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MACROECONOMIC DEVELOPMENTS IN LOW-INCOME DEVELOPING COUNTRIES

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- The **Policy Paper** on *Macroeconomic Developments in Low-Income Developing Countries*, prepared by IMF staff and completed on September 18, 2014 to brief the Executive Board on September 29, 2014.

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MACROECONOMIC DEVELOPMENTS IN LOW-INCOME DEVELOPING COUNTRIES: 2014 REPORT

September 18, 2014

OVERVIEW

This report examines macroeconomic developments and related vulnerabilities in low-income developing countries (LIDCs)—a group of 60 countries that have markedly different economic features to higher income countries and are eligible for concessional financing from both the IMF and the World Bank. Collectively, they account for about one-fifth of the world's population.

The report examines the strong economic performance achieved by the bulk of LIDCs since 2000 and assesses their short-term economic prospects. It then looks at the economic risks and vulnerabilities that they currently face, against the backdrop of a brittle and uneven global recovery that is vulnerable to important financial and geopolitical risks. The final section of the report examines the evolution of public debt levels in LIDCs in recent years.

Key messages in the report include: 1) most LIDCs have recorded strong economic growth for an extended period, but based primarily on factor accumulation rather than productivity growth; 2) about one-half of LIDCs are classified as being at medium/high vulnerability to a growth shock, with weakened fiscal positions forming a key source of vulnerability; 3) fiscal institutions, including debt management capacity, should be strengthened to pre-empt the build-up of potential new imbalances.

LIDCs: Macroeconomic Trends and Outlook

Economic growth in most LIDCs has been strong over the past 15 years, faster than in previous decades and on par with growth performance in emerging markets. This performance was helped by external factors but domestic factors also played a central role, with sound macroeconomic management and wide-ranging market-oriented reforms providing the building blocks for sustained growth even as the global economy stalled in 2009. The impressive resilience of LIDCs during the global economic crisis was facilitated by the limited direct linkages between domestic financial systems and international financial markets.

The positive growth performance for the group as a whole masks a number of more problematic developments. For one, almost one-fifth of LIDCs failed to increase the level of output per capita over the period—mainly countries affected by conflict and weak states, but, in some cases, reflecting flawed economic policies. Second, growth

has generally not been very deep or transformative, driven largely by factor accumulation rather than productivity gains. Thirdly, progress in reducing extreme poverty and reaching other Millennium Development Goals has been mixed.

Looking ahead, LIDCs may face continued economic headwinds in the form of mediocre growth in many trading partner countries. Nevertheless, growth is projected to remain generally strong, with a number of the larger economies (such as Bangladesh and Kenya) showing significant dynamism and with improved political conditions and/or policy reforms contributing to growth in other cases (such as Myanmar and Democratic Republic of Congo). The Ebola outbreak, if not contained rapidly, could have acute macroeconomic and social consequences on several already fragile economies in West Africa. Over the medium term, maintaining growth at the pace needed to employ fast-growing labor forces will be difficult without achieving structural transformation and associated strong productivity growth.

How vulnerable are LIDCs to adverse shocks?

Although LIDCs have been resilient in recent years, their still-limited export diversification and weakened policy buffers leave them less well-positioned to handle these shocks than prior to the global crisis. The share of LIDCs that are assessed to be highly vulnerable is easing slightly (to around 10 percent of the total); most of these countries are fragile states. Weak fiscal positions are typically the most important source of vulnerability across countries. Analysis of selected shock scenarios, drawing on the *World Economic Outlook*, flags the significant adverse impact on LIDCs of a protracted period of slower growth in advanced and emerging market economies. Temporary global oil price shocks have relatively modest output effects on LIDCs, but sizeable fiscal effects on those oil-importing countries that currently subsidize fuel products. Frontier market economies, expanding their links to the global financial system, face new risks; rapid credit growth and the expansion of foreign credit warrant close monitoring in some cases.

To enhance resilience, policy actions to rebuild fiscal buffers are a priority in many countries—through a country-specific mix of enhanced revenue mobilization and improved prioritization of public expenditures—as is the strengthening of fiscal institutions including public administration. Foreign reserve levels are insufficient in a sizeable number of LIDCs and need to be given higher priority in framing macroeconomic policies in these cases. The modernization of monetary frameworks underway in many countries will strengthen the effectiveness of monetary and exchange rate policies in responding to shocks. Over the medium term, policies to promote economic diversification would strengthen resilience in the face of shocks, including natural disasters, but will take time to deliver results.

What do we learn from recent debt trends in LIDCs?

Public debt levels are now at relatively low levels in the majority of LIDCs, helped by strong economic growth, low interest rates, and the provision of comprehensive external debt relief to some 34 countries under the Heavily Indebted Poor Countries/Multilateral Debt Relief Initiative (HIPC/MDRI). Some three-quarters of LIDCs are currently assessed as being at low or moderate risk of experiencing external debt distress under the joint Bank-Fund Debt Sustainability Framework. Nevertheless, debt levels are high and/or have increased significantly in recent years in a third of LIDCs.

Looking at debt developments since 2007, most countries that had benefited from debt relief prior to that point (“early HIPCs”) have seen public debt levels (as a share of GDP) rise over time, although it is only in a few cases that debt accumulation has become a significant cause for concern. External borrowing (both concessional and non-concessional) has typically accounted for the preponderance of the debt build-up, but domestic debt levels have also risen significantly in a handful of cases (such as Ghana and Malawi). There has been no clear trend in debt levels among non-HIPCs (countries that have not benefited from HIPC/MDRI). However, the supportive conditions that helped stabilize debt ratios in LIDCs since 2007—notably easy global financing conditions—will likely fade away in the period ahead, flagging the need to avoid complacency.

The changing external financial landscape has enabled an increasing number of LIDCs to access international financial markets; non-traditional official creditors have also significantly expanded their provision of project finance. New borrowing options open the opportunity to increase development spending but borrowed funds cover their costs only if used to augment development spending on projects that yield appropriately high rates of return. Countries tapping new sources of funding thus need to give due attention to where the incremental funds go and how efficiently they are used. With new risks, such as bunching of repayments and rollover risk, efforts to strengthen public debt management are an imperative, supplemented by the development of a medium-term debt strategy on which new borrowing decisions can be grounded.

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Acronyms and Abbreviations

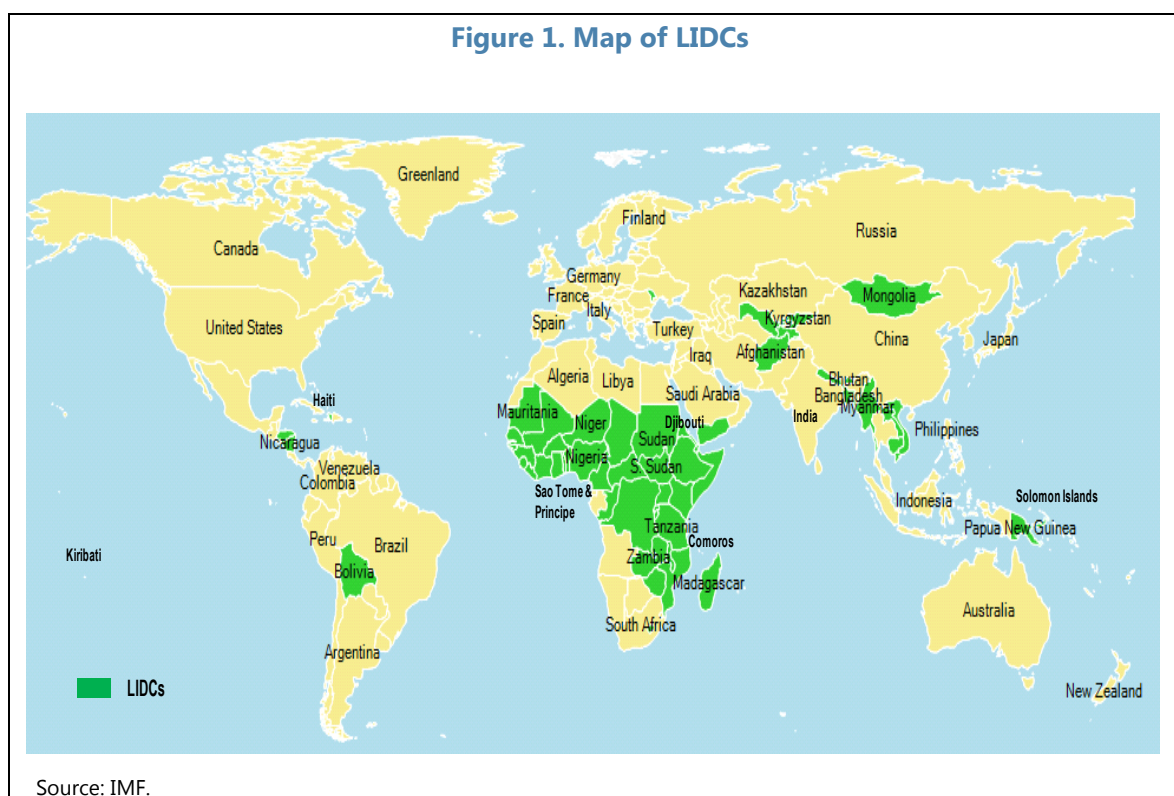
AMs	Advanced Markets
BCP	Basel Core Principle
CPIA	Country Policy and Institutional Assessment
CRED	Centre for Research on the Epidemiology of Disasters
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
DIG	Debt, Investment, and Growth
EMs	Emerging Markets
EM-DAT	Emergency Events Data Base
EMDCs	Emerging Market and Developing Countries
EVD	Ebola Virus Disease
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FDVI	Food Decline Vulnerability Index
FMs	Frontier Market Economies
FSAP	Financial Sector Assessment Program
FVI	Financial Vulnerability Index
GDVI	Growth Decline Vulnerability Index
HIPC	Heavily-Indebted Poor Countries
IFS	International Financial Statistics
ILO	International Labour Organization
IRGD	Interest-Rate Growth Differential
LIDCs	Low-Income Developing Countries
MDGs	Millennium Development Goals
MDRI	Multilateral Debt Relief Initiative
NDPs	National Development Plans
NPL	Non-Performing Loans
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PEFA	Public Expenditure and Financial Accountability
PFM	Public Financial Management
PPG	Public and Publicly Guaranteed
PPP	Purchasing Power Parity
PPPs	Public-Private Partnerships
PRGT	Poverty Reduction Growth and Trust
PRSPs	Poverty Reduction Strategy Papers
PV	Present Value
SSA	Sub-Saharan Africa
TA	Technical Assistance
TFP	Total Factor Productivity
UNCTAD	United Nations Conference on Trade and Development

VAT	Value-Added Tax
VIX	CBOE Volatility Index
WAEMU	West African Economic and Monetary Union
WDI	World Development Indicators
WEO	World Economic Outlook

MACROECONOMIC TRENDS AND THE NEAR TERM OUTLOOK

A. Introduction

1. This report focuses on macroeconomic developments and policy issues in low-income developing countries (LIDCs). The LIDC group includes all countries that a) fall below a modest per capita income threshold (US\$2,500 in 2011, based on Gross National Income) and b) are not conventionally viewed as emerging market economies (EMs).¹ There are 60 countries in this group, accounting for about one-fifth of the world's population; sub-Saharan Africa (SSA) accounts for some 57 percent of the LIDC population, with a further 28 percent living in Asia (Figure 1). While sharing characteristics common to all countries at low levels of economic development, the LIDC group is strikingly diverse, with countries ranging in size from oil-rich Nigeria (174 million) to fisheries-dependent Kiribati (0.1 million), and in 2013 per capita GDP terms from Mongolia (US\$3,770) to Malawi (US\$270). The 10 largest economies in the group account for two-thirds of total group output (as measured in PPP terms).



¹ The LIDC grouping is a subgroup of the “Emerging Market and Developing Countries” (EMDCs) aggregate used in the IMF’s *World Economic Outlook*; see Appendix I for a full list of the countries in the group. For further discussion on how the grouping was constructed, see “*Proposed New Grouping in WEO Country Classifications: Low-Income Developing Countries*” available at <http://www.imf.org/external/np/pp/eng/2014/060314.pdf>.

2. The case for treating LIDCs as a distinct group is that they differ significantly from economies at higher levels of per capita income (Table 1):²

- Agriculture has a larger share in economic activity in LIDCs (27 percent of GDP) than in the average emerging market (EM) (8 percent of GDP); the share of the labor force employed in the informal sector is also significantly higher.
- LIDCs lag EMs in infrastructure, financial deepening (an average private credit-GDP ratio of 25 percent, compared with 50 percent in EMs), and in quality/capacity of public institutions.
- LIDCs rely more heavily on foreign aid, and less on own budgetary revenues, than EMs.
- Key development indicators in LIDCs lag the average EM. Poverty and infant mortality rates are much higher, while education levels are significantly lower, but income inequality is similar to EMs.

Table 1. Selected Macro and Structural Indicators for LIDCs

	LIDC average	Fragile states	Frontier markets	Commodity exporters	EM average
Agricultural sector share (in percent of GDP), 2012	27.4	36.3	21.9	29.8	8.3
Informality (percent employed in informal sector), 2005-10	51.1	57.6	57.6	62.7	35.8
Electric power consumption (kWh per capita, 2011)	517.9	197.2	500.5	536.8	3313.0
Quality of overall infrastructure (score, 7=best), 2013	2.6	2.2	2.8	2.4	4.0
Institutional quality (average rank of Fraser index, 1=highest), 2010	104.3	123.4	90.1	114.4	70.6
Trade openness (exports plus imports, in percent of GDP), 2010	81.0	78.8	76.0	67.0	91.9
Financial development (private credit as in percent of GDP), 2012	24.8	15.7	34.0	18.6	50.0
Net official development assistance (in percent of GDP), 2012	9.3	12.4	5.8	8.3	3.6
Foreign direct investment inflows (in percent of GDP), 2013	2.9	1.8	5.0	3.0	1.2
Revenue (excl. grants, in percent of GDP), 2013	22.0	21.3	20.6	19.9	30.4
Standard deviation of revenue (in percent of GDP), 2000-13	3.6	4.3	2.8	4.3	3.1
Poverty rate (percent of population < \$1.25/day), 2005-10	40.6	51.8	44.1	51.1	6.6
Income inequality (Gini coefficient), 2005-10	41.5	42.0	43.8	41.3	41.4
Infant mortality rate (per 1000 live births), 2010	52.7	62.6	44.5	62.2	18.2
Average years of schooling, 2010	5.3	4.4	6.0	4.6	8.7

Sources: WEO, WDI, ILO, and IMF staff estimates.

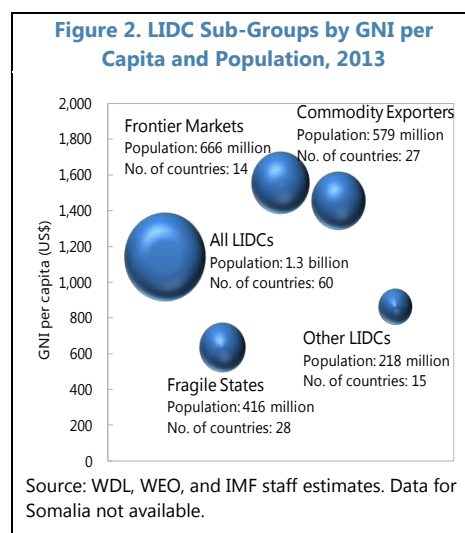
Note: Group aggregates are calculated based on simple (un-weighted) averages. EM refers to the group of non-LIDCs that belong to the WEO category of EMDCs.

3. For analytical purposes, it is useful to divide the LIDC group into subgroups, based on characteristics that are key drivers of economic performance. Four subgroups are identified:

² In LIDCs, the quality of data on national accounts, employment, and other macroeconomic measures are often of poor quality, and hence need to be interpreted with caution.

each LIDC appears in at least one subgroup, with some featuring in more than one subgroup (Figure 2 and Appendix I):

- **Frontier markets** are those countries closest to resembling EMs in the depth and openness of financial markets and access to international sovereign bond markets.³ There are 14 countries in this grouping, with Nigeria, Vietnam, and Bangladesh accounting for about 70 percent of group output. The group contains about half of the LIDC population.
- **Commodity exporters** have at least 50 percent of export earnings coming from fuels and primary commodities. There are 27 countries in this group including Nigeria and Uzbekistan that account for about 60 percent of total group output. The group contains over two-fifths of the total LIDC population.
- **Fragile states** are those countries where institutional capacity is especially weak (three-year average of the CPIA score below 3.2) and/or there has been significant internal conflict.⁴ The group includes 28 countries that contain about one-third of the LIDC population. Myanmar, Sudan, Yemen, and the Democratic Republic of Congo (DRC) are the largest economies in this context, accounting for half of total group output.
- **Other LIDCs** are the 15 countries that do not fall into any of the preceding groupings. These countries collectively contain about 16 percent of the LIDC population, with Ethiopia, Cameroon, Cambodia, and Honduras being the largest economies in the group.



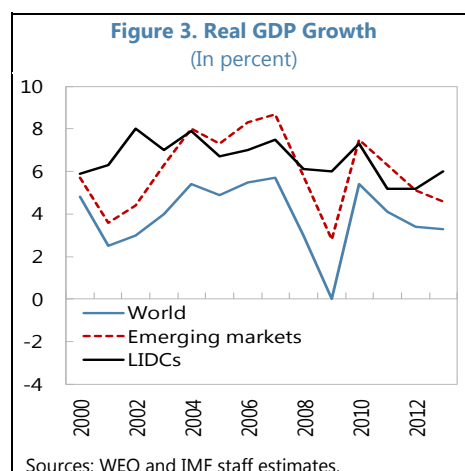
³ See Appendix II for an explanation of the methodology used to construct this group.

⁴ The CPIA is a diagnostic tool that captures the quality of a country's policies and institutional arrangements along 16 criteria grouped into four equally-weighted clusters: Economic Management, Structural Policies, Policies for Social Inclusion and Equity, and Public Sector Management and Institutions. Countries are rated on a scale of 1 (low) to 6 (high) for all of the sixteen criteria and are assigned an overall score.

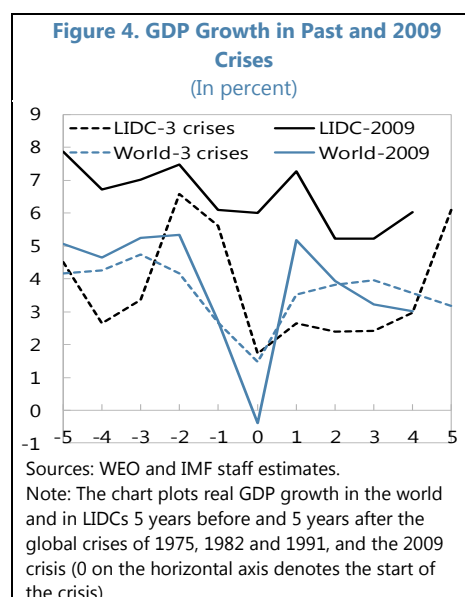
B. Macroeconomic Trends since 2000

Economic growth in most LIDCs has been strong...

