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Global Shocks Unfolding: Lessons from Fragile and Conflict-affected States

Jocelyn Boussard, Chiara Castrovillari, Tomohide Mineyama, Marta Spinella, Bilal Tabti, and Maxwell Tuuli

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October 2024

ABSTRACT: This paper investigates the consequences of global shocks on a sample of low- and lower-middle-income countries with a particular focus on fragile and conflict-affected states (FCS). FCS are a group of countries that display institutional weakness and/or are negatively affected by active conflict, thereby facing challenges in macroeconomic policy management. Examining different global shocks associated with commodity prices, external demand, and financing conditions, this paper establishes that FCS economies are more vulnerable to these shocks compared to non-FCS peers. The higher sensitivity of FCS economies is mainly driven by procyclical fiscal responses, aggravated by the lack of effective spending controls and timely access to financial sources. External financing serves as a source of stability, partially mitigating the adverse impact of global shocks. This paper contributes to a better understanding of how conditions of fragility, which are on the rise in many parts of the world today, can amplify the effects of negative exogenous shocks. Its results highlight the diverse nature of underlying sources of vulnerabilities, spanning from fiscal and external buffers to institutional quality and economic structure, with lessons applicable to a broader set of countries. Efficient and timely external financial support from external partners, including international financial institutions, should help countries' counter-cyclical responses to mitigate adverse shocks and achieve macroeconomic stability.

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WORKING PAPERS

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Prepared by Jocelyn Boussard, Chiara Castrovillari, Tomohide Mineyama, Marta Spinella, Bilal Tabti, and Maxwell Tuuli[1]

[1] This project started when Chiara Castrovillari, who is currently in the graduate school at Cornell University, was at the IMF. Other authors are IMF staff members. Lavinia Zhao provided excellent research assistance. The research team is led by Tomohide Mineyama. The authors would like to thank Jean-Marc Atsebi, Daehaeng Kim, Boileau Loko, Alexei Miksjuk, Tokhir Mirzoev, Dan F. Nyberg, Björn Rother, Kalin I Tintchev, and seminar participants at the IMF for helpful comments and suggestions. The views expressed in this paper are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

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Executive Summary

This paper investigates the consequences of global shocks on a sample of low- and lower-middle-income countries with a particular focus on fragile and conflict-affected states (FCS). FCS are a group of countries that display institutional weakness and/or are negatively affected by active conflict, thereby facing challenges in macroeconomic policy management. Examining different global shocks associated with commodity prices, external demand, and financing conditions, this paper establishes that FCS economies are more vulnerable to these shocks compared to non-FCS peers. The higher sensitivity of FCS economies is mainly driven by procyclical fiscal responses, aggravated by the lack of effective spending controls and timely access to financial sources. External financing serves as a source of stability, partially mitigating the adverse impact of global shocks. This paper contributes to a better understanding of how conditions of fragility, which are on the rise in many parts of the world today, can amplify the effects of negative exogenous shocks. Its results highlight the diverse nature of underlying sources of vulnerabilities, spanning from fiscal and external buffers to institutional quality and economic structure, with lessons applicable to a broader set of countries. Efficient and timely external financial support from external partners, including international financial institutions, should help countries' counter-cyclical responses to mitigate adverse shocks and achieve macroeconomic stability.

Introduction

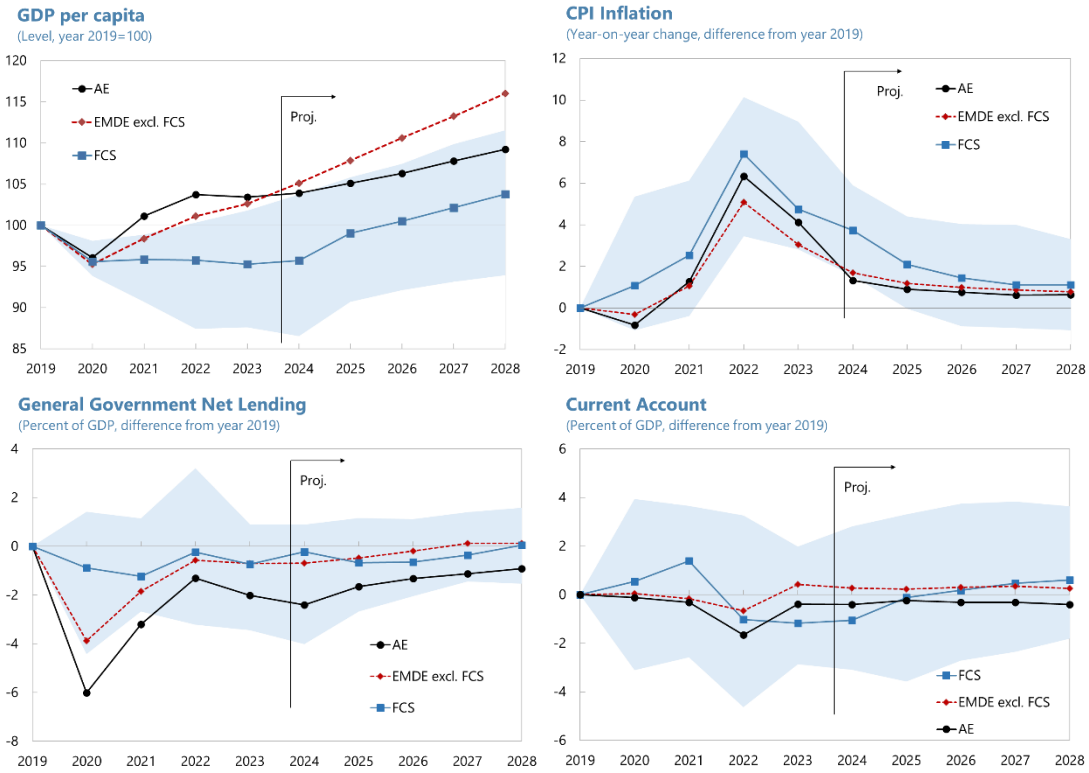
Macroeconomic stability, characterized by internal and external conditions that create the right environment to sustain economic growth and improve welfare, requires sound institutions and strong policy buffers. Countries are not equally equipped to achieve this key objective due to differences in institutional quality, socio-economic fragilities, and exposure to conflicts, among other factors. As a result, in times of economic disturbances, some countries struggle more than others to, for example, contain inflation, maintain sustainability of public finances, and avoid sudden stops and large exchange rate depreciations.

These policy challenges are particularly acute in Fragile and Conflict-affected States (FCS), a group of low- and middle-income countries, which generally feature some combination of weak institutions, socio-economic instability, limited provision of public goods to the most vulnerable, and, in some cases, domestic conflict, forced displacement of people, and even war. These countries' pre-existing challenges have been exacerbated by the pandemic and the additional shocks that followed, including the spillovers from Russia's war in Ukraine, high global inflation and the ensuing monetary policy tightening, trade disruptions, as well as the rise in the incidence of conflicts and instability around the world. As a result of these shocks, FCS have suffered significantly deeper scarring (Figure 1) compared to Advanced Economies (AEs) and other Emerging Markets and Developing Economies (EMDEs). Despite a gradually improving outlook, their median per capita GDP is expected to recover to the pre-pandemic level only in 2026. Similarly, inflation in FCS economies has been highest among all country groups with more lingering effects expected in the coming years. These observations suggest a significant risk of FCS economies falling further behind the rest of the world and not achieving their Sustainable Development Goals (SDGs) by the planned timeframe.[1]

Despite a growing body of research on FCS, there has been scarce empirical evidence of the association of global shocks and fragility and conflicts. This paper fills the gap by investigating the consequences of global shocks with a focus on the comparison between FCS and non-FCS countries. Beyond the experience of the post-pandemic period, are institutional weaknesses, including those arising from socio-economic fragility and conflict, systematically linked to the vulnerability to global shocks? If so, how? Focusing on the difference between FCS and non-FCS countries allows to understand in a quasi-laboratory setting how weak institutions, political polarization or conflict, and other institutional challenges affect the transmission of economic shocks, and therefore economic outcomes, with lessons applicable to a broader set of countries. Using a country-by-year panel dataset containing 85 low- and middle-income countries, we study the effects of three external shocks stemming from the developments in the global economy: (i) commodity price fluctuations, (ii) shifts in external demand, and (iii) changes in financial market conditions. After identifying each of these shocks, we use a local projection method to analyze their dynamic effects on various macroeconomic variables and compare them in FCS and non-FCS. Our main findings are threefold.

[1] The international community has stepped up its efforts to help FCS achieve sustainable and inclusive growth. Recognizing that fragility and conflict can be critical for macroeconomic stability, the IMF has adopted a strategy to enhance its engagement in FCS (IMF, 2022).

Figure 1. Scarring After the Covid-19 Pandemic Across Country Groups



Notes: AE, EMDE, and FCS stand for advanced economies, emerging markets and developing economies, and fragile and conflict-affected states, respectively. General government (GG) net lending is the differential of total revenue and total expenditure. Positive/negative values indicate lending (surplus)/borrowing (deficit). Lines show the median values in each country group. Bands indicate the 25th and 75th percentiles of FCS.
Sources: April 2024 WEO database and IMF staff calculations.

First, FCS economies are more sensitive to all three analyzed global shocks compared to non-FCS economies, and the difference can be quite stark. For example, three years after the shock, the response of GDP per capita to a commodity-price shock in FCS is almost twice as large as that of non-FCS. To a large extent, this higher sensitivity can be attributed to a significantly more procyclical fiscal policy response in FCS: when faced with commodity-price and external-demand shocks, governments in FCS are generally unable to smooth their spending in the absence of meaningful buffers, which tends to increase (or decrease) together with revenue gains (or losses). In that sense, governments in FCS exhibit the "hand-to-mouth" behavior of cash-constrained consumers, thus amplifying the impacts of shocks on their economies. Despite a generally more limited access to international financial markets, changes in global financial conditions—proxied by changes in the U.S. interest rates—also affect fiscal responses in FCS more than in non-FCS through reduced availability of financial resources for governments, as well as through the indirect channel of global demand shifts following changes in the global financial conditions.

Second, FCS' higher vulnerabilities to shocks can be attributed to several factors that distinguish their economies. Specifically, weak institutions, lack of economic diversification, and lower level of financial development, have substantially affected the propagation of global shocks. The effects of global shocks are also stronger in countries with lower pre-existing buffers, such as limited available fiscal space and international reserves. These features are often interdependent, and could be deeply rooted in the social,

economic, and institutional contexts. This suggests the importance of a heuristic approach to address a wide range of challenges to conduct effective macroeconomic policies in FCS, including limited institutional capacity and legacy issues.

Third, while concessional external finance serves as a stable funding source for FCS, it appears to be largely acyclical and is thus of limited help in directly facilitating a counter-cyclical policy response during global shocks. However, we find that the difference in the propagation of global shocks between FCS and non-FCS economies is muted among high recipients of concessional external financing, suggesting that such financing helps alleviate financial constraints that FCS economies face, thereby mitigating their excessive sensitivity to global shocks. It is also worth noting that the a-cyclicality may reflect the use of a large fraction of external finance to fill development needs (for example, infrastructure projects) tangential to economic cycles. It may also involve the difficulty for external partners to step up financial support while recipient countries face intractable challenges such as political instability and unsustainable debt, as is often the case in FCS following a shock.

These findings point to the critical importance of breaking the cycle from poor economic outcomes, to decreased trust in institutions and to low resilience to economic shocks. To this end, limiting pro-cyclical spending in times of positive shocks can play an important role in strengthening fiscal and external buffers. Well-sequenced structural reforms aimed at improving public finance management, strengthening institutions, diversifying the economy, and increasing financial inclusion are key steppingstones for better responses to shocks that lead to improved economic outcomes. This is particularly important as policy misalignment in response to global shocks may also trigger conflicts and exacerbate fragility (e.g., Leepipatpiboon et al., 2023). The international community can support this policy agenda for macroeconomic stability and inclusive growth and play an even more supportive role by enhancing the counter-cyclicality of its support to FCS economies.

