

5. Fiscal Institutions and Fiscal Outcomes

Countries in the Middle East and Central Asia are facing significant fiscal challenges, amid volatile oil prices, subdued growth, and conflicts. Weak fiscal institutions have contributed to spending inefficiencies, rising debt and deficits, and procyclical fiscal policy, especially in countries in the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) region. Improving fiscal transparency, establishing credible medium-term fiscal frameworks (MTFFs), strengthening public financial management (PFM), enhancing procurement, and moving toward fiscal rules would help mitigate these vulnerabilities over time.

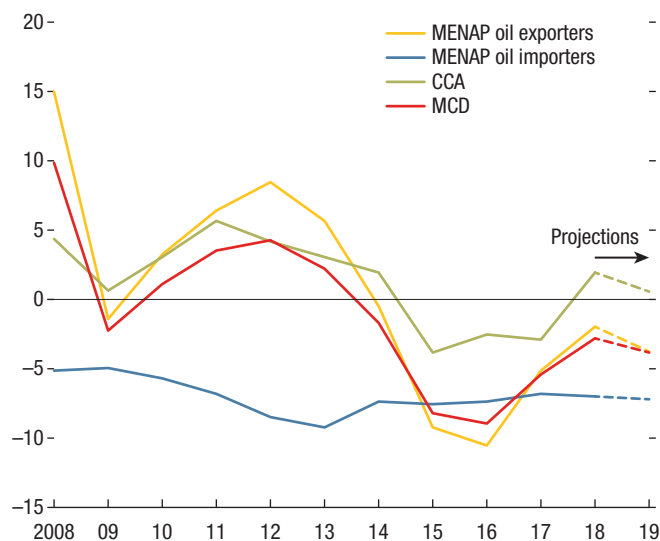
A Challenge with Limited Fiscal Policy Options

Fiscal balances have deteriorated sharply in most countries in the Middle East and Central Asia since the onset of the global financial crisis in 2008 (Figure 5.1). The combined negative effects of low growth, shocks to oil prices, and rising spending needs, particularly in countries affected by the Arab uprisings, have resulted in diminished fiscal buffers and rising public debt burdens.

Fiscal vulnerabilities have emerged despite recent consolidation efforts across the region. This has left many countries exposed to external uncertainties, including those related to the global slowdown and trade tensions and to domestic pressures from stalled growth prospects, the need to preserve intergenerational equity, and rising social tensions in some countries (see Global Developments).

In particular, MENAP oil importers face elevated public debt levels, and their financing costs are now a source of acute fiscal stress (see Chapter 2). Fiscal policies in MENAP oil exporters have

Figure 5.1. Overall Fiscal Balances 2008–19
(Percent of GDP, weighted averages)



Sources: National authorities; and IMF staff calculations.

Note: CCA = Caucasus and Central Asia; MCD = Middle East and Central Asia; MENAP = Middle East, North Africa, Afghanistan, and Pakistan. Country-specific weights correspond to GDP in US dollars.

remained largely procyclical,¹ including in response to volatile international oil prices (see Chapter 1), while countries in the Caucasus and Central Asia (CCA), particularly oil exporters, are running down fiscal buffers to stave off challenges to growth (see Chapter 3).

Going forward, MENAP and CCA countries face the difficult challenge of reducing fiscal vulnerabilities to strengthen economic resilience while fostering higher and more inclusive growth through structural reforms. Elevated global growth and trade uncertainties only make this challenge more difficult, and prospects for lower and more volatile oil prices will weigh on MENAP oil exporters in particular.

¹Manasse (2006), and Alesina, Campante, and Tabellini (2008) have emphasized the suboptimal nature of procyclical fiscal policy, which can exacerbate business cycle fluctuations and amplify macroeconomic instability.

Ensuring well-developed and credible fiscal institutions can not only help ease the burden of adjustment, but also reduce fiscal vulnerabilities on a lasting basis.² For instance, the procyclicality of fiscal policy in developing countries is associated with lower-quality fiscal institutions (Frankel, Vegh, and Vuletin 2013). A lack of well-designed fiscal frameworks makes it difficult for countries to adhere to prudent debt targets over the economic cycle (OECD 2015), while low fiscal transparency and poor quality of procurement lead to inefficiencies and worse fiscal outcomes (Jarvis and others, forthcoming). In contrast, by increasing the credibility of fiscal policy and the difficulty of deviating from appropriate policies, credible MTFs are associated with successful fiscal consolidation (IMF 2010).³

Against this backdrop, this chapter examines gaps in the Middle East and Central Asia region's fiscal institutions and estimates the impact of fiscal institutions on fiscal outcomes. The analysis emphasizes the role of fiscal institutions in (1) strengthening fiscal discipline and ensuring long-term sustainability, (2) building resilience by enhancing the ability of fiscal policy to stabilize the economy, and (3) improving the predictability of fiscal policy by lowering its volatility.

Weak Fiscal Institutions in the Middle East and Central Asia

Measures of key fiscal institutions in MENAP and CCA countries tend to be weaker compared with peers, though regional variations illustrate important differences (Figure 5.2).

