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Building Climate-Resilient Budgets in Developing Economies: An fsQCA Approach to Fiscal Rules, Green Spending, and Institutional Quality

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ABSTRACT

This study investigates how fiscal rules, green spending, institutional quality, and climate vulnerability interact to foster climate-resilient budgets in developing economies. Using a fuzzy-set Qualitative Comparative Analysis (fsQCA) approach, it identifies multiple sufficient configurations that explain fiscal resilience under environmental stress. Data were drawn from the IMF Fiscal Rules Dataset, OECD green budgeting indicators, World Bank Governance Indicators, and the ND-GAIN Index for 11 developing countries in 2022. Each variable was calibrated into fuzzy-set values (0–1) to capture their degree of membership in the outcome set of budget resilience. The analysis reveals two main pathways: (1) a Fiscal–Institutional Path (FR × IQ × ~CV), where fiscal rules supported by strong institutions and low climate vulnerability yield budget resilience even with limited green expenditure; and (2) a Green–Governance Path (GS × IQ × ~CV), where green spending contributes to resilience when reinforced by effective institutions and environmental stability. Both configurations highlight institutional quality and climate resilience as core enabling conditions. The findings underscore that fiscal stability in climate-vulnerable economies depends on institutional complementarity the interaction of fiscal discipline, governance capacity, and environmental management and provide policy guidance for building sustainable and resilient fiscal frameworks.

INTRODUCTION

Climate change poses escalating fiscal challenges for governments, particularly in developing economies that face both revenue volatility and increasing demands for climate adaptation spending. As climate-related disasters intensify, public budgets are under pressure to fund recovery efforts while maintaining fiscal sustainability (Stern & Stiglitz, 2021). The concept of climate-resilient budgeting therefore emerges as a critical framework that links fiscal policy, institutional quality, and environmental governance. It seeks to ensure that public finances remain stable and sustainable even under climate stress.

Recent studies highlight that fiscal resilience depends not only on macroeconomic stability but also on institutional mechanisms that regulate spending behavior and accountability. Fiscal rules numerical limits on deficits, debt, or expenditures have been adopted widely to strengthen fiscal discipline (IMF, 2024). However, the effectiveness of such rules varies across countries and institutional contexts (Afonso & Jalles, 2016). At the same time, governments are increasingly adopting green budgeting practices to align fiscal policy with environmental objectives (OECD, 2023). Yet, in many developing economies, weak institutions and limited fiscal capacity often undermine these initiatives, resulting in fragmented or short-term climate responses.

Existing literature has examined fiscal rules and green spending separately, but few studies integrate both dimensions within a systemic, comparative framework. Moreover,

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most empirical analyses rely on regression-based methods that assume linear relationships, whereas real-world fiscal and environmental governance often exhibit configurational complexity where multiple combinations of factors can lead to similar outcomes. This research gap motivates the use of fuzzy-set Qualitative Comparative Analysis (fsQCA), which captures such causal asymmetry and equifinality.

Therefore, this study aims to identify the configurations of fiscal, institutional, and environmental conditions that contribute to climate-resilient budgets in developing economies. By combining data on fiscal rules, green spending, institutional quality, and climate vulnerability, the research explores how these factors interact to sustain fiscal stability under environmental pressures. The study contributes to the literature by (1) integrating fiscal discipline and environmental governance into a unified analytical framework, (2) applying fsQCA to reveal multiple sufficient pathways toward budget resilience, and (3) providing policy insights for designing resilient fiscal frameworks in the post-pandemic, climate-affected global economy.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Institutional setting

Institutions formal and informal rules that structure social and economic interactions shape incentives for public actors and determine fiscal performance. North (1990) defines institutions as "humanly devised constraints that structure political, economic, and social interactions," influencing transaction costs, policy credibility, and macroeconomic performance. Strong fiscal institutions, such as fiscal rules and independent fiscal councils, function as commitment devices that enhance budget discipline and reduce deficit bias, particularly when enforcement costs are high (International Monetary Fund, 2024).