The remainder of the paper is organized as follows. Section II reviews the literature. Section III describes data and empirical strategy, including the construction of global shocks. Section IV provides empirical results regarding the impacts of global shocks and discusses underlying mechanisms. Section V examines external financial flows with a focus on concessional flows in the context of global shocks. Section VI concludes.

Literature Review

This paper is related to several strands of the literature. First of all, the paper contributes to a rapidly growing body of literature on FCS. Previous studies investigated a wide range of issues relevant to FCS and countries that have similar characteristics. These include the economic impacts of conflict, political instability, and social unrest (e.g., Aisen and Veiga, 2013; Rother et al., 2016; Compaoré et al., 2020; Novta and Pugacheva, 2021; Hadzi-Vaskov et al., 2021; Sever, 2024), determinants of state fragility and conflict (e.g., Blattman and Miguel, 2010; Burke et al., 2015; Akanbi et al., 2021; Mueller et al., 2022; Leepipatpiboon et al., 2023), and pathways and challenges in building strong policy institutions in FCS (e.g., Chami et al. ed., 2020). This paper sheds a new light on FCS economies from the angle of global shocks. The issue is relevant in today's context as the global economy has been hit by multiple shocks,

as discussed before. In addition, the paper's findings echo those of IMF (2024), which pointed to the specific vulnerabilities of low-income country (LIC) FCS relative to other types of LICs, while this paper's analysis covers a broader set of FCS, including middle-income countries, and delves into the transmission channels of identified shocks.

This paper is also closely related to the literature that studies the propagation of global shocks. Compared to the wealth of studies on AEs and emerging markets (EMs), analysis has been rather scarce for LICs or FCS. For LICs, a few studies focused on commodity price fluctuations as key external shocks, given the high dependence on primary commodities for exports in LICs (Deaton and Miller, 1996; Deaton, 1999; Collier and Gunning, 1999). Spillovers of the 2007-09 global financial crisis have also been studied (Drummond and Ramirez, 2009; Berg et al., 2011). Raddatz (2007) examined several external shocks, including growth in high-income economies, international interest rates, and aid flows. This paper echoes his approach in covering a broad set of global shocks but sheds new light on the topic by differentiating FCS and non-FCS. Indeed, as FCS are a mixed group of low- and middle-income countries, our analysis uncovers the relevance not only of the income level but also of other underlying factors that hamper sound macroeconomic policies. On the methodological side, while Raddatz (2007) relied on the vector auto-regression (VAR) model to identify shocks from observed time series, we pursue rigorous identification strategies to extract exogenous variations in global economies' dynamics.

Another strand of the literature emphasizes the importance of domestic factors in shaping the macroeconomic performance of LICs. These include violent conflict (e.g., Collier, 1999; Rodrik, 1999; Cerra and Saxena, 2008; Rother et al., 2016; Novta and Pugacheva, 2021), climate-related shocks (e.g., Maino and Emrullahu, 2022; Diallo, Y. and R. Tapsoba, 2022; Jaramillo et al., 2023; Rehman and Jaramillo, 2024; Tintchev and Jaramillo, 2024), and institutions and macroeconomic policies (e.g., Acemoglu, et al., 2001, 2003). The aforementioned work by Raddatz (2007) compared the relative importance of domestic and external factors and found that external shocks explain historically a small fraction of the output variations in LICs. However, these results do not necessarily diminish the importance of addressing global shocks as underscored by the experience of the recent years.

In addition, this paper is related to a broad segment of the literature that examines the role of external financing in promoting growth. While the size of external financing to LICs and MICs continues to grow, the jury is still out on its effectiveness in recipient countries. For instance, Prasad et al. (2003) and Carkovic and Levine (2005) find no evidence that FDI promotes economic growth. However, recent literature suggests that FDI is important in promoting growth under the right institutional conditions (e.g., Shen and Lee, 2010; Slesman et al., 2015; Iamsiraroj, 2016). Similarly, while Boone (1996) and Rajan and Subramanian (2008) find no positive impact of ODA on economic growth, Burnside and Dollar (2000) find a more favorable effect of ODA on growth. A strand of literature points out that the effectiveness of financial aid depends on the economic conditions of recipient countries (e.g., Berg et al., 2007) and on the predictability of such aid (Celasun and Walliser, 2008). Our current study complements the literature by studying the behavior of external financing flows in the presence of shocks and its role in moderating their impact.

Data and Empirical Strategy

FCS and Their Key Features

As part of the international efforts to support countries suffering from fragility and conflict, the World Bank has been releasing annually a list of FCS, since 2006.[2] This paper follows that classification which currently relies on two factors to identify the FCS: (i) countries with high levels of institutional and social fragility, assessed through measures of the quality of policies and institutions and manifestations of fragility; and (ii) countries affected by violent conflict, identified based on a threshold number of conflict-related deaths relative to the population. The FCS list for FY2024 contains 39 economies, most of which are LICs. As shown in Figure 2, FCS are spread across different regions; a sizable fraction of them are located in sub-Saharan Africa and the Middle East; others are in Europe, Latin America, and Asia, including small island states. While fragility and conflict are complex in nature and there is no universal classification of FCS, the World Bank's FCS list has been publicly available for nearly two decades, has been widely recognized, and its use facilitates comparability over time. Our analysis uses each year's list for a set of FCS with the sample spanning 2006-2021.

Our comparison group is non-FCS low-income and lower-middle-income countries (LICs and lower-MICs). For better consistency of datasets, we followed the World Bank income classification. Currently, countries with a GDP per capita below US$1,135 and US$4,465 as of 2022 are classified as LICs and lower MICs, respectively. These income categories are the closest to the average income level of FCS. These largely overlap with countries eligible to access IMF concessional lending resources (Poverty Reduction and Growth Trust, PRGT) while some discrepancies remain. The sample countries are listed in Annex I.

Figure 2. Geography of FCS (Years Spent on the FCS List, 2006-2023)

Notes: The number indicates the frequency of a country being classified as FCS during 2006 and 2023 (18 years). For instance, "18" means that a country was on the FCS list in every year.
Sources: World Bank and IMF staff calculations.

[2] The latest list is found here: https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/harmonized-listof-fragile-situations

The descriptive statistics for these two groups of countries shed light on several stylized facts about FCS economies (Table 1). First, FCS economies are characterized by lower growth, higher unemployment rates, and higher poverty rates. Second, they also exhibit lower policy and institutional quality, measured by the World Bank's Country Policy and Institutional Assessment (CPIA) score—though these should be interpreted carefully since they are derived from perceptions-based data—and tend to suffer from violent conflicts of higher intensity. Third, FCS governments are more dependent on external support. Grants comprise a larger share of their revenues and play a more prominent role in their economies, due to the larger size of primary fiscal expenditure as a share of GDP, which is also indicative of a lower level of private sector development. Finally, FCS economies on average are less diversified and have a limited export base, which results in larger trade deficits. Other inflows, such as transfers and worker remittances, typically support the current account. Average fiscal and external positions are not substantively different between FCS and non-FCS, though in FCS they display larger standard deviations, due to several factors. For instance, the heterogeneity of the FCS group. Some FCS are commodity exporters, and run current account surpluses, whereas others rely on imports with limited domestic production capacity resulting in substantial current account deficits. Higher standard deviations may also reflect the high volatility of FCS economies, which we will investigate in subsequent sections in the context of global shocks.

Table 1. Descriptive Statistics

FCS					
Variable	**Obs.**	**Mean**	**Std. dev.**	**10th pct.**	**90th pct.**
Growth and development indicators					
GNI per capita (US$)	517	1832.98	1886.07	410.00	4400.00
GDP growth per capita (percent)	528	1.28	4.84	-4.14	6.28
Unemployment rate (percent)	500	8.50	7.01	1.28	19.56
Poverty rate (percent)	61	28.72	23.65	0.80	68.40
CPIA score (index)	480	2.84	0.43	2.35	3.30
Conflict fatalities (per mil. population)	507	21.71	48.91	0.00	77.76
Fiscal indicators					
Revenues excluding grants (percent of GDP)	492	19.74	12.93	8.27	38.51
Grants (percent of GDP)	478	7.09	9.44	0.27	22.68
Primary expenditure (percent of GDP)	508	30.54	26.61	11.77	63.94
Interest payments (percent of GDP)	508	1.01	1.27	0.07	2.22
Overall fiscal balance (percent of GDP)	509	-2.21	6.89	-8.02	3.88
External indicators					
Exports (percent of GDP)	460	26.86	23.11	8.78	45.18
Imports (percent of GDP)	460	46.45	25.66	23.67	81.39
Trade balance (percent of GDP)	456	-18.87	21.67	-47.61	3.18
Current account balance (percent of GDP)	511	-3.53	11.98	-16.19	11.70
International reserves (months of imports)	441	4.36	3.31	0.58	9.06
Non-FCS					
Variable	**Obs.**	**Mean**	**Std. dev.**	**10th pct.**	**90th pct.**
Growth and development indicators					
GNI per capita (US$)	942	2300.57	1461.81	610.00	4230.00
GDP growth per capita (percent)	939	2.70	3.79	-1.39	6.59
Unemployment rate (percent)	917	7.15	5.91	1.85	13.68
Poverty rate (percent)	299	12.81	17.81	0.10	43.00
CPIA score (index)	639	3.51	0.29	3.16	3.86
Conflict fatalities (per mil. population)	948	3.59	16.09	0.00	5.67
Fiscal indicators					
Revenues excluding grants (percent of GDP)	888	21.05	9.20	11.55	32.04
Grants (percent of GDP)	811	2.87	5.20	0.07	6.53
Primary expenditure (percent of GDP)	925	25.21	11.89	14.22	37.69
Interest payments (percent of GDP)	925	1.71	1.63	0.36	3.84
Overall fiscal balance (percent of GDP)	940	-2.96	4.07	-7.46	1.31
External indicators					
Exports (percent of GDP)	886	31.79	18.40	13.35	50.56
Imports (percent of GDP)	885	44.12	21.46	21.34	70.29
Trade balance (percent of GDP)	887	-12.69	15.22	-30.20	2.40
Current account balance (percent of GDP)	940	-5.22	8.80	-14.58	3.64
International reserves (months of imports)	868	5.31	3.44	2.11	9.59

Notes: The sample is pooled in 2006-2021. The top and bottom 0.5 percentiles are removed as outliers.
Sources: WEO database, World Bank, Uppsala Conflict Data Project (UCDP), and IMF staff calculations.

These stylized facts suggest that, despite a significant overlap between FCS and poor countries, fragility stems from a more complex set of circumstances that are important in their own right.[3] To further support this point, Table 2 provides the results of a probit regression (with and without country-specific effects), which suggest that the probability of a country being an FCS—even after controlling for the level of per capita income—is significantly affected by the presence of a conflict, quality of institutions, export diversification, and financial development.[4] These are more evident when the sample is limited to a group of countries with similar income levels—LICs and lower-MICs—in columns (3) and (4). Under these specifications, income level is no longer significant, confirming the relevance of fragility and conflict.

