

The Impact of Fiscal Policy on Inflation Expectations

Francisco Arizala, Santiago Bazzdresch, Tomohide Mineyama,
and Shiqing Hua

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The Impact of Fiscal Policy on Inflation Expectations**Prepared by Francisco Arizala, Santiago Bazdresch, Tomohide Mineyama, and Shiqing Hua***

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ABSTRACT: This paper analyzes the impact of fiscal policy on inflation expectations across a large sample of advanced economies (AEs) and emerging market economies (EMs). We identify episodes of significant fiscal adjustment using both quantitative thresholds and a narrative approach and find that such episodes are associated with statistically significant changes in inflation expectations in EMs while the responses are muted in AEs. We also document that the relationship between fiscal policy and inflation expectations is more pronounced in high-inflation environments and under weak fiscal positions. Additionally, we explore how market perceptions of sovereign risk, as well as monetary and exchange rate frameworks, influence the transmission of fiscal policy to inflation expectations. Our empirical results suggest that it is especially important for EMs to implement prudent fiscal policy as it may help reduce inflationary pressures and inflation expectations.

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WORKING PAPERS

The Impact of Fiscal Policy on Inflation Expectations

Prepared by Francisco Arizala, Santiago Bazdresch, Tomohide Mineyama, and Shiqing Hua¹

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Introduction

Fiscal and monetary policymakers around the world are navigating an increasingly complex landscape. On the monetary front, inflation has eased from its post-pandemic peaks but remains persistently high in many economies. In several countries, prices—particularly in the services sector—continue to rise at rates well above pre-pandemic norms. On the fiscal side, longstanding pressures have intensified. Demographic trends are steadily increasing healthcare and pension costs, while the pandemic-era surge in deficit spending has left many countries with elevated debt levels. More recently, geopolitical tensions and commodity price volatility have added to fiscal strains, prompting increased spending on social protection and defense. Compounding these challenges, the high interest rates deployed by central banks to rein in inflation have further complicated fiscal management by raising debt servicing costs.

In this context, a deeper understanding of the interaction between fiscal and monetary policies—and empirical estimates of their mutual effects—can help inform the design of coherent policy frameworks. Such frameworks should consider the implications of policy actions for both inflation control and fiscal sustainability. Alongside other recent contributions in the literature (IMF, 2023a; 2023b), this paper aims to support that effort.

The inflation targeting framework has become the dominant monetary policy paradigm globally and is credited with much of the success in controlling inflation and avoiding costly disinflation episodes. Within this framework, inflation expectations play a central role. Today, central banks focus as much on inflation expectations as on observed inflation in their decision-making. Accordingly, an essential consideration for policymakers is the effect of fiscal policy on inflation expectations. This paper explores the various channels through which fiscal shocks can influence inflation expectations and provides empirical estimates of their impact under different macroeconomic conditions.

Several theoretical frameworks help illuminate the relationship between fiscal policy and inflation expectations. Under fiscal dominance, the central bank may adopt a more expansionary stance than warranted, accommodating government financing needs or responding to debt sustainability concerns—ultimately leading to higher inflation (Sargent and Wallace, 1981). In this setting, government debt is too large to be repaid without monetary financing. Without central bank accommodation, tighter monetary policy raises borrowing costs, potentially triggering a debt crisis and subdued output (Aiyagari and Gertler, 1985; Calvo, 1988). As agents internalize these dynamics, perceptions of fiscal unsustainability can lead to rising inflation expectations.

Another long-run paradigm is the Fiscal Theory of the Price Level (FTPL), which posits that the aggregate price level is determined by the present value of future government budget balances (Woodford, 1994; Cochrane, 2005; Benigno, 2020). In this framework, money is accepted as payment because individuals expect it to retain value, underpinned by the government's ability to generate future surpluses. If the real value of government liabilities exceeds expected future surpluses, inflation may be required to restore equilibrium (Cochrane, 2023). Again, agents who internalize these dynamics adjust their inflation expectations accordingly.

In a New Keynesian framework with nominal rigidities, fiscal expansions—via increased government spending or tax cuts—can boost aggregate demand and exert upward pressure on prices. Given supply constraints, such demand-side effects can lead to inflation, and rational consumers may adjust their expectations in anticipation.

Fiscal policy can also influence inflation through its impact on financing costs for firms and households. Fiscal consolidation may reduce government borrowing, freeing up resources in credit markets and lowering borrowing costs for the private sector. This can dampen inflationary pressures. Conversely, expansionary fiscal policy may crowd out private borrowing, raise financing costs, and contribute to higher inflation and inflation expectations.

Importantly, some fiscal policies may affect inflation and expectations in ways that diverge from aggregate demand considerations. For instance, fiscal consolidation measures such as VAT hikes or increased corporate taxes may directly raise consumer prices or prompt firms to pass on higher costs. Similarly, reductions in energy subsidies have been associated with short-term inflation spikes following the reform (IMF, 2013).

Empirical studies have largely focused on the impact of fiscal policy on actual inflation. Catão and Terrones (2005) find that fiscal deficits are associated with higher inflation in developing countries under high-inflation conditions. Banerjee et al. (2022) document similar effects in advanced economies under fiscal dominance. More recent work by Cevik and Miryugin (2023) examines the relationship between fiscal stance and inflation across a broad sample of countries, while Dabla-Norris, Goncalves, and Nguyen (2023) use a narrative approach to study tax changes in ten advanced economies.

There is also a growing literature on the role of fiscal variables in shaping inflation expectations. Studies have found that fiscal consolidations, especially when paired with central bank independence, are associated with lower inflation expectations (Celasun, Gelos, and Prati, 2004), while unexpected increases in debt levels tend to raise inflation expectations (Coibion, Gorodnichenko, and Weber, 2021; Brandão-Marques et al., 2023). David et al. (2024) show that announcements of fiscal consolidations reduce medium-term inflation expectations, particularly when supported by strong monetary and fiscal frameworks.

This paper contributes to the literature by analyzing the impact of fiscal policy on inflation expectations across a large sample of advanced and emerging market economies. We identify episodes of significant fiscal adjustment using both quantitative thresholds and a narrative approach. We also examine how the relationship between fiscal policy and inflation expectations varies in high-inflation environments and under weak fiscal positions. Additionally, we explore how market perceptions of sovereign risk, as well as monetary and exchange rate frameworks, influence the transmission of fiscal policy to inflation expectations.