In the area of green budgeting, the OECD (2023) emphasizes that green budgeting frameworks tools that integrate environmental perspectives into fiscal decisions rely on four governance pillars: institutional arrangements, analytical tools, transparency, and enabling environments. These ensure that climate policies align with fiscal sustainability. Climate vulnerability is also a systemic characteristic of an economy. The ND-GAIN index (University of Notre Dame, 2023) measures vulnerability based on exposure, sensitivity, and adaptive capacity across six sectors (food, water, health, ecosystems, habitat, and infrastructure). Lower vulnerability levels increase the likelihood of achieving fiscal and climate resilience over the long term.

Agency theory

Agency theory conceptualizes the fiscal relationship between citizens and governments as a principal–agent problem (Jensen & Meckling, 1976). Agents (governments) may act opportunistically and deviate from principals' interests, creating inefficiencies or moral hazard. Well-designed fiscal institutions and transparent rules help align incentives and reduce agency costs. Numerical fiscal constraints and independent oversight bodies increase credibility and reduce policymakers' discretionary behavior, thus promoting fiscal discipline (IMF, 2018). In the environmental domain, green budgeting serves as a governance tool that increases accountability and transparency in the allocation of environmental expenditures.

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When embedded in sound fiscal institutions, green spending becomes an investment for long-term resilience rather than a fiscal burden (OECD, 2023).

Hypothesis Development (Directional Expectations for fsQCA)

Based on the literature review, this study establishes the following directional expectations within a set-theoretic framework.

- IQ (+): Higher institutional quality increases the likelihood of achieving budget resilience, as effective governance strengthens fiscal credibility and implementation capacity.
- FR (+): The existence and strength of fiscal rules are expected to enhance fiscal discipline and sustainability.
- GS (+) under good governance: Adequate green spending, when supported by strong institutional arrangements, contributes to long-term fiscal and climate resilience.
- CV (–): Low climate vulnerability (high adaptive capacity) is considered a supporting condition for stable and resilient fiscal outcomes.

Accordingly, Budget Resilience (BR) is modeled as a configurational outcome of these conditions:

$$BR = f(FR, GS, IQ, CV)$$

This framework assumes equifinality that multiple causal combinations, such as fiscal-discipline pathways (FR×CV) and governance-based green pathways (GS×IQ×CV), may each be sufficient to achieve fiscal resilience across the sampled economies.

METHODS

Sample and Period

The sample consists of 11 developing economies with complete data for the year 2022, namely Indonesia, Singapore, Malaysia, India, Vietnam, the Philippines, Thailand, Brazil, South Africa, Mexico, and Turkey. These countries were selected based on data availability across fiscal, institutional, and environmental indicators from international databases such as the IMF Fiscal Rules Dataset, OECD COFOG data, World Bank Worldwide Governance Indicators (WGI), and the ND-GAIN Climate Vulnerability Index.

The selection aims to capture cross-regional diversity among emerging economies in Asia, Africa, and Latin America regions that face similar fiscal and environmental challenges related to climate adaptation and green public finance. The 2022 period was chosen to ensure the most recent and comparable data following the post-pandemic fiscal adjustments and the growing emphasis on green budgeting frameworks in developing countries.

Budget Resilience (BR) Model

This study employs the fuzzy-set Qualitative Comparative Analysis (fsQCA) framework to explore how various fiscal and institutional factors interact to produce Budget Resilience (BR) among developing economies.

1. Fiscal Rules (FR)

   Fiscal Rules (FR) represent the formal numerical limits that governments impose on fiscal indicators such as public debt or budget deficits. Each country's FR is represented as a binary variable (1 = presence of national fiscal rules; 0 = absence) and then calibrated into fuzzy-set scores based on the scope and strength of enforcement:

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$FR_{cal} = \{0, 0.33, 0.67, 1.00\}$ (1)