Table 2. Determinants of Fragility

	(1)	(2)	(3)	(4)
	Dependent variable: FCS status (0 or 1)			
Independent variables:				
Log (Per capita income)	-0.387***	-1.230***	-0.002	-0.571
	(0.049)	(0.336)	(0.067)	(0.374)
Number of conflict events per capita	0.070***	0.116***	0.073***	0.175***
	(0.017)	(0.037)	(0.019)	(0.046)
WGI	-0.937***	-3.004***	-1.120***	-3.078***
	(0.114)	(0.547)	(0.123)	(0.578)
Export diversification	0.117***	0.326***	0.191***	0.368***
	(0.037)	(0.119)	(0.039)	(0.123)
Financial development	-4.861***	-13.953***	-6.661***	-14.971***
	(0.760)	(0.3.912)	(0.893)	(4.034)
Observations	2,795	2,795	1,316	1,316
Sample	All	All	FCS and non-FCS LICs/lower-MICs	FCS and non-FCS LICs/lower-MICs
Year dummy	Yes	Yes	Yes	Yes
Country dummy	No	RE	No	RE
Model	Probit	Probit	Probit	Probit

Results of a probit regression (probability of being on the FCS list). Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Global Shocks

FCS are exposed to the global economy through various channels, including both real economic activity and financial flows. Consequently, different shocks may have different consequences for their economies. In what follows, we examine the following three global shocks: (i) commodity price fluctuations, (ii) shifts

[3] Strong correlation between income and fragility owes to what is often called poverty and fragility trap (Chami et al. ed., 2020). On the one hand, prevailing poverty constrains the state from building strong policy institutions. On the other hand, poor policy institutions pose challenges in securing resources to maintain the well-being of the population.

[4] Institutional quality is proxied by the Worldwide Governance Indicator (WGI) of Kaufmann and Kraay (2021). Acknowledging conceptual and methodological challenges in measuring the quality of institution (e.g., Thomas, 2010; Langbein and Knack, 2010) and noting the need for careful interpretation of perceptions-based data, the WGI has been widely used in the empirical literature (e.g., Burke and Leigh, 2010; Neumayer, 2002). The degree of export diversification and financial development is measured by respective indicators maintained by the IMF.

in external demand, and (iii) changes in global interest rates. The first step of the analysis involves rigorous identification of these shocks.

Commodity terms-of-trade shock. Commodity prices can have a strong impact on FCS economies given the reliance on raw commodities for exports by some countries and/or significant food and energy imports by others. To take into account the impacts from a broad range of commodities, we use the commodity terms-of-trade (ToT) index, proposed by Gruss and Kebhaj (2019) and maintained by the IMF Research Department. The index is constructed from 45 global commodity prices and each country's net export shares:

$$\Delta tot_{i,t} = \sum_{j=1}^{J} \Delta p_{j,t} w_{i,j,t}, \quad \cdots (1)$$

where $\Delta p_{j,t}$ is the logarithm of the real price of commodity *j* in year *t* and $J = 45$. The 45 commodity prices cover energy, metals, food and beverages, and agricultural raw materials. $w_{i,j,t}$ is a commodity- and country-specific time-varying net trade share:

$$w_{i,j,t} = \frac{1}{3}\sum_{\tau=1}^{3} \frac{X_{i,j,t-\tau} - M_{i,j,t-\tau}}{GDP_{i,t-\tau}}, \quad \cdots (2)$$

where $X_{i,j,t-\tau}$ and $M_{i,j,t-\tau}$ are exports and imports of country *i* for commodity *j* in year *t*. The index is country-specific and exploits cross-country variations in exposure to each commodity's price, enabling us to isolate the impact of commodity price changes from other global developments taking place simultaneously. Moreover, the use of a broad range of commodities makes the index less reliant on the specificities of individual commodities. As such, the commodity ToT shock provides estimates of the windfall gains and losses in aggregate income associated with changes in international commodity prices.

Global demand shock. Fluctuations in the global demand for commodities exported by the countries in our sample complement the analysis above by examining variations of quantities rather than prices as a complementary source of variation of ToT. This is motivated by the observation that global demand shocks can affect exporters even when they lead to little variation in prices, as would be the case if global supply is highly elastic. Compared to the aforementioned commodity ToT shock, the global demand shocks focus on the export side of the external sector, but they extend the coverage to non-commodities exports. We instrument global demand using a shift-share strategy that leverages detailed product-destination level data on bilateral trading flows from Baci/Comtrade. Countries export different products, with specific *shares*, to specific destinations, whose demand for these products *shifts* over time. Therefore, we consider that demand for a country's export can be constructed as the sum of all shifts in destination countries' demand for each product, weighted by the shares that these product-destination pairs in total exports:

$$z_{i,t} = \left[\sum_{d,p} \frac{X_{idp,0}}{X_{i,0}} \left(m_{dp,t}^{-i} - m_{dp,t-1}^{-i}\right)\right] \frac{X_{i,t-1}}{GDP_{i,t-1}}, \quad \cdots (3)$$

where $X_{idp,0}/X_{i,0}$ is a share of exports of product *p* to destination *d* in total export of country *i* in the initial year, $m_{dp,t}^{-i} - m_{dp,t-1}^{-i}$ is the growth rate of destination *d* imports of product *p* from all countries (excluding country i). We add the scaling factor $X_{i,t-1}/GDP_{i,t-1}$, i.e. the previous year's share of exports in GDP, such that the shock is normalized to a 1 percent of GDP shock to nominal exports. The two assumptions

that allow us to identify the response to external shocks using this instrument is that destination countries' imports from all countries except *i* are (i) uncorrelated with developments in country i, and (ii) uncorrelated with the initial export shares of country *i*. The first is a slightly weaker assumption than the small open economy assumption, and the second assumes that later shifts in demand are unexpected. This builds on similar instruments used in the literature, such as the US local labor markets' exposure to import competition from China (Autor et al., 2013), or Danish firms' exposure to offshoring (Hummels et al. 2014). However, our approach is novel in that the methodology is applied to a wide set of countries and products, thereby representing exogenous demand dynamics at country level.

U.S. interest rate shock. The U.S. interest rate shock is used as a proxy for changes in global financial conditions. A decrease in the U.S. interest rate, and ensuing easier global financial conditions are expected to provide countries with cheaper financing, allowing more expansionary fiscal policies through increased spending or tax cuts. Cheaper financing could also help, all else equal, countries to withstand other economic shocks. However, the differential impact of changes in global financial conditions on FCS countries is *a priori* not clear. In theory, FCS suffer from lower institutional capacity compared to other countries, limiting their fiscal space and making them more sensitive to changes in financing conditions. On the other hand, FCS countries are also less likely to have access to international markets, in which case a change in financial conditions would not affect them.

The empirical strategy below will aim to evaluate the quantitative impact of exogenous (to our sample) changes in global financial conditions on FCS vs non-FCS countries, balancing the relative importance of the opposite two channels above. More specifically, we look at the impact of changes in 10-year U.S. Treasury rates. Long-term interest rates are expected to be better proxies of financial conditions than short-term rates such as the federal funds rate: most debt contracts are at fixed, long-term rates are also more correlated with changes in economic activity, and are less constrained by ZLB-related issues plaguing the identification of the monetary policy stance.

Descriptive statistics. Before proceeding with the regression analysis, Table 3 reports descriptive statistics of commodity ToT and global demand shocks for each of FCS and non-FCS. While the regression analysis in the next section focuses on elasticities with respect to shock sizes of one percent of GDP, assessing the nature of shocks, including their size, provides a glimpse of the overall challenges posed by them. The table indeed indicates that FCS face more volatile commodity ToT shocks relative to GDP. The standard deviation is almost 50 percent larger than that in non-FCS (FCS: 4.94 percent vs. non-FCS: 3.02 percent). This can be explained by the high dependence on commodity exports in some of FCS and the lack of diversification in exporting products. Turning to global demand shocks, though the standard deviation is close across FCS and non-FCS, FCS are more exposed to negative shocks with a lower average shock. This may reflect the fact that FCS tend to be far from the global technological frontier, as a consequence of which they do not benefit from the growing global demand for new products.

Table 3. Descriptive Statistics of Shock Variables

FCS					
Variable	Obs.	Mean	Std. dev.	10th percentile	90th percentile
Commodity ToT shock (percent of GDP)	479	0.10	4.82	-3.21	4.08
Commodity export price (percent of GDP)	479	0.22	4.94	-2.98	4.54
Commodity import price (percent of GDP)	479	0.13	2.37	-2.00	2.37
Global demand shock (percent of GDP)	430	0.24	7.80	-7.16	8.22
Non-FCS					
Variable	Obs.	Mean	Std. dev.	10th percentile	90th percentile
Commodity ToT shock (percent of GDP)	920	0.08	3.13	-2.47	3.30
Commodity export price (percent of GDP)	920	0.22	3.02	-1.68	2.30
Commodity import price (percent of GDP)	920	0.13	2.30	-2.47	2.44
Global demand shock (percent of GDP)	871	0.76	7.17	-6.54	8.30

Empirical Strategy

Local projection. We apply the local projection (LP) method (Jorda, 2005) to estimate the impact of global shocks on various macroeconomic variables. We implement this by running the following regression:

$$y_{i,t+s} - y_{i,t-1} = I_{i,t-1}\left[\beta_{1,s}\,\Delta shock_{i,t} + \sum_{l=1}^{L}\alpha_{1,l,s}\,\Delta y_{i,t-l} + \sum_{l=1}^{L}\delta_{1,l,s}\,\Delta shock_{i,t-l}\right] + \left(1 - I_{i,t-1}\right)\left[\beta_{0,s}\,\Delta shock_{i,t} + \sum_{l=1}^{L}\alpha_{0,l,s}\,\Delta y_{i,t-l} + \sum_{l=1}^{L}\delta_{0,l,s}\,\Delta shock_{i,t-l}\right] + \mu_{i,s} + \lambda_{t,s} + \varepsilon_{i,t,s}\,,$$
$$for\ s = 0, 1, 2, \ldots \quad \cdots (4)$$

where $y_{i,t}$ is an outcome variable in country i at year t, $\Delta shock_{i,t}$ is the shock of interest. We take the difference of the outcome variable s periods after the shock (at time $t+s$) from the pre-shock level (at time $t-1$). $I_{i,t-1}$ is a dummy variable that takes one if country *i* is in the FCS status in year $t-1$. $\mu_{i,s}$ and $\lambda_{t,s}$ are country and year fixed effects, which capture time-invariant country characteristics and time-series of global common components, respectively. Standard errors are clustered by country to accommodate persistent country-specific shocks. We follow Olea and Plagborg-Møller (2021) by including lagged outcome and explanatory variables, $\Delta y_{i,t-l}$ and $\Delta shock_{i,t-k}$, to address serial correlation. The length of lag is set at two, i.e., $L = 2$.

The coefficient of interest is β, which captures the impact of a shock on the outcome variable. We allow for different coefficients for FCS and non-FCS, $\beta_{1,s}$ and $\beta_{0,s}$, by introducing the interaction terms of a shock and the dummy variable that indicate FCS. The sequence of estimated coefficients, $\{\beta_{1,s}\}$ and $\{\beta_{0,s}\}$ for $s = 0, 1, 2, \ldots$, represents the impulse response function (IRF) for FCS and non-FCS, respectively.

LP provides flexibilities in a few dimensions, which are advantageous for our analysis. First, the framework is flexible in terms of the choice of outcome and shock variables to the extent that shocks are deemed exogenous. This allows us to run the regression on various pairs of outcome and shock variables to understand the propagation of global shocks in FCS. Second, it does not impose prior assumptions on the transmission channels as the IRF is a conditional response to an initial shock while not pertaining the dynamics of other variables. This feature is helpful for our heuristic approach to let the data speak about the underlying channels. Third, potentially lagged and persistent effects following an initial shock can also be captured.