4. LIDCs have delivered strong growth performance over the last fifteen years. After an extended period of stagnation, instability, and conflict in most countries, LIDCs entered a period of high and sustained growth from the late-1990s. Over the 2000–13 period, LIDCs recorded average real GDP growth of 6½ percent, up from 3.6 percent during the 1990s and on par with the performance of emerging markets (Figure 3). The growth pick-up was particularly marked for countries in SSA and the transition economies of Central Asia, but also significant in Asia and Latin America.



5. LIDC growth showed notable resilience during the 2009 global financial crisis, providing a marked contrast with the outcome in the wake of previous global shocks (Figure 4). The main transmission channels were trade (falling demand for exports), along with a slowing of FDI inflows. With LIDC banks relying primarily on a stable deposit base for funding, the direct impact of the global financial crisis on LIDC financial sectors was very limited—although there were indirect effects on asset quality as exporters dealt with falling demand and prices. GDP growth in 2009 remained positive in over 80 percent of LIDCs; average growth was in the order of about 6 percent, 1 point less than the five-year pre-crisis average. The rebound in 2010 was sharp and has been largely sustained since then—a contrast with previous downturns, when the decline in growth was prolonged. Growth was supported by countercyclical policy responses—facilitated by solid pre-crisis fiscal and external positions—and by substantial external financial support, including concessional financing from the World Bank and the IMF.



6. The improved growth performance over the past fifteen years reflected favorable external conditions (for most of the period) and better economic policies. LIDCs benefited from robust commodity prices, the emergence of China as an important trade and investment partner (particularly in SSA),⁵ and increased capital inflows (taking the form of FDI in growing extractive industries in most countries). Countries burdened with high debt levels benefited from international relief initiatives (HIPC/MDRI) that created room to finance development spending. On the domestic

⁵ See, for example, Drummond and Liu (2013).

side, improved macroeconomic management contributed to lower inflation and growth volatility compared with the pre-2000 era. Countries also implemented wide-ranging market-oriented reforms in the real and financial sectors, facilitating private sector development (Ostry and others, 2009; Dabla-Norris and others, 2013).

7. Strong performance for the LIDC group as a whole masks considerable heterogeneity of experience both across and within subgroups (Figure 5).

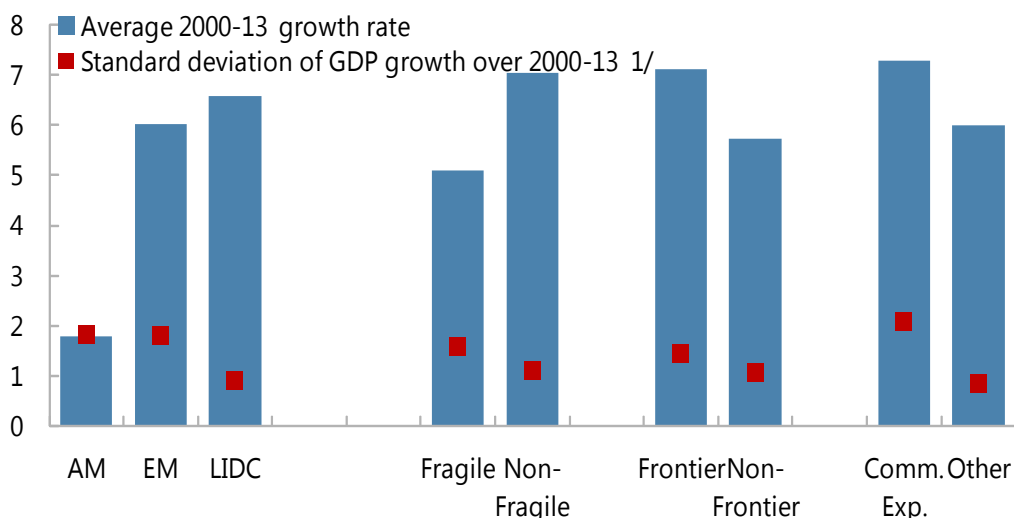
- Growth was strongest in frontier market economies, led by Nigeria, Tanzania, and Vietnam. Statistical techniques for identifying structural breaks point to a growth “takeoff”—a period of sustained growth acceleration—for the group as a whole, starting around 2000.⁶
- Commodity exporters experienced both above-average growth⁷—although not by a large margin—and significantly higher output volatility, the latter linked to export price volatility.
- Fragile states experienced below-average growth along with higher output volatility—consistent with several studies of the impact of fragility on economic performance (World Bank, 2011).
- Some one-fifth of LIDCs failed to record any growth in output per capita over the period, thereby falling well behind other LIDC peers (see Box 1).

⁶ A break in growth is identified as the point after which the average growth rate diverges significantly from the previous average growth rate; for frontier LIDCs, annual average growth was 4.1 percent during 1990–99, 7.1 percent during 2000–13. See also Berg, Ostry, and Zettelmeyer (2012).

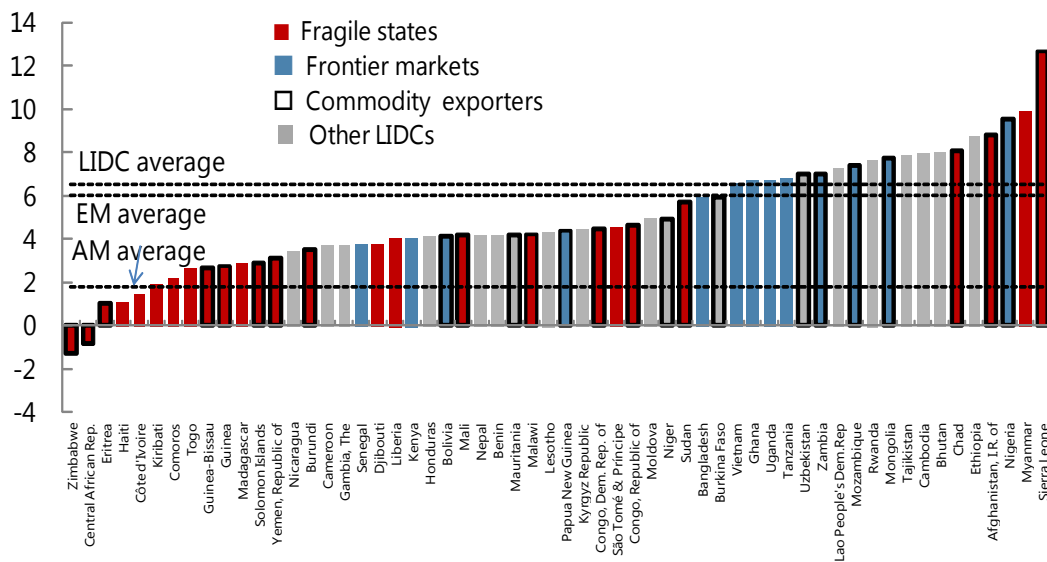
⁷ Note that several commodity exporters are also classified as frontier economies, e.g., Nigeria, Mozambique, and Zambia.

Figure 5. Growth Heterogeneity Across LIDCs

Panel A. Growth and Output Volatility in LIDC Sub-Groups
(In percent)



Panel B. Uneven Growth Across LIDCs
(In percent, average 2000-13)



Sources: WEO and IMF staff estimates.

Note: No data for Somalia and South Sudan. Côte d'Ivoire is both a frontier market and fragile state.

1/ Subgroup averages are GDP-weighted.

Box 1. Falling Behind

While most LIDCs have recorded sustained growth since 2000, there is a sizeable group of countries (almost one-fifth of the total) that did not record any increase in output per capita over the period.

Among these 11 cases, some countries experienced significant declines in output per capita (such as Eritrea and Central African Republic), others effectively stayed put in terms of income levels (such as Madagascar and Yemen).¹

The weak performance occurred across several macro and structural indicators. Over 2000–13, these 11 countries have been less successful in reducing inflation, attracting FDI, developing the financial markets, and improving social indicators, such as the level of educational attainment.

Country	Average growth p/c 2000-13 (%)	Stdev. of growth (%)	Fragile states	Frontier markets	Commodity exporters
Eritrea	-2.6	5.9	1	0	1
Central African Rep.	-2.6	10.4	1	0	1
Zimbabwe	-2.2	9.2	1	0	1
Côte d'Ivoire	-1.4	3.8	1	1	0
Haiti	-0.4	3.0	1	0	0
Guinea-Bissau	-0.2	2.1	1	0	1
Comoros	-0.1	1.5	1	0	0
Madagascar	-0.1	5.3	1	0	0
Kiribati	-0.1	2.9	1	0	0
Republic of Yemen	0.0	4.6	1	0	1
Togo	0.0	2.6	1	0	0
Median growth	-0.2	3.8			
Median LIDC	1.9	2.9			

Source: WEO.

A common feature to all countries in the group is that they are fragile states—countries either with very weak institutions or significantly affected by conflict over the period. The role of fragility in hampering growth is easy to understand in countries affected by sustained internal conflict and political instability over an extended period (such as Côte d'Ivoire, Guinea-Bissau, Comoros, and Yemen). Natural disasters, such as the massive 2010 earthquake in Haiti, result in loss of life, can account for sizeable shocks to output, and have persistent effects. Over the long-term, however, weak institutions and recurrent political instability play a key role in explaining Haiti's weak performance as the poorest country in the Western Hemisphere. But a review of the country listing shows that bad policy choices, unlinked to fragility, can also produce income contraction over time, as in Zimbabwe (which experienced hyperinflation) and Eritrea (a tightly regulated/controlled economy).

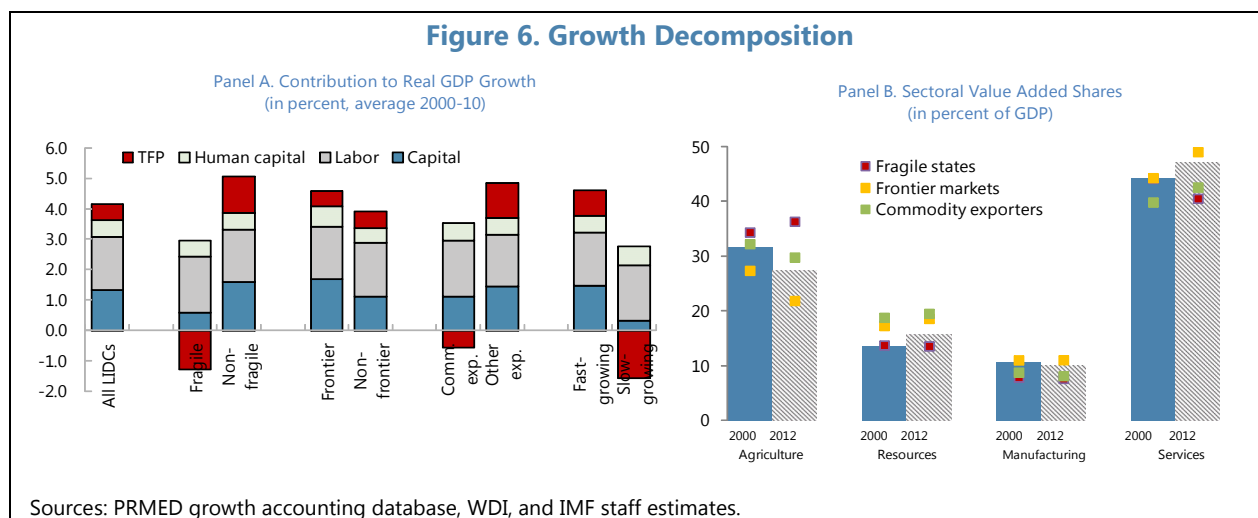
¹ In terms of total GDP growth, all 11 countries had average growth rates in the bottom quartile of the LIDC group (less than 3.5 percent).

...but not yet deep or transformative

8. LIDC growth has been primarily driven by factor accumulation rather than productivity gains (Figure 6, Panel A). Rapid expansion of the labor force and capital accumulation accounted for the bulk of GDP growth over 2000–10, with little coming from gains in total factor productivity (TFP).^{8, 9} TFP is estimated to have declined in both fragile states and commodity exporters on average over the decade, although several fast-growing frontier economies have recently experienced acceleration in TFP (e.g., Uganda). Thus, substantial scope exists in LIDCs for moving toward a more intensive pattern of growth, with large potential benefits from economic reforms.

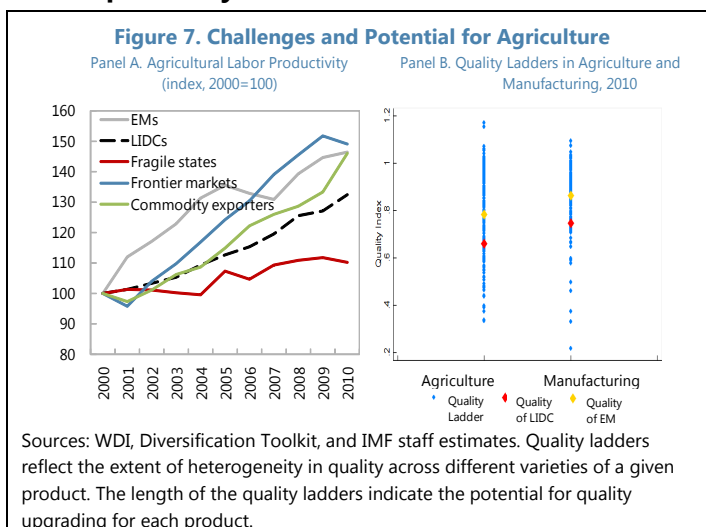
⁸ The large labor contribution likely reflects employment growth in the service sector; employment growth in the resource sector (even in commodity exporters) is typically limited.

⁹ This "extensive" pattern of growth has also been observed in East Asia's newly industrializing countries in the 1990s (see, for example, Young, 1994).



9. Growth in most LIDCs has not been accompanied by substantial structural transformation.

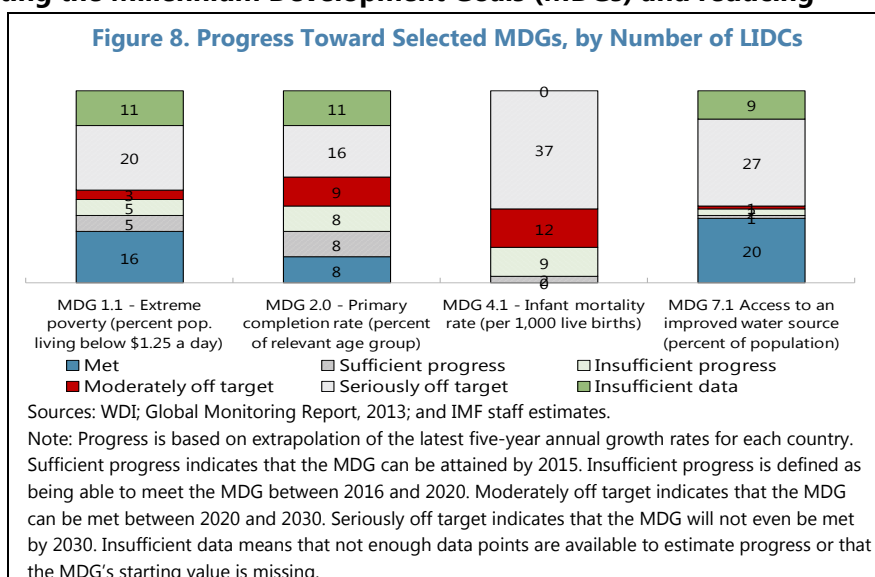
The relative importance of the agricultural sector declined during 2000–12, but the pace of change has been modest in most cases and often accompanied by a decline (rather than expansion) in the relative share of manufacturing (Figure 6 Panel B; World Bank, 2014a, *SSA Regional Economic Outlook*, Fall 2012). A significant fraction of the population in LIDCs is employed in agriculture (particularly in SSA economies), where labor productivity on average has grown slowly—lagging the corresponding growth rate in EMs—over the past decade, notably in fragile states (Figure 7, Panel A). The manufacturing base has remained narrow in the average LIDC, but with important regional differences: the share of manufacturing in GDP was higher in Asia’s LIDCs (12¼ percent average), a number of whom (e.g., Vietnam and Bangladesh) are well-integrated into global manufacturing value chains, but quite limited (and declining) in most SSA economies (7½ percent average), partly reflecting the relative importance of the natural resources sector and its limited positive spillovers to non-resource sectors for these economies (IMF, 2014b). While LIDCs currently occupy a lower position than EMs in estimated export product quality indices for agriculture and manufacturing, the scope for upgrading quality—as indicated by the length of the ladders—is substantial for both agricultural and manufactured products (Figure 7, Panel B; Henn and others, 2013). Services account for close to half of GDP in most countries, albeit reflecting a combination of a high productivity “modern” sector and a low productivity informal sector (see also Dabla-Norris and others, 2013).



10. Progress toward meeting the Millennium Development Goals (MDGs) and reducing income inequality has been mixed (Figure 8).¹⁰

While the latest data indicate that 16 out of 60 LIDCs—including frontier markets such as Ghana, Senegal, Uganda, and Vietnam—have already met the target for extreme poverty reduction, 20 countries—17 of them in SSA, and 12 are fragile states—are considered “seriously off target,” meaning unlikely to meet the target even by 2030.

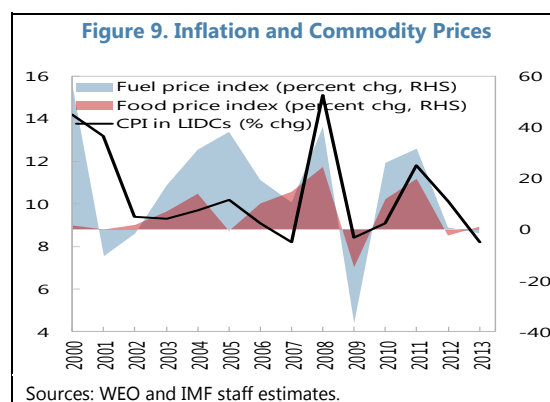
Progress has also been slow in regard to key development goals (e.g., primary school completion rate, infant mortality rate, access to an improved water source), with a large number of LIDCs projected to meet the targets only after 2020. This said, measured progress in meeting the MDGs is highly dependent on initial conditions. Many SSA countries have significantly improved their development indicators over the past 15 years—also the period with substantial improvement in the growth performance (*SSA Regional Economic Outlook*, Spring 2014). In addition, progress in reducing average income inequality in LIDCs has only been modest, but there are several success stories especially in SSA (e.g., Côte d’Ivoire, Mali, Niger, and Sierra Leone).



Growth was supported by lower inflation and favorable fiscal and external developments.

11. Inflation has been on a declining trend since 2000, albeit with temporary reversals triggered by spikes in food and fuel prices (Figure 9).