In particular, MENAP oil exporters have much lower *budget transparency* compared to other oil-exporting countries, with measures for Algeria, Iraq, Qatar, and Saudi Arabia not improving

between 2012 and 2017 (Figure 5.3).⁴ In contrast, despite relatively low levels, there have been notable improvements in budget transparency in some MENAP and CCA oil importers in recent years. Improvements in budget transparency seem to be positively associated with revenue mobilization (Figure 5.4).

Most MENAP oil exporters register very low nonresource tax revenues mainly because of large resource revenues. In MENAP oil importers, tax systems suffer low progressivity and complexity, with multiple tax exemptions and rates, making tax administration more difficult (Jewell and others 2015).⁵

MENAP oil exporters score higher than other oil exporters on the *MTFF indicator*, which includes the presence of a multiyear perspective in fiscal planning, expenditure policy, and budgeting.⁶ However, this stronger performance does not necessarily reflect stronger MTFs, as it is largely driven by favorable elements of frameworks in Algeria (where there is high predictability of funds available for commitments of expenditure) and Kuwait (where there is parliamentary scrutiny of the annual budget law). Similarly, MENAP oil importers score high on the MTFF indicator due to better frameworks in just two countries, Jordan and Morocco. In contrast, most CCA countries fare well in terms of MTFF.

Countries in the Middle East and Central Asia, in particular those in the CCA region, perform poorly on *public procurement* but score relatively well compared to emerging market economies on measures of *public financial management*. However, fragile states and conflict-affected countries face significant challenges in developing

⁴Transparency is measured using the Open Budget Index, which is available for 2012 and 2017, and covers only Algeria, Iraq, Qatar, and Saudi Arabia among MENAP oil exporters.

⁵An alternative revenue institutions indicator is used, but due to limited data availability, only five countries in the region (Azerbaijan, Armenia, Georgia, Mauritania, and Morocco) are assessed with slightly weaker performance than their peers.

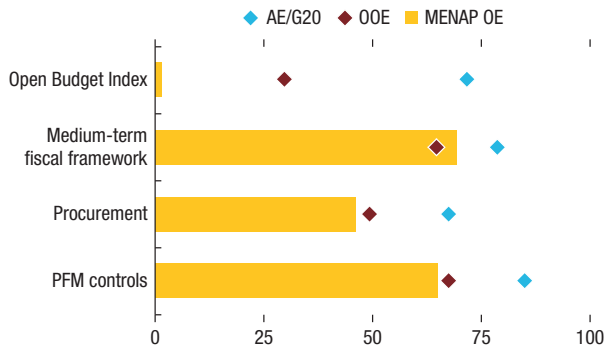
⁶The MTFF indicator is based on Public Expenditure and Financial Accountability (PEFA) assessments. These cover 115 countries, mostly emerging market economies and low-income countries. Out of 31 countries in the Middle East and Central Asia, data are available for only 23 countries.

²Fiscal institutions refer to the organizational and procedural arrangements through which decisions on fiscal matters are taken, or that provide input into such decision making.

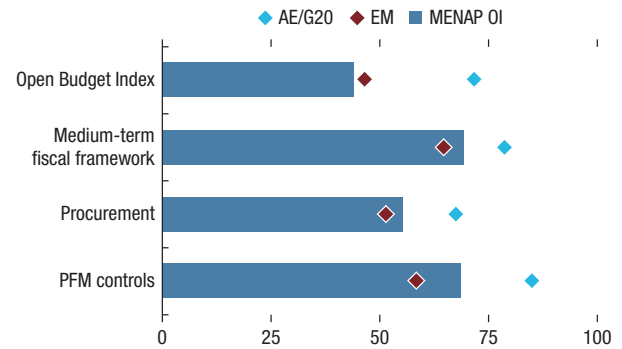
³Medium-term fiscal frameworks (MTFFs) include mechanisms to formulate multiyear fiscal objectives and ensure effective implementation.

Figure 5.2. Fiscal Institutions Indicators
(Index, 100 is best)

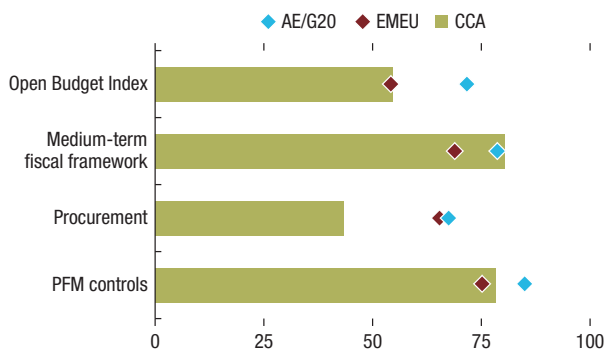
1. MENAP Oil Exporters



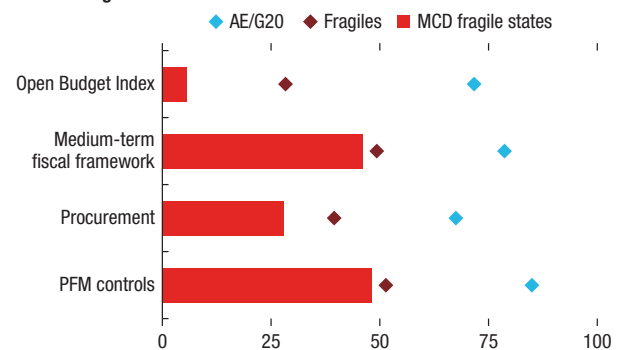
2. MENAP Oil Importers



3. CCA



4. MCD Fragile States



Sources: Public Expenditure and Financial Accountability; Open Budget Initiative; and IMF staff calculations.