Impact of Global Shocks

Commodity ToT Shock

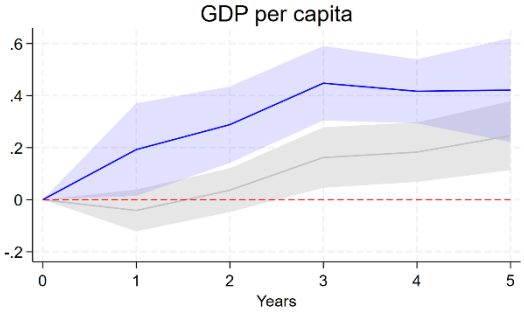
Figure 3 presents the IRF for a commodity ToT shock equivalent to one percent of GDP, which can be interpreted as the average responses of FCS and non-FCS economies to the shock. In panel (A), the responses of GDP per capita are considerably larger in FCS than in non-FCS, which confirms the vulnerability of FCS economies to external shocks. The difference is significant at a 5 percent level in years two to four. In FCS, a commodity ToT shock with the size of one-percent of GDP leads to a 0.4 percent change in GDP per capita. The magnitude is twice as large as that of non-FCS economies. The impact is quite persistent reflecting inertia of fiscal policy responses following the shock (see below), as well as the persistence of underlying commodity price fluctuations.

The IRF of each GDP component in panel (B) highlights that the primary channel of transmission underpinning this difference is through the impact on the public sector in FCS economies. Public consumption and investment move sharply in the same direction as the commodity ToT shock, implying strong procyclicality of the fiscal responses. These responses are quite persistent, which are transmitted to the aggregate GDP responses. This inertia may reflect a political economy consideration that delays cutting back expenditure. In contrast, the responses are muted in non-FCS. These responses are confirmed by the dynamics of fiscal variables reported in panel (C). The initial revenue increases upon a positive commodity ToT shock improve fiscal balance but then are overset by rising expenditure, leading to the deterioration of fiscal balance. Note that the IRFs are estimated symmetrically to positive and negative shocks. The higher sensitivity to shocks indicates that FCS economies respond with volatility to shocks in both directions.

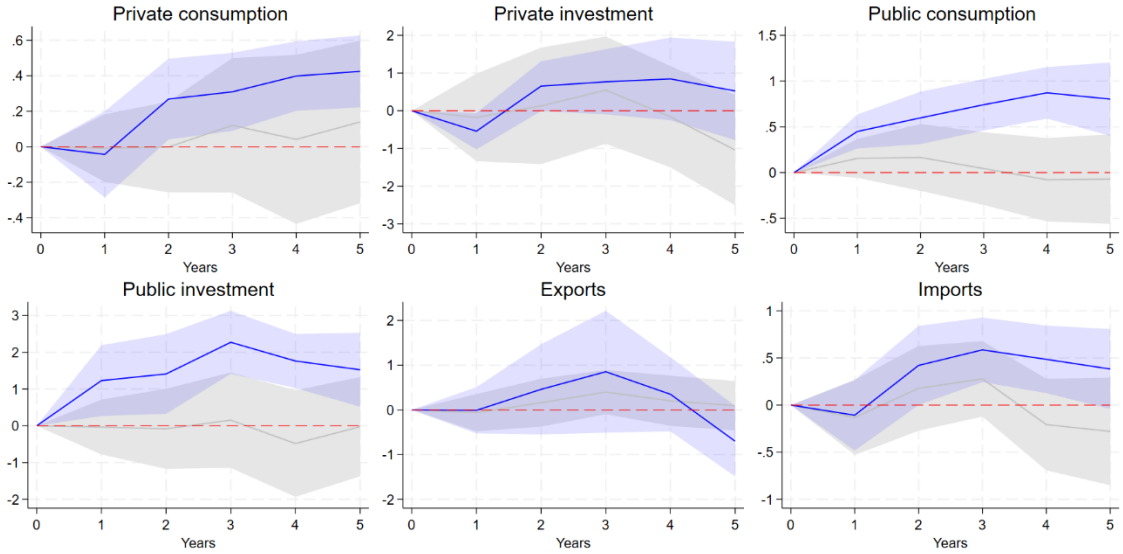
It is also worth noting that the responses of private consumption differ across FCS and non-FCS. The significant response of private consumption in FCS implies that households are likely more cash-constrained and may not have sufficient savings or access to financing to smooth consumption. Weaker social safety nets could contribute to a more volatile private consumption in FCS. On the external side, real exports' insignificant responses indicate a low elasticity with respect to global commodity prices, causing income effects on the domestic economy. Some parts of higher domestic economic activities are offset by larger imports in FCS.

Figure 3. IRFs to a Positive Commodity ToT Shock, FCS (blue) vs. non-FCS (gray)

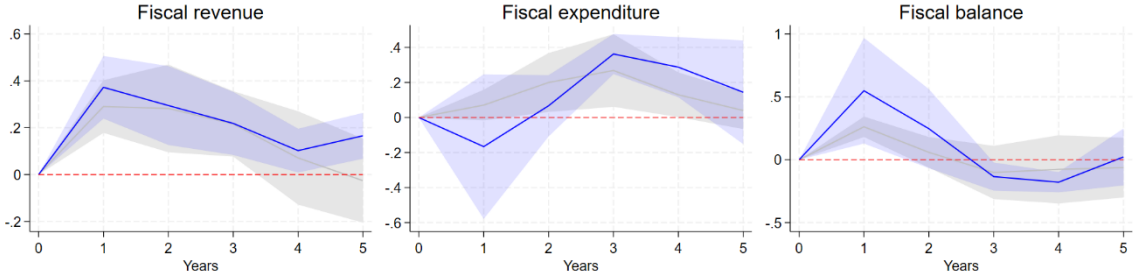
Panel (A) GDP



Panel (B) GDP components



Panel (C) Fiscal developments



Notes: Percent responses to a commodity ToT shock equivalent to one percent of GDP. Blue lines are FCS, and gray lines are non-FCS. Shaded areas indicate the 90th percentiles. Variables in panels (A) and (B) are in real terms. Those in panel (C) are in percent of GDP.

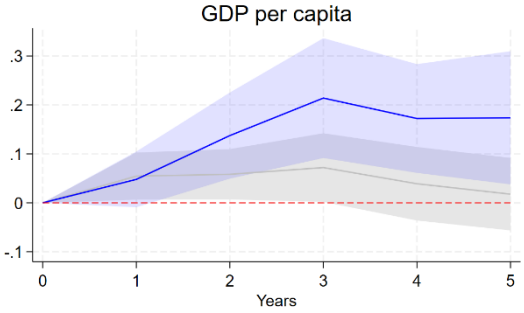
Global Demand Shock

The response of FCS and non-FCS economies to a global demand shock, as shown Figure 4, confirms the higher sensitivity of FCS economies observed for a ToT shock. Both types of shocks, the demand shock and the ToT shock, elicit a stronger GDP per capita response in FCS countries, driven by a more procyclical fiscal policy response, than in non-FCS countries. The shock temporarily increases fiscal revenue and the fiscal balance in both sets of countries, but FCS economies respond with a large and persistent increase in expenditure in the following years, with increases in both public consumption and public investment that lead to a deterioration of the fiscal balance in later years compared to the scenario without the positive shock. In contrast, expenditure responses in non-FCS are muted, pointing to a slightly counter-cyclical fiscal policy. The strong and persistent response of public consumption and investment in FCS may arise from lower capacity to control spending in FCS relative to non-FCS. This point is further examined in Section 4.4. As FCS economies face acute development needs, the public consumption and investment response may also reflect pent-up spending needs that are enabled by a windfall gain of revenue, while also suggesting that the expenditure increase is not easily reversed. The response of the private sector also tends to be larger in FCS than non-FCS, though the standard errors are large. Interestingly, increases in global demand do not lead to higher real exports in FCS, in contrast with non-FCS economies where real exports slightly increase in year three and four. This indicates that FCS may face stronger challenges in scaling up their production capacity to meet the increased demand.[5]

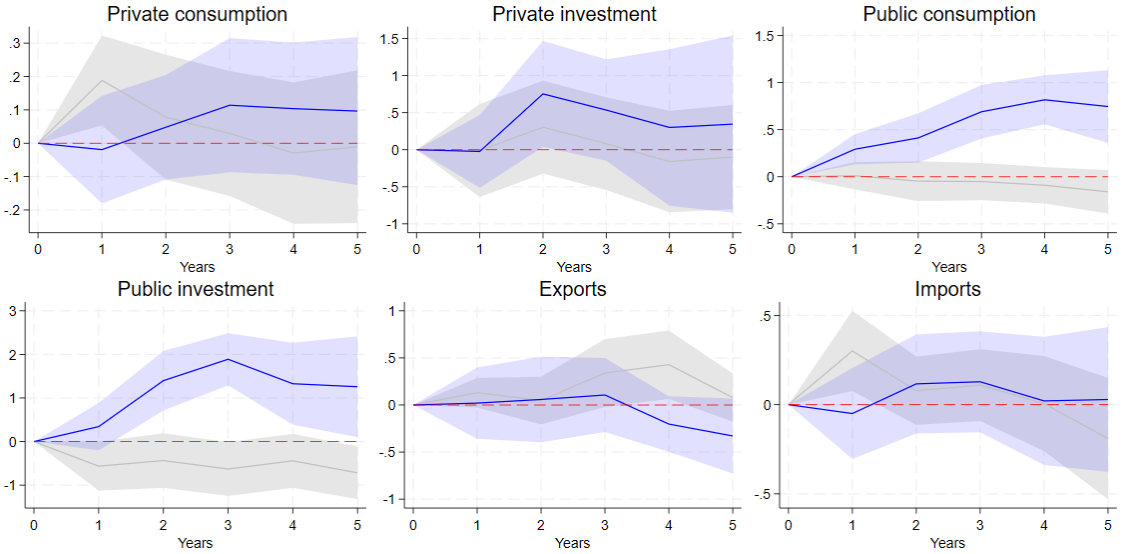
[5] Nominal exports react positively to global demand shocks, see Figure 2 in Annex II.

Figure 4. IRFs to a Positive Global Demand Shock, FCS (blue) vs. non-FCS (gray)

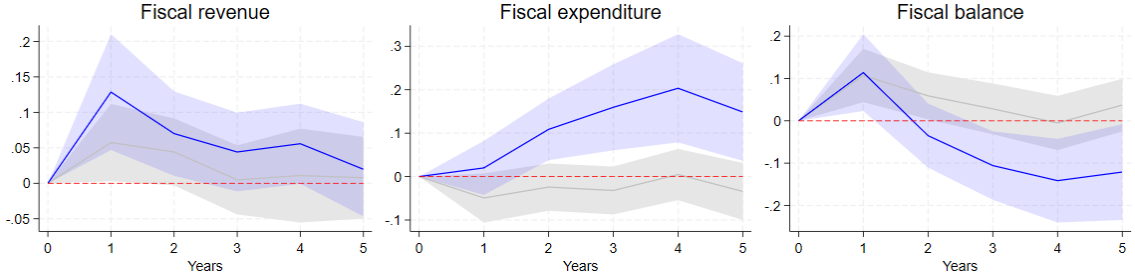
Panel (A) GDP



Panel (B) GDP components



Panel (C) Fiscal developments



Notes: Percent responses to a positive global demand shock equivalent to one percent of GDP. Blue lines are FCS, and gray lines are non-FCS. Shaded areas indicate the 90th percentiles. Variables in panels (A) and (B) are in real terms. Those in panel (C) are in percent of GDP.

U.S. Interest Rate Shock

Unlike the first two specifications, a change in U.S. interest rates does not offer cross-sectional variation, which means that its coefficient cannot be estimated independently of year fixed effects. Instead, we include controls for global economic conditions by accounting for changes in the contemporaneous and lagged global and U.S. GDP growth as well as the lagged economic uncertainty captured by the World Uncertainty Index.