Fiscal Shocks and Inflation Expectations

As discussed above, we analyze the impact of fiscal policy on inflation expectations by identifying fiscal policy shocks through two different approaches. First, we uncover episodes of large changes in the fiscal stance by distinguishing instances with big changes in primary balances in line with Baldacci and others (2006). Using this principle, we identify episodes of large fiscal consolidations, defined as an annual improvement in the primary balance of more than 1 percent of GDP and 1.5 percent of GDP (which correspond to the 75th and 80th percent of the distribution of the changes in primary balance), and instances of large fiscal expansions, defined as a deterioration of the primary balance by more than 1 percent of GDP and 1.5 percent of GDP over the period 2000-2023.

Measuring shifts in the fiscal stance by the change in the primary balance can uncover policy-driven decisions, but it can also reflect fluctuations in commodity prices and changes in cyclical conditions (Romer and Romer, 2010). For instance, an economic boom or better terms of trade can translate into higher government revenues and lead to an improvement in the fiscal position, without the latter, however, necessarily being the result of a decision to engineer a fiscal consolidation. For this reason, we also identify shocks using changes in the cyclically-adjusted primary balance, to account for cyclical factors.

Further, the timing when a certain fiscal policy action is incorporated in economic agents' expectations is crucial to shape its impacts as agents may adjust their behavior to expected fiscal policies without waiting for implementation (Ramey, 2011). Given that we are interested in estimating the impact of unanticipated changes in the fiscal policy stance on inflation expectations, we make a first attempt to address these issues by excluding episodes of fiscal policy changes that were fully expected by professional forecasters. For example, to identify fiscal consolidation episodes with a threshold of 1 percent of GDP, we exclude any episode for which a fiscal consolidation greater than 1 percent of GDP was already expected in the World Economic Outlook forecasts published in October of the previous year. In principle, expert projections incorporate expectations of an economic expansion or slowdown when building a forecast for the fiscal position (Auerbach and Gorodnichenko 2012a, b, 2013, Abiad and others, 2016). By excluding from the estimations episodes of fiscal expansions or consolidations that were fully anticipated from the estimation, we intend to have a measure that better captures unanticipated policy-driven changes in the fiscal position rather than being the result of fluctuations in the business cycle or already expected shifts in cyclical conditions by economic agents.

Second, we also observe changes in the fiscal position by identifying shifts in public debt levels, which reflect not only changes in the primary balance, but other factors such as shocks to borrowing costs, stock-flow adjustments, and below-the-line financing operations. This approach reflects our intention to capture fiscal position in a broad manner as, for example, a higher-than-expected debt level may raise concerns about fiscal sustainability without changing the primary balance, thereby affecting inflation expectations. Following the same criteria discussed earlier, we identify large shocks to debt levels as changes larger than 3 percent of GDP and 4 percent of GDP (which correspond to the 75th and 80th percent of the distribution of the changes in the debt-to-GDP ratios).

Third, we complement the analysis above by relying on a narrative approach to the identification of fiscal consolidation episodes. We use fiscal policy shocks as identified by Carriere-Swallow and others (2020), who study policy documents to classify changes in fiscal policy motivated by a desire to reduce the budget deficit and not as a response to prospective economic conditions. This approach has the benefit that changes in the fiscal stance are only considered consolidation episodes if detailed analyses of budget documents suggest that they were implemented with the intent of improving the fiscal position and not the result of cyclical conditions. This is complementary to the quantitative-threshold approach as it excludes the possibility of passive changes in fiscal position upon other factors such as sharp movements in exchange rates, commodity prices, and demand shifts. However, the drawback of this approach is that the database only includes episodes of fiscal contractions and does not cover episodes of fiscal expansions. In addition, this database is only available for a reduced sample: Latin American countries over the period 1986-2020.

For the main specification we construct a database with a broad country coverage, including both advanced economies and emerging markets, with a view that the effects of fiscal policy may vary across different macroeconomic and institutional settings as implied by economic theory. We use data on inflation expectations from Consensus Forecast for a large sample of advanced and emerging market economies over the period

2000-2023. In addition, we rely on several macroeconomic indicators from the World Economic Outlook (WEO) database, including government primary balance, real GDP growth, output gap, and inflation. Tables 1-3 in Annex report summary statistics of the variables constructed whereas Table 4 lists the countries in our sample. Regarding identified fiscal shocks, we did not find significant differences in the summary statistics of identified fiscal shocks with quantitative thresholds across AEs and EMs, including their likelihood, mean, and standard deviation. For example, the unconditional probability of unexpected fiscal consolidation greater than 1.5 percent of GDP is 7.2 percent for AEs and 7.8 percent in EMs. That of fiscal expansion is 13.0 and 13.4 percent, respectively.

Empirical Strategy and Results

Our empirical strategy consists of estimating the impact of fiscal policy shocks on inflation expectations at different expectations horizons and distinguishing between advanced and emerging market economies. We use a local projection approach as described in Jorda (2005) to estimate the following specification:

$$\pi_{it+h}^e = \alpha^h \pi_{it-1}^e + [I_{em} \beta_{em}^h + (1 - I_{em}) \beta_{ae}^h] FiscalShock_{it} + \gamma^h X_{it} + \lambda_t^h + \mu_i^h + \varepsilon_{it}^h$$

where inflation expectations at different horizons (h) are explained by fiscal shocks as described earlier, and a vector of control variables X_{it} , including contemporaneous and lagged values of the output gap, inflation, the fiscal primary balance (to account for the state of the economic cycle and the overall fiscal stance), and country and time fixed effects. Our sample consists of 35 advanced economies (AEs) and 17 major emerging markets (EMs). I_{em} is an indicator variable for EMs, allowing for differential coefficients β_{ae}^h for AEs and β_{em}^h for EMs. Theoretical models (reviewed in the earlier section) suggest that the coefficient can be positive both if inflation expectations are formed according to a long-run framework such as fiscal dominance and FTPL, or from short-run dynamics of aggregate demand and cost channels.