Note: The Open Budget Initiative medium-term fiscal framework and PFM controls indicators, where 4 is best score, have been indexed to 100. For the procurement indicator, where 1 is best, the indicator has been indexed to 100. MENAP oil exporters and oil importers aggregates exclude fragile states. Fragile states in MCD include Afghanistan, Djibouti, Iraq, Lebanon, Libya, Somalia, Sudan, Syria, Tajikistan and Yemen. AE = advanced economies; CCA = Caucasus and Central Asia; EM = emerging Market economies; EMEU = emerging Europe countries; Fragiles = other fragile states; G20 = G20 countries; MENAP = Middle East, North Africa, Afghanistan, and Pakistan; MENAPOE = MENAP oil-exporting countries; MENAPOI = MENAP oil-importing countries; OOE = other oil-exporting countries; PFM = Public Financial Management.

strong fiscal institutions across the board. Apart from the difficulty of conducting fiscal policy in conflict economies, this reflects their limited administrative capacity (IMF 2017).

IMF staff assessments of improvements in fiscal institutions, which supplement the results in Figure 5.2, indicate that more than 80 percent of CCA countries and half of MENAP oil exporters have MTFs (Table 5.1). A majority of MENAP oil importers do not have a formal MTF. While most countries have IMF-supported programs, these may not prove sufficient in anchoring fiscal policy in a medium-term perspective.

The quality of frameworks varies across countries.⁷ Deficiencies in MTFs reflect either incompleteness or weak implementation, with frequent breaches of fiscal targets in a few MENAP and CCA countries (Algeria, Iran, Jordan, Pakistan, Tajikistan). Such weaknesses in MTFs are also associated with higher volatility of fiscal policy and rising public debt burdens (Egypt, Pakistan).

In addition, while *fiscal rules* are prominent in peer countries, including in other oil exporters, only one-quarter of MENAP and CCA countries

⁷For example, based on the MTF indicator, Georgia has the highest scores in all four aspects, while Egypt has no formal MTF, and fares poorly in all aspects. In the IMF staff survey, the assessment of MTF has a broader scope than the MTF indicator.

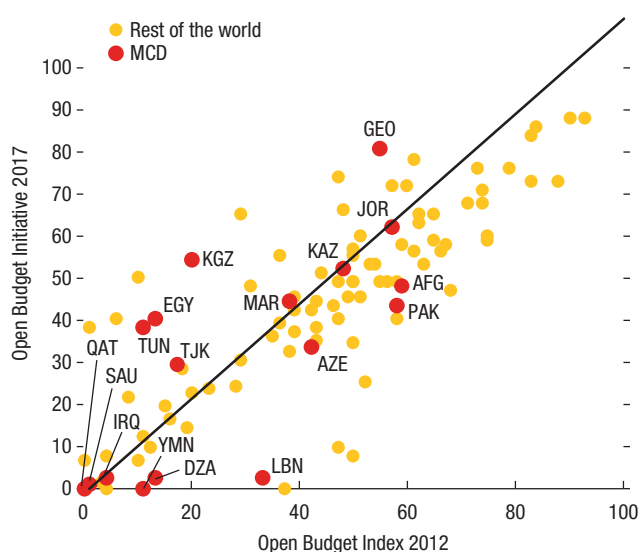
Table 5.1. Survey: MTFF and Fiscal Rules in MCD Countries

	Number of countries	MTFF in place (% of the group)	Government/independent monitoring entity (% of the group)	Fiscal rules (number of)
Oil exporters	8	50.0	50.0	2
Oil importers	6	33.3	33.3	1
Caucasus and central Asian countries	6	83.3	50.0	4
Fragile states	7	28.6	28.6	2
Total	27	48.1	40.7	9

Source: IMF staff calculations.

Note: MCD = Middle East and Central Asia; MTFF = medium-term fiscal framework.

Figure 5.3. Change in the Open Budget Index, 2012–17 (Index)

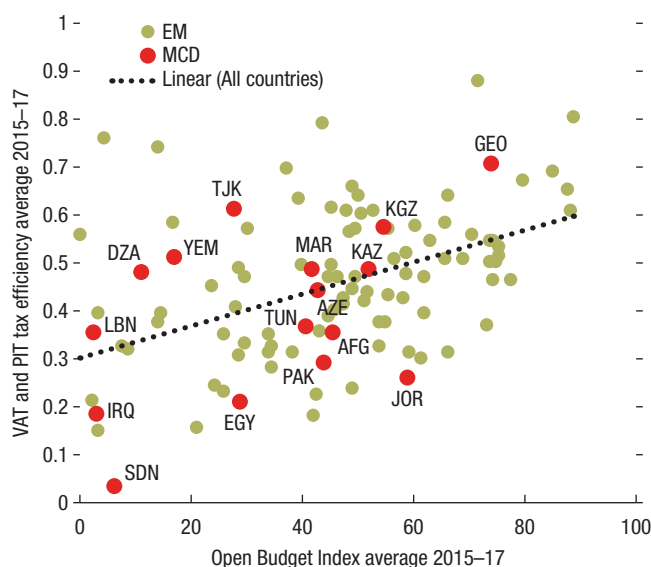


Sources: Open Budget Initiative; and IMF staff calculations.