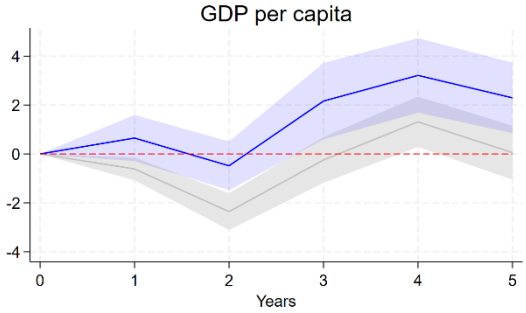
Figure 5 presents the response of a 1 percentage point decline in the 10-year U.S. interest rate: GDP per capita tends to respond slightly more to a global easing in financial conditions in FCS countries, by about 2 percent more than for non-FCS countries throughout the 5-year horizon. The difference is initially significant at a 5 percent level but becomes less significant after four years. While FCS are less financially developed and have a more limited access to international financial markets than non-FCS, marginal changes in global financial conditions—proxied by changes in the U.S. interest rates—can have a magnified impact on their financing prospects. For instance, in countries with a currency peg or limited exchange rate variability, higher interest rates in the global financial markets would force monetary policy tightening to maintain exchange rates, resulting in a passthrough of the global financial conditions to domestic markets. Like the previous two shocks, this larger response tends to be driven by the response of fiscal expenditure: Public investment rises more in FCS countries over the 5 years following the shock, driving up total expenditure, while revenue remains unchanged, deteriorating the fiscal balance.[6] On the other hand, public consumption does not respond differently across the two groups. These differences in public expenditure are less stark than for the ToT and global demand shocks, and confidence bands are wider, reflecting opposite channels mentioned into play, as mentioned in Section 2. These findings are consistent with Juvenal and Petrella (2024), who emphasize the importance of the endogenous response of commodity prices in the amplification of U.S. monetary policy shocks: They show that countries more reliant on commodities exports, which characterize many FCS economies, tend to experience larger increases in GDP following monetary easing.[7]

[6] Miksjuk and Zhang (forthcoming), in the LIC stress testing, run a regression with various external factors and finds that the impact on current account of contemporaneous and one-year-lagged U.S. interest rate changes is smaller in FCS LICs compared to non-FCS LICs. Our results are not inconsistent with theirs, since we examine a longer time horizon in local projections, and also use the US interest rate as a proxy of global financial conditions possibly capturing broader effects. For instance, our framework accommodates indirect effects through other variables, for example, shifts in global demand resulting from the U.S. interest rate changes (which would be accounted for by other regressors in the analysis of Miksjuk and Zhang (forthcoming).

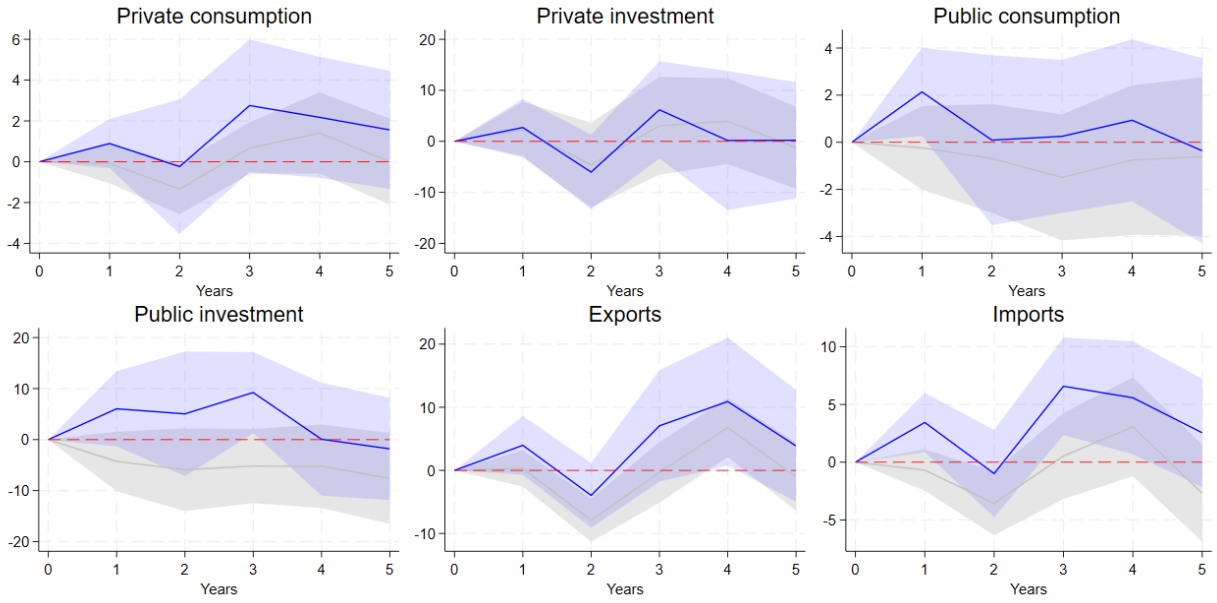
[7] The authors note that the effect of easier global financial conditions could appear through the positive impact of higher global demand on commodity prices, or through a reduced cost of inventories (Frankel, 2008).

Figure 5. IRFs to a U.S. Interest Rate Decline Shock, FCS (blue) vs. non-FCS (gray)

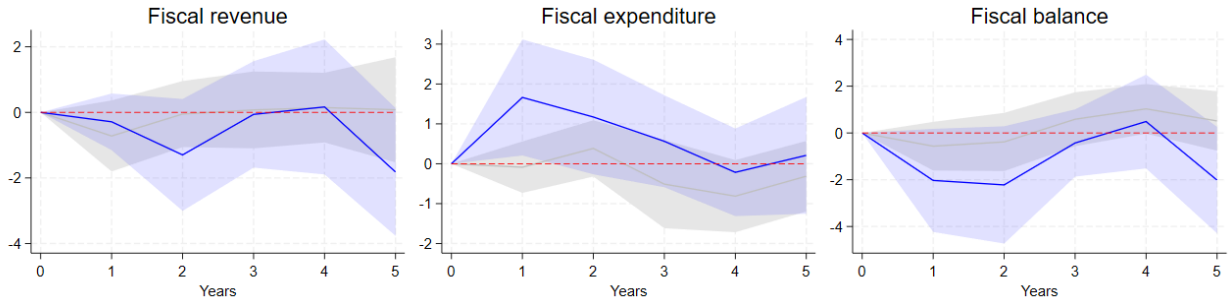
Panel (A) GDP



Panel (B) GDP components



Panel (C) Fiscal developments



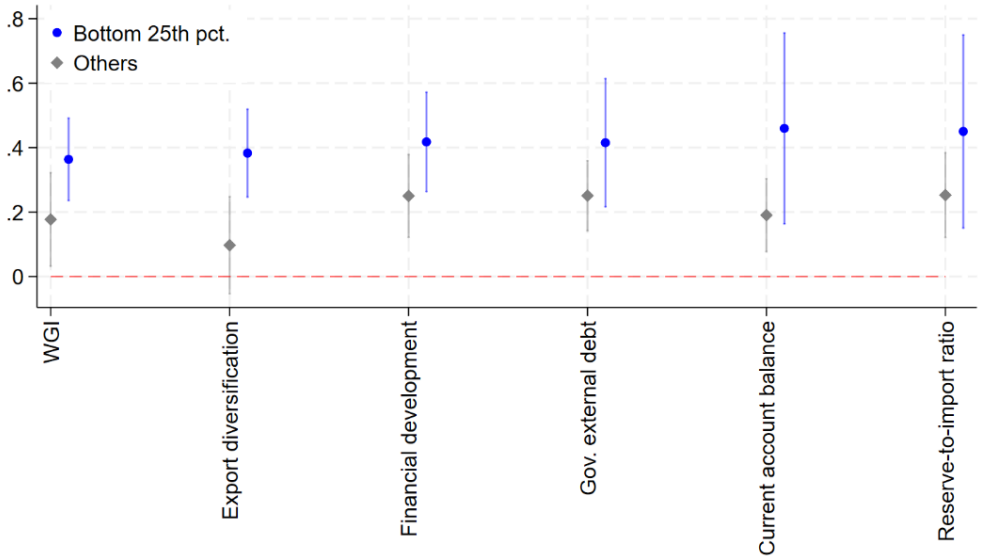
Notes: Percent responses to a 1 percent U.S. interest rate decline. Blue lines are FCS, and gray lines are non-FCS. Shaded areas indicate the 90th percentiles. Variables in panels (A) and (B) are in real terms. Those in panel (C) are in percent of GDP.

Potential Drivers and Discussion

The empirical results presented in the previous subsections indicate that FCS economies are more vulnerable to different global shocks whose direct impact on domestic economies is amplified by the authorities' procyclical fiscal responses. To shed further light on the underlying factors behind FCS' vulnerability, this subsection departs from grouping the countries into FCS and non-FCS and examines the role of the key underlying factors of fragility (see Table 2). These include institutional quality, export diversification, and the level of financial development, as well as various measures of the available policy space—the level of government debt, the external current account balance, and the stock of foreign exchange reserves one year before the shock—across all LICs and lower-MICs.

To this end, we: i) identified countries in the bottom 25th percentile across these indicators in the full sample of all FCS and non-FCS countries (including all LICs, MICs, and AEs); ii) limited the resulting subsample to all LICs and lower-MICs; iii) replicated the impulse response for these countries to a commodity ToT shock and compared it to impulse responses for LICs and lower-MICs outside of the bottom 25th percentile.

Figure 6. IRFs to a Positive Commodity ToT Shock Across Sources of Fragility



Notes: Responses of GDP per capita two years after a commodity ToT shock equivalent to one percent of GDP. Blue dots are for countries in the bottom 25th percentile of respective indicators. The sample includes FCS and non-FCS LICs. The WGI is the average of five indicators ("control of corruption," "government efficiency," "rule of law," "regulatory quality," and "voice and accountability"). We exclude "political stability and absence of violence/terrorism" to differentiate fragility and conflict.

Figure 6 compares the IRF to a commodity ToT shock of countries in the bottom 25th percentile of each indicator (blue) and the remaining ones (gray).[8] Several points are noteworthy. First, countries with lower levels of the WGI (a proxy for the institutional quality) tend to display excess sensitivity to shocks. Institutional quality is fundamental for macroeconomic policy management, and could underpin our earlier empirical finding of higher vulnerability to shocks when weak control over government spending results in

[8] In the regression, $X_{i,t-1}$ in equation (4) is set to one for the former and zero for the latter group of countries.

procyclical fiscal responses in FCS. One institutional policy tool particularly relevant for effective fiscal responses to shocks are fiscal rules. The literature found their role significant for reducing the procyclicality of fiscal responses, in particular for commodity exporters (e.g., Apeti et al., 2023). The majority of FCS does not have fiscal rules at national or supranational level according to the database constructed by Davoodi et al. (2022), which contributes to their pro-cyclical responses to shocks. It should be noted that the adoption and enforcement of fiscal rules in FCS can be a lengthy process given the inherent fragility of their institutions. Second, lack of export diversification amplifies the impact of a ToT shock as adverse developments in one segment of the global market cannot be easily compensated by exports of other products. Third, lower level of financial development is associated with higher sensitivity. Financial development would represent the availability of financing to smooth the impacts of shocks. Lack of access to the financial market, particularly in times of downturns, could force a government to follow procyclical fiscal responses.[9] Fourth, it should be noted that these factors are interdependent. For instance, around 80 percent of countries in the bottom 25th percentile with respect to at least one of three indicators display weakness in another indicator as of 2021. This suggests a need for a heuristic approach to address a range of fragility features.