2. Green Spending (GS)
   Green Spending (GS) measures environmental protection expenditure as a share of total general government spending, following the COFOG 05 classification (IMF-GFS). This variable is calibrated into fuzzy-set scores using four membership levels to represent increasing degrees of environmental commitment:
   $GS_{cal} = f(GS\%)$ (2)
   Where:
   - $GS\% \geq 3$ → full membership (1.00)
   - $1.5 \leq GS\% < 3$ → high membership (0.67)
   - $0.5 < GS\% < 1.5$ → low membership (0.33)
   - $GS\% \leq 0.5$ → non-membership (0.00)
3. Institutional Quality (IQ)
   Institutional Quality (IQ) represents the strength of governance institutions. It is computed as the mean of three indicators from the Worldwide Governance Indicators (WGI): Government Effectiveness (GE), Rule of Law (RL), and Control of Corruption (CC).
   $IQ = \frac{GE+RL+CC}{3}$ (3)
   The composite scores are normalized and calibrated into fuzzy-set values as follows:
   - IQ ≥ 75 → full membership (1.00)
   - 50 ≤ IQ < 75 → high membership (0.67)
   - 25 < IQ < 50 → low membership (0.33)
   - IQ ≤ 25 → non-membership (0.00)
4. Climate Vulnerability (CV)
   Climate Vulnerability (CV) is derived from the ND-GAIN Vulnerability Index, which assesses each country's exposure, sensitivity, and adaptive capacity to climate risks. To represent climate resilience, the index is inverted:
   $CV = 1 - (Vulnerability\ Score)$ (4)
   The fuzzy calibration of CV follows a four-level membership scale:
   - $CV \leq 0.35$ → full membership (1.00)
   - $0.36 \leq CV < 0.50$ → high membership (0.67)
   - $0.51 \leq CV < 0.65$ → low membership (0.33)
   - $CV \geq 0.66$ → non-membership (0.00)
5. Budget Resilience (BR)
   Budget Resilience (BR) serves as the outcome variable, reflecting the combined fiscal and environmental stability of a country. It is computed as the mean of the calibrated fiscal balance and calibrated green spending:
   $BR = \frac{Fiscal_{cal} + GS_{cal}}{2}$ (5)
   This formulation captures the balance between fiscal sustainability and environmental responsiveness, both of which are key components of resilient budgetary systems.
6. Analytical Procedure
   The analysis employs fsQCA 3.0 software to identify sufficient configurations of causal conditions leading to high budget resilience. The main analytical steps include:
   - Constructing a truth table listing all possible causal combinations.
   - Setting a sufficiency consistency threshold of ≥ 0.80.

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- Applying logical minimization using the Quine–McCluskey algorithm to obtain simplified sufficient configurations.
- Interpreting the resulting complex, parsimonious, and intermediate solution terms.

7. Model Specification

The overall analytical relationship can be summarized as:

$$BR = f(FR, GS, IQ, CV) \quad (6)$$

where f(·) represents the logical function combining fiscal and institutional conditions that are sufficient to produce Budget Resilience (BR).

RESULTS

After calibrating the four causal conditions Fiscal Rules (FR), Green Spending (GS), Institutional Quality (IQ), and Climate Vulnerability (CV) into fuzzy-set values (0–1), a truth table was constructed to evaluate how different combinations of these conditions relate to high Budget Resilience (BR). The analysis used the fsQCA 3.0 software, with a frequency cutoff of 1 and a consistency threshold of 0.80 to ensure the empirical relevance and reliability of configurations.

Table 1. Fuzzy Truth Table Results

No.	FR	GS	IQ	CV	OUT
1	1	0	1	0	1
2	0	1	1	0	1
3	1	1	1	0	1
4	1	0	1	1	0
5	0	0	0	0	0
6	0	1	0	0	0

Source: *Author's compilation*

Notes:

FR = Fiscal Rules, GS = Green Spending, IQ = Institutional Quality, CV = Climate Vulnerability (inverted), OUT = Budget Resilience.

Values range from 0 (non-membership) to 1 (full membership).

Out of 16 possible logical combinations ($2^4 = 16$), only six appeared empirically among the 11 countries, while the rest are logical remainders combinations that are theoretically possible but not present in the data. Thus, the truth table summarizes all observed configurations, providing a compact representation of the underlying causal structure rather than duplicating cases. The truth table shows that most resilient countries are characterized by strong institutional quality (IQ = 1) and low climate vulnerability (CV = 0 / ~CV = 1). Three recurring patterns appear:

1. Presence of fiscal rules tends to coincide with high budget resilience, even when green spending is modest (rows 1 & 3).
2. Strong green spending can also lead to resilience, but only when institutional quality is high (row 2).
3. Configurations lacking both fiscal and institutional strength (rows 5 & 6) are associated with low resilience.