Note: Country abbreviations are International Organization for Standardization (ISO) country codes.

(Algeria, Armenia, Azerbaijan, Georgia, Iran, Kazakhstan, Pakistan) have adopted fiscal rules, particularly budget balance or debt rules (Figure 5.5). Spending increases and low revenue mobilization efforts have weakened compliance with fiscal rules. Armenia and Georgia have amended their fiscal rules, in collaboration with IMF capacity development, to reduce the procyclical bias and avoid abrupt fiscal adjustments, while increasing flexibility (Box 5.1). Somalia plans to introduce a debt rule.

Figure 5.4. Open Budget Index and Tax Efficiency, 2015–17 (Index)



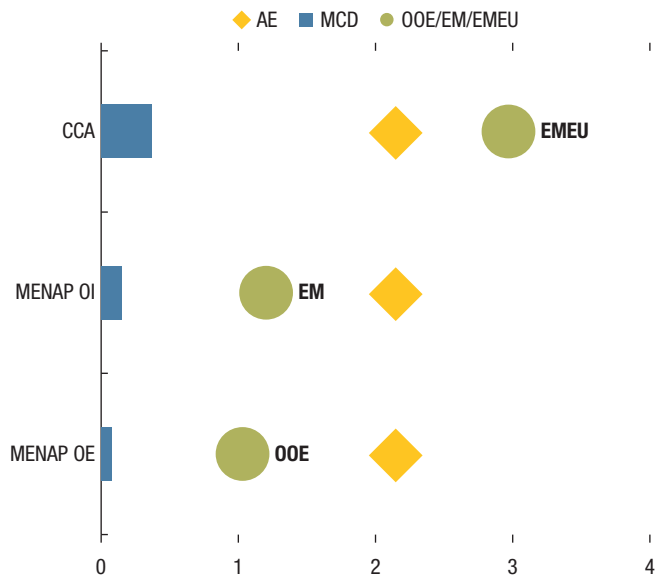
Sources: International Budget Partnership; national authorities; and IMF staff calculations.

Note: EM = emerging market economies; MCD = Middle East and Central Asia; PIT = personal income tax; VAT = value-added tax. Country abbreviations are International Organization for Standardization (ISO) country codes.

How Could Fiscal Institutions Influence Fiscal Outcomes?

How much could MENAP and CCA countries benefit from strengthening fiscal institutions? Overall, estimates indicate that fiscal outcomes in the Middle East and Central Asia could improve notably with stronger fiscal institutions (Figure 5.6; see Box 5.2 for a discussion on the

Figure 5.5. Average Number of Numerical Fiscal Rules
(Number of fiscal rules per country in the subregion)



Sources: National authorities; and IMF staff calculations.
 Note: The emerging market comparator for each MCD subregion varies.
 AE = advanced economies; CCA = Caucasus and Central Asia; EM = emerging market economies; EMEU = emerging Europe; MCD = Middle East and Central Asia; MENAP = Middle East and North Africa, Afghanistan, and Pakistan; OE = oil-exporting countries; OI = oil-importing countries; OOE = other oil-exporting countries.

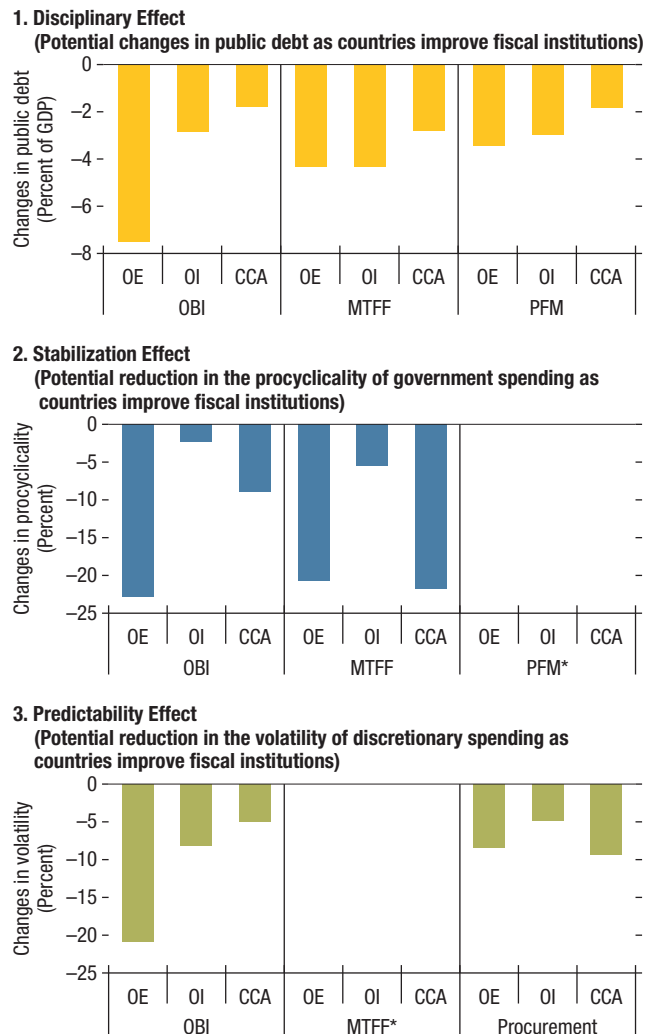
empirical methodology employed).⁸ Specifically, adopting best practices⁹ for fiscal transparency, MTFE, PFM, and procurement could improve fiscal outcomes by increasing accountability and limiting discretionary and politically motivated changes in fiscal policy.