Similar observations can be made on the role of economic buffers. The IRF for countries with lower buffers (blue) has wider confidence bands, presumably because they include countries in crisis situations (e.g., depleted international reserves in a currency crisis), and their macroeconomic dynamics are intrinsically volatile with potentially low-quality data. This feature makes it difficult to draw a clear-cut conclusion. That said, across all three indicators, lower buffers tend to be associated with higher sensitivity to an additional global shock, confirming the criticality of building buffers to prepare for shocks.

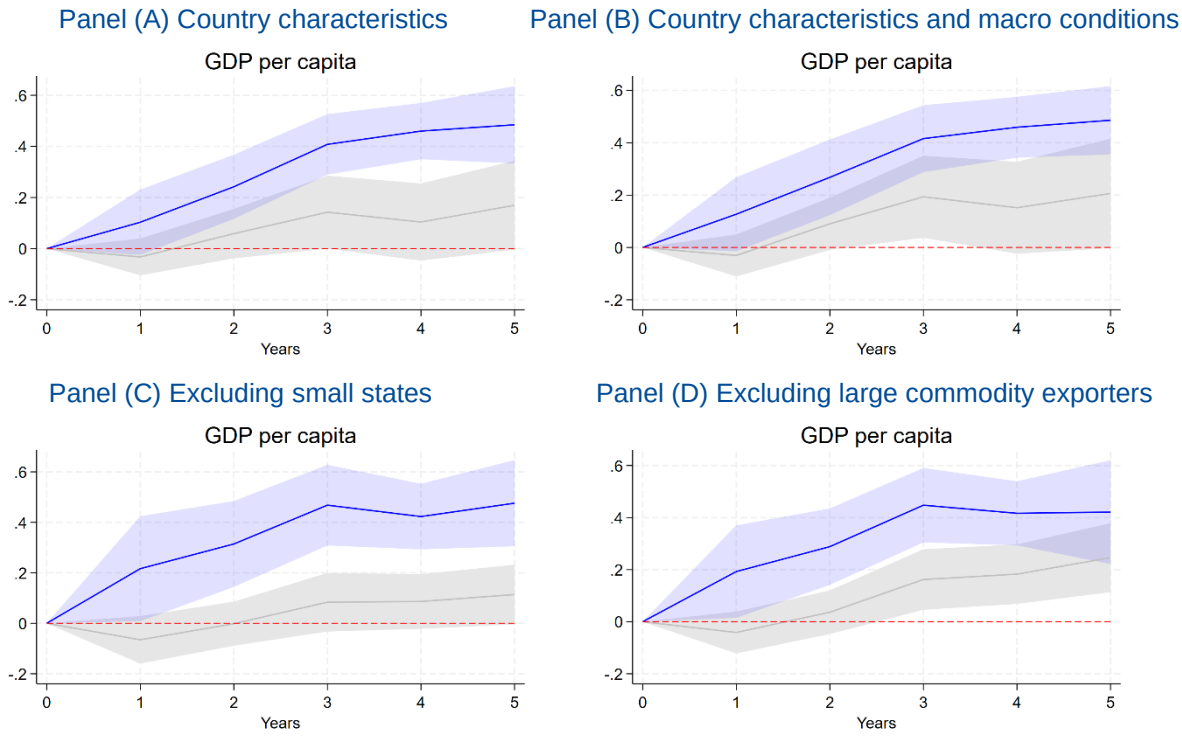
Robustness Check

In this section, we explore whether our results are driven by endogenous country characteristics other than fragility and conflict. Figure 7 reports results of the impact of commodity ToT shocks, considering four variations to assess the robustness of the main specification. First, in panels (A) and (B), we add new control variables to the regression of Equation (4) to test against omitted variable bias. Specifically, panel (A) includes one-year lagged variables used in the regression for Table 2, that is, the number of conflict events per capita, average WGI score, export diversification index, and financial development index, as well as an indicator of FCS. In panel (B), we further add macroeconomic conditions proxied by the public external debt-to-GDP ratio, current account-to-GDP ratio, international reserve-to-imports ratio, fiscal balance-to-GDP ratio, CPI inflation, and per capita GDP growth rate. These control variables are also lagged by one year. These panels indicate that the estimated IRFs remain close to the main specification, confirming the exogeneity of the shock variable. Second, in panels (C) and (D), we test against adverse selection in our sample. In panel (C), we exclude small states with population lower than 1.5 million as these countries may face distinctive challenges, such as low government's capacity arising from the lack

[9] As a background analysis, we assessed the sensitivity in the countries with high levels of conflicts. Interestingly, although the presence of active conflicts is a key characteristic of FCS, we found that it does not amplify the responses to shocks. This could be understandable as conflicts themselves disrupt economic activities, including trade, potentially leaving countries isolated from the global supply chain. There is also a measurement issue of conflicts, as data could include diverse sources of violence. For instance, a substantial part of conflict events compiled in the Uppsala Conflict Database Project (UCDP)---one of the most comprehensive worldwide conflict databases---is accounted for by violence caused by criminal groups (e.g., drug cartels) often observed in middle-income countries, which may have very different implications from typical conflicts in FCS.

of economies of scale and tourism-dependent economic structure (many small states are islands). Our sample includes 7 FCS small states (Comoros, Kiribati, Marshall Islands, Micronesia, Solomon Islands, Timor-Leste, and Tuvalu) and 6 non-FCS small states (Bhutan, Cabo Verde, Djibouti, Eswatini, São Tomé and Príncipe, and Vanuatu) in 2021. Lastly, panel (D) excludes large commodity exporters to check for potential endogeneity of commodity ToT shocks, as the shock relies on the assumption that global commodity prices are exogenous to sample countries.[10] We calculate the export share for each commodity-country pair using UN Comtrade data for 2018 and remove from our sample countries with an export share higher than 10 percent for any commodity. The methodology leads to the exclusion of 2 FCS (Niger and Zimbabwe) and 8 non-FCS (Bolivia, Côte d'Ivoire, Ghana, India, Kenya, Philippines, Rwanda, Vietnam) in 2021. In these panels, the IRFs display a pattern mostly similar to the main specification.

Figure 7. IRFs to a Positive Commodity ToT Shock, FCS (blue) vs. non-FCS (gray), Alternative Specifications



Notes: Percent responses of GDP per capita to a positive commodity ToT shock equivalent to one percent of GDP. Blue lines are FCS, and gray lines are non-FCS. Shaded areas indicate the 90th percentiles.

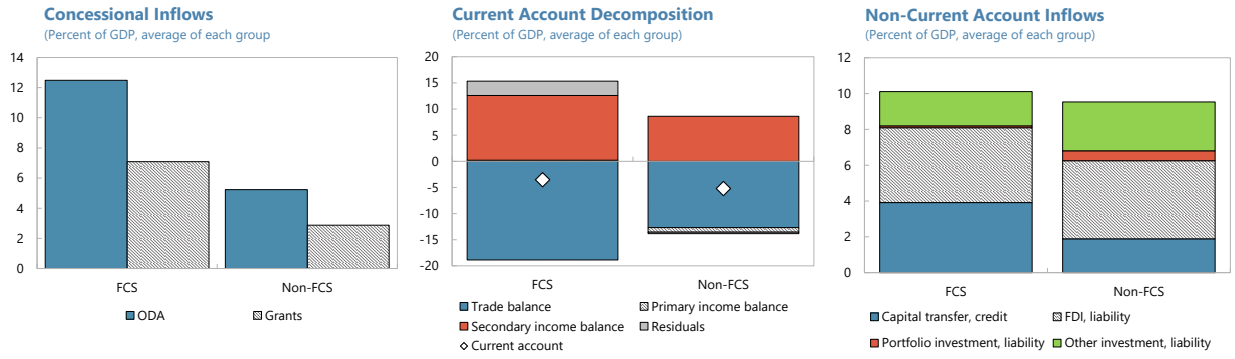
[10] Gruss and Kebhaj (2019) argue that the assumption is justifiable since each country exports and imports a variety of commodity goods and the product shares of most commodities in the index are split across multiple countries. It is hard to imagine that any single country would have influence over the price of the basket of commodity goods.

External Financing

The thrust of this section is to examine the role external financing can play in moderating the impact of shocks in FCS countries. To achieve this, we provide answers to two important interrelated questions: i) What is the response of external capital inflows in countries affected by shocks? Relatedly, does the response depend on whether the country is FCS or non-FCS country? and ii) How important are external capital inflows in mitigating the impact of shocks? In this regard, the literature highlights the importance of external financing for several macroeconomic variables. For instance, capital inflows to LICs are shown to be essential in promoting growth (Moreira, 2005; Nwaogu and Ryan, 2005). Capital flows could also serve as a buffer in times of shocks by helping minimize the impact of shocks that tend to occur with high frequency in FCS (Pallage et. al, 2006; Savun and Tirone, 2012; Chun et. al, 2022).

FCS rely more on concessional supports from donors—in the form of grants or concessional loans—to fill their financing needs (Figure 8). Trade deficits are larger in FCS countries compared to non-FCS, on average, such as capital goods imports for project investments to address their large development needs, narrow exports base, and, in many countries, reliance on imports of essential goods such as foods and medicine. These deficits are partly covered by budgetary and project grants from external donors (included in the secondary income balance and capital transfer, respectively). Some countries receive substantial amounts of remittances from workers abroad (included in the secondary income balance). Financial markets are typically less developed in FCS, which receive significantly lower portfolio flows than non-FCS but rely on foreign direct investment (FDI) inflows at a similar level. Many FCS are commodity exporters, and their exploitation projects are often conducted with participation of foreign firms, which are reflected in FDI. Other investment, including external loans from external creditors, tends to be lower in FCS, consistent with the more reliance on grant supports.

Figure 8. External Financial Flows in FCS and non-FCS

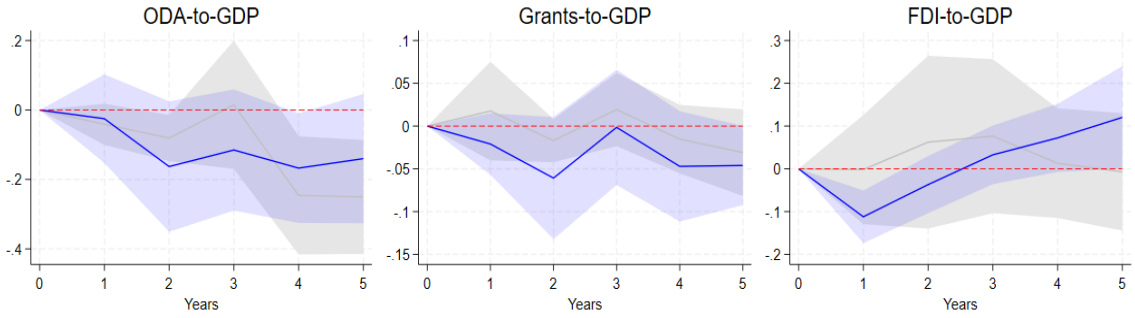


Notes: Average in the pooled sample from 2006 to 2021. In the left panel, the official development assistance (ODA) is flows from official donors and multilateral institutions with the main objective of promotion of the economic development and welfare of developing countries and with a certain level of concessionality. It includes grants or concessional loans. In the center panel, residuals include the discrepancy due to aggregation.
Sources: IMF staff calculations.