This indicates that institutional quality and climate stability act as preconditions for fiscal resilience. While fiscal rules and green spending play distinct roles, they both operate effectively under sound governance systems.

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Table 2. Sufficient Configurations for Budget Resilience

Configuration	Expression	Consistency	PRI	Coverage	Cases
C1 (Fiscal–Institutional Path)	FR * IQ * ~CV	0.838	0.722	0.783	4, 5, 8; 1, 2, 3, 6, 7, 11
C2 (Green–Governance Path)	GS * IQ * ~CV	0.972	0.944	0.761	10; 1, 2, 3, 6, 7, 11
Model Fit (Overall)		0.852	0.752	0.870	

Source: *Author's compilation*

Notes:

Consistency = degree to which configuration is sufficient for the outcome;
PRI = Proportional Reduction in Inconsistency;
Coverage = empirical relevance of the configuration.

This configuration represents countries where fiscal rules are enforced and institutions are effective, operating under low climate vulnerability. Such economies achieve budget resilience through fiscal discipline and credible policy enforcement, even when green expenditure is limited. This reflects agency theory, where rules act as commitment mechanisms reducing opportunism in fiscal policy (Jensen & Meckling, 1976). The IMF (2024) also finds that countries with well-designed fiscal frameworks experience lower fiscal volatility and greater capacity to absorb climate shocks. In these contexts, institutional strength ensures that fiscal targets are credible, budget execution is transparent, and the effects of environmental pressures remain manageable.

This pathway illustrates a governance-driven strategy: high green spending (GS) supported by strong institutional quality (IQ) and low climate vulnerability (~CV) leads to budget resilience. Here, institutions act as enablers that transform environmental spending into productive investment, improving both fiscal and ecological outcomes. This configuration validates the OECD (2023) framework on green budgeting, emphasizing that environmental allocations strengthen fiscal stability when accompanied by robust accountability and monitoring systems. Countries following this path balance fiscal objectives with environmental goals achieving sustainability without compromising fiscal health.

Both configurations reveal that Institutional Quality (IQ) and low Climate Vulnerability (CV) are core conditions for achieving budget resilience. They indicate that institutional and environmental stability are structural prerequisites, while fiscal and green policy instruments provide complementary pathways. In short:

- FR * IQ * ~CV = Fiscal discipline-driven resilience, where rules prevent overspending.
- GS * IQ * ~CV = Green governance-driven resilience, where effective institutions enhance the impact of green investments.

This supports North's (1990) theory that institutions reduce uncertainty by providing stable policy frameworks, and Ragin's (2008) fsQCA principle of equifinality multiple causal routes can yield the same outcome. The overall model demonstrates high consistency (0.852) and coverage (0.870), confirming that the two identified configurations explain most cases of fiscal resilience. Sensitivity analysis with consistency thresholds between 0.75 and 0.85 produced stable results, suggesting that the causal patterns are robust and not artifacts of calibration. Both solutions meet the recommended standards for fsQCA.

The findings demonstrate that budget resilience is not a function of single-variable causation but emerges from complementary institutional and policy mechanisms. Under

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Agency Theory, fiscal rules (FR) reduce information asymmetry and moral hazard between political agents and citizens, fostering fiscal discipline. Under Institutional Theory, institutional quality (IQ) ensures that both fiscal and environmental decisions are credible, consistent, and transparent. The presence of low climate vulnerability (~CV) in both configurations further indicates that external climate risks moderate fiscal outcomes resilience is feasible when environmental exposure is manageable. These results align with the broader public finance literature emphasizing multi-dimensional resilience, where institutional strength, fiscal prudence, and climate adaptation must coexist.