- A slower pace of public debt accumulation over the medium term—by more than 4 percent of GDP and close to 5 percent of GDP in the Gulf Cooperation Council (GCC) and non-GCC oil-exporting countries, respectively, compared to the current level of debt.

⁸Given the small sample and multicollinearity concerns, regressions are run separately for individual fiscal institutions and are not additive. The results are counterfactual with other conditions unchanged.

⁹Adoption of a best practice would mean improving a country's fiscal institution to the level seen in an economy operating at the frontier of that institution.

Figure 5.6. Effects of Quality of Fiscal Institutions on Fiscal Outcomes



Source: IMF staff calculations.
 Note: The reported coefficients are significant at 90–99 percent confidence bands.
 *The effect for these indicators is not statistically significant. Disciplinary effect corresponds to a decline in gross public debt. The stabilizing effect corresponds to the reduction of the procyclicality of government spending. The predictability effect corresponds to the reduction in the volatility of discretionary spending.
 CCA = Caucasus and Central Asia; MTFE = medium-term fiscal framework; OBI = Open Budget Index; OE = oil-exporting countries; OI = oil-importing countries; PFM = public financial management.

- Across all MENAP oil exporters, procyclicality of fiscal policy could be reduced by 30 percent, and the volatility of government spending could be lowered by as much as 19 percent, improving the overall predictability of fiscal policy.

- In MENAP oil importers, a slower pace of debt accumulation—by about 3½ percent of GDP—and a 14 percent lower volatility of fiscal policy.
- In the CCA, a slower pace of debt accumulation—by 2 percent of GDP—while the procyclicality of fiscal policy would be strongly reduced by more than 20 percent, and the volatility of fiscal policy lowered by about 8 percent.

Improvements in fiscal institutions take time and may be hindered by administrative capacity and political constraints. MENAP and CCA countries improved their MTFFs by 10 percent over four years, whereas improvements took more than five years in other countries. Therefore, the sizable benefits associated with enhancing fiscal institutions would be reaped only over the medium or long term.

Findings for a broader sample of countries suggest that adoption of numerical fiscal rules, if accompanied by procedural rules and monitoring and enforcement mechanisms, is associated with less procyclical fiscal policy. Similarly, greater transparency and credible MTFFs are associated with enhanced domestic nonresource revenue mobilization (see Box 5.2).

Enhancing Fiscal Discipline

Improving fiscal transparency (by closing the gap with the best-performing economies), adopting credible MTFFs, and strengthening PFM systems could help reduce the pace of public debt accumulation, helping MENAP oil importers to contain large debt burdens and MENAP oil exporters to continue to gradually consolidate their fiscal positions. Specifically, in Algeria and Oman, debt accumulation could be lower by 4.5 and 6 percent of GDP, respectively, compared to their current levels of debt, while in Qatar and Saudi Arabia it could be lower by 5 percent of GDP. Egypt, Lebanon, and Pakistan, which have rising debt burdens, could slow public debt buildup by about 4 percent of GDP.

Improving transparency and strengthening PFM, combined with a credible MTFF, could slow debt accumulation, on average, in Armenia, the Kyrgyz Republic, and Tajikistan by 2 percent of GDP.

Stronger fiscal discipline could also benefit fragile countries, notwithstanding limited capacity. In Iraq, Lebanon, Sudan, and Yemen, debt accumulation could be slower by about 6 percent of GDP.

Limiting the Procyclicality of Fiscal Policy

Improving the transparency of the budget cycle and adopting a credible MTFF also reduces procyclical fiscal policy, helping to stabilize the economy.¹⁰ This is particularly the case for MENAP oil exporters and CCA countries. Procyclicality of fiscal policy can be reduced by more than 30 percent compared to the degree observed in recent years in Algeria, Qatar, and Saudi Arabia. Indeed, by reducing pressures to increase spending or cut taxes during upswings, a credible MTFF enables policymakers to implement countercyclical fiscal policy and reduce the bias toward deficits. MTFFs also raise awareness about policy actions that are destabilizing in the medium term and highlight the need for sustainable actions. Similarly, Azerbaijan and Uzbekistan could lower the procyclicality of fiscal policy by more than 20 percent.

Improving the Predictability of Fiscal Policy

Improving fiscal institutions, in particular the transparency of the budget cycle and procurement systems, can enhance the predictability of fiscal policy by lowering the volatility of discretionary government spending. In Bahrain and Oman,

¹⁰In this chapter, procyclicality is measured as a change in discretionary government spending vis-à-vis the output gap. Procyclicality measured alternatively as a change in government spending induced by the changes in oil prices—relevant particularly for MENAP oil exporters and highlighted in Chapter 1—yields similar outcomes.

volatility of fiscal policy could be reduced by about 10 percent. The potential benefits of improved transparency and procurement systems is even higher in MENAP oil importers (Egypt, Mauritania, Pakistan) and CCA countries (Azerbaijan, Tajikistan, Uzbekistan), where fiscal policy volatility could be lowered by 11 percent and 13 percent, respectively.