Figure 9 presents the response of capital inflows to commodity ToT shocks using the framework established in Section III, focusing on grants, official development assistance (ODA), and FDI. The results indicate no clear patterns in these capital inflows following the shock. ODA and grants do not respond

significantly either in FCS or non-FCS countries. The a-cyclicality of ODA and grants (similar to the findings of Avellan et al., 2024) implies that these inflows provide a stable source of financing to countries irrespective of their business cycle. FDI initially declines in FCS in response to a positive shock, which may reflect the dynamics of GDP used as a denominator, and remains insignificantly different from zero after the second year. There is no significant difference in the overall response of FDI across the two groups of countries.

Figure 9. IRFs of Capital Inflows to a Positive Commodity ToT Shock, FCS (blue) vs. non-FCS (gray)

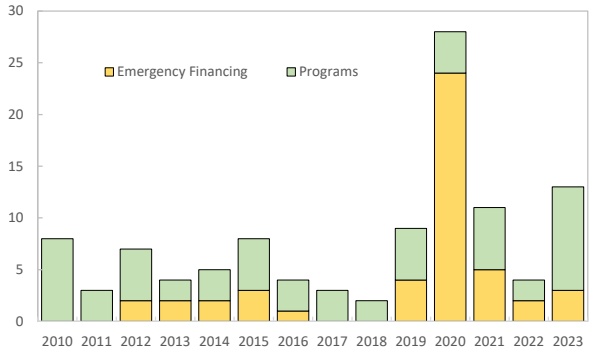


Notes: Responses to a commodity ToT shock equivalent to one percent of GDP. Blue lines are FCS, and gray lines are non-FCS. Shaded areas indicate the 90th percentiles. ODA, grants, and FDI are all in percent of GDP.

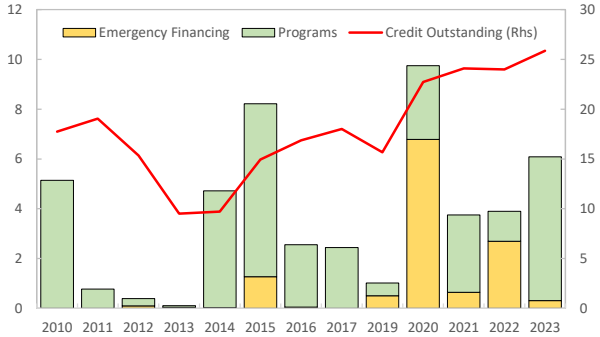
Note that ODA and grants include project financing, which would reflect a country's long-term development and social needs and not necessarily respond to short-term economic cycles. At the same time, other financing includes support to cushion external shocks. For example, IMF lending[11]—aimed to help address balance of payment needs and thereby achieve macroeconomic stability—appears counter-cyclical, with notable increases after the pandemic (Figure 10). Chun et. al. (2022) showed that the expansion of IMF emergency lending during the pandemic was critical to help lessen the negative impacts of the pandemic on economic activity, especially in LICs.

Figure 10. IMF lending to FCS

Panel (A) Number of New Financing



Panel (B) Disbursements (in billions of US$)

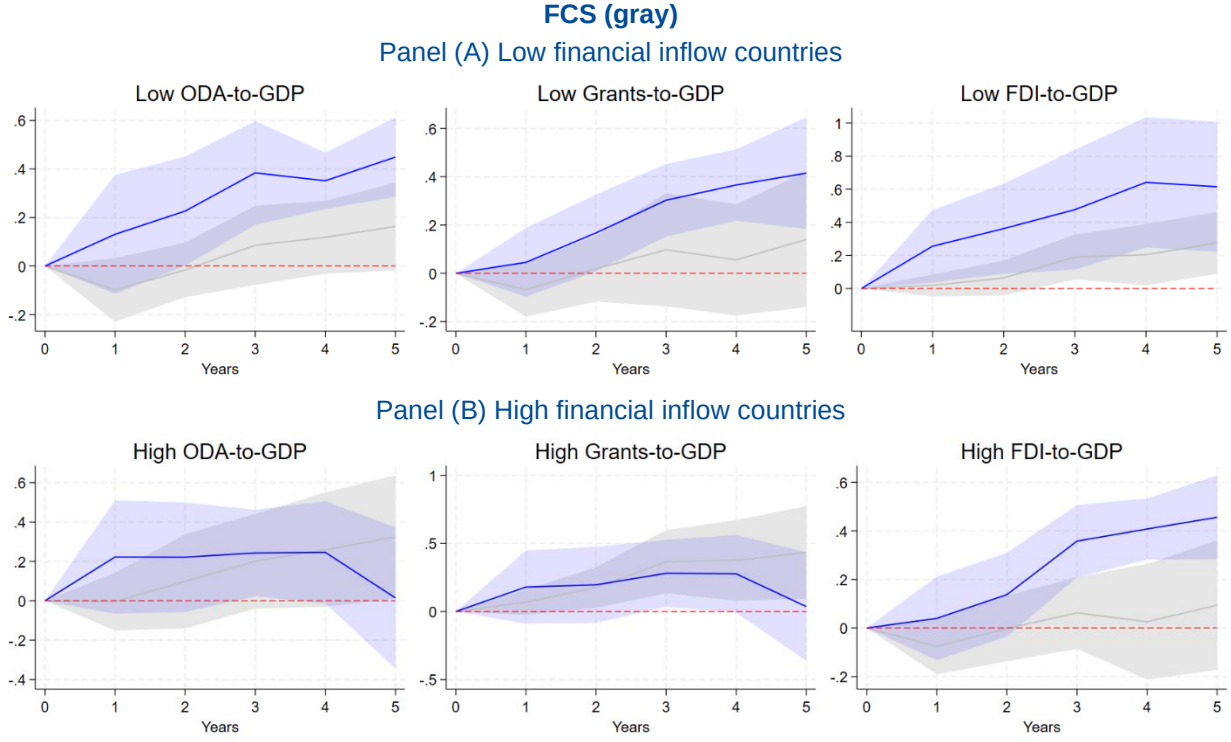


Sources: IMF staff calculations.

[11] IMF's PRGT lending and CCRT are included in the ODA.

The second question we investigate is whether external financial inflows mitigate the impact of shocks. Financial inflows could be a function of the institutional environment, relationship with donor countries or opportunities for investment within the economy (see for instance, Paul and Jadhav (2019) on the role of institutions in capital inflows). Since FCS are particularly susceptible to global shocks, financial inflows may serve as a safety net that enables the smoothening of consumption and therefore growth across different time periods. To investigate whether this is indeed the case we split the sample into low (below sample average) and high (above sample average) recipients of ODA, grants, and FDI compared to GDP, and use the framework in Section III to explore the heterogenous impact of commodity ToT shocks across groups with different levels of each type of financial inflows.

Figure 11. Responses of Per Capita GDP to a Positive Commodity ToT Shock, FCS (blue) vs. non-FCS (gray)



Notes: Percent responses of GDP per capita to a commodity ToT shock equivalent to 1 percent of GDP. Blue lines are FCS, grays are for non-FCS. The sample is restricted to low (below sample average) or high (above sample average) ODA, grants, and FDI recipients in panel (A) and (B), respectively. Shaded areas indicate the 90 percentiles.

Figure 11 presents the results. It indicates that the higher sensitivity of FCS compared to non-FCS to commodity ToT shocks arises from countries that are low recipients of ODA and grants. In contrast, among high recipients of these concessional financial flows, the responses of per capita GDP in both FCS and non-FCS are quite similar, with the responses marginally significant. Low financial inflow recipient countries may face financial constraints, in which case a windfall gain from a positive ToT shock leads to a relaxation of the constraints leading to a direct impact on consumption and growth. We do not find different patterns across low and high FDI recipients, as FDI are mostly linked to long-term projects, such as commodity exploitation, and thus would not serve as a shock absorber. That said, the analysis

does not preclude the presence of a third factor that determines the low level of ODA or grants and the sensitivity to shocks. For instance, countries in more stable economic and political situations may have greater absorption capacity of external aid. On the contrary, in conflict-intense cases, financial support from external donors may become infeasible due to political instability, security concerns or non-recognition of a government. The situation highlights the importance for development partners to remain engaged even under challenging circumstances and provide necessary financial support when feasible, enabling counter-cyclical policy responses to mitigate shocks.

Concluding Remarks

This paper has examined the consequences of diverse external shocks for FCS economies. Covering both FCS and non-FCS economies and employing a flexible empirical framework of local projections, we confirm the often held prior of FCS economies being more sensitive to global shocks compared to other countries. The empirical result confirms conventional wisdom on the fragile nature of their economies, but our contribution also includes building empirical evidence concerning different types of external shocks—seemingly essential in the post-Covid-19 pandemic global dynamics—and delving into the underlying mechanisms and institutional factors. We find that a key driving force behind FCS higher sensitivity involves procyclical fiscal responses. Analysis of underlying factors implies that common features of FCS, including weak institutions, lack of economic diversification, and a low level of financial development, are relevant for the procyclical fiscal responses and propagation of global shocks. We also obtain suggestive evidence that lower buffers before shocks, such as limited fiscal space and inadequate international reserves, exacerbate global shocks.

Our results suggest the need for a heuristic approach to address a wide range of challenges in FCS macroeconomic policy institutions to conduct effective macroeconomic policies. Policy areas of focus would include creating fiscal buffer and preserving room for conducting counter-cyclical fiscal policies, strengthening external balance by diversifying the export base and building international reserves. To this end, strengthening public finance and investment management and establishing (resource-based) frameworks for medium-term fiscal policy would also support efforts to develop a more resilient economy and to smooth pent-up demand in times of positive shocks. As economic management improves, so would trust in basic economic institutions, reinforcing the former. Addressing the key roots of fragility through higher transparency, lower corruption, and well-targeted social spending, would further improve trust. A critical role for international financial institutions is to continue to provide timely and efficient financial support during/after global shocks, so that country authorities can provide counter-cyclical policy responses to alleviate their adverse consequences. Given the diverse characteristics within the FCS group, policy advice should be tailored to each country. Potential considerations include the nature of vulnerabilities (e.g., conflicts or institutional fragility), the economic structure (e.g., commodity exporters, tourism-dependent economies), and geographical factors (e.g., small island states).

Though this paper focuses on the comparison of FCS and non-FCS economies, we hope that our empirical results speak to policy priorities for a broader set of countries. The global economy finally approaches a soft landing after the series of adverse shocks started with the COVID-19 pandemic. However, we reside in a more shock-prone world with increased levels of uncertainty, and fragility is on

the rise. In this context, it is all the more crucial to build economic buffers and develop sound economic institutions to enhance the resilience of an economy to shocks. These are also vital for preventing long-term scarring effects of adverse shocks, which could weigh on the long-run growth. Our analysis further highlights the multidimensionality of the sources of excess sensitivity to global shocks, encompassing fiscal and external buffers, as well as institutional and structural factors. Even economies that retain overall soundness may exhibit vulnerability in some areas. Moreover, the level of vulnerabilities can fluctuate over time. Granular and timely risk assessments would be essential to detect potential sources of instability—particularly in today's unpredictable global landscape.