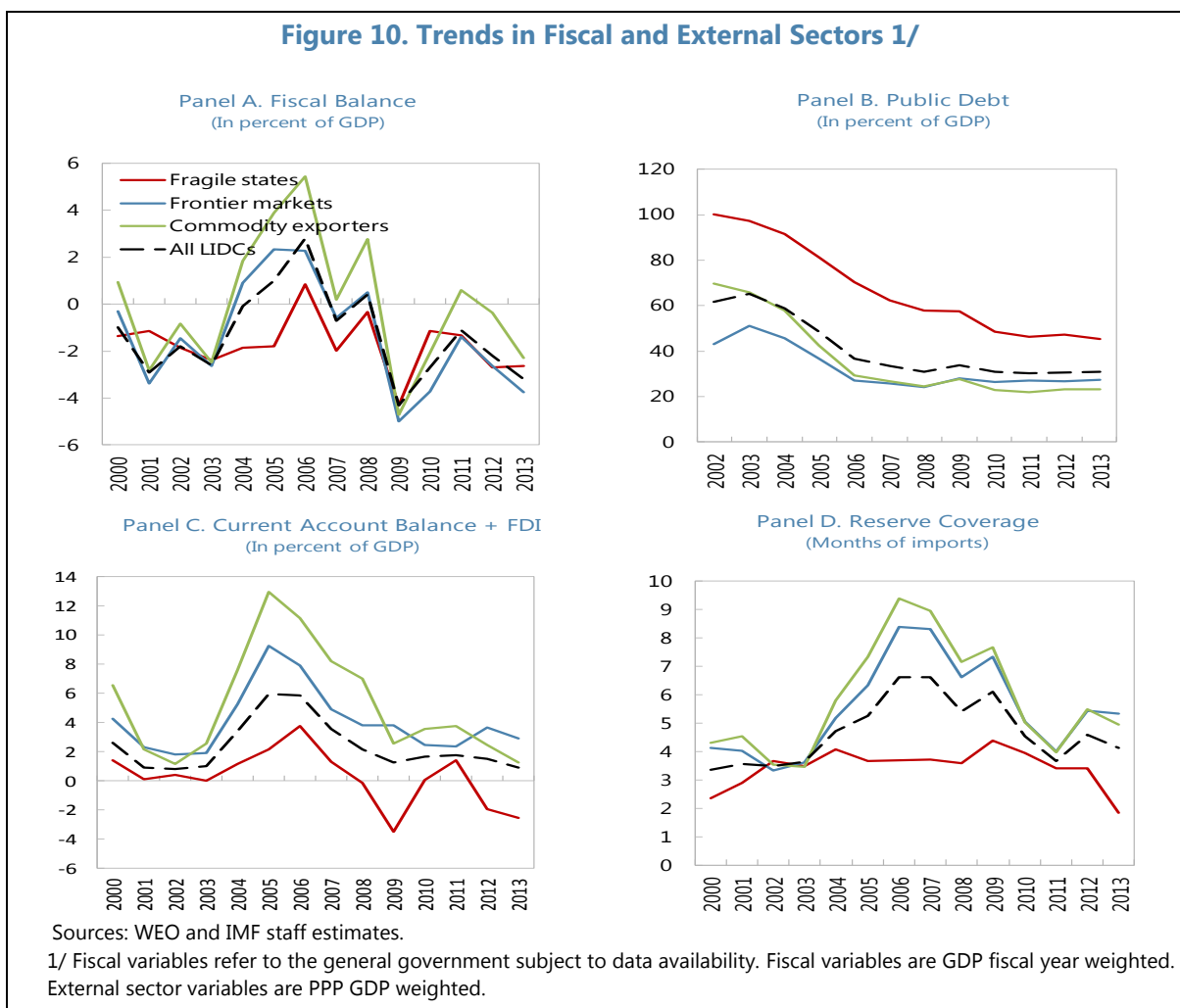
Tighter monetary policies, facilitated by reduced fiscal dominance, have been central to achieving this trend decline. But the importance of food and fuel in consumption patterns in LIDCs is such that surges in international price for these products (2008 and 2011) inevitably translate into inflation spikes that central banks have to accommodate. Over time, as financial markets develop in the more advanced LIDCs, monetary policy frameworks in these countries (e.g., Ghana, Kenya, Uganda, and Rwanda) have been shifting away from monetary-targeting based approaches toward more flexible forward-looking monetary



¹⁰ For a current assessment of progress toward meeting the MDGs, see the 2014 *Global Monitoring Report*.

policy frameworks that give a central role to policy rates as the key policy instrument and the inflation outlook as a central focus of policy-setting.

12. Developments in the fiscal and external sectors were relatively favorable early on but deteriorated somewhat after the global financial crisis (Figure 10).

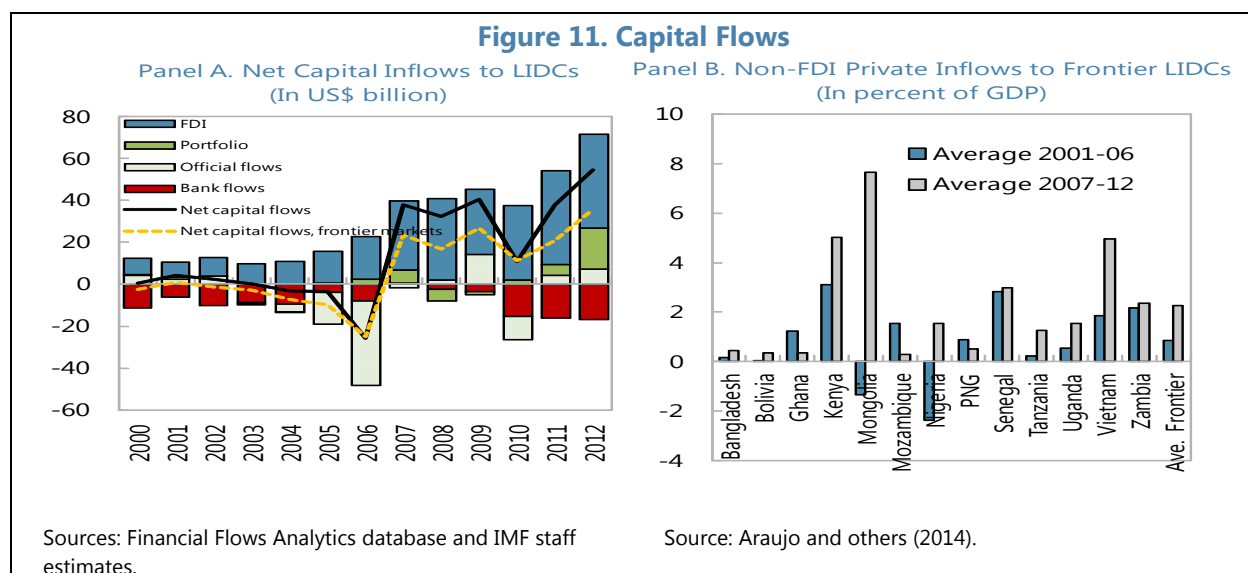


- Fiscal positions improved markedly during the first half of the 2000s (Panel A) as revenue mobilization was stepped up and debt service eased with debt relief. After the global financial crisis, fiscal deficits increased with stimulus measures. Since then, government spending in many LIDCs has remained high while revenue mobilization has yielded relatively little; thus, deficits remain above pre-crisis levels (April 2014, *Fiscal Monitor*).
- Public debt levels have eased significantly over time, reflecting debt relief and strong growth, with average ratios now stabilizing at around 31 percent of GDP (Panel B). Trends in debt are further examined in the final section of this report.

- Current account balances (augmented by FDI inflows) improved across most countries during the pre-crisis years (Panel C), markedly so in commodity exporters, contributing to reserve accumulation (Panel D). With reduced surpluses in recent years, import coverage levels have fallen again, but remain above three months of import cover target in most countries.

Financing and trade structures in LIDCs are changing rapidly.

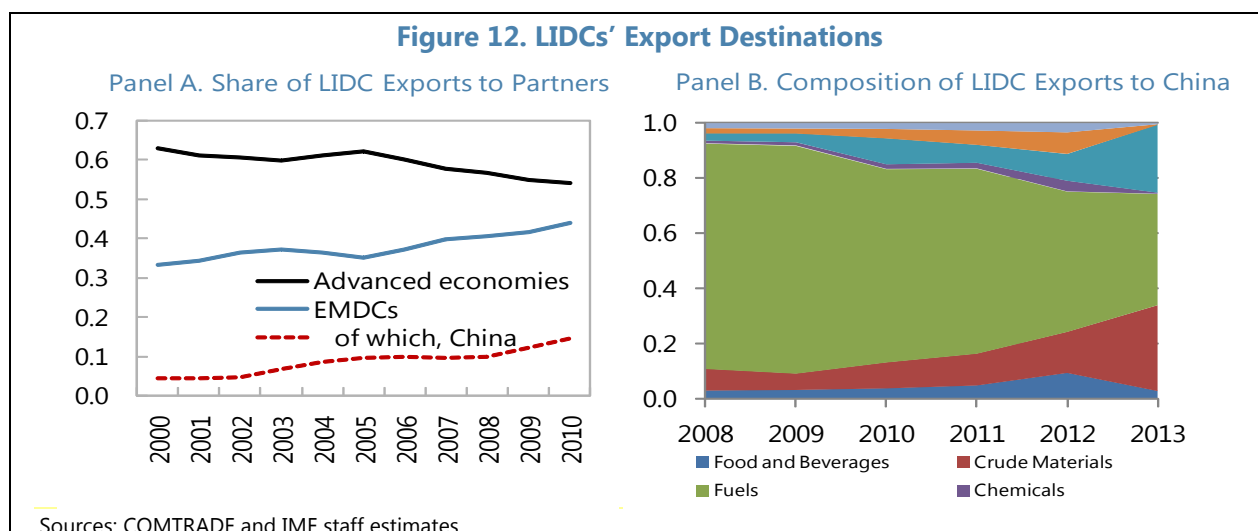
13. Capital inflows have increased sharply since 2000 (Figure 11) against a backdrop of strong global economic expansion, favorable financing conditions, and benign terms of trade. Starting at less than US\$1 billion in 2000, net capital inflows to LIDCs reached some US\$54 billion in 2012 (Panel A)—led by inflows into frontier markets—and were interrupted only briefly in the aftermath of the global crisis. Net FDI, the largest component of capital flows to LIDCs, increased sixfold during the period, primarily focused on the extractive sector (UNCTAD, 2014). While most FDI originated from advanced economies, a number of new players have joined from emerging markets, notably China. More recently, private portfolio inflows have also become significant in many frontier LIDCs (Panel B) as average non-FDI inflows to frontier markets increased to 2¼ percent of GDP during 2007–12, from less than 1 percent during 2001–06. Private financing of frontier LIDCs has increased while their net official development assistance (ODA) declined from a peak of 11¼ percent of GDP in 2002 to 5¾ percent of GDP in 2012.¹¹



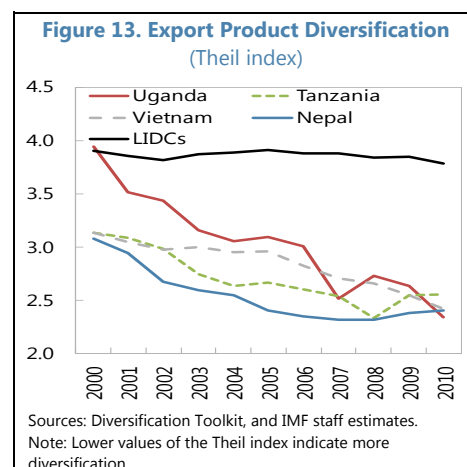
14. Trade links have increased steadily to countries other than the traditional advanced country markets (Figure 12). The last decade witnessed a significant shift in LIDCs' trading partner composition toward emerging and developing countries ("South-South" trade) and away from advanced economies (Panel A). This trend partly reflected the increasingly closer ties between LIDCs and EMs in terms of FDI and development financing. China is emerging as an important export

¹¹ ODA flows to fragile states (including debt relief) rose through 2010, but have declined as a share of recipient GDP since then.

destination for LIDCs; the share of LIDC exports to China tripled from less than 5 percent in 2000 to 15 percent by 2010, with fuels accounting for the bulk of the export basket—but increasing shares of crude materials and manufactured goods (Panel B).



15. Experiences with trade diversification, however, are uneven across LIDCs (Figure 13). Export product diversification entails introducing new higher value-added products and/or upgrading the quality of the existing export basket. Diversification has been shown to be conducive to faster economic growth in LIDCs in addition to being associated with lower output volatility (IMF, 2014b). Over the past decade, most LIDCs have made little progress in achieving export diversification, but there are important exceptions, including Vietnam and several economies in East Africa.



C. Recent Macroeconomic Developments and Outlook

Robust growth and moderate imbalances in 2013...

16. LIDC growth in 2013 continued to be robust (Table 2), recording 6 percent on average (up from about 5¼ percent in 2012), driven primarily by strong domestic demand. While growth remained strong in frontier markets at about 6 percent, it was down compared with previous years, led by recent slowdowns in Ghana, Nigeria, and Vietnam. Meanwhile, growth picked up particularly strongly in fragile states—led by Myanmar and DRC, helped by improved political stability. Softer commodity prices and calibrated monetary policy tightening have helped lower average inflation from over 10 percent during 2010–12 to 8.2 percent in 2013.

17. Both fiscal and current account deficits in LIDCs continued to widen in 2013 (Table 2).

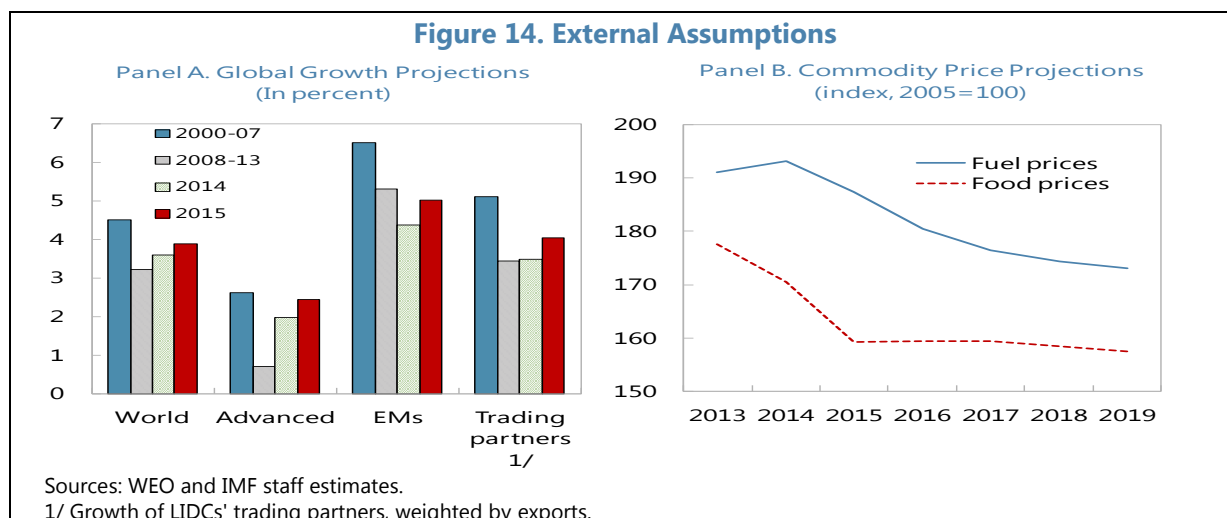
The deterioration was particularly marked on the fiscal front with the fiscal deficit reaching 3.2 percent of GDP on average. In some cases, the deterioration of the fiscal position reflected large increases in the wage bill and subsidies (e.g., Zambia and Lao P.D.R.) or election-related spending (e.g., Honduras); in others, the main driver was a revenue shortfall (e.g., Chad). Current account balances worsened notably in commodity exporters (e.g., Burundi and Democratic Republic of Congo), partly reflecting weak terms of trade. Meanwhile, reserve cover stood at about 3.7 months of imports in 2013, with fragile states experiencing continued deterioration.

	2010-2011	2012	2013	Projections	
				2014	2015
Growth (percent)					
Average LIDCs	6.3	5.2	6.0	6.2	6.6
Frontier markets	7.0	5.4	5.8	6.5	6.7
Commodity exporters	6.3	4.3	5.8	6.2	6.9
Fragile states	3.3	3.8	6.1	5.2	6.5
Inflation (percent)					
Average LIDCs	10.5	10.1	8.2	7.4	7.4
Frontier markets	11.0	9.5	7.4	7.3	7.3
Commodity exporters	11.3	12.7	10.1	8.5	8.6
Fragile states	9.3	11.6	10.9	7.9	7.5
Fiscal Balance (in percent of GDP)					
Average LIDCs	-1.9	-2.2	-3.2	-3.2	-3.0
Frontier markets	-2.6	-2.6	-3.7	-3.4	-3.4
Commodity exporters	-0.7	-0.4	-2.3	-2.1	-2.0
Fragile states	-1.2	-2.7	-2.6	-3.0	-2.4
Current Account Balance (in percent of GDP)					
Average LIDCs	-1.7	-2.5	-2.3	-2.2	-2.4
Frontier markets	-0.5	-0.2	0.0	0.0	-0.4
Commodity exporters	0.2	-1.7	-1.3	-1.0	-1.2
Fragile states	-3.0	-6.8	-6.5	-6.4	-6.2

Sources: WEO and IMF staff estimates.
Note: Aggregates are computed using weighted averages.

...with positive outlook despite increased downside risks to the global baseline scenario

18. LIDCs may face greater headwinds in the period ahead. Drawing on baseline projections from the WEO, notwithstanding the ongoing recovery in advanced economies, global growth is expected to reach 3.3 percent in 2014 and 3.9 percent in 2015, still significantly lower than an average of 4½ percent recorded before the global financial crisis (2000–07). Growth in emerging markets, which drove the recent commodities boom, is expected to shift down from over 6½ percent before the crisis (and 6.9 percent during the 2010–11 rebound) to an average of 4.6 percent during 2014–15. LIDCs' trading partner growth, although picking up, is also set to remain lower than pre-crisis level (Figure 14, Panel A). Coupled with easing commodity prices (Figure 14, Panel B) (which affect net exporters of commodities) and the continued decline of aid flows, external conditions will be less supportive to LIDC growth compared to the period before the crisis. The current Ebola outbreak is expected to have a significant economic toll on the three most-affected economies: Guinea, Liberia, and Sierra Leone.