Strengthening the PFM and Procurement Systems

Effective PFM controls, combined with compliance with rules governing internal budget procedures and high quality and comprehensive audits of rules and procedures, would contribute to mitigating the overall rise in public debt. In particular, strengthening PFM controls—such as limiting the unreported extra-budgetary expenditure, improving tax payment efficiency, and boosting oversight of fiscal risks from public enterprises—in line with best practice standards for MENAP oil exporters and importers could lower public debt by about 3–3½ percent of GDP.

Moving toward Well-Designed Fiscal Rules

Empirical evidence shows that well-designed fiscal rules can strengthen fiscal discipline and reinforce the stabilizing capacity of fiscal policy. For MENAP oil exporters facing volatile oil prices and declining fiscal buffers, budget balance rules and expenditure rules may seem more appropriate to reduce procyclicality while ensuring intergenerational equity. For MENAP oil importers, budget balance rules and debt rules may help contain the rapid rise of public debt while allowing fiscal policy to respond to shocks (see Box 5.1).

However, the mere adoption of fiscal rules, without strong fiscal institutions to ensure compliance, is unlikely to improve fiscal outcomes. In this regard, procedural rules and enforcement and monitoring mechanisms could facilitate the implementation of fiscal rules.

Additionally, independent bodies that provide key macroeconomic assumptions and monitor compliance with rules are crucial. Moreover, comprehensive and robust PFM systems are preconditions for the adoption of fiscal rules (IMF 2018c, 2019b).

A Call for Stronger Institutions for Improved Policy Outcomes

MENAP and CCA countries are facing significant challenges with narrowing policy options to contain pressures. Fiscal consolidation efforts need to regain momentum to rebuild buffers and ensure long-term macroeconomic sustainability. MENAP oil exporters should avoid procyclical fiscal policies to strengthen the effectiveness of fiscal policy and insulate economies from global oil price volatility. MENAP oil importers should reduce precariously high levels of public debt to create space to address growth weaknesses. CCA countries should rebuild fiscal buffers to enhance macroeconomic stability and reduce vulnerabilities to external shocks. Despite recent progress, further strengthening fiscal institutions would help address these challenges.

- Countries with low transparency scores (Algeria, Iraq, Qatar, Saudi Arabia) would benefit from transparency initiatives, which would help reinforce fiscal discipline and reduce the procyclicality and volatility of fiscal policy, including by improving accountability and reducing the discretionary power to raise spending. In this regard, Saudi Arabia has taken important steps to improve transparency in recent years, including publishing more comprehensive budget statements and quarterly budget performance reports and audited financial statements for the first time (including for the state oil company). Further gains could be made by providing more detailed data on budget projections, outturns, and fiscal risks and by broadening the institutional coverage of fiscal reporting. Tunisia and Uzbekistan have recently undertaken fiscal transparency

evaluations, in collaboration with IMF capacity development, with recommendations aimed at improving fiscal reporting. To further improve transparency, Uzbekistan intends to participate to the 2021 Open Budget Index assessment for the first time.

- Adopting a comprehensive approach to analyze assets and liabilities of the public sector would enhance transparency. Better balance sheet management would enable countries to increase revenues, reduce risks, and improve fiscal policymaking, especially in MENAP and CCA countries with large sovereign wealth funds and state-owned enterprises. In this regard, the IMF encourages countries to undertake Fiscal Transparency Evaluations to help compile public sector balance sheets and assess the main risks to the fiscal outlook.
- Building a credible MTFE, with a clear understanding of fiscal challenges, would enhance fiscal discipline and reduce the pace of debt accumulation. It would also mitigate procyclicality, particularly in MENAP oil exporters. Algeria and Pakistan would benefit from ensuring compliance with existing MTFEs, and efforts to bolster fiscal policy frameworks (for example, in Qatar and the United Arab Emirates) via explicit fiscal anchors would also help to reduce procyclical fiscal policies.
- Stronger PFM systems and effective procurement processes and controls, which limit unreported extrabudgetary expenditures and reinforce oversight of fiscal risks, would help slow debt accumulation and limit unplanned changes in government spending. In this regard, Mauritania's and Algeria's recently adopted Organic Budget Laws are welcome steps toward improving PFM systems and enhancing the formulation of multiyear budgets. Kuwait passed a new procurement law to promote competition and transparency as well as participation of small- and medium-sized enterprises. It establishes dedicated procurement bodies and introduces modern approaches to evaluating bids, life-cycle costing, and complaints. The new tendering and procurement law in Saudi Arabia should improve the efficiency of public investment and transparency of tenders. In line with IMF recommendations, Azerbaijan and Uzbekistan recently passed legislation and regulations to establish e-procurement and increased transparency of bidding and contracting. Armenia plans to strengthen its public investment management framework to facilitate prioritization of investment projects.
- Fiscal rules reinforce fiscal discipline and build resilience. Moving toward flexible yet effective fiscal rules could help preserve fiscal discipline. Well-defined escape clauses, as well as monitoring and enforcement mechanisms, could assist in ensuring intergenerational equity, particularly important in MENAP oil exporters, and alleviate debt burdens, of concern in MENAP oil importers. Algeria, Azerbaijan, and Pakistan could reap further gains by fostering compliance with existing rules, while the Kyrgyz Republic should consider a lower cap for public debt when calibrating its fiscal rule.
- Revenue institutions can strengthen overall tax administration and foster domestic nonresource revenue mobilization, especially important for MENAP and CCA oil exporters. Revenue institutions can be strengthened by aligning them with good practices for internal management, improving procedures that regulate tax officials' discretionary powers, developing core tax procedures and capabilities. Easing filing and payment procedures via electronic filing, and implementing modern organizational structures and compliance risk management approaches. Having a credible medium-term fiscal framework, for example by implementing a medium-term revenue strategy focused on tax system reform, can also boost nonresource revenue mobilization (IMF, OECD, UN, and World Bank 2016).

Box 5.1. Lessons from Fiscal Reforms in Georgia

Georgia has undertaken major reforms to enhance the effectiveness of fiscal policy by strengthening fiscal institutions, reducing corruption, and improving the business climate. These reforms led to significant improvements in fiscal outcomes.

Since 2003, Georgia has enacted significant reforms of the public sector and fiscal institutions. The government undertook measures to fight corruption, including by improving fiscal institutions.¹ These consisted of (1) adopting a new budget law, which strengthened the medium-term fiscal framework by consolidating budget legislation, unifying central and local budgets, accelerating the budget approval and execution processes, and introducing program budgeting; (2) adopting numerical fiscal rules (debt, budget balance, and expenditure rules) in 2011 and enhancing them in 2018;² (3) streamlining tax policy and strengthening tax administration with the introduction of e-government taxpayer services and procurement; and (4) improving the coverage, analysis, and reporting of fiscal risks.

Stronger fiscal institutions have helped deliver better fiscal outcomes. Fiscal transparency, measured by the Open Budget Index, has improved markedly. Tax revenues rose and the efficiency of revenue collection has been higher than among peers. The government streamlined the types of taxes from 21 to 6, vastly improved taxpayer services, and restructured Georgia's Revenue Service. The adoption of flexible fiscal rules helped foster fiscal discipline, limited the rise in public debt, and reduced the volatility of government expenditure. The IMF supported Georgia in these reforms through financing arrangements and intensive capacity development.

Going forward, there is still scope for further reforms of fiscal institutions. Efficiency of spending could be enhanced, and a more binding medium-term budget framework would help enforce medium-term spending priorities. The government could improve the oversight and management of public investment and state-owned enterprises in line with the Public Investment Management Assessment recommendations. Further modernization of tax policy and revenue administration would help ensure sustainable revenues and could be achieved by a medium-term revenue strategy for comprehensive tax system reform.

This box was prepared by Iulia R. Teoduro.

¹The October 2019 *Fiscal Monitor* discusses in depth other key reforms that have reduced and contained corruption in Georgia.

²Fiscal rules limit public debt to 60 percent of GDP, the budget balance to 3 percent of GDP, and expenditures to 30 percent of GDP. The revisions entailed eliminating the expenditure ceiling, which had a procyclical bias, clarifying the scope of the deficit and the public debt under the rule, and defining escape clauses.

Box 5.2. Fiscal Institutions and Fiscal Performance: Empirical Setting

This box discusses the models developed to investigate links between fiscal institutions and fiscal performance. Fiscal institutions are measured using the transparency of the budget cycle, the adoption of a credible medium-term fiscal framework, and the introduction of fiscal rules. We focus on the role of these institutions in limiting increases in public debt (*disciplinary effect*), reducing the procyclicality of fiscal policy (*stabilizing effect, building resilience*), and lowering volatility of fiscal policy (*improving predictability*).

To explore the disciplinary effect of fiscal institutions, we posit the following empirical specification:

$$\Delta D_{it} = \alpha + \beta_1 FI_{it} + \beta_2 FI_{it} \times I_{\{=1ifMCD\}} + \sum_{k=1}^K \delta_k Z_{k,it} + \varepsilon_{it}. \quad (1)$$

Following Dabla-Norris and others (2010), the left hand-side variable is the change in gross public debt (ΔD_{it}) in percent of GDP, with i and t indicating panel and time dimensions. Our primary explanatory variable is an indicator of fiscal institutions (FI_{it}), mainly an indicator of transparency and the existence of a medium-term fiscal framework, and also the quality of the procurement process and public financial management system. Equation 1 is supplemented with additional control variables influencing changes in the public debt (that is, non-oil primary balance, real GDP growth, and inflation) to address possible omitted variable bias, and to isolate country-specific and time-invariant characteristics. We focus on β_1 and β_2 , which measure the effect of financial institutions on the changes in public debt.