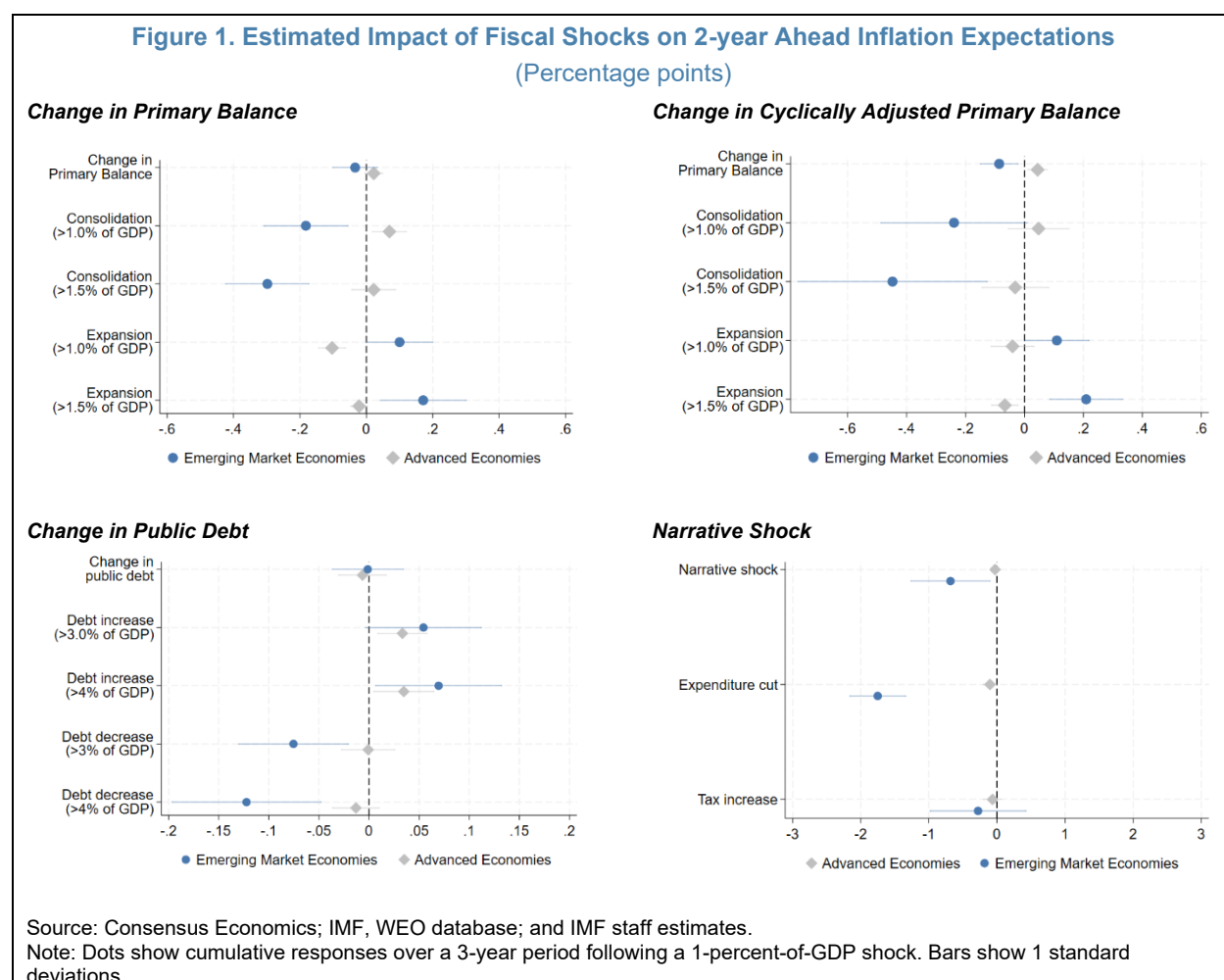
The results show that episodes of large changes in the primary balance (larger than 1.5 percent of GDP) are associated with a statistically significant change in 2-year ahead inflation expectations over a 3-year period in EMs. Specifically, a 1 percentage point primary balance contraction is associated with a 0.2 percentage points decline in inflation expectations (Figure 1).

We do not find a statistically significant impact of fiscal policy shocks on inflation expectations among AEs when these are measured as 2-year ahead expectations. This possibly reflects that stronger monetary policy frameworks in AEs keep inflation expectations anchored, including in the presence of large fiscal policy adjustments. Also, negative feedback loops between dollar-denominated debt, exchange rate depreciation and inflation often seen in EMs may be more limited in the case of advanced economies. Often in the case of EMs, increases in sovereign risk stemming from looser fiscal stance prompt a weakening of the exchange rate, and ultimately result in an increase in inflation. As agents can anticipate these negative dynamics, a weak fiscal position can lead to an increase in inflation expectations in EMs though less so in the case of AEs, where foreign currency-denominated debt is typically relatively small or non-existent.

Notably, the results using changes in the primary balance, a rough measure of the fiscal stance, are robust to identifying fiscal shocks as changes in the cyclically-adjusted primary balance, a more precise measure of shifts in fiscal policy, with the magnitude of the impact being similar. Importantly, we find that small changes in

fiscal primary balances only have a marginal impact on inflation expectations, suggesting that only large policy shifts in fiscal policy have the potential to influence inflation expectations. In other words, inflation expectations do not seem to respond to small changes in fiscal policy, but rather to large shifts in fiscal policy. More broadly, errors in the measurement of the fiscal policy shock will result in attenuation bias of the estimated coefficients, and such attenuation bias may become less severe as the magnitude, relative to GDP, of the shocks increases. For this reason, we put greater weight on the interpretation of the coefficients associated with large changes in the independent variables.

Large shifts in debt-to-GDP levels are also estimated to have an impact on inflation expectations, with declines in debt ratios larger than 3 percent of GDP and 4 percent of GDP being associated with a reduction in inflation expectations of about 0.1 percentage points in EMs. Similarly, increases in debt-to-GDP ratios are associated with higher inflation expectations.



Following the same specification described above and restricting fiscal policy shocks to the ones identified using the narrative approach in (the extended dataset) from Carriere-Swallow and others (2020), the estimated impact of fiscal consolidation episodes on inflation expectations is larger than using the approach based on

changes in the primary balance. Indeed, a 1 percentage point fiscal consolidation is associated with a cumulative 1 percentage points decline in 2-year ahead inflation expectations over a 3-year horizon.

In addition, expenditure-based fiscal consolidations are found to have an even larger impact on inflation expectations, suggesting that economic agents anticipate that, by compressing aggregate demand, these types of consolidations have a stronger impact on the expected path of inflation. On the other hand, in principle, tax-based fiscal consolidations could have a direct upside impact on prices, for example in the case of increases in VAT or a rise in the sales tax, as they may result in higher product prices for consumers. This could explain the result that tax-based fiscal consolidations do not have a statistically significant impact of inflation expectations.