19. Nevertheless, the growth outlook in LIDCs is expected to remain strong supported by continuous implementation of structural reforms (Table 2). Real GDP growth in LIDCs as a whole is projected at about 6¼ percent in 2014 and 6.6 percent in 2015, a significant acceleration from 2012–13. The strong performance is set to occur broadly across LIDC subgroups, led by several frontier markets (e.g., Bangladesh, Kenya, Nigeria, and Senegal)—supported by continued efforts to implement critical reforms (e.g., energy sector reform in Nigeria) and improve business environment. Progress in rebuilding peace and stability and implementation of structural reforms (e.g., energy subsidy and civil service reforms) is expected to benefit fragile states, with growth continuing to accelerate in 2014–15, notably in Chad and Myanmar. Robust growth in LIDCs would also be supported by greater macroeconomic stability, with inflation projected to decline by over 1 percentage point between 2013 and 2014–15, with softer commodity prices and prudent monetary policy.

20. In the near term, deficits are expected to remain significantly above pre-crisis levels reflecting uneven efforts to improve fiscal buffers. On current policies, the average deficit in LIDCs is broadly unchanged in 2014 and is set to decline marginally in 2015, stabilizing at around 3 percent of GDP compared to a 0.4 percent of GDP overall surplus in 2008. However, there is large variation across countries. In about half of the LIDCs deficits are expected to decline, mainly in frontier countries (where recent fiscal slippages have resulted in market pressures).¹² In some cases, the improvement in the fiscal position reflects delays or cuts in public investment (e.g., Lao P.D.R. and Zambia) and/or wage bill restraint (e.g., Ghana and Lao P.D.R.). In other cases, revenues are projected to increase thanks to higher oil revenues (e.g., Chad) and improvements in tax administration (e.g., Cambodia). In the other half of LIDCs, fiscal deficits are projected to go up mainly on account of higher current spending (e.g., Moldova and Mozambique) but also owing to infrastructure investment (e.g., Djibouti, Liberia, and Mozambique). The average public debt in LIDCs is expected to rise marginally in 2014–15. However, debt increases are likely to be sizable in a handful of countries

¹² Despite the consolidation, the fiscal deficit in frontier markets will remain significantly above the LIDC average.

due to large deficits (e.g., Djibouti and Ghana) and/or significant increases in current spending (e.g., Niger).

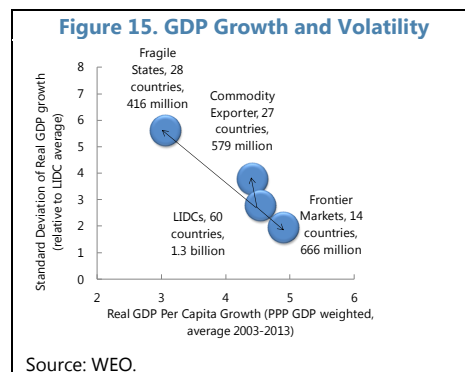
21. There are important downside risks to the outlook. Downside risks include a weakening of macroeconomic policies, adverse global spillovers, and natural disasters including a worsening of the current Ebola outbreak. A protracted global growth slowdown, would negatively affect LIDCs through trade, remittances, commodity prices, and financial channels. Sharply higher global oil prices would have differential effects among LIDCs—benefiting oil exporters, but hurting oil importers, especially economies that face energy constraints related to a high cost of electricity. Financial vulnerabilities arising from potential adverse swings in capital flows would be particularly relevant for frontier LIDCs, making vigilant financial sector oversight a policy priority for these economies. Natural disasters can be particularly detrimental to growth in the poorest LIDCs with weak institutions. These risks are discussed further in the next section.

SHIFTING VULNERABILITIES

A. Introduction

22. LIDCs have generally performed well in the period since the global financial crisis, but remain vulnerable to shocks, both external and domestic.

Output volatility has been high for many countries, most notably fragile states (Figure 15). How well are they positioned to cope with shocks? How would different risk scenarios for the global economy affect different LIDCs? These questions are examined here, building on the methods used in the IMF's *2013 Low-Income Countries Global Risks and Vulnerabilities Report*. The discussion expands on the analysis of vulnerabilities in previous IMF reports by exploring financial sector vulnerabilities in LIDCs, with a special focus on frontier markets; and by examining the exposure of LIDCs to natural disaster shocks and the ensuing impact on growth and food security, an issue of particular relevance for the poorest LIDCs.



23. Key conclusions of the analysis are:

- **The share of LIDCs that are highly vulnerable is easing from its crisis peak, but the number of countries in the medium vulnerability group has picked up again since 2012.** Weakened fiscal positions remain a key source of vulnerability across most LIDCs.
- **LIDCs are not immune to domestic financial sector weaknesses and, in frontier markets in particular, to global financial turbulence.** While financial sector vulnerabilities have abated since the global recession, rapid credit growth and greater exposure to portfolio inflows warrant close monitoring, especially where modernization of regulatory norms and banking supervision has not kept pace with rapid financial development.
- **Natural disasters frequently impose large economic and human costs in LIDCs** hampering growth but also contributing to weaker fiscal accounts and the likelihood of food crises in the poorest countries.

24. Strengthening macroeconomic policies to rebuild buffers is key to boosting resilience.

Enhanced revenue mobilization and spending rationalization are critical to increase fiscal space. Reserve levels need to be rebuilt in a significant number of countries, especially fragile states. In economies where financial deepening is well underway, modernizing monetary frameworks should enhance the transmission mechanism and create room to let exchange rate movements absorb shocks.

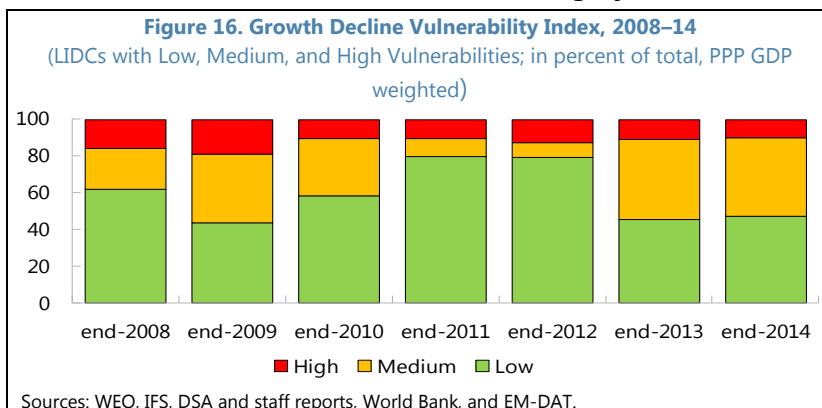
B. Trends in Vulnerabilities: The Role of Fundamentals

Some improvement...

25. Amid generally robust growth, the number of LIDCs deemed to be highly vulnerable to an adverse growth shock has eased since the global financial crisis.

The extent of economic vulnerability is assessed using a growth decline vulnerability index (GDVI), developed in previous IMF board papers (see Box 2).¹³ Using this metric, some 10 percent of LIDCs are currently classified as highly vulnerable, with 43 percent in the medium

vulnerability category (Figure 16). After a spike in 2009, the number of countries deemed to be highly vulnerable has eased gradually, but the number in the medium vulnerability grouping has been increasing again since 2012. The latter is due mainly to an increase in vulnerabilities in some key frontier markets (Nigeria, Ghana, and Vietnam). Small and/or poorer countries within the LIDC grouping typically record higher vulnerability scores than the average LIDC.



Box 2. Methodology Underlying the Growth Decline Vulnerability Index ^{1/}

The growth decline vulnerability index (GDVI) measures a country's vulnerability to sudden growth declines in the event of a large exogenous shock.

A range of indicators is examined to identify variables and thresholds to separate crisis from non-crisis cases. Thirteen variables are used in calculating three sectoral vulnerability indices: a real sector index based on such variables as GDP growth, Country Policy and Institutional Assessment (CPIA) scores (a broad indicator of political stability and quality of institutions), and natural disaster frequency; an external sector index based on such variables as reserve coverage, real export growth, exchange market pressure and export price changes, and a fiscal sector index based on variables such as the fiscal balance and the level of public debt. The weights assigned to each variable in constructing these indices depend on their ability to distinguish between crisis and non-crisis situations.

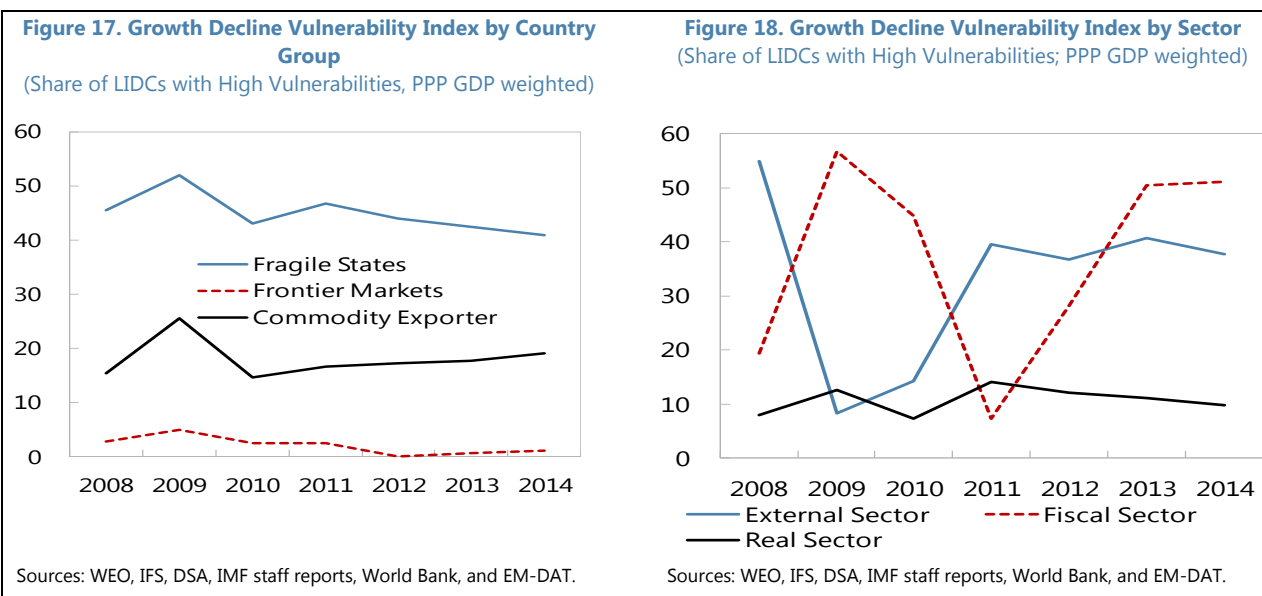
The three sectoral vulnerability indices are then combined to establish the overall GDVI.

^{1/} See Dabla-Norris and Bal Gündüz (2014).

¹³ See International Monetary Fund (2011a, 2011b, 2012a, and 2013a).

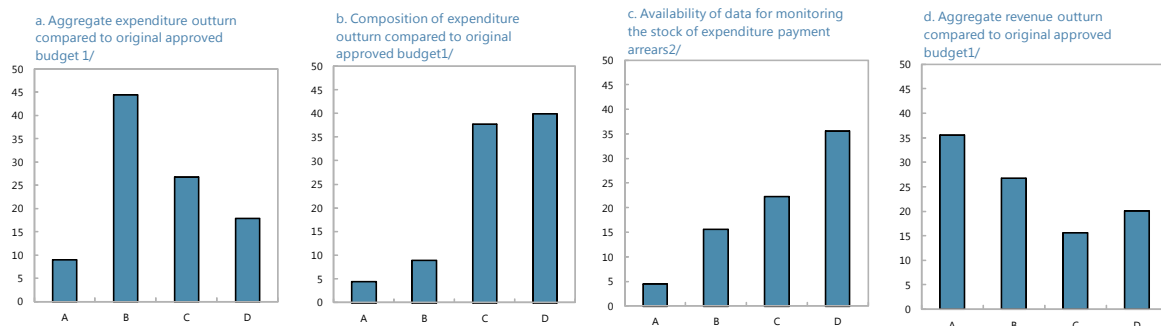
...with substantial differences across countries and sectors

26. Vulnerabilities based on the GDVI are lowest among frontier market economies, helped in good part by stronger external sector positions (Figure 17). By contrast, fragile states are most likely to be highly vulnerable, reflecting weaker growth performance, poor institutional quality, and both fiscal and external sector weaknesses. With elevated poverty levels (averaging 42 percent), fragile states are also those where adverse shocks are likely to have the strongest effects on the poor.



27. The fiscal sector is the primary source of vulnerabilities across country groups (Figure 18). The main drivers of fiscal vulnerability are: (1) elevated fiscal deficits (which remain well above pre-crisis levels in most countries); and (2) weak fiscal institutions—notably lack of a well-defined medium-term fiscal anchor and shortcomings in budget planning and execution that often result in spending overruns (Figure 19). By contrast, vulnerabilities in the external sector have receded somewhat relative to the peak crisis levels helped by improvements in current account positions and robust export growth.

Figure 19. LIDCs: Assessment on Budget Planning and Execution
(In percent of countries, A=high rating, D=low rating)



Sources: Public Expenditure and Financial Accountability Assessment (PEFA). Database and staff estimates. Percentages show the share of countries who received the score in question. The sample comprises of 45 countries and shows latest available data (ranging from 2005 to 2013).

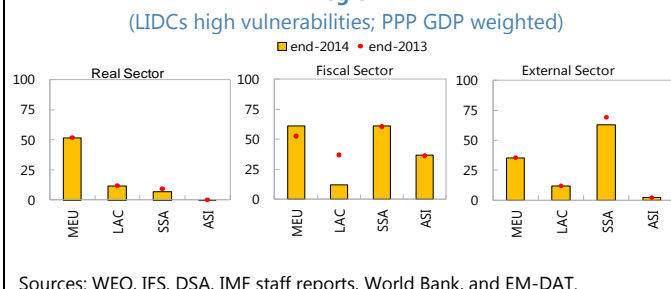
1/ A, B, and C, are scores related to deviation up to 9%, 15% and more than 15% in 1 out of three years. D refers to deviation higher than 15% in 2 or 3 out of three years.

2/ A, B, C, and D are scores related to, respectively, reliable and complete data on the stock of arrears produced at least at the end of each fiscal year, reliable data generated annually but not necessarily complete for a few identified expenditure categories or budget institutions, data generated by at least one comprehensive ad hoc exercise within the last two years, no reliable data from the past two years.

28. Noticeable differences in vulnerability patterns have emerged across regions.

About half of LIDCs in the Middle East/Central Asia have high vulnerabilities as a result of sluggish growth (some 3 percentage points below the LIDC average during 2011–14) and weak institutions (Figure 20). More than one-half of SSA countries are rated at “medium vulnerability” in 2014—a threefold increase from 2012—due to weaker fiscal indicators. Asian LIDCs have recorded increasing vulnerability scores in recent years, due to weakening external and fiscal indicators—but this group has consistently lower scores than other regions over time, helped by strong growth.

Figure 20. Growth Decline Vulnerability Index by Sector and Region
(LIDCs high vulnerabilities; PPP GDP weighted)



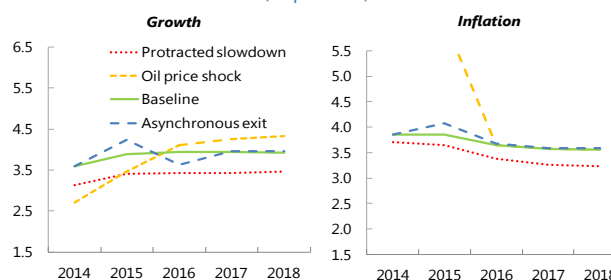
Sources: WEO, IFS, DSA, IMF staff reports, World Bank, and EM-DAT.

C. How Vulnerable are LIDCs to Potential Global Shocks?

29. The exposure of LIDCs to global shocks has increased significantly in recent years.

The key spillover channel from advanced and emerging economies continues to be the trade channel, but there are also important linkages via investment flows, remittances, and aid. Drawing on the April 2014 and October 2014 WEO, we look here at the potential impact on LIDCs of three specific adverse scenarios (Figure 21):

Figure 21. Shock Scenarios: Global Growth and Inflation
(In percent)

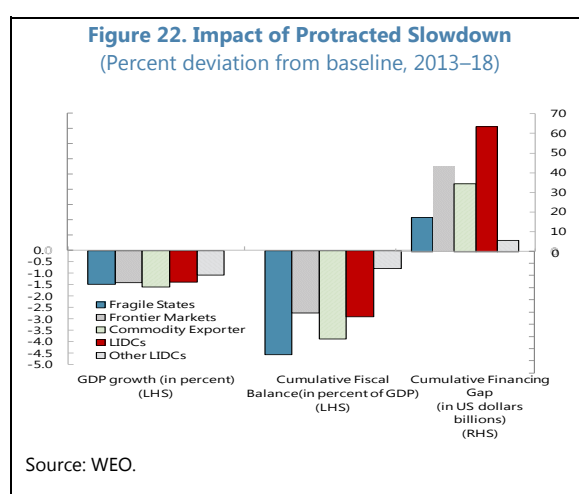


Source: WEO.

- Protracted period of slower growth in advanced and emerging economies through 2018 affecting trading partner import growth and key commodity prices.
- An energy price shock stemming from an escalation of geopolitical tensions, with the effects concentrated in 2014–15. Oil prices are assumed to rise relative to the baseline by 10 percent in 2014 and 15 percent in 2015.
- Asynchronous normalization of monetary policies in key advanced economies, with a spike in global risk premia that produces some financial turmoil but with only a modest impact on global growth levels.

30. The protracted slowdown in advanced and emerging markets would have a substantial impact on LIDCs relative to baseline WEO projections in Table 2.¹⁴

- Real GDP growth over the medium term (2014–18) would fall short of the baseline by about 1.4 percentage points on a cumulative basis, with the effect being most marked on commodity exporters (Figure 22). Trade and investment linkages with China constitute a significant transmission mechanism in this scenario.