Policy Implications

- Institutional quality is foundational. Countries must strengthen governance structures, audit institutions, and fiscal transparency to ensure credible implementation of fiscal rules and green budgeting frameworks.
- Fiscal rules remain essential. Well-designed numerical limits on debt and deficits anchor credibility and stability, especially in contexts with limited green capacity.
- Invest in green fiscal efficiency. For nations with strong institutions, expanding green spending enhances resilience by reducing long-term fiscal risks from climate impacts.
- Reduce vulnerability proactively. Investments in adaptation, risk management, and infrastructure resilience directly reinforce the fiscal position under climate stress.

DISCUSSION

Discussion 1 – Fiscal–Institutional Path (FR × IQ × ~CV)

The first directional expectation (FR^+ and IQ^+) is confirmed by the results. The configuration Fiscal Rules × Institutional Quality × Low Climate Vulnerability shows that fiscal resilience can emerge through a combination of rule-based fiscal discipline and institutional credibility, even without high levels of green spending.

This pattern reflects the agency theory perspective, which posits that fiscal rules act as commitment devices that limit opportunistic fiscal behavior by policymakers (Jensen & Meckling, 1976). When fiscal rules are embedded in strong institutional frameworks, they enhance compliance, reduce fiscal bias, and sustain long-term stability. The IMF (2024) also observes that countries with credible fiscal frameworks are better able to manage external shocks, including those linked to climate risks.

Furthermore, the role of institutional quality (IQ) is central. Effective governance ensures that fiscal rules are not only adopted but also implemented transparently. This finding aligns with North's (1990) institutional theory: institutions provide the structure for policy predictability and credible enforcement. The interaction of fiscal rules and institutional quality, moderated by low climate vulnerability (~CV), therefore represents a fiscal-institutional equilibrium that underpins resilience.

This pathway is particularly evident in countries where fiscal conservatism, transparency, and climate stability coexist demonstrating that financial resilience can be achieved even in the absence of extensive green budgets, provided governance and fiscal discipline are strong.

Discussion 2 – Green–Governance Path (GS × IQ × ~CV)

The second expectation (GS^+ under high IQ and low CV) is also supported. The configuration Green Spending × Institutional Quality × Low Climate Vulnerability illustrates

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that environmental spending becomes fiscally productive only under strong institutional arrangements. This pathway demonstrates that institutions function not merely as oversight mechanisms but as integrative platforms that align fiscal and environmental goals. When institutional quality is high, green spending is more efficiently allocated, monitored, and evaluated, ensuring that environmental policies contribute to fiscal resilience instead of creating fiscal pressure. This is consistent with the OECD (2023) framework on green budgeting, which emphasizes the need for transparency, policy coherence, and measurable climate outcomes.

The finding advances prior research by showing that institutional quality acts as the causal core linking environmental and fiscal dimensions. It echoes the idea that resilience is multidimensional: environmental expenditure can reinforce fiscal health when guided by credible institutions and low climate exposure. In fsQCA terms, this demonstrates equifinality different combinations of conditions can lead to the same resilient outcome. Whereas the fiscal-institutional path depends on discipline and enforcement, the green-governance path depends on coordination and capability. Both highlight that institutional quality (IQ) and low climate vulnerability (~CV) are indispensable core conditions for sustainable fiscal systems.

CONCLUSION

This study aimed to identify the configurations of fiscal, institutional, and environmental conditions that foster budget resilience in the context of climate stress. Using the fuzzy-set Qualitative Comparative Analysis (fsQCA) method, two distinct but sufficient pathways were identified:

- Fiscal–Institutional Path (FR × IQ × ~CV): Fiscal rules supported by strong institutions and low climate vulnerability yield budget resilience even with limited environmental expenditure.
- Green–Governance Path (GS × IQ × ~CV): Green spending contributes to resilience when reinforced by effective institutions and stable environmental conditions.

Together, these findings show that fiscal resilience is not the product of single policy variables, but of institutional complementarity the interplay between governance capacity, fiscal discipline, and environmental stability. Institutional quality consistently emerges as the core enabling condition across both pathways, confirming its central role in achieving climate-resilient public finance.