Results similar to the ones presented in Figure 1 are obtained for EMs when estimating the impact of fiscal shocks on inflation and one-year ahead inflation, suggesting that the response of economic agents in terms of adjusting their inflation expectations is somewhat validated by the impact of fiscal shocks on observed inflation (Appendix Figure 1A and Figure 2A). In addition, similar results are obtained when estimating the impact of fiscal shocks on contemporaneous inflation expectations and on one-year ahead inflation expectations (Appendix Figure 3A and Figure 4A). For AEs, actual inflation tends to be more responsive to fiscal shocks, especially to expansionary ones, as opposed to the muted responses of the two-year ahead expectations displayed in Figure 1. This may indicate that actual inflation responds to short-run demand or cost changes following fiscal shocks, while longer-term expectations tend to remain anchored in AEs.

Macroeconomic Frameworks

While the various theoretical channels for the impact of fiscal policy on inflation and inflation expectations present a range of the possible interactions between macroeconomic policies, differences in underlying institutional frameworks may also affect the relevance of a particular policy tool. These include the strength of the monetary policy frameworks and the soundness of fiscal policy, often anchored by the presence of fiscal responsibility laws or medium-term frameworks.

An independent central bank with a mandate to promote price stability will focus on controlling inflation and inflation expectations. Provided an adequate legal mandate, the central bank can be expected to implement actions, whether by responding to or even in anticipation, that minimize the impact of fiscal policy on inflation and expectations. Moreover, beyond its ability and commitment to maintain price stability in response to fiscal policy changes, the presence of an independent central bank may affect the incentives of fiscal policy makers to be more fiscally responsible. For instance, the fiscal authority may be more reluctant to implement a procyclical fiscal expansion under the recognition that it would lead to monetary tightening by the central bank and ultimately resulting only in a small impact on aggregate demand.

Similarly, the presence of institutions such as fiscal councils or responsibility laws is likely to be important in determining the impact of revenue or expenditure policy changes on inflation and its expectations. These institutions contribute to guaranteeing that debt levels remain sustainable. In that sense, such arrangements may reduce the risk that a fiscal dominance environment is reached in the future. From this perspective, as agents incorporate the presence of these institutions, they may impute lower probabilities of fiscal policy having an impact on inflation in the future, which would imply a weaker impact of actual fiscal policy actions on inflation expectations.

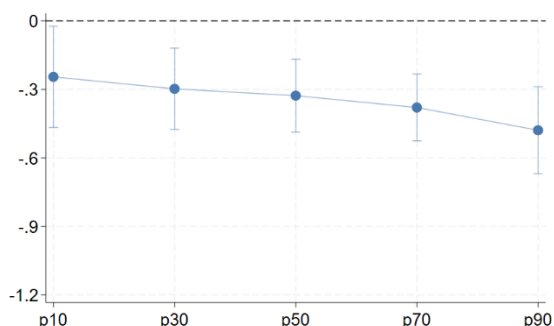
Moreover, an important principle embedded in such frameworks is that deficit levels should be consistent with the cyclical position of the economy. From this perspective, by making sure that expansionary fiscal policies take place mostly in periods in which the economy is below potential and in the context of low inflation, while consolidations occur in periods when the economy is above potential and inflation is high, these policies will be leaning against the pressures affecting the price level, and thus contributing to price stability. Thus, such countercyclical considerations are likely to reduce the impact of fiscal policy making on inflation expectations.

In addition, the available fiscal space is a key aspect in terms of the potential impact of fiscal policy on expectations. In economies with ample fiscal space, changes to revenue or expenditure policies may be seen as having little impact in the short run on the likelihood of sovereign default or fiscal dominance. As a result, a fiscal expansion in such a context may not have an impact on inflation expectations. On the contrary, when fiscal space is limited, it is more likely that a vicious circle of increased sovereign risk and inflation may arise.

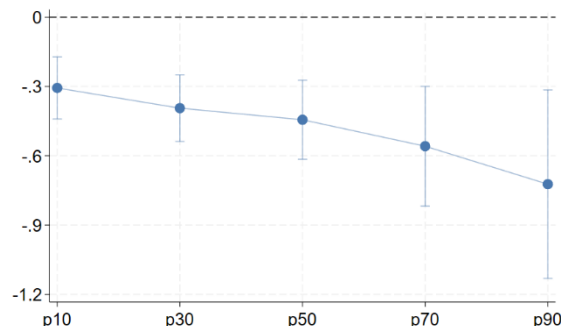
Using the specification described in the previous section, we introduce state-dependent coefficients to estimate the impact of fiscal policy on inflation expectations depending on the level of inflation and the level of debt-to-GDP—as a proxy for the health of public finances and fiscal space—for the sample of EMs. The results show that fiscal consolidation episodes are associated with larger reductions in inflation expectations when they take place in an environment when inflation is already high, presumably in the context of weaker monetary policy frameworks. The findings also show that the impact of fiscal consolidations on inflation expectations is larger when fiscal positions, as measured by the debt-to-GDP ratio, are weak. Indeed, a 1 percentage point of GDP fiscal consolidation is associated with a reduction of about 0.5 percentage points in 2-year ahead inflation expectations in high inflation environments (i.e. when inflation is in the highest 90th percentile of the distribution) (Figure 2). Similarly, a 1 percentage point of GDP fiscal consolidation is associated with a reduction of about 0.7 percentage points in 2-year ahead inflation expectations when the debt-to-GDP ratios is in the highest 10 percent of the distribution. In the same vein, econometric estimates suggest that the impact of fiscal expansions on inflation expectations is upwards sloping along the distribution of inflation and public debt, suggesting that fiscal expansions are associated with larger increases in inflation expectations when inflation is high and public debt is elevated (Figure 3).