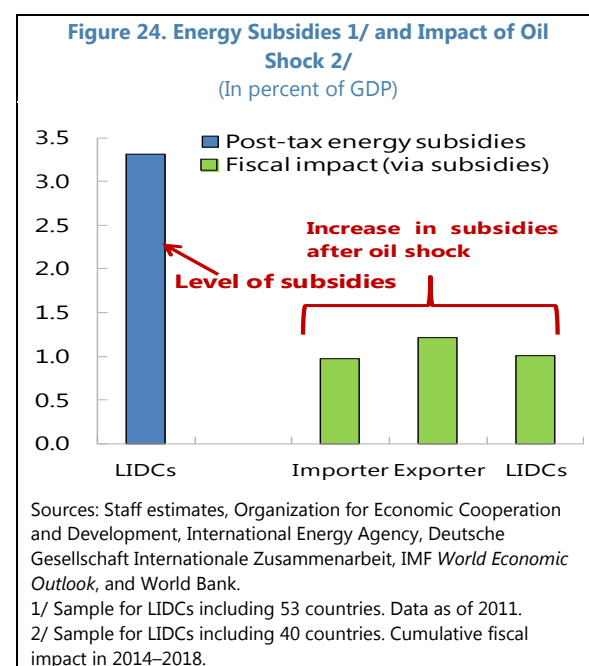
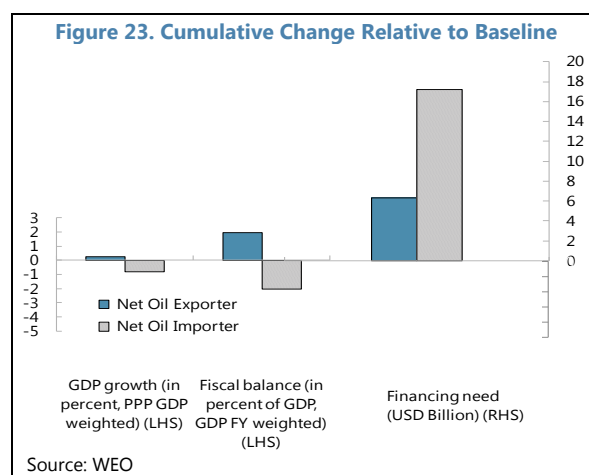


- The fiscal balance in LIDCs would worsen by about 3 percent of GDP on a cumulative basis relative to baseline, with commodity exporters (dependent on resource revenues) again being the hardest hit with a deterioration of nearly 4 percent of GDP as compared to some 2 percent of GDP for other LIDCs. As a corollary, debt levels would rise by about 3 percent of GDP over the medium term relative to baseline. The scope for discretionary countercyclical policies in the aftermath of the shock would be severely constrained in most countries, given already-elevated fiscal deficits, the likely shrinking of access to external commercial credit, and (for many LIDCs) limited domestic borrowing room in thin financial systems (IMF, 2013b).
- Reserves (relative to imports) would fall most among commodity exporters, but other LIDCs, notably fragile states, would still face large financing needs to maintain adequate import coverage. For LIDCs as a group, financing amounting to about US\$64 billion would be needed to restore international reserve levels to three months of import cover (or to pre-shock import coverage levels, if this was below three months).

¹⁴ The framework to analyze these shocks comprises a system of equations for the growth, fiscal, and external sectors to estimate the impact on LIDCs. For a detailed description of the methodology used for the scenario analysis, see IMF (2013a).

31. The energy price shock scenario would have a much less severe impact on LIDCs as a group. While oil exporters would benefit, countries with strong export links to adversely-hit economies would be negatively affected under this shock (Figure 23). Specifically:

- For oil exporters, the primary impact would be on the fiscal balance and reserves, with the aggregates estimated to increase on a cumulative basis by close to 2 percent of GDP and 1.8 months of imports respectively, by 2018.
- For other LIDCs, output effects would be modest, but the fiscal balance would deteriorate by a cumulative 2 percent of GDP by 2018. Given the deterioration in current account positions, the external financing needed to maintain adequate international reserve levels would be around US\$17 billion by end-2018.
- A key channel through which the price shock hits fiscal positions is via its impact on energy subsidies (Figure 24). Estimates based on Clements and others (2013) indicate that, on average, energy subsidies in non-commodity exporters amount to about 2 percent of GDP on a post-tax basis. With a partial pass-through to retail prices (consistent with historical patterns), the additional fiscal cost from fuel subsidies is estimated at about 1 percent of GDP on average, but exceeding 2½ percent of GDP in some cases.



32. The impact of an asynchronous normalization of monetary policies in advanced economies on international financial markets would be significant, but the overall impact on LIDCs would be very limited. As can be seen in

Figure 21, the net impact on global output in this scenario is modest, yielding little effect on LIDCs via the trade channel. The impact on most LIDCs via the financial channel is minimal, given few direct links to international financial markets; the impact on frontier markets would be more marked, but is not adequately captured by the modeling methodology used. This issue is explored further below.

D. A Closer Look at Financial Vulnerabilities

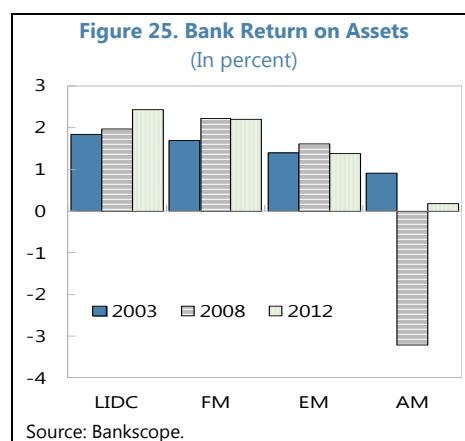
33. Financial systems in LIDCs, typically bank-dominated, have traditionally been relatively insulated from international financial developments, given limited access to external funding and the frequent presence of capital controls. With stable domestic funding from resident deposits, the key threat to financial stability has been the erosion of asset quality. Systems where state-owned banks play a lead role have been particularly vulnerable to such erosion, given the potential politicization of lending decisions (as in Vietnam). But asset quality erosion can also easily emerge when there is: a) rapid expansion of credit in an environment of weak internal controls and/or limited supervisory oversight (as in Nigeria, 2008–9); b) excessive exposure to specific sectors or corporates (a common feature in undiversified economies); and c) significant related-party lending by banks that are part of larger financial conglomerates (Cameroon 2010–11). The relatively benign experience of LIDC financial systems during the global financial crisis highlighted the direct insulation from external developments—but also flagged the indirect exposure as weaker exports and exchange rate adjustments took a toll on banks' corporate borrowers (as in Zambia).

34. There has been significant financial development in many LIDCs in recent years, bringing new risks to financial systems. Financial deepening and broadening has proceeded, foreign investors are investing in domestic capital markets, governments have undertaken sovereign bond issues in international capital markets, and new financial instruments (including mobile banking and salary-backed lending) have taken off. Frontier market economies have seen the most far-reaching changes in these areas.

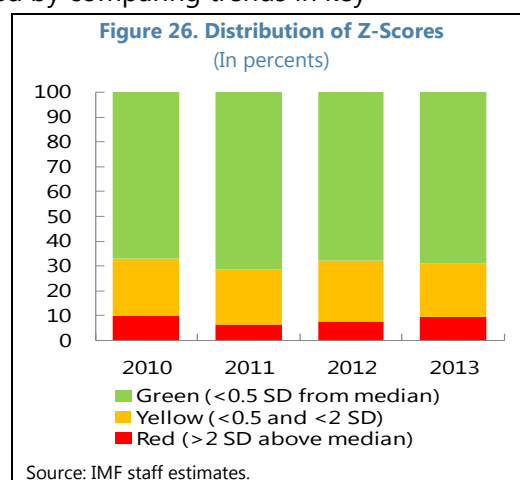
Financial vulnerabilities in LIDCs after the global crisis

35. Financial sector vulnerabilities have abated since the peak of the global financial crisis but some LIDCs show renewed signs of potential pressures.

- Banks' profitability has been stable and reportedly higher than in more advanced economies (Figure 25). This partly reflects oligopolistic market structures and higher risk levels (e.g., with respect to credit enforcement). In aggregate, non-performing loan (NPL) ratios have also declined steadily (even through the global financial crisis) from 14 percent in 2003 to about 8 percent in 2013 with provisions stable at above 70 percent throughout the period.

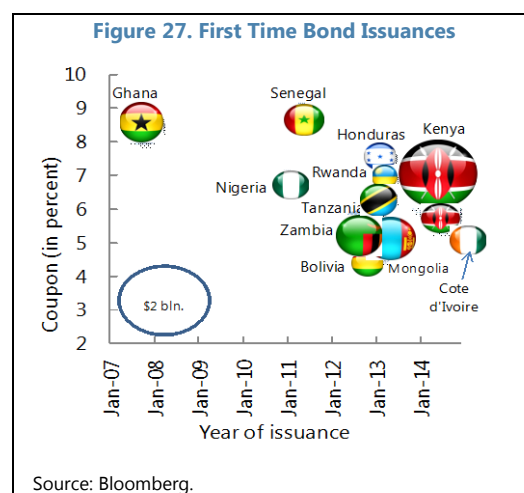


- Insights into country-level vulnerabilities can be obtained by comparing trends in key vulnerability indicators with the country-specific historic experience, using the z-score methodology.¹⁵ Looking at the behavior of six financial variables in 28 LIDCs, large deviations occur in about 10 percent of cases, a modest pick-up from post-crisis lows in 2011 (Figure 26; share of major deviation marked red). Signs of stress in segments of the financial system across LIDCs in previous years often reflected a resumption of rapid credit growth after the global financial crisis. More recently, pressures have been concentrated in rapid growth of cross-border exposures (e.g., Cambodia and Uganda), and in stretched loan-deposit ratios (Haiti, Cameroon, Kenya, and Mongolia). However, z-scores need to be interpreted with caution, to the extent that they may reflect a catch-up from low levels of financial development and/or reflect large transactions of individual multinational investors and banks.



A changing financial landscape warranting a closer look at frontier markets

36. Frontier markets pioneered the use of sovereign bond issuance by LIDCs with the number and the size of international bond issuances having increased markedly in recent years (Figure 27). By tapping non-domestic funding sources, sovereigns provide greater room for domestic bank lending to the private sector, expanding access to finance. In addition, the benchmarking role of sovereign bonds means that their issuance can also pave the way, over time, for the corporate sector to tap external markets, including for critical long-term infrastructure financing. Anecdotal evidence suggests that foreign participation in frontier domestic bond markets is also growing rapidly in a small number of countries.



37. Given growing cross-border portfolio flows, LIDCs and frontier debt markets in particular, are more exposed to global volatility than in the past. While there appears to be a lower basic level of volatility for frontier markets, when compared to EMs, the volatility of bond spreads in frontier markets increased sharply at the times of more

¹⁵ Z-scores are standardized measures of how close an observation is to the historical median of a given variable. Z-scores cannot be interpreted as definitive threshold variables. The indicators used reflect both domestic and foreign channels: return on assets, bank credit to bank deposit ratio, cross border loans to GDP, cross border deposits to GDP, growth rate of M2 to GDP, and the growth rate of private credit to GDP ratio.

extreme increases in the CBOE Volatility Index (VIX) in mid-2013 (Figure 28).¹⁶ In less volatile times, LIDCs thus seem to benefit from a more dedicated investor class, possibly due to the higher transaction costs (e.g., information gathering) involved, but once certain volatility thresholds are breached, price movements can become more pronounced due to the shallowness of markets.

38. A model-based assessment suggests that financial vulnerabilities in some frontier markets are potentially significant, but data limitations preclude strong conclusions.

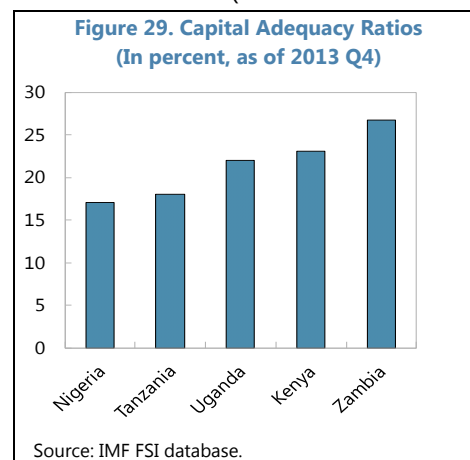
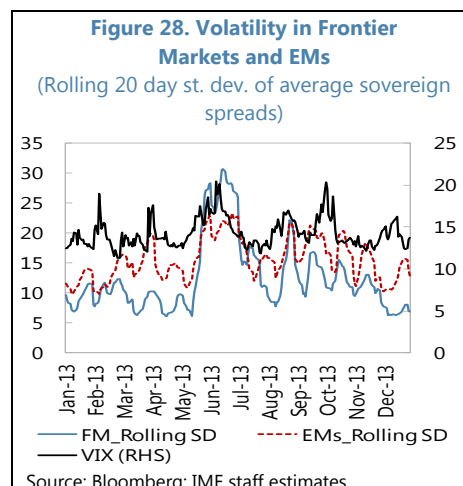
- A financial vulnerability index for frontier markets was constructed based on IMF modeling techniques developed for emerging markets (see Appendix III). The analysis suggests that four-fifths of the economies are either “medium” or “highly” vulnerable, albeit with gradual improvements since 2009 (Table 3). For the five countries classified in the “high risk” spectrum in 2012–13, the key drivers of vulnerability are from banks’ balance sheet weaknesses (Bangladesh), rapid cumulative credit growth (Côte d’Ivoire, Mozambique, and Senegal) and/or a sharp rise in foreign liabilities as percent of domestic credit (Côte d’Ivoire and Vietnam).

Table 3. Financial Vulnerability Index: Number and Share of Countries by Vulnerability Rating

	Number of countries						Share of countries (In percent of total)					
	2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013
Low	1	1	3	3	4	3	7	7	21	21	29	21
Medium	9	8	4	5	5	6	64	57	29	36	36	43
High	4	5	7	6	5	5	29	36	50	43	36	36
Total	14	14	14	14	14	14	100	100	100	100	100	100

Source: IMF staff estimates.

- A closer examination of African frontier markets suggests that banking systems have low liquidity risk and are well-capitalized and profitable, but potential vulnerabilities in the area of foreign currency exposures (Tanzania, Uganda, and Zambia) and rising NPLs (Uganda), could be aggravated by the observed weaknesses of supervision in the area of risk assessment and stress testing, and challenges to consolidated supervision posed by the expansion of pan-African banks (Box 3 and Figure 29).



¹⁶ Based on average spreads for all sovereign bonds of EMs and LIDCs rated “B” to “BB-.”

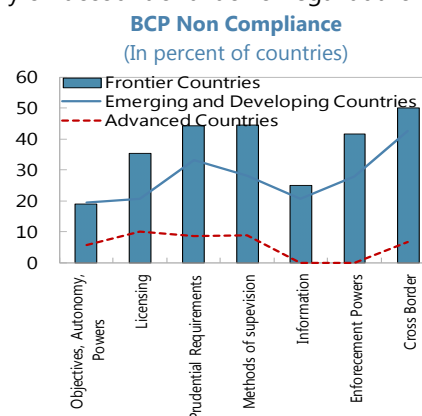
- That said, model-based assessments need to be seen in the broader context of maintaining financial stability while promoting development. While financial deepening is welcome, the speed with which it is happening is a potential cause of concern, given that it involves a move into uncharted territory for regulatory agencies and banks alike.

Box 3. Frontier FSAPs: Findings from the Basel Core Principles Assessments

An analysis of banking supervision in the most recent FSAPs conducted in frontier countries between 2006 and 2013 suggests that significant progress has been made and many countries continue updating their practices, including through FSAP technical assistance. However, three areas stand out where compliance was low:

- **Anti-Money laundering supervision (BCP 18):** Most frontier countries were found to be non-compliant in anti-money laundering supervision. While the overall legal framework was in place, supporting regulations remained lacking; the perimeter of regulation was too narrow and did not capture shadow banks; fines imposed were not punitive; the Financial Integrity Unit lacked operational independence; and regulators still lacked capacity and adequate resources.
- **Prudential requirements (BCPs 12-15):** While capital adequacy requirements were in line with Basel I, other material risks (including market, liquidity, and operational) were typically not properly assessed and regulators lacked the capacity to fully understand them with the result that they did not perceive them as material. Regulators provided limited guidance on these risks, and formal stress testing (or requirements for banks to conduct stress tests) was lacking.
- **Consolidated and cross border supervision (BCPs 24-25):** Consolidated and cross-border supervision was not performed in eight of twelve frontier economies, mainly on account of a lack of legal authority. All countries are host to a number of foreign banks but home regulators have often not been responsive to requests from host frontier countries, as these foreign operations are not deemed systemic. One example of recent progress in this area is in East Africa, where the Kenyan central bank has organized supervisory colleges for all major banks with cross-border operations, and is providing training to host country supervisors in the region.

The FSAP findings also highlighted issues that impact supervisors' "willingness to act." In particular, independence of the regulator, which, while stipulated in the law, is still lacking in practice given arbitrary hiring and removal of supervisors, requirements for regulators to consult with the ministry of finance on licensing or the issuance of new regulations, or insufficient legal protection in the carrying out of duties. Most supervisors were found to have adequate enforcement powers but lacked sufficient tools, skills, or proper guidance and procedures on the application of remedial actions, in part reflecting significant human and resource constraints. Finally, there were important organizational gaps, with on- and off-site supervision units often having limited contact, and interagency communications (both domestically and across borders) also being constrained.

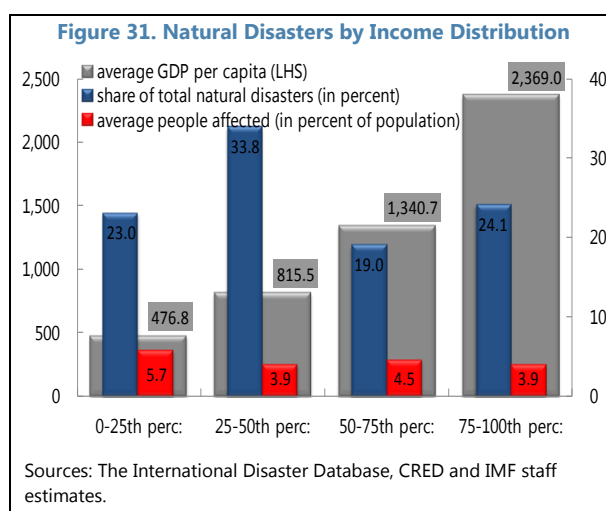
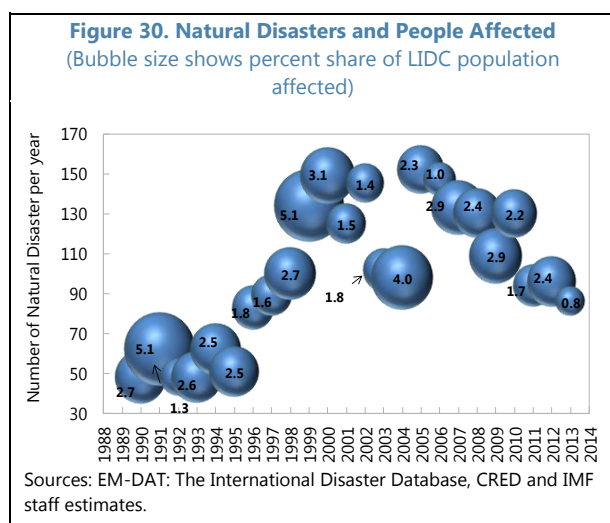


Source: Standards and Codes Database, BCP 2006 Methodology.

E. Natural Disasters: A Particular Challenge for LIDCs

39. LIDCs tend to be more vulnerable to losses from natural disasters than more developed economies.¹⁷

- Poor infrastructure in LIDCs limits capacity to withstand disasters, buffers/resources to be deployed to affected areas are scarce, and economies are less diversified, reducing post-shock economic resilience (Laframboise and Loko, 2012).
- The frequency of natural disasters in LIDCs has increased over time, and is expected to increase further with global warming (World Bank, 2014b), although the percentage of population affected by such natural events has remained largely constant (Figure 30).
- LIDCs experience natural disasters more frequently at low per capita income levels within the LIDC sample (Figure 31).