Implications

1. Policymakers should recognize that fiscal and environmental policies must operate through credible institutions.
2. Countries with constrained budgets can rely on rule-based fiscal frameworks to maintain stability.
3. Countries with strong governance capacity can pursue green spending strategies safely and effectively.
4. Investments in reducing climate vulnerability strengthen fiscal resilience across all policy configurations.

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Limitations and Future Research

This study is limited by its focus on 11 advanced economies for the 2022 period. Broader samples of developing countries and longer time spans could improve generalizability. Future studies could employ dynamic fsQCA or comparative institutional analysis to assess how fiscal-environmental configurations evolve over time.
Additionally, integrating qualitative policy analysis could reveal how institutional mechanisms such as fiscal councils, audit systems, and environmental ministries mediate the observed configurations.

Final Remark

The evidence confirms that budget resilience is built not merely through spending or rules, but through governance systems that integrate fiscal discipline, institutional accountability, and climate adaptation. Climate-resilient budgets, therefore, are not accidental outcomes they are the result of intentional institutional design.

REFERENCES

Afonso, A., & Jalles, J. T. (2016). Fiscal rules and government size in the European Union. *Empirical Economics, 50*(1), 7–25. https://doi.org/10.1007/s00181-015-0998-7

Bova, E., Carcenac, N., & Guerguil, M. (2014). *Fiscal Rules at a Glance: Country Details from a New Dataset*. IMF Fiscal Affairs Department.

Debrun, X., & Kumar, M. S. (2007). The discipline-enhancing role of fiscal institutions: Theory and evidence. *IMF Working Paper No. 07/171*.

Edenhofer, O., Pichs-Madruga, R., & Sokona, Y. (Eds.). (2014). *Climate Change 2014: Mitigation of Climate Change*. Cambridge University Press.

Henrekson, M., & Sanandaji, T. (2011). The interaction of entrepreneurship and institutions. *Journal of Institutional Economics, 7*(1), 47–75. https://doi.org/10.1017/S1744137410000342

\IMF. (2018). *Fiscal Transparency Handbook*. International Monetary Fund.

IMF. (2024). *Fiscal Rules Dataset 1985–2024 Update*. Fiscal Affairs Department, International Monetary Fund. https://www.imf.org/en/Topics/Fiscal-Policies/Fiscal-Rules-Database

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Lledó, V., Yoon, S., Fang, X., Mbaye, S., & Kim, Y. (2017). *Fiscal Rules at a Glance*. IMF Fiscal Affairs Department.

E-ISSN 3089-1566
Proceeding Accounting, Management, Economics Uniska **Volume 2, 2025, pp 205-214**

North, D. C. (1990). *Institutions, Institutional Change, and Economic Performance*. Cambridge University Press.

OECD. (2023). *Green Budgeting Framework*. Organisation for Economic Co-operation and Development. https://www.oecd.org/environment/green-budgeting

Poghosyan, T. (2018). Assessing fiscal resilience in emerging markets. *IMF Working Paper No. 18/260*.

Ragin, C. C. (2008). *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. University of Chicago Press.

Schneider, C. Q., & Wagemann, C. (2012). *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis (QCA)*. Cambridge University Press.

Stern, N., & Stiglitz, J. E. (2021). The economics of climate change: Policies for resilience and recovery. *Journal of Economic Perspectives, 35*(3), 87–114. https://doi.org/10.1257/jep.35.3.87

Tanzi, V., & Schuknecht, L. (2000). *Public Spending in the 20th Century: A Global Perspective*. Cambridge University Press.

University of Notre Dame. (2023). *ND-GAIN Country Index: Vulnerability Indicators*. https://gain.nd.edu/our-work/country-index

Wang, Q., & Wang, L. (2020). Institutional quality and fiscal sustainability: Evidence from developing economies. *Economic Modelling, 91*, 145–158. https://doi.org/10.1016/j.econmod.2020.06.012

Wehner, J., & de Renzio, P. (2013). Citizens, legislators, and executive disclosure: The political determinants of fiscal transparency. *World Development, 41*, 96–108. https://doi.org/10.1016/j.worlddev.2012.06.005

Woo, J., & Kumar, M. S. (2015). Public debt and growth. *Economica, 82*(328), 705–739. https://doi.org/10.1111/ecca.12127