Figure 2. State-Dependence: Impact of Fiscal Consolidations on 2-year Ahead Inflation Expectations
(Percentage points)

Inflation



Public Debt

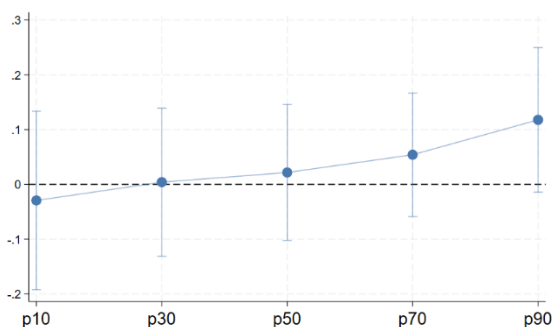


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

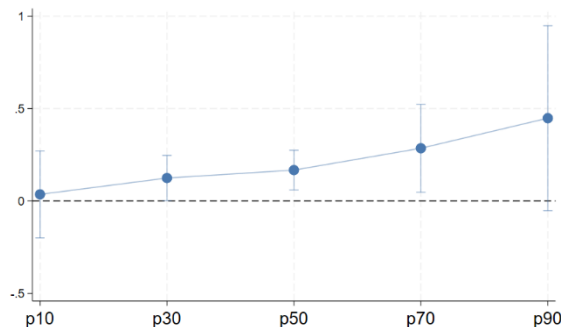
Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

Figure 3. State-Dependence: Impact of Fiscal Expansions on 2-year Ahead Inflation Expectations
(Percentage points)

Inflation



Public Debt

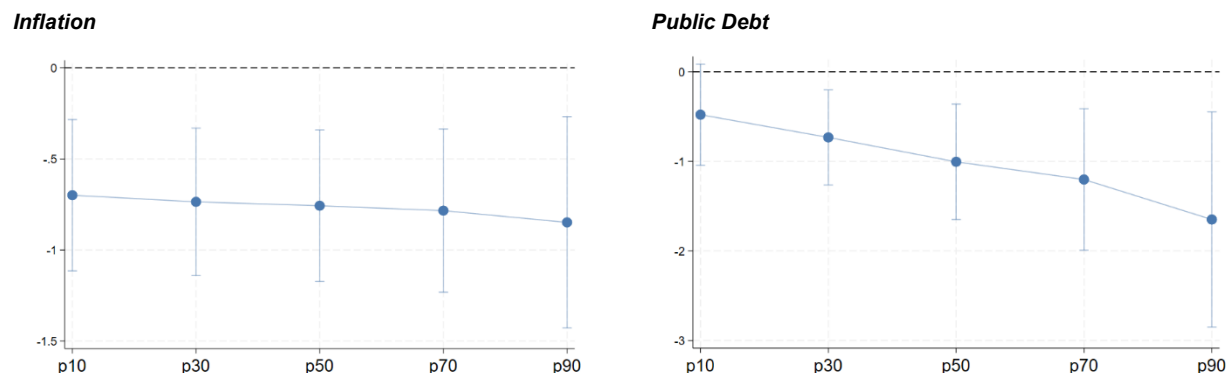


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

We also replicate the previous analysis using a narrative approach to identify consolidation episodes. The estimation shows that the impact of fiscal consolidations identified through the analysis of budget documents on inflation expectations is marginally larger in high-inflation environments (although the differences are not statistically significant) and when fiscal space is limited, as proxied by high public debt levels (Figure 4). Furthermore, the differences are starker when considering expenditure-based fiscal consolidations, highlighting the importance of the demand-side channel influencing inflation expectations (Figure 5). These results confirm that fiscal consolidations driven by compressions in demand engineered through government expenditure cuts rather than revenue increases (including higher taxes) may be more effective in affecting inflation expectations, with this being particularly the case when debt-to-GDP ratios are high.

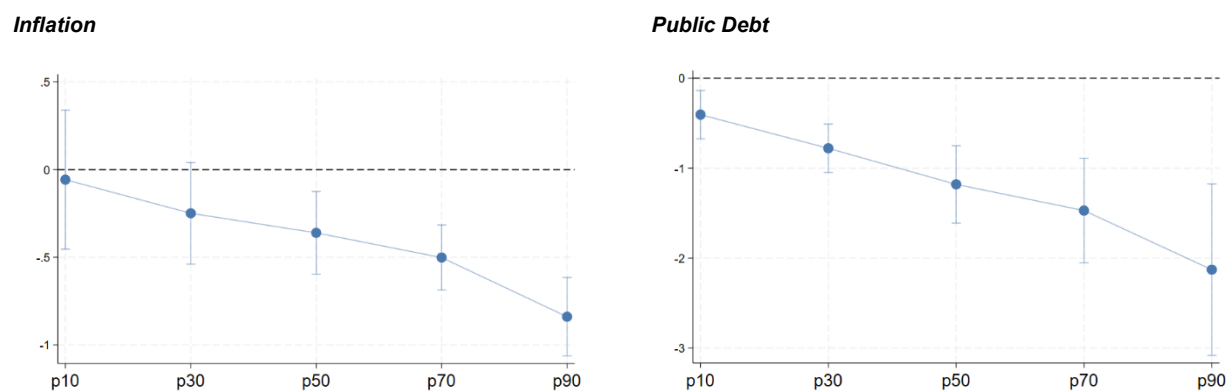
Figure 4. State-Dependence: Impact of Fiscal Consolidations on 2-year Ahead Inflation Expectations, Narrative Approach
(Percentage points)



Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

Figure 5. State-Dependence: Impact of Expenditure-Based Consolidations on 2-year Ahead Inflation Expectations, Narrative Approach
(Percentage points)

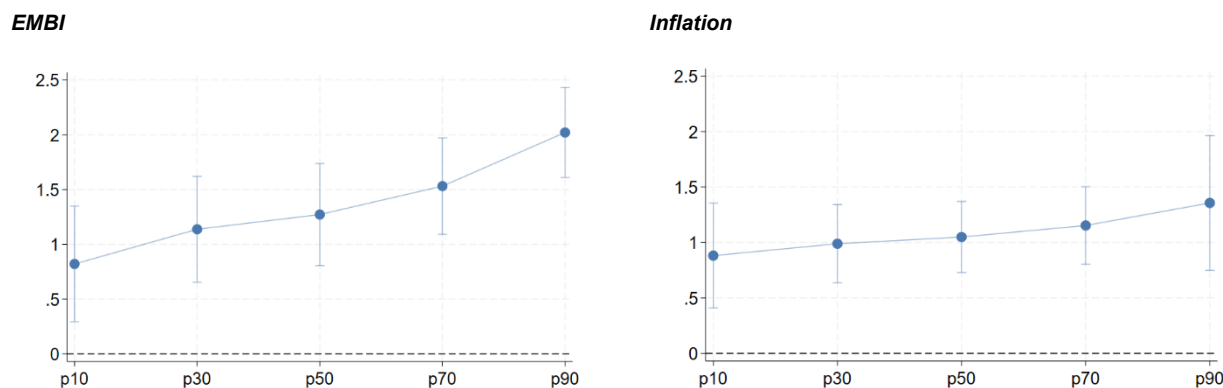


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

It is also important to see if the impact of debt shocks vary depending on the market perception of sovereign risk. Using a state-dependent specification, the results suggest that increases in debt-to-GDP ratios are associated with larger increases in inflation expectations at higher levels of sovereign spreads, consistent with the idea that economic agents would be more concerned about fiscal dominance affecting inflation when fiscal positions are weak, as measured by the perception of risk (Figure 6). In addition, as in the previous exercise, the impact of debt shocks on inflation expectations is higher in the context of inflationary environments.

Figure 6. State-Dependence: Impact of Public Debt Increase on 2-year Ahead Inflation Expectations
(Percentage points)

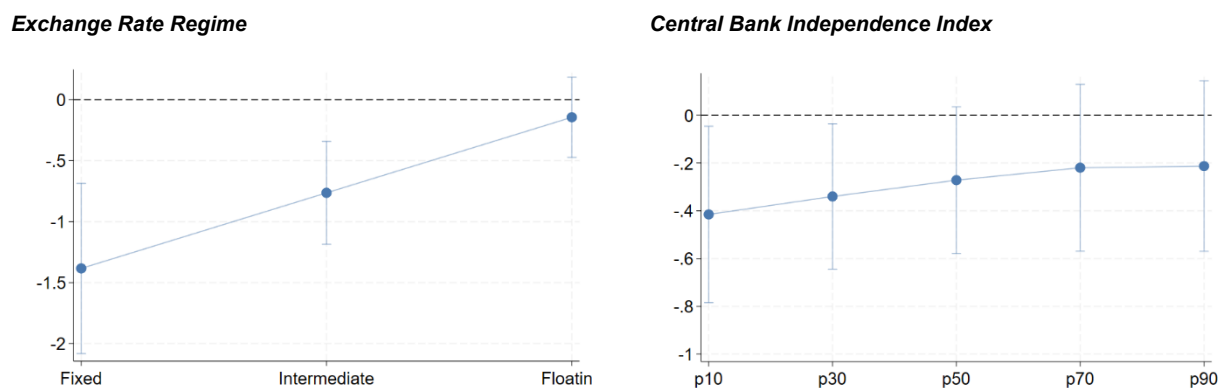


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

The monetary and exchange rate policy framework can also affect the formation of inflation expectations and how agents perceive macroeconomic policies interacting with each other (Figure 7). A state-dependent estimation considering the degree of exchange rate flexibility suggests that fiscal consolidations have a larger impact on inflation expectations in the context of a fixed or less flexible exchange rate regime than a fully flexible exchange rate framework. With monetary policy supporting the stability of a fixed exchange rate regime, agents anticipate shifts in fiscal policy to have a more direct impact on aggregate demand and prices (i.e., a larger fiscal multiplier) than in a flexible exchange rate framework, where monetary can offset somewhat changes in the fiscal stance. The results also show that fiscal policy has a larger impact on inflation expectations when central bank independence is weak, probably reflecting greater concerns regarding fiscal dominance translating into higher inflation.

Figure 7. State-Dependence: Impact of Fiscal Consolidation on 2-year Ahead Inflation Expectations
(Percentage points)



Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock for EMs. Bars show 90th percentile.

Conclusions

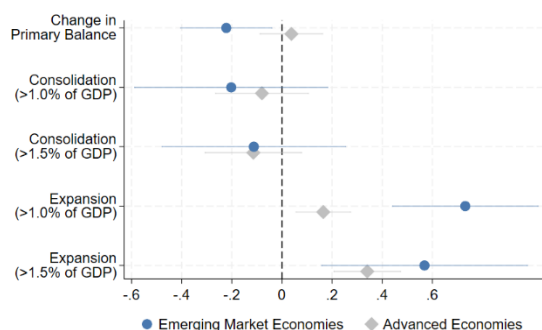
Policy makers across the globe continue to face a complex scenario where, on the one hand, debt levels are relatively high and there is a myriad of pressures on the public expenditures, and, on the other, inflation is not yet back to target in many economies. The challenge could be more significant in emerging economies which tend to be exposed to more difficult external environments with domestic policy institutions less established compared to advanced economies. This paper explores many potential channels for fiscal policy decisions to affect inflation and inflation expectations. Additionally, the paper describes specific risks faced by emerging economies, many of which have some degree of dependence on foreign savings and as a result can face exchange rate pressures. In such economies, the dynamics of sovereign risk, the value of the currency, and inflation and inflation expectations can be a source of macroeconomic instability.

Considering the above, our empirical results suggest that it is especially important for emerging economies to implement prudent fiscal policy. Moreover, it remains essential that fiscal adjustments are properly calibrated, while being mindful of the institutional framework, the economic juncture, and the potential interaction with other macroeconomic policies. Such considerations may reduce spillovers from fiscal policy expansions on inflation and support the anchoring of inflation expectations. They may also help fiscal consolidations reduce inflationary pressures and inflation expectations. More generally, economies with robust policy frameworks that run prudent fiscal balances and low inflation levels may be better placed to maintain inflation expectations anchored, even when running an expansionary fiscal policy. From this perspective, the results in this paper confirm that such a stronger fiscal policy framework does not need to be interpreted solely as a policy constraint, but instead can provide more leeway to respond to future shocks and crises.

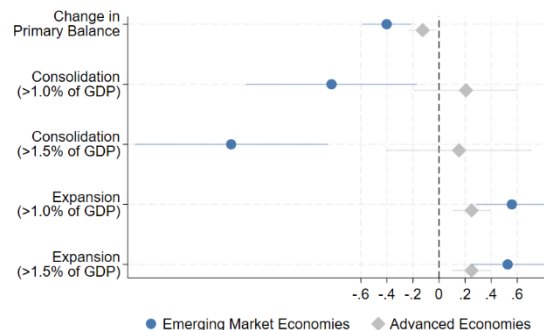
Annex

Figure 1A. Estimated Impact of Fiscal Shocks on Contemporaneous Inflation
(Percentage points)