- Disasters are likely to have a higher impact on the poorest, given their limited capacity to respond (e.g., via savings and access to credit—see Hallegate and Przulski, 2010).
- Although natural disasters in this section do not specifically focus on epidemic outbreaks, some of its findings also apply to the current Ebola crisis (Box 4).

¹⁷ Natural disaster data come from the Emergency Events Database (EM-DAT) managed by the Centre for Research on the Epidemiology of Disasters (CRED). They comprise geophysical (earthquake), meteorological (storms), hydrological (floods), climatological (droughts), and biological (epidemics) incidents. A disaster is registered in the database (occurrence of natural disaster) if one of the following conditions is met: (i) 10 or more fatalities; (ii) 100 or more people “affected;” (iii) a call for international assistance; and (iv) the declaration of a state of emergency. People “affected” by a disaster include those injured, homeless/displaced, or requiring immediate assistance, but exclude fatalities.

Box 4. The Ebola Outbreak in Guinea, Liberia, and Sierra Leone

The Ebola Virus Disease (EVD) epidemic continues to intensify. The outbreak was initially concentrated in an area around the joint border of Guinea, Sierra Leone, and Liberia, but has spread to the capital cities of these countries and, to some extent, crossed other international boundaries. Epidemiologists have suggested that it may take six to nine months to bring the outbreak under control, provided containment efforts are implemented vigorously.

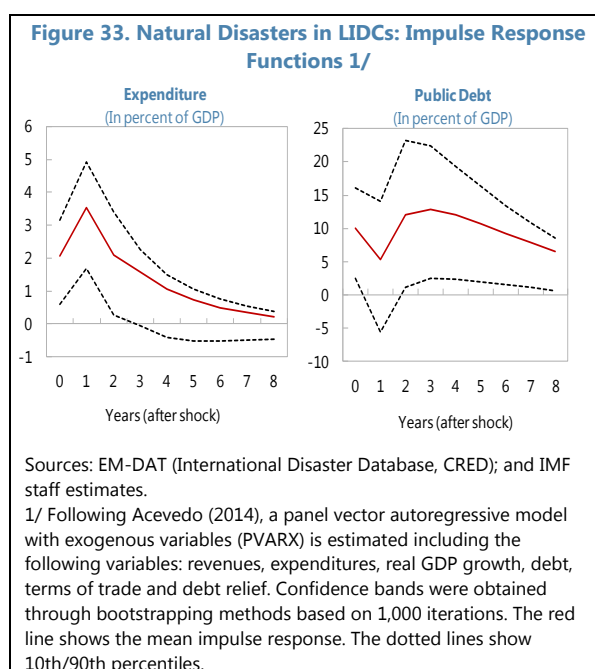
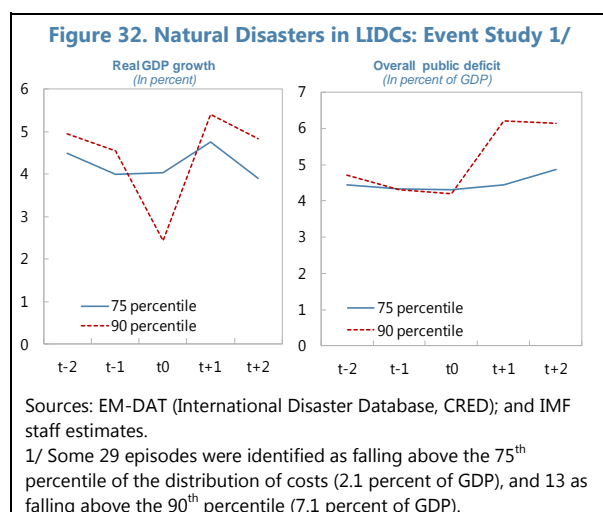
The economic impact of the epidemic is expected to be significant. Although the number of infected people is still small as a share of population, the impact of quarantines and declining public confidence is being felt across all sectors of economic activity. Reduced output levels and disruption to both domestic and cross-border trade and services is expected to adversely affect both the fiscal accounts and the balance of payments in all three countries. The economic and social toll of the Ebola outbreak is expected to be most pronounced in Liberia, where both the capacity and resources to cope with the disease are lacking.

The Fund is responding to requests for financial assistance from the three countries most affected by Ebola through augmentations of existing Fund-supported programs in Liberia and Sierra Leone, and the Rapid Credit Facility in Guinea. Total new commitments are US\$129 million and the affected countries' financial needs will be reviewed again later in the year. The World Bank is mobilizing assistance of US\$230 million—including a US\$117 million emergency financing package—to tackle the outbreak in the three countries hardest hit by the crisis.

40. Major natural disasters can lead to a sharp deterioration of fiscal positions.¹⁸ The fiscal impact depends not only on the direct costs of the event (damages and loss of output), but also on the nature of the government's reaction to the disaster. In general, public expenditure rises as a result of the immediate emergency assistance relief and the ensuing reconstruction efforts, but revenue collection may also fall as the domestic tax base contracts. To assess these effects in LIDCs, two approaches are adopted:

¹⁸ There is growing literature that focuses on the economic effects of natural disasters. For a recent analysis, see Melecky and Raddatz (2011); Dahlen and Saxena (2012); and Acevedo (2014).

- Event studies.** The EM-DAT database is used to analyze the impact of large natural disasters (defined in terms of the cost of damage) during the period 1980–2013.¹⁹ On impact, real GDP growth declines significantly (by about 2 percentage points) but only in the case of severe episodes.²⁰ Following the event, growth picks up—mainly reflecting reconstruction spending—and gradually returns to trend (Figure 32). In parallel, the fiscal deficit widens by about 2 percent of GDP and the effect is persistent, but again only in severe episodes.
- Empirical estimates.** A panel vector autoregressive model for 54 LIDCs confirms that fiscal accounts mainly deteriorate because of higher spending. Expenditure increases on average by about 2 percent of GDP on impact and an additional 1 percent the year after, only slowly coming back to the baseline (Figure 33); the effect on revenues is not significant. The result is an increase in fiscal deficits with debt remaining some 10 percent of GDP above the baseline 8 years after the event.

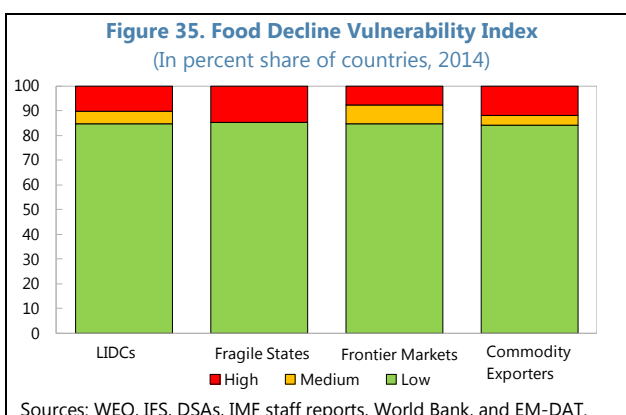
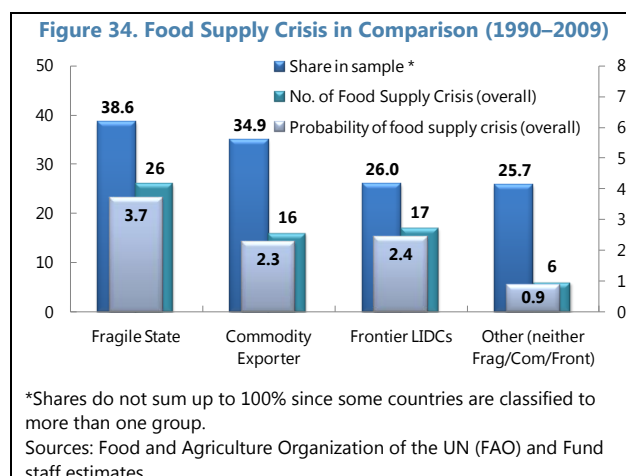


¹⁹ Although the frequency of natural disasters in LIDCs since 1980 has been very high, the median cost, at ½ percent of GDP is relatively small. Thus, subject to data constraints, the analysis focuses only on large episodes that are likely to have a significant impact on the fiscal accounts. Nevertheless, results should be interpreted with caution as some LIDCs have low levels of infrastructure and thus the cost of a disaster may not fully reflect its severity.

²⁰ Data constraints do not allow assessing the extent to which the growth impact changes across country groups. However, recent studies have found that smaller economies face a much larger output decline after a disaster (Noy, 2009).

41. Natural disasters also play a role in food shortages—a particular challenge in the poorest LIDCs.

- Fragile LIDCs and LIDCs in the lowest income quartile are about twice as likely to experience episodes of a severe decline in food supply as other LIDCs (Figure 34).²¹
- Empirical estimates suggest that macroeconomic buffers (captured by higher reserves and a lower fiscal deficit) limit the incidence of large food supply declines as governments are better able to deploy emergency assistance; other structural features, (e.g., level of education and presence of social safety nets) also influence severeness. For illustrative purposes, the factors affecting countries' ability to handle natural disasters were aggregated into a risk-weighted index, constructed in a similar manner to the GDVI (Appendix IV). The index suggests that about 10 percent of LIDCs are currently highly vulnerable to a severe food supply decline with the risk being somewhat higher in some fragile states and (some fragile) commodity exporters (Figure 35).



F. Building Resilience in LIDCs: Policy Recommendations

42. How should LIDCs respond to the above vulnerabilities and risk exposure and enhance resilience? Macroeconomic policies need to be geared toward restoring buffers over time and enhancing flexibility. These efforts need to be complemented by structural reforms geared at economic diversification—creating a real hedge to risks—and improving the ability to cope with shocks (e.g., infrastructure investment for disaster prevention). While appropriate policies will depend on country-specific circumstances, some common priorities are worth highlighting.

43. Rebuilding fiscal policy space is a priority across many LIDCs, given that overall vulnerabilities stem mainly from weakened fiscal positions. As illustrated in the scenario analyses, many LIDCs have little room to operate countercyclical policies in the face of shocks unless fiscal positions are strengthened. This is particularly relevant among countries highly vulnerable to

²¹ Food decline episodes are identified using the food supply variable provided by the Food and Agriculture Organization (FAO).

natural disasters. Creating fiscal space will require both improvements in revenue mobilization (IMF, 2011c) and spending rationalization. Public financial management (PFM) reforms have also an important role to play in entrenching macro-fiscal stability over time.²²

44. Modernizing monetary and exchange rate frameworks as financial systems develop will also help.

- **Coping better with shocks will require strengthening monetary transmission channels.** Financial sector reform and the deepening of markets have generally expanded the scope for active market-based monetary management, increasing the priority for more nuanced policy frameworks and the use of indirect instruments. Frontier markets such as Uganda and Ghana that have deeper financial systems, have made significant progress in this area, although preventing the re-emergence of pressures to accommodate lax fiscal policies may prove to be a challenge.
- **Greater exchange rate flexibility will facilitate the absorption of external shocks.** The process of modernizing monetary frameworks described above is an important pre-requisite in this regard, allowing LIDCs to move away from de-facto exchange rate anchors.
- **More analysis is needed to assess the value of macroprudential tools in financially developed frontier markets.** Early lessons from their adoption in emerging markets suggest that they need to be carefully calibrated against shifting stances in monetary and exchange rate policies and both targeted and communicated effectively.

45. Broader economic reforms can play an important role to support greater resilience over the medium term.

- **Economic diversification/structural transformation:** The available evidence suggests that broad-based policies such as improving education, infrastructure, and the institutional and regulatory environment, and microeconomic reforms (e.g., liberalization of trade and promoting financial deepening) have proved successful in facilitating diversification.²³
- **Natural disasters and food security.** Actions are needed to secure supplementary buffers through insurance schemes, such as self-insurance via contingency reserves, and rapid access to disaster support lines from donors, while also freeing up resources for disaster preparedness. Better integration of markets can also play an important role in enhancing food security. LIDCs that are particularly vulnerable to natural disasters and food production shocks, such as in the drylands of SSA, should seek to lower trade barriers and improve road networks to create a larger regional market and allow a faster and more efficient response to localized food shortages.²⁴

²² For details on the sequencing of PFM reforms and some case studies, see Diamond (2012); Allen, Hemming, and Potter (2013); and World Bank (2013).

²³ For more details see IMF (2014b).

²⁴ For example, between Burkina Faso, Ghana, and Benin the cost of transporting maize accounts for nearly 60 percent of final market prices due to monopoly and cartel rents, irregular payments, and poor and scarce infrastructure (USAID, 2011).

DEBT DEVELOPMENTS SINCE DEBT RELIEF

46. Public debt levels have declined markedly in the majority of LIDCs since 2000, but have been on an upward trend in a number of countries in recent years.²⁵ At the same time, the external financing landscape is changing quickly: official concessional lending and grants are declining in relative importance, while a broader range of private financing instruments and lending sources are available for project finance and, more recently, for general budget financing needs. We focus here on the question as to whether recent trends point to threats to debt sustainability in LIDCs over the medium term.²⁶ To explore this issue, this section first takes stock of the evolution of domestic and external public debt in LIDCs since 2007, examining the factors behind the debt dynamics, including the role of debt relief. It also looks at whether the fiscal space created by debt relief was accompanied by rising investment and social spending. Finally, the section reviews the risks and opportunities from the expanded access to new financing sources, using seven case studies to illustrate the major institutional challenges faced by these countries.

47. The main findings of this section are:

- ***Debt sustainability is not a pressing concern for a majority of LIDCs.*** Public debt has stabilized at relatively low levels in most countries, helped by strong growth performance and by debt relief. That said, 12 LIDCs are classified as being either at high risk of, or in external debt distress.
- ***Weaknesses in fiscal institutions persist that could endanger macroeconomic stability over time.*** Despite institutional improvements, many countries lack a well defined medium-term fiscal strategy; reforms to strengthen budget planning and execution are still a work-in-progress; and revenue mobilization efforts have stalled in many cases.
- ***The lack of a comprehensive debt management strategy also poses risks—particularly for LIDCs now gaining external market access.*** Monetary policy normalization in advanced economies could create rollover and re-pricing risks, underscoring the importance of developing buffers and a medium-term debt strategy.

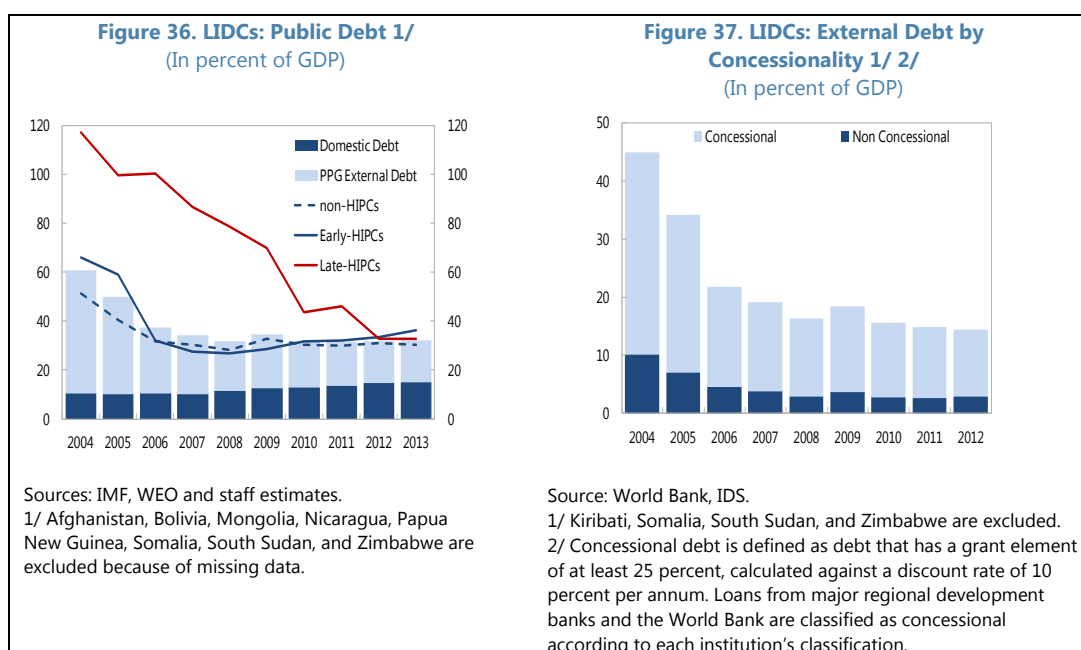
²⁵ The Heavily Indebted Poor Countries (HIPC) initiative was launched in 1996 as the coordinated debt relief effort of multilateral, bilateral, and commercial creditors. The initiative was enhanced in 1999 and complemented in 2005 by the Multilateral Debt Relief Initiative (MDRI). 34 LIDCs have benefited from the HIPC Initiative, with four eligible countries yet to reach the completion point (IMF, 2013c).

²⁶ For a recent discussion on debt sustainability in LIDCs, see Merotto, Thomas, and Stucka (2012); and Prizzon and Mustapha (2014).

A. Stylized Facts

Public debt in most LIDCs has stabilized at relatively low levels...

48. Over the last decade, public debt ratios in LIDCs have, on average, declined substantially (Figure 36).²⁷ Following the early wave of debt relief that restored debt sustainability in a third of LIDCs (henceforth called “early HIPCs”),²⁸ public debt ratios declined considerably, falling below an average level of 35 percent of GDP in these countries by 2007; public debt also declined in non-HIPCs, albeit at a much slower pace. Since then, average debt levels have remained broadly stable while the dispersion across countries has been reduced as 14 “late-HIPCs” received debt relief. Debt-to-export and debt-to-revenue ratios also have shown similar trends. Meanwhile, the public and publicly guaranteed (PPG) external debt-to-GDP ratio has continued to decline, while domestic debt has been on the rise, taking the place of external debt in recent years. The bulk of PPG external debt remains concessional in nature (Figure 37),²⁹ although the average level of concessionality (or grant element) of PPG external debt contracted since 2009 has trended down, as non-traditional creditors (e.g., emerging bilateral creditors, private investors)—increased their role.



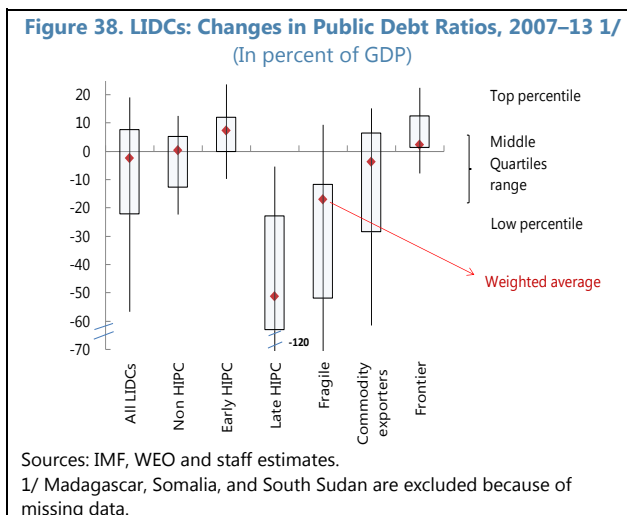
²⁷ Throughout this section, public debt ratios refer to nominal general government gross debt in percent of GDP unless otherwise indicated. Data to calculate averages are weighted by annual nominal fiscal year GDP converted to U.S. dollars at average market exchange rates as a share of the group GDP.