The stabilizing capacity of fiscal institutions is empirically tested using a two-step approach. We first estimate the cyclicity of fiscal policy (Equation 2).

$$\Delta \text{Log}G_{it} = \alpha_{it} + \beta \Delta Y_{it} + \sum_{j=1}^J \delta_j X_{j,it} + \varepsilon_{it}. \quad (2)$$

Subscripts i and t refer to the country and time dimensions. $\Delta \text{Log}G_{it}$ represents the first differences of the logarithm of real public spending, and ΔY_{it} is the real GDP growth rate. Equation 2 describes the fiscal reaction function, which captures changes in government spending in reaction to the business cycle. The business cycle comoves with the oil price cycle (see Chapter 1). Equation 2 includes a set of controls ($X_{j,it}$: real GDP per capita, financial development, terms of trade, inflation) influencing government spending. Following Aghion and Marinescu (2007), we compute the time-varying and country-specific coefficients of procyclical ($\hat{\beta} > 0$) or countercyclical fiscal policy ($\hat{\beta} < 0$). After estimating the cyclical reaction of fiscal policy ($\hat{\beta}_{it}$), we assess the impact of FIs on the pro- or countercyclical nature of fiscal policy (Equation 3).

$$\hat{\beta}_{it} = \alpha_i + \delta_1 FI_{it} + \delta_2 FI_{it} \times I_{\{=1ifMCD\}} + \sum_{k=1}^K \lambda_k Z_{k,it} + \varepsilon_{it}. \quad (3)$$

We focus on coefficients δ_1 and δ_2 , which measure the effect of FIs on the cyclical nature of fiscal policy. Negative δ_1 and δ_2 imply that FIs are associated with lower procyclicality of fiscal policy.

Once again, we develop a two-stage approach in exploring the effectiveness of fiscal institutions in reducing the volatility of fiscal policy. First, we isolate changes in nonessential government spending using the following specification.

$$\Delta \text{Log}G_{it} = \alpha_{it} + \beta \Delta Y_{it} + \sum_{j=1}^J \delta_j X_{j,it} + \omega_{it}. \quad (4)$$

$\Delta \text{Log}G_{it}$ is the first difference of the logarithm of real government spending and ΔY_{it} , real GDP growth, captures the impact of the state of the economy on changes in spending. Equation 4 includes a set of controls ($X_{j,it}$: oil price volatility, real GDP growth volatility, inflation) influencing government spending. In this empirical setup, the residuals ($\hat{\omega}_{it}$) play an important role as they capture the discretionary changes in government spending, driven neither by the business cycle nor by automatic stabilizers. The volatility of fiscal policy is calculated as a standard deviation of the residuals in country i , using periods of five years (σ_i^f), since we want to isolate the noise that might exist in the short term.

Box 5.2 (continued)

In the second stage, we estimate the impact of fiscal institutions on the volatility of fiscal policy using Equation 5.

$$\sigma_i^t = \alpha_i + \delta_1 FI_{it} + \delta_2 FI_{it} \times I_{\{=1ifMCD\}} + \lambda_k Z_{k,it} + \varepsilon_{it}. \quad (5)$$

δ_1 and δ_2 are our coefficients of interest. They are expected to be negative, predicting that fiscal institutions reduce the volatility of fiscal policy.

This role of fiscal rules in limiting the rise in public debt and reducing procyclicality is tested using Equation (6).

$$\Delta Y_{it} = \alpha + \beta_1 FI_{it} + \beta_2 (FR_{it} \times PR_{it}) + \sum_{k=1}^K \delta_k Z_{k,it} + \varepsilon_{it}. \quad (6)$$

The dependent variable ΔY_{it} is the change in public debt (ΔD_{it}), or the cyclical coefficients of fiscal policy ($\widehat{\beta}_{it}$) derived from Equation 3. Subscripts i and t are the panel and time dimensions. Our main explanatory variable is a dummy variable capturing the presence of a fiscal rule (FR_{it}). An interaction term ($FR_{it} \times PR_{it}$) captures the presence of a procedural rule, monitoring and enforcement bodies, the existence of escape clauses, or rules excluding investment spending in the calculation of the fiscal balance.

Equation 7 describes the econometric model used to estimate the role of fiscal institutions in influencing domestic revenue mobilization. The dependent variable is the ratio of total revenue to GDP, or nonresource revenue to GDP (Rev_{it}), with i and t the panel and time dimensions. Explanatory variables include GDP per capita, openness to trade, and political and institutional variables.

$$Rev_{it} = \alpha_i + \delta_1 FI_{it} + \delta_2 FI_{it} \times I_{\{=1ifMCD\}} + \lambda_k Z_{k,it} + \mu_k Pol_{k,it} + \varepsilon_{it}. \quad (7)$$

The sample covers 114 countries across all income groups and regions, including 31 Middle East and Central Asia countries. The panel is unbalanced due to significant data limitations, in particular regarding the indicators of fiscal institutions (Open Budget Index, medium-term fiscal framework, procurement, Public Financial Management). Given that fiscal institutions change slowly, we use five-year averages of all variables. Equations 1, 3, 5, and 6 are estimated using the Driscoll and Kraay (1998) method, which produces heteroscedastic-consistent standard errors robust to very general forms of spatial and temporal dependence. Equation 7 is estimated using the fixed effects method with robust standard errors. All specifications include control variables to reduce potential omitted variable bias. These include macroeconomic and structural (*GDP per capita, inflation, financial development, openness to trade, terms of trade, real GDP growth volatility, oil price volatility, non-oil primary balance*) and political and institutional variables (*strength of democracy, rule of law, government effectiveness, etc.*). Country fixed effects are introduced to alleviate concerns about cross-sectional dependence. Following Alesina and Perotti (1999), fiscal institutions are assumed to be costly to change and stable at least over the short to medium term. Therefore, the causality runs from fiscal institutions to fiscal outcomes, mitigating the endogeneity bias induced by reverse causality.

This box was prepared by Moussé Sow.

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