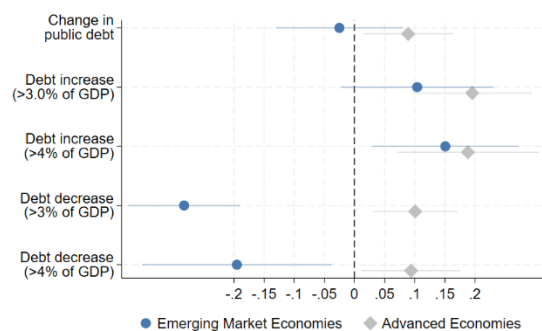
Change in Primary Balance



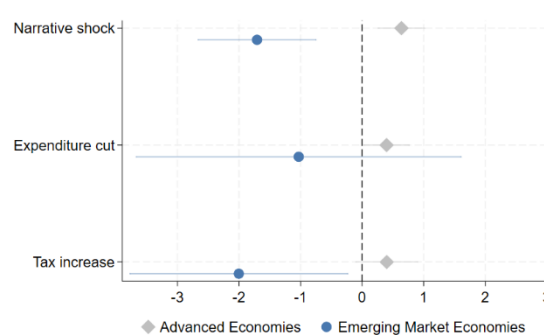
Change in Cyclically Adjusted Primary Balance



Change in Public Debt



Narrative Shock

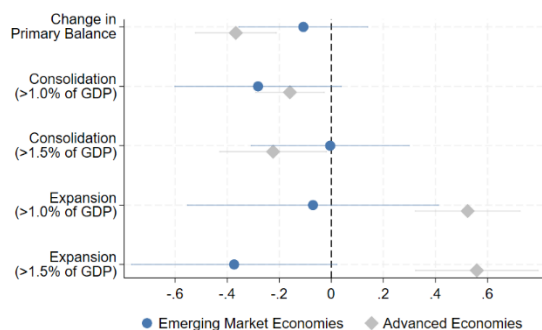


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

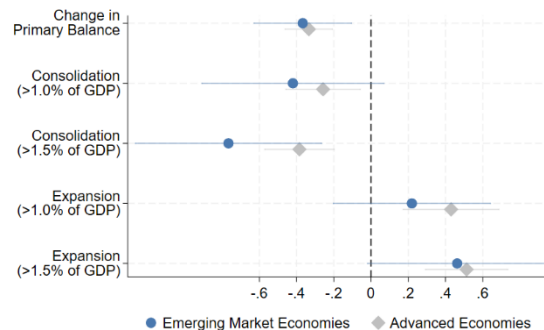
Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock. Bars show 1 standard deviations.

Figure 2A. Estimated Impact of Fiscal Shocks on 1-year Ahead Inflation
(Percentage points)

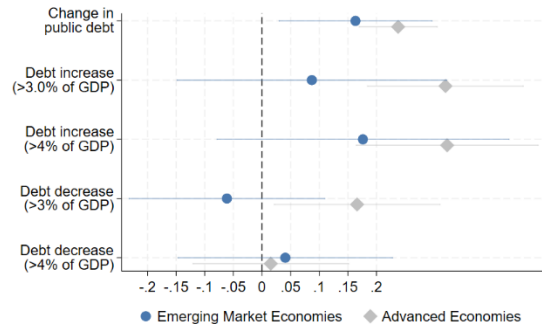
Change in Primary Balance



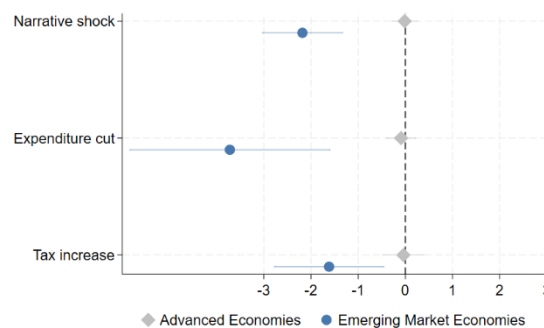
Change in Cyclically Adjusted Primary Balance



Change in Public Debt



Narrative Shock

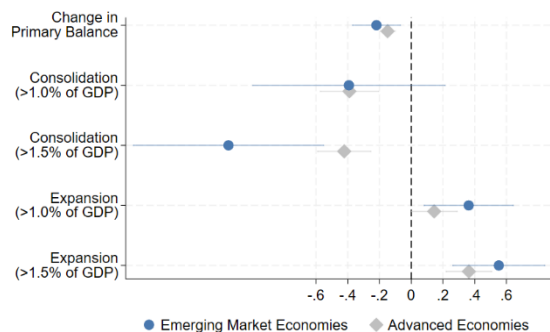


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

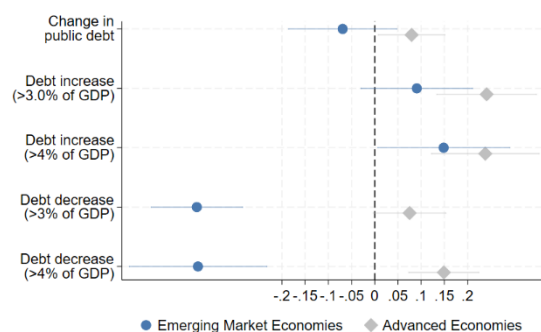
Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock. Bars show 1 standard deviations.

Figure 3A. Estimated Impact of Fiscal Shocks on Contemporaneous Inflation Expectations
(Percentage points)

Change in Cyclically Adjusted Primary Balance



Change in Public Debt

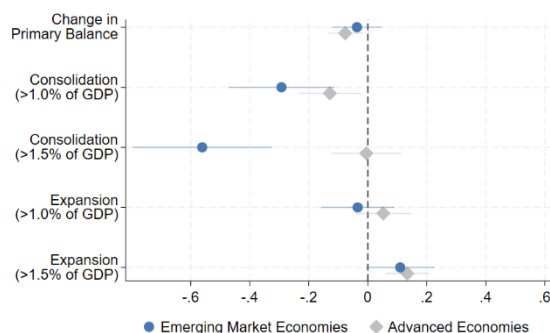


Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

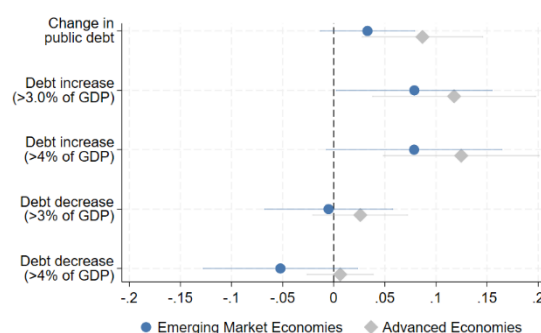
Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock. Bars show 90th percentile.

Figure 4A. Estimated Impact of Fiscal Shocks on 1-year Ahead Inflation Expectations
(Percentage points)

Change in Cyclically Adjusted Primary Balance



Change in Public Debt



Source: Consensus Economics; IMF, WEO database; and IMF staff estimates.

Note: Dots show cumulative responses over a 3-year period following a 1-percent-of-GDP shock. Bars show 90th percentile.

Table 1. Summary Statistics: Inflation & Inflation Expectations

	N	Mean	SD	Min	p25	Median	p75	Max
AEs								
Inflation	806.0	2.5	2.2	-0.3	1.1	2.1	3.2	17.2
1-year Ahead Inf. Exp.	661.0	2.3	1.1	1.0	1.6	2.0	2.7	9.7
2-year Ahead Inf. Exp.	650.0	2.1	0.5	1.3	1.7	2.0	2.3	5.9
3-year Ahead Inf. Exp.	647.0	2.1	0.4	1.4	1.8	2.0	2.3	4.8
5-year Ahead Inf. Exp.	655.0	2.1	0.4	1.5	1.9	2.0	2.3	4.2
Major EMs								
Inflation	371.0	5.0	3.3	-0.3	2.8	4.2	6.5	18.7
1-year Ahead Inf. Exp.	372.0	4.2	1.8	1.1	2.9	3.9	5.3	11.2
2-year Ahead Inf. Exp.	326.0	3.8	1.4	1.3	2.8	3.5	4.6	8.6
3-year Ahead Inf. Exp.	327.0	3.7	1.2	1.4	2.8	3.5	4.6	7.9
5-year Ahead Inf. Exp.	326.0	3.6	1.1	1.7	2.7	3.3	4.4	6.7

Table 2. Summary Statistics: Fiscal Shocks
(Percent of GDP, unless otherwise specified)

	N	Mean	SD	Min	p25	Median	p75	Max
AEs								
Change in primary balance	660.0	0.1	1.5	-4.2	-0.7	0.2	1.0	3.5
Consolidation Shock 2	88.0	1.6	0.5	1.0	1.2	1.5	1.9	2.7
Consolidation Shock 3	48.0	2.1	0.4	1.5	1.8	2.0	2.4	2.9
Expansion Shock 2	112.0	2.0	0.8	1.0	1.4	1.8	2.6	3.7
Expansion Shock 3	86.0	2.5	0.7	1.5	1.8	2.3	3.1	3.9
Change in public debt	690.0	0.2	3.7	-10.0	-2.1	-0.3	2.3	11.7
Public debt increase shock 2	92.0	5.1	1.7	3.0	3.6	4.5	6.1	9.2
Public debt increase shock 3	60.0	6.1	1.6	4.2	4.7	5.8	7.3	9.5
Public debt decrease shock 2	85.0	4.5	1.2	7.2	5.2	4.2	3.4	3.0
Public debt decrease shock 3	55.0	5.3	1.0	7.7	5.9	5.1	4.5	4.0
Narrative shock	95.0	1.2	1.1	-0.8	0.5	0.8	1.5	5.2
Narrative shock, expenditure	85.0	0.7	0.7	-0.3	0.3	0.5	0.9	3.8
Narrative shock, tax	86.0	0.6	0.7	-0.8	0.1	0.4	0.8	3.0
Major EMs								
Change in primary balance	357.0	-0.0	1.3	-4.2	-0.9	0.1	0.8	3.2
Consolidation Shock 2	54.0	1.6	0.4	1.0	1.3	1.4	1.9	2.6
Consolidation Shock 3	28.0	2.0	0.4	1.5	1.7	1.9	2.3	2.8
Expansion Shock 2	70.0	1.8	0.7	1.0	1.3	1.7	2.2	3.6
Expansion Shock 3	48.0	2.3	0.7	1.5	1.8	2.0	2.8	3.9
Change in public debt	372.0	0.3	3.6	-10.1	-1.8	0.1	2.3	11.5
Public debt increase shock 2	47.0	5.2	1.9	3.0	3.6	4.6	6.5	9.2
Public debt increase shock 3	35.0	6.1	1.7	4.0	4.6	5.5	7.4	9.4
Public debt decrease shock 2	48.0	4.7	1.4	7.5	6.0	3.9	3.6	3.0
Public debt decrease shock 3	25.0	5.9	1.1	7.9	6.7	6.0	5.0	4.0
Narrative shock	21.0	0.5	0.4	-0.5	0.3	0.6	0.8	1.1
Narrative shock, expenditure	7.0	0.5	0.5	-0.5	0.4	0.5	0.7	0.9
Narrative shock, tax	17.0	0.4	0.3	-0.4	0.2	0.4	0.6	1.1

Note: Consolidation or expansion shocks 2 refer to the shocks identified with a threshold of 1 percent of GDP. Shocks 3 denote those with a threshold of 1.5 percent of GDP.

Table 3. Summary Statistics: Controls Variables

	N	Mean	SD	Min	p25	Median	p75	Max
AEs								
Output gap (% potential GDP)	864.0	-0.5	2.9	-18.3	-1.6	-0.2	1.0	13.4
Inflation (% yoy)	806.0	2.5	2.2	-0.3	1.1	2.1	3.2	17.2
GDP (% yoy)	799.0	2.6	2.5	-4.3	1.2	2.5	3.9	9.9
Public Debt (% GDP)	776.0	58.6	29.0	9.6	36.5	53.4	79.6	129.0
Primary Balance (%GDP)	776.0	0.2	3.0	-7.4	-1.6	0.2	2.1	7.7
Major EMs								
Output gap (% potential GDP)	408.0	-0.2	2.2	-9.2	-1.2	-0.1	1.1	10.7
Inflation (% yoy)	371.0	5.0	3.3	-0.3	2.8	4.2	6.5	18.7
GDP (% yoy)	364.0	4.4	2.7	-3.9	2.6	4.7	6.3	9.8
Public Debt (% GDP)	400.0	44.0	17.9	9.8	31.7	41.3	55.3	96.0
Primary Balance (%GDP)	402.0	-0.1	2.7	-7.2	-1.7	-0.2	1.4	8.2

Table 4. Sample of Countries

Advanced economies		Emerging markets
Australia	Latvia	Brazil
Austria	Lithuania	Chile
Belgium	Luxembourg	China
Canada	Malta	Colombia
Cyprus	Netherlands	India
Czech Republic	New Zealand	Indonesia
Denmark	Norway	Malaysia
Estonia	Portugal	Mexico
Finland	San Marino	Peru
France	Singapore	Philippines
Germany	Slovak Republic	Poland
Greece	Slovenia	Romania
Iceland	Spain	Russia
Ireland	Sweden	South Africa
Israel	Switzerland	Thailand
Italy	United Kingdom	Turkey
Japan	United States	Vietnam
Korea		

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