²⁸ “Early HIPCs” are countries that had reached the HIPC completion point before 2007; “late HIPCs” are LIDCs that have reached HIPC completion point since 2007; and “non-HIPCs” are those either not eligible for HIPC initiative or else eligible but yet to reach the HIPC completion point.

²⁹ Caution is needed in interpreting the data on the evolution of concessional loans in Figure 37, as the definition of concessionality that is used to classify part of external debt is taken from the OECD-DAC and differs from that used by the World Bank and the IMF.

49. The aggregate data mask emerging divergences across LIDC groupings (Figure 38).

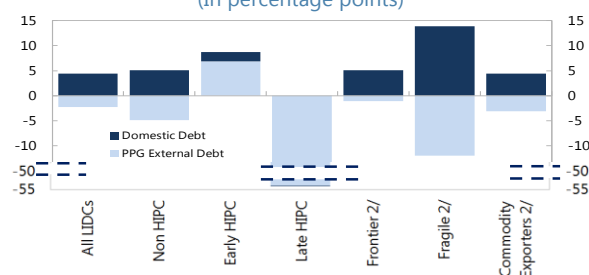
Some LIDCs have enjoyed sharp declines in public debt levels since 2007, most obviously “late HIPCs,” who saw debt-to-GDP ratios drop by 51 percentage points on average. By contrast, debt levels rose by about 7½ points of GDP in early HIPCs over the period, with countries taking advantage of both external and domestic markets to finance higher deficits. Public debt ratios in non-HIPCs showed no clear trends over the period, with debt ratios rising in some cases, falling in others.



50. There also have been changes in the composition of debt:

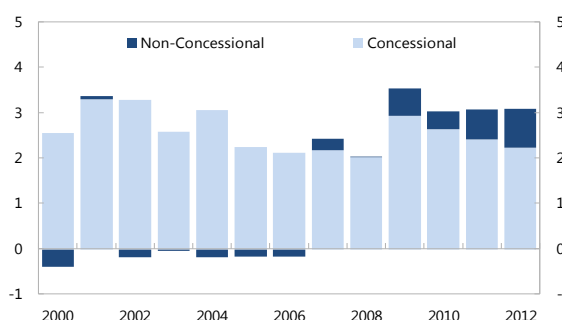
- In *early HIPCs*, external borrowing accounts for most of the debt increase (Figure 39), with non-concessional external borrowing increasing in importance (Figure 40). But domestic borrowing rose sharply in a number of countries, including Ghana and Malawi.
- In *non-HIPCs*, domestic debt has been on the rise, in step with expanding local currency bond markets, in many cases substituting for external debt. Thus, Nigeria and Kenya have developed active local currency bond markets, supported by regular issuance and with well-defined yield curves.

Figure 39. LIDCs: Changes in PPG External and Domestic Debt-to-GDP Ratios by Country Groups 1/ 2/ (In percentage points)



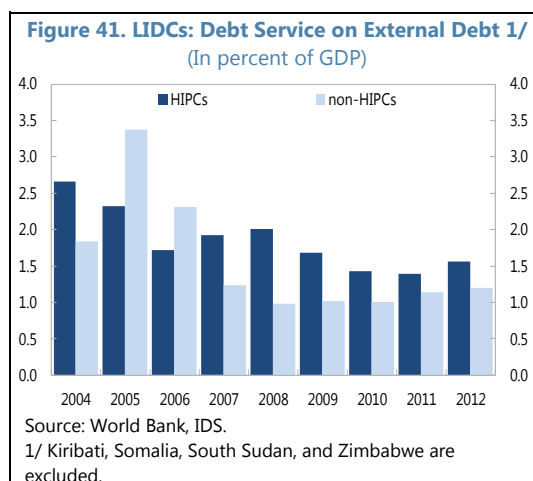
Source: IMF, WEO.
1/ Afghanistan, Bolivia, Mongolia, Nicaragua, Papua New Guinea, Somalia, South Sudan, and Zimbabwe are excluded because of missing data values.
2/ Excludes late HIPCs.

Figure 40. Early-HIPCs: Net Lending Flows 1/ (In percent of GDP)



Source: World Bank, IDS.
1/ Concessional debt is defined as debt that has a grant element of at least 25 percent, calculated against a discount rate of 10 percent per annum. Loans from major regional development banks and the World Bank are classified as concessional according to each institution’s classification.

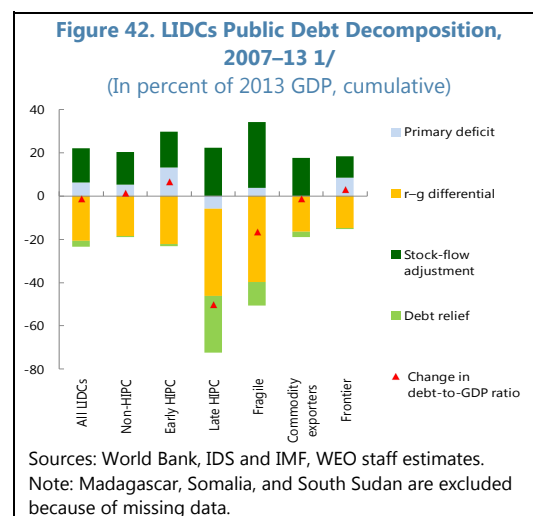
51. The external debt service burden has eased, reflecting both debt relief and, more recently, favorable global financial conditions. The average interest rate on PPG external debt has hovered around 2-2½ percent of GDP over the period, while the average debt service ratio has fallen below 2 percent in recent years (Figure 41). Average interest rates on domestic debt, at 8½ percent, have been broadly stable in line with the inflation differential with the U.S.



52. However, in one third of countries debt levels are high and/or increasing quite significantly. Nine of the 60 LIDCs currently have public debt levels that exceed the risk threshold levels identified in the Bank-Fund Debt Sustainability Framework (DSF); a further seven countries are deemed to be either at high risk of, or already in external debt distress; and a further three countries have seen public debt levels increase by at least twenty points of GDP since 2007.

...but stable debt ratios have been underpinned by favorable macroeconomic conditions.

53. Debt dynamics in the post-HIPC/MDRI period have been largely driven by strong economic growth rather than improvements in the primary balance. The change in the debt-to-GDP ratio over time can be accounted for by four variables: (1) the primary fiscal balance (in percent of GDP); (2) the interest rate-growth rate differential (IRGD);³⁰ (3) debt relief; and (4) stock flow adjustments, which usually reflect accumulation of arrears, valuation changes from exchange rate movements, and the realization of contingent liabilities (see Weber, 2012). For LIDCs as a whole, this



decomposition reveals that debt accumulation during 2007–13 has been largely contained by a) strong growth—which, helped by concessional interest rates,³¹ resulted in a negative interest rate-growth differential (IRGD); and b) for late HIPCs, debt relief (Figure 42). Over the same period, the

³⁰ For a given debt stock, higher interest rates mean that a larger share of public resources needs to go toward paying interest, leaving fewer resources to pay down the debt. In contrast, faster growth brings down debt ratios more quickly, by increasing the denominator in the debt-to-GDP ratio and by making it easier to run larger primary balances.

³¹ In many LIDCs, real interest rates have been negative (particularly in fragile states), in some cases offsetting the impact of subdued economic growth (Eritrea and Guinea).

average primary balance in LIDCs deteriorated by 2.1 percent of GDP, switching from a surplus into a deficit position. The contribution of the primary deficit to debt accumulation was the highest among early HIPCs—notably in Ghana, Honduras, Senegal, and Tanzania. Stock-flow adjustments contributed significantly to debt accumulation across all country groups.

54. Relative to the pre-crisis period, the scope for expansionary fiscal policy (“fiscal policy space”) is now more constrained. On average, the fiscal deficit in LIDCs has widened by 3.6 percent of GDP compared to 2008, limiting the room for maneuver in many cases (IMF, 2014d). The severity of this constraint depends on the debt stock and debt service levels and, ultimately, on the access to finance. The ability to finance higher deficits is tightly constrained in most LIDCs as they have shallow financial systems and limited access to international financial markets (IMF, 2013b).

55. Tighter financing conditions and lower aid flows are expected to put pressure on fiscal positions:

- *Increase in financing costs.* To illustrate the sensitivity of the fiscal space to changes in financing conditions stemming from higher global interest rates and increased risk aversion, a model of the IRGD is estimated for a panel of 51 LIDCs over 2000–13.³² The results suggest that for every 100 bp increase in the U.S. long-term bond yields, the IRGD is expected to increase by 60 bp in LIDCs as a whole. The impact varies markedly with the prevailing global risk aversion, as measured by the VIX.³³ Under a high risk aversion scenario, the primary balance gap would deteriorate by about ½ percent of GDP, with a somewhat larger effect among early HIPCs and fragile countries.
- *Decline in net official development assistance (ODA).* Aid data from donors indicate that disbursements to LIDCs will likely continue their downward trend (as a share of recipient GDP) during 2014–15, with sizeable effects on many recipients: in a quarter of LIDCs, ODA could decrease at least 2 percentage points of GDP. A shock of this magnitude to budgetary resources, whether to revenues or concessional loan resources, would place a severe strain on budgetary finances, either forcing significant fiscal adjustment or worsening debt dynamics unless offset by revenue mobilization efforts.³⁴

³² The model specification follows closely Escolano, Kolerus, and Lonkeng Nguouana (2014), controlling for U.S. interest rates, global risk aversion (measured by the VIX), inflation, current account deficit, openness, public debt, and concessional borrowing. The sensitivity of the IRGD to monetary tightening is somewhat lower than in EMs, which likely reflects the higher reliance on concessional lending among LIDCs.

³³ The impact of a 100 bp increase in the U.S. yields rises to 179 bp under a high risk aversion scenario whereby the VIX is at the 90 percentile of historical values.

³⁴ The literature generally finds a negative association between net ODA and domestic tax revenues (Benedek and others, 2014).

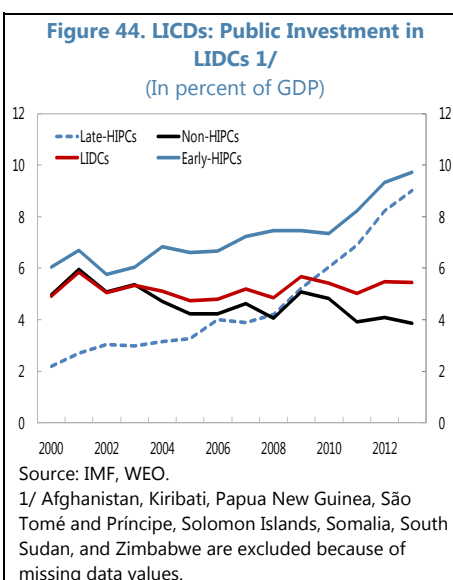
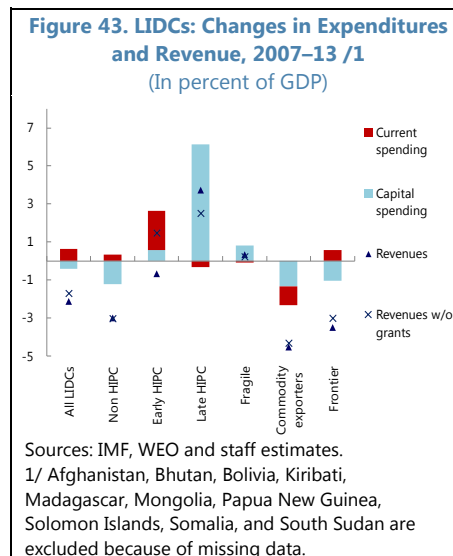
Rising public spending in recent years partly reflects higher social and capital spending.

56. Expenditure ratios in LIDCs, and in particular HIPCs, have been on the rise, not always matched by revenue increases (Figure 43). The trend on expenditures reflects several factors: (i) a conscious effort to use the newly created fiscal space to respond to pressing developmental needs; (ii) fiscal stimuli in the aftermath of the global recession; and (iii) expenditure overruns relative to original budgets—in some cases related to exogenous shocks such as natural disasters (see case studies below). Revenue mobilization efforts have often fallen short of what is needed to offset the impact of the ongoing decline in grants.

57. In more than half of countries, spending increases are associated with the scaling-up of investment:

- In *late HIPCs*, capital spending has gone up by 5 percentage points of GDP since 2007 (Figure 44). This sharp increase partly reflects investment related to the exploitation of natural resources (the Republic of Congo) or reconstruction spending in the aftermath of natural disasters and conflict (Haiti and Liberia). But higher capital spending to build infrastructure is not limited to these cases, with increases also being recorded in Democratic Republic of Congo, The Gambia, and Côte d'Ivoire.
- In *early HIPCs*, the increase in public investment has generally been more muted in recent years, as most of them achieved high levels of investment immediately after receiving debt relief (prior to 2007). Nevertheless, as in late HIPCs, some countries have recently undertaken large investment projects aiming to improve their infrastructure (Cameroon, Sierra Leone, and Rwanda).

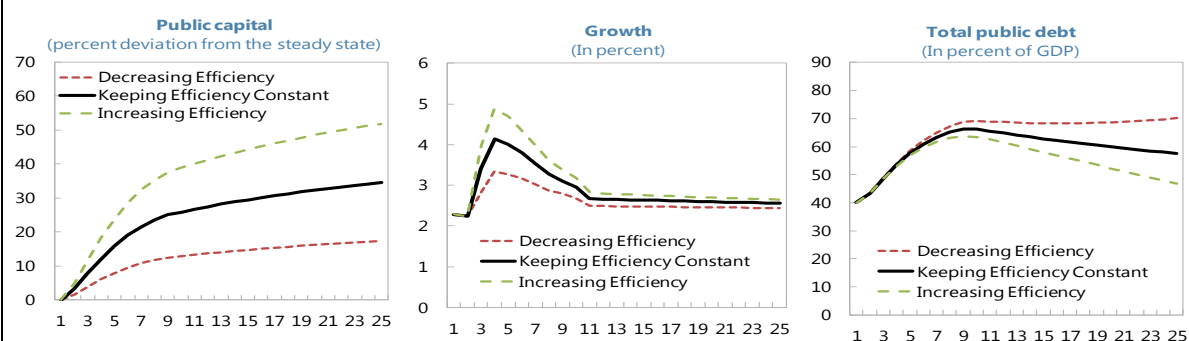
58. In about half the countries, the bulk of spending increases has been on current outlays. The data suggest that the public sector wage bill has gone up by $\frac{3}{4}$ percent of GDP on average since 2007, reaching $6\frac{3}{4}$ percent of GDP or about 40 percent of current spending; some of the increase in the wage bill has benefited health and education, but much has gone elsewhere in the public sector. Increases have been particularly large among some early HIPCs (Ghana, Malawi, and Mozambique) and non-HIPCs (Laos, Lesotho, and Zimbabwe).



59. Concerns remain about the effectiveness of public spending and extent to which it is supporting growth.

- Public investment.** The efficiency with which LIDCs convert public investment into public capital is generally much lower than in advanced and emerging economies (Gupta and others, 2014). The efficiency of public investment plays a central role in determining the size of the growth dividend from investment scaling up, and indeed the wisdom of undertaking such strategy in the first place (Figure 45 and Box 5). It is estimated that reducing all inefficiencies by 2030 would provide the same boost to capital stock as increasing government investment by 14 percentage points of GDP (April 2014, *Fiscal Monitor*). Boosting efficiency will require improving project implementation (via competitive bidding and internal audit) and project selection,³⁵ as well as ensuring maximum standards of fiscal transparency and performance accountability when projects are executed through public-private partnerships (PPPs).³⁶

Figure 45. The Impact of Improving Public Investment Efficiency—Simulation Results 1/



Source: IMF staff estimates.

1/ For illustrative purposes, the DIG (Debt, Investment and Growth) model is calibrated to an average LIDC, following Buffie and others (2012), and simulated as a stylized version of the experiments that were run in the country applications. The average LIDCs efficiency is set at 0.5, in line with Pritchett (2001) and Gupta and others (2014).

- Current spending.** Energy subsidies in LIDCs, amounting to about 3¼ percent of GDP when measured on a post-tax basis, crowd out private investment and distort resource allocation by encouraging excessive energy consumption (Clements and others, 2013). There is also significant scope for improving the efficiency of health and education spending in LIDCs (Kapsoli and Grigoli, 2013; Grigoli, 2014; and April 2014, *Fiscal Monitor*).

³⁵ Institutional reforms take time, so policymakers need to balance the implications of capital scarcity (and associated high rates of return to capital) against the costs of scaling up too rapidly when the institutions supporting the efficiency of spending are not fully in place.

³⁶ As of 2012, PPP commitments in LIDCs amounted to 8 percent of GDP on average.

Box 5. Public Investment Scaling-Up, Growth, and Debt Sustainability in LIDCs

A model-based framework is used to analyze the effects of public investment scaling-ups on growth and debt sustainability in 10 developing countries. The framework, developed by Buffie and others (2012), incorporates the public investment-growth nexus and allows for different financing strategies (external concessional, external commercial, and domestic). The simulations reflect ambitious, front-loaded investment plans in line with countries' National Development Plans (NDPs) or PRSPs. The plans are not fully funded by concessional loans and grants, resulting in a financing gap that could be potentially covered by fiscal adjustment, external commercial or domestic borrowing.

The analyses reveal that, despite long-run growth benefits macroeconomic challenges and trade-offs accompany the different financing strategies, raising the stakes for policymakers. Covering the financing gap associated with the scaling-up program with tax increases or spending rationalization requires sharp and unrealistic macroeconomic adjustments, crowding out private investment and consumption in the short to medium term—e.g., in Rwanda, an increase of 5 percentage points of public investment to GDP financed with taxes would lead to a 10 percent decline in consumption relative to its initial level. Financing the program with more domestic borrowing can still crowd out the private sector. On the other hand, external commercial borrowing can ease the fiscal and macroeconomic adjustment. But these gains have to be balanced against the build-up of debt distress risks—e.g., in a simulation for Togo, more external borrowing comes at the cost of increasing the debt-to GDP ratio by 10 percentage points. Securing more aid, as well as more gradual public investment scaling-ups, can help counterbalance these risks.

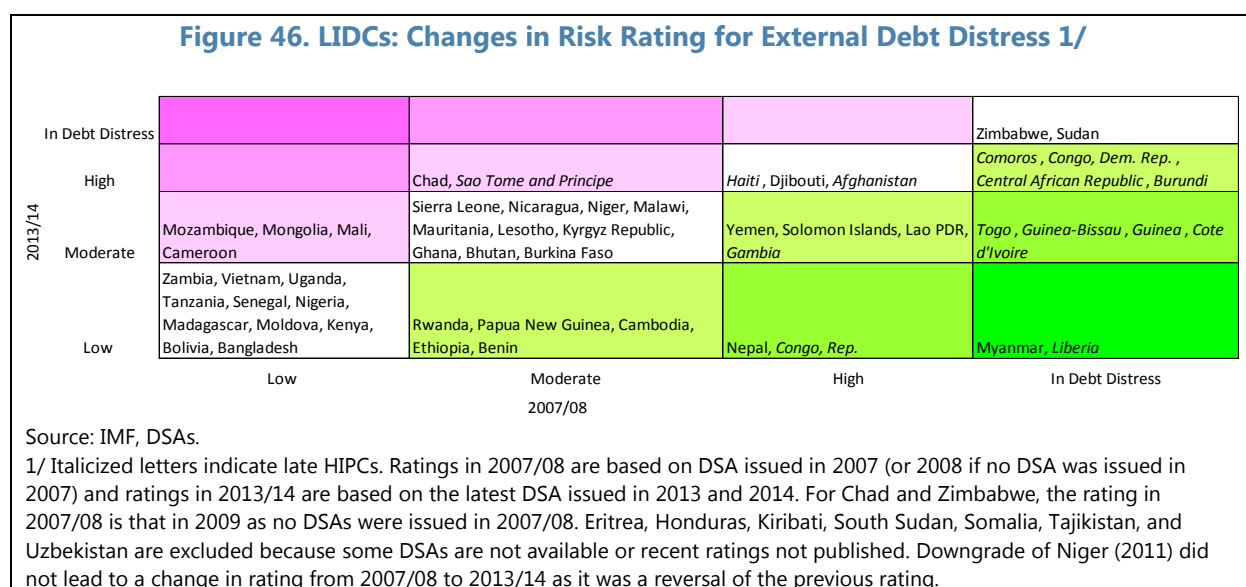
The applications also show that improving investment efficiency and revenue mobilization are key to reaping growth benefits of scaling-ups while minimizing the associated debt sustainability risks in LIDCs. For the average LIDC, a 10-year average scaling-up of 4.5 percentage points of public investment to GDP coupled with an increase of efficiency from 0.5 to 0.75 could deliver a gain of 1.4 percentage points in per-capita GDP growth over a decade.¹ By contrast, with declining efficiency (from 0.5 to 0.25), scaling-up plans would generate much smaller growth dividends; and if these plans were to be financed with more non-concessional borrowing, public debt could become unsustainable (see Figure 45). To address these risks, additional reforms to improve efficiency (e.g., by strengthening the appraisal, selection, implementation, and evaluation of projects) coupled with revenue mobilization and spending rationalization would help to strengthen debt sustainability, even with external commercial borrowing, while still securing growth dividends.

¹ For illustrative purposes, the DIG (Debt, Investment, and Growth) model is calibrated to an average LIDC, following Buffie and others (2012), and simulated as a stylized version of the experiments that were run in the country applications. The average LIDCs efficiency is set at 0.5, in line with Pritchett (2001) and Gupta and others (2014).

B. Risk Diagnostics

The risks of experiencing external debt distress remain contained in most LIDCs...

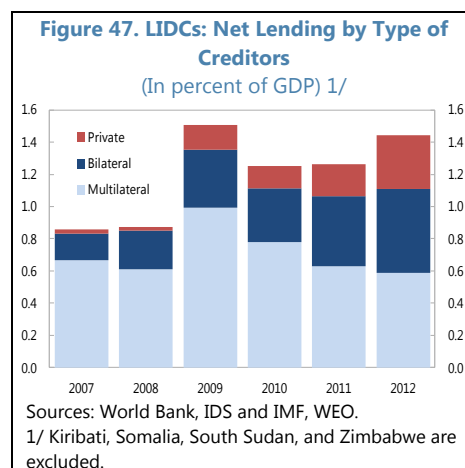
60. Based on the joint analysis of IMF and World Bank staffs, the risk to LIDCs of experiencing debt distress over the medium term has improved somewhat since 2007 (Figure 46).³⁷ Risk ratings for 44 countries out of a sample of 56 countries are currently low or moderate—including all frontier markets and early HIPCs. Overall, risk ratings have improved, even when post-2007 debt relief recipients are excluded. Some 12 other countries have recorded an improvement in their risk rating since 2007, while eight countries have received a downgrade. Downgrades of the rating of debt distress risk have typically resulted from at least one of the following: a) a steep increase in non-concessional debt (Chad, Mongolia, Mozambique, and Niger), b) downward revisions to the macroeconomic outlook and/or weaker-than-expected fiscal adjustment (Honduras, Mongolia, and Sao Tomé and Príncipe); and c) a deterioration in the outlook for natural resource revenues and exports (Mali and Sao Tomé and Príncipe). Nevertheless, stress tests simulated under the Bank-Fund DSA indicate that the debt outlook is particularly sensitive to adverse shocks to the exchange rate and external financing terms.



³⁷ These assessments are conducted using the Bank-Fund Low-Income Country Debt Sustainability Framework. The risk ratings are dependent on both medium- to long-term macroeconomic projections and the impact of standardized stress tests upon the baseline projections.

...but the composition of the creditor base is changing rapidly, bringing new opportunities and challenges...

61. Bilateral creditors are taking on a more prominent role. Bilateral net lending was on a declining trend through 2007, as some non-HIPCs (Nigeria) made principal repayments. In the wake of the debt relief initiatives, bilateral creditors expanded their lending to now-credit worthy HIPCs (Figure 47). Net lending by multilateral creditors rose temporarily in 2009–10, as LIDCs sought external financing to help cushion the impact of the economic slowdown, but contracted in the ensuing years. By 2012, net lending from bilateral creditors was close to the level provided by multilateral creditors—a large increase from pre-crisis years—reflecting the expanding role of new creditors in infrastructure finance.



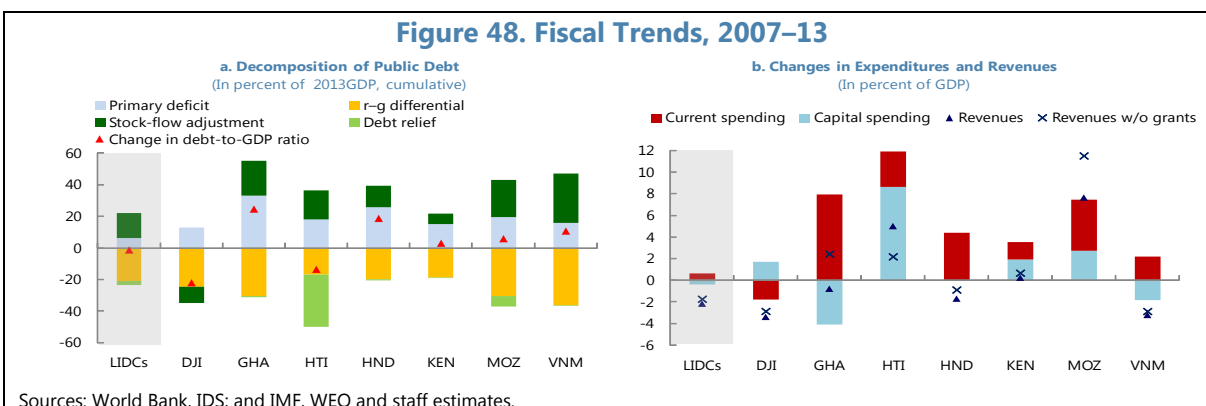
62. Private creditors have also expanded their lending recently. In particular, frontier markets have begun to issue international sovereign bonds with the stated objective of increasing public investment (discussed in vulnerabilities section). However, the correlation between bond issuance and public investment has been weak, with the funds being used instead for both capital and current spending, including on wages and subsidies (IMF, 2013b and 2014c). Some countries (Nigeria) issued bonds to provide a benchmark for sub-national and corporate issuers, others (Côte d’Ivoire) for finance debt restructuring.

63. The new sources of funding can provide major benefits but also create risks. Issuance abroad can provide funding for large projects, creates domestic financing space for the private sector, can be less costly than local issuance, and can contribute to greater policy discipline and transparency through increased market scrutiny. However, the new debt also comes with refinancing risk, re-pricing risk, and exposure to exchange rate depreciation. If debt management capacity is limited and public investment capacity weak, use of international sovereign bond issuance, even if used solely for public investment, may still be inadvisable (Box 6).

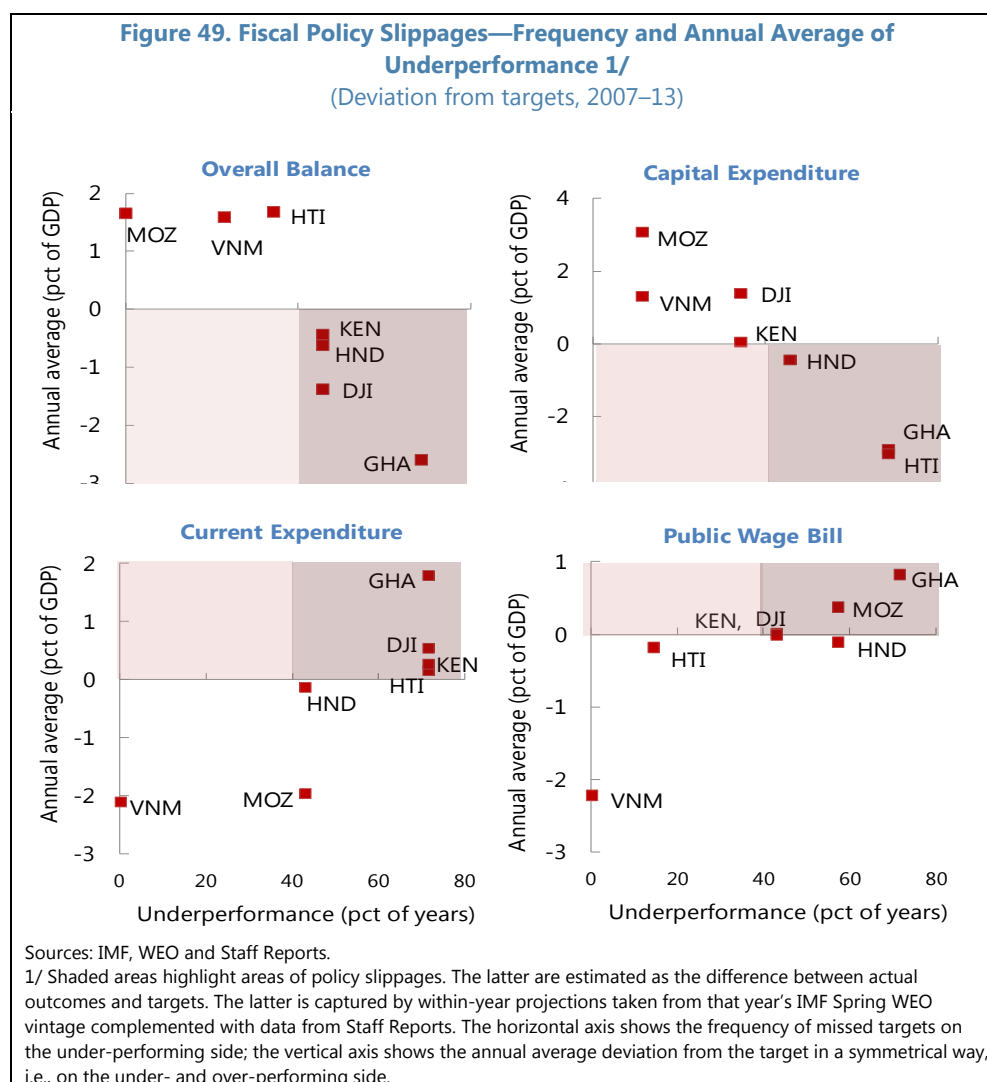
...and case studies point to the need for better fiscal institutions.

64. Seven case studies highlight different aspects of debt dynamics in LIDCs. The sample included countries where the debt-to-GDP ratio has declined since 2007 (Djibouti and Haiti), remained broadly stable (Kenya and Mozambique), and increased (Ghana, Honduras, and Vietnam)—(Appendix V presents selected indicators).

- **Debt accumulation was not always reflected in higher public investment.** In four cases (Djibouti, Haiti, Kenya and Mozambique), the increase in the primary deficits was associated with capital spending (Figure 48); in two cases (Ghana and Honduras), the public sector wage bill was a major source of pressure. Energy subsidies have been pervasive in all countries except in Kenya, with an estimated cost of about 3 percent of GDP on average.



- **Debt increases also arose from other factors**, including quasi-fiscal operations of state-owned enterprises (Mozambique), clearance of arrears (Honduras), and the materialization of contingent liabilities, such as bank recapitalization or called guarantees (Vietnam).
- **In general, poverty-reducing social spending has not increased with debt accumulation**, undermining the argument that higher borrowing levels are being used to accelerate progress toward meeting the MDGs.
- **Budget overruns on current expenditure contributed significantly to elevated deficits** (Figure 49), including in Djibouti, Honduras, Kenya, and Ghana even though capital spending was under-executed because of weak institutional capacity (Haiti) or to create some room for additional current outlays (Honduras and Ghana).
- **In some cases, exogenous shocks (including natural disasters) have contributed to weakened fiscal performance and subsequent debt accumulation.** The Haiti earthquake in 2010 impaired tax-collection capacity while emergency relief and reconstruction spending went up. Similarly, in the face of the drought in the Horn of Africa in 2011 and a rise in food prices, fiscal deficits widened in Djibouti and Kenya due to the associated fall in tax revenues and emergency spending. In Ghana, revenue underperformance in 2013 partly reflected a slowdown in economic activity and weaker corporate income taxes due to the fall in gold prices.



65. Countries can contain or reduce emerging debt vulnerabilities by addressing existing weaknesses in fiscal institutions. Based on the case studies, policy reform priorities would include:

- **Establishing a fiscal anchor.** Except for Kenya, none of these countries have a fiscal rule or a clearly defined medium-term objective/target. This poses particular challenges in countries that have recently discovered natural resources (e.g., Mozambique) where the fiscal framework should be taking into account the volatility of revenues and exhaustibility of resources to avoid procyclicality and ensure fiscal sustainability (IMF, 2012c).
- **Formulation of more realistic budgets.** Deviations from approved budgets often stem from overly-optimistic macroeconomic or revenue projections and under-provisioning for compulsory expenditure. The latter often leads to expenditure arrears. This was the case in Ghana where the government accumulated net arrears of 2.8 percent of GDP in 2012, nearly half of which was to state-owned enterprises (mainly linked to energy subsidies).

- **Strengthening budgetary controls.** In some cases, cash management is an issue while in others within-year spending controls are deficient, with line ministries revising budget allocations without the involvement of the finance ministry and bypassing commitment controls (Honduras). Reforms in these areas are a priority in fragile states with severe capacity constraints where budgets may not always be implemented as intended (Gupta and Yläoutinen, 2014).
- **Monitoring of fiscal risks.** There is generally no recognition of fiscal risks in the budget nor is there a strategy to manage them. Risks arise from reliance on donor support for external financing (Djibouti, Haiti, and Mozambique), activities of financial and non-financial public enterprises (Vietnam and Mozambique), lower levels of government (Kenya), large public-financed infrastructure projects (Mozambique, Kenya, and Djibouti), and PPPs (Mozambique and Honduras).
- **Tackling weaknesses in revenue mobilization.** Revenue mobilization efforts have been impaired by inadequate tax administration (Haiti, Honduras, Djibouti, and Ghana); while tax incentives and exemptions have grown, thereby eroding the tax base (Vietnam and Djibouti). In addition, a broad-based and easy-to-administer VAT system is missing in some cases (e.g. Haiti). Also, there is a need to design appropriately calibrated tax regimes for natural resource sectors in those countries with recent discoveries.

C. Policy Challenges

66. Although debt sustainability is, for the majority of countries, not a pressing concern, LIDCs are confronted with the challenge of maintaining sound macroeconomic policies while implementing growth enhancing structural reforms to take full advantage of the space afforded by low debt levels. On the institutional front, there are two priorities:

- **Strong fiscal institutions are needed to control the accumulation of debt.** Budgetary institutions need to have the capacity to control spending and budget overruns; a medium-term fiscal framework is needed to provide an anchor for deficits and borrowing needs; and timely reporting and monitoring of contingent liabilities (e.g., PPPs) are key as such commitments expand in many LIDCs. Improving the efficiency of spending including by strengthening public investment management capacity is also a key requirement if growth potential is to be realized.
- **Comprehensive medium-term debt-management strategies (underpinned by adequate institutional capacity) need to be developed.** This is particularly pressing for countries resorting to substantial external borrowing on market terms, notably sovereign bond issues, to finance large infrastructure projects. Measures are needed to manage risks arising from sovereign bond issuance and to build institutional capacity.

Box 6. Risks from International Sovereign Bond Issuance ^{1/}

International sovereign bonds could bring significant benefits to LIDCs, but also entail risks. More diversified sources of financing can alleviate funding constraints for much needed investment in infrastructure but also can exacerbate vulnerabilities:

- **Exchange rate risk.** International debt issuance may worsen the currency mismatch between debt service and fiscal revenues (Das, Papaioannou, and Polan, 2008). This risk is smaller for countries that are commodity exporters trading in U.S. dollars, and can be mitigated through currency swaps, although such markets are not prevalent or deep in LIDCs.
- **Refinancing risk.** Because the majority of first-time issuers are issuing bullet bonds, the projected amortization increases dramatically at the maturity date. This could lead to pressures on the balance of payments or, rollover may happen at punitive interest rates and shorter maturities.
- **Interest rate risk.** Since the majority of recent issuances took the form of fixed rate instruments (with Tanzania a notable exception), a spike of global interest rates does not lead to an immediate increase in borrowing costs. However, these countries might need to refinance their Eurobonds in the future in an environment of higher interest rates, declining growth, and lower investors' interest.
- **Rating risk.** LIDCs that have recently issued sovereign bonds are paying relatively high interest rates relative to rates on their existing debt portfolios. To make market issuance sustainable, yields must come down over time along with a steady improvement in credit ratings.

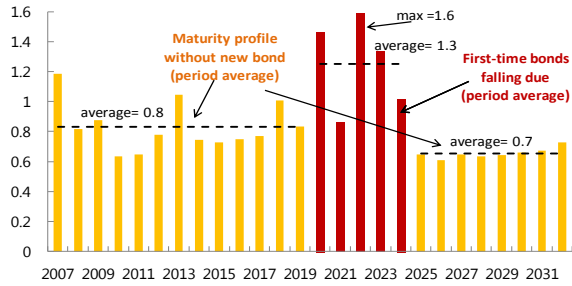
Limited debt management capacity in LIDCs poses an additