not only as a technical instrument for quantifying reform efforts but also as a practical tool for policymakers. By identifying when and where reforms gain or lose momentum, the FSRI enhances the capacity for targeted policy design, international benchmarking, and improved fiscal governance.

Looking forward, future research should apply the FSRI-based evaluative approach to other transition and developing economies, test its explanatory and predictive value in relation to fiscal and macroeconomic outcomes, and adapt it to sectoral or subnational contexts. Such extensions would broaden the empirical basis for understanding how reform intensity interacts with institutional capacity, political constraints, and long-term economic performance.

AUTHOR CONTRIBUTIONS

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