Annex I. List of Countries for Empirical Analysis

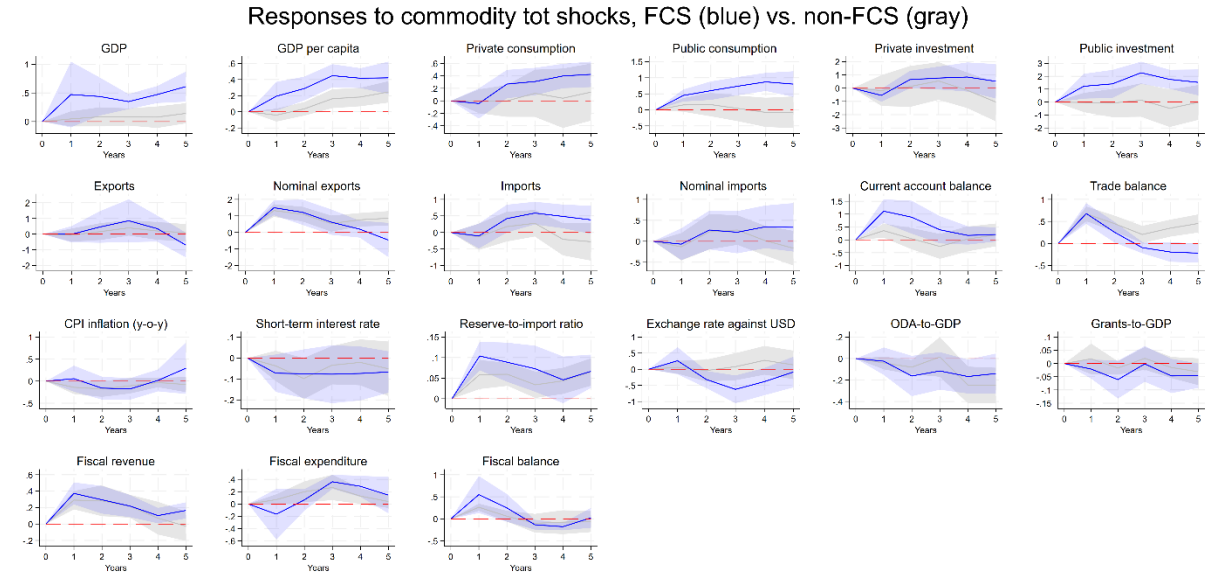
COUNTRY (85)	WORLD BANK CLASSIFICATION 2021	FRAGILE AND CONFLICT-AFFECTED 2021 (39)	PRGT ELIGIBLE 2021 (62)	GNI PER CAPITA *ATLAS METHOD (CURRENT US$) FOR 2021*
AFGHANISTAN	Low income	Yes	Yes	390
ALGERIA	Lower middle income			3660
ANGOLA	Lower middle income			1710
BANGLADESH	Lower middle income		Yes	2570
BENIN	Lower middle income		Yes	1350
BHUTAN	Lower middle income		Yes	3040
BOLIVIA	Lower middle income			3290
BURKINA FASO	Low income	Yes	Yes	830
BURUNDI	Low income	Yes	Yes	220
CABO VERDE	Lower middle income		Yes	3190
CAMBODIA	Lower middle income		Yes	1580
CAMEROON	Lower middle income	Yes	Yes	1590
CENTRAL AFRICAN REPUBLIC	Low income	Yes	Yes	480
CHAD	Low income	Yes	Yes	640
COMOROS	Lower middle income	Yes	Yes	1580
CONGO, REPUBLIC OF	Lower middle income	Yes	Yes	1970
CÔTE D'IVOIRE	Lower middle income		Yes	2420
CONGO, DEM. REP.	Low income	Yes	Yes	550
DJIBOUTI	Lower middle income		Yes	3080
EGYPT	Lower middle income			3350
EL SALVADOR	Lower middle income			4260
ERITREA	Low income	Yes	Yes	
ESWATINI	Lower middle income			3650
ETHIOPIA	Low income		Yes	940
GAMBIA	Low income	Yes	Yes	740
GHANA	Lower middle income		Yes	2280
GUINEA	Low income		Yes	1020
GUINEA-BISSAU	Low income	Yes	Yes	760
HAITI	Low income	Yes	Yes	1430
HONDURAS	Lower middle income		Yes	2490
INDIA	Lower middle income			2150
IRAQ	Upper middle income	Yes		4760
KENYA	Lower middle income		Yes	2080

KIRIBATI	Lower middle income	Yes	Yes	2750
KOSOVO	Upper middle income	Yes		5130
KYRGYZ REPUBLIC	Lower middle income		Yes	1180
LAO P.D.R.	Lower middle income	Yes	Yes	2500
LEBANON	Upper middle income	Yes		5110
LESOTHO	Lower middle income		Yes	1210
LIBERIA	Low income	Yes	Yes	630
LIBYA	Upper middle income	Yes		8700
MADAGASCAR	Low income		Yes	490
MALAWI	Low income		Yes	620
MALI	Low income	Yes	Yes	820
MARSHALL ISLANDS	Upper middle income	Yes	Yes	6780
MAURITANIA	Lower middle income		Yes	1950
MICRONESIA	Lower middle income	Yes	Yes	3980
MOLDOVA	Lower middle income		Yes	5370
MONGOLIA	Lower middle income			3730
MOROCCO	Lower middle income			3620
MOZAMBIQUE	Low income	Yes	Yes	480
MYANMAR	Lower middle income	Yes	Yes	1170
NEPAL	Lower middle income		Yes	1220
NICARAGUA	Lower middle income		Yes	1950
NIGER	Low income	Yes	Yes	590
NIGERIA	Lower middle income	Yes		2080
PAKISTAN	Lower middle income			1470
PAPUA NEW GUINEA	Lower middle income	Yes	Yes	2460
PHILIPPINES	Lower middle income			3550
RWANDA	Low income		Yes	840
SÃO TOMÉ AND PRÍNCIPE	Lower middle income		Yes	2260
SENEGAL	Lower middle income		Yes	1570
SIERRA LEONE	Low income		Yes	500
SOLOMON ISLANDS	Lower middle income	Yes	Yes	2320
SOMALIA	Low income	Yes	Yes	430
SOUTH SUDAN	Low income	Yes	Yes	
SRI LANKA	Lower middle income			4030
SUDAN	Low income	Yes	Yes	650
SYRIA	Low income	Yes		
TAJIKISTAN	Low income		Yes	1150
TANZANIA	Lower middle income		Yes	1100
TIMOR-LESTE	Lower middle income	Yes	Yes	1140

TOGO	Low income		Yes	960
TUNISIA	Lower middle income			3540
TUVALU	Upper middle income	Yes	Yes	7200
UGANDA	Low income		Yes	760
UKRAINE	Lower middle income			4120
UZBEKISTAN	Lower middle income		Yes	1960
VANUATU	Lower middle income		Yes	3240
VENEZUELA	Upper middle income	Yes		
VIETNAM	Lower middle income			3590
WEST BANK AND GAZA	Lower middle income	Yes		4220
YEMEN	Low income	Yes	Yes	
ZAMBIA	Lower middle income		Yes	1030
ZIMBABWE	Lower middle income	Yes	Yes	1530

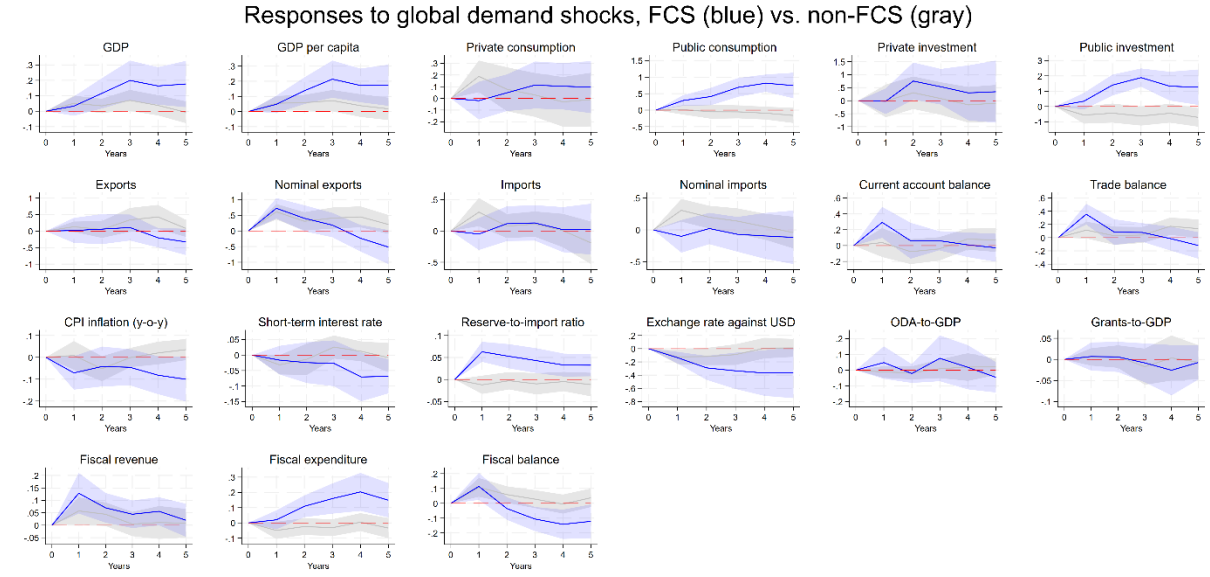
Annex II. Additional Empirical Results

Annex II. Figure 1. IRFs to a Commodity ToT Shock, FCS (blue) vs. non-FCS (gray) – full results



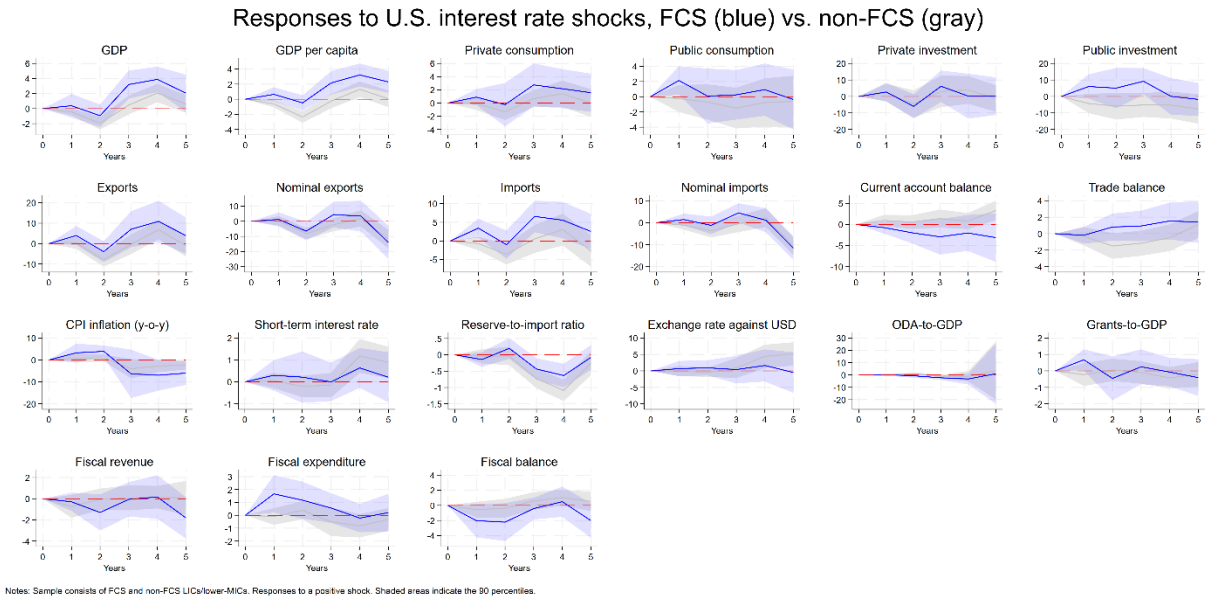
Notes: Sample consists of FCS and non-FCS LICs/lower-MICs. Responses to a positive shock. Shaded areas indicate the 90th percentiles.

Annex II. Figure 2. IRFs to a Global Demand Shock, FCS (blue) vs. non-FCS (gray) – Full Results



Notes: Sample consists of FCS and non-FCS LICs/lower-MICs. Responses to a positive shock. Shaded areas indicate the 90 percentiles.

Annex II. Figure 3. IRFs to a U.S. Interest Rate Decline Shock, FCS (blue) vs. non-FCS (gray) – Full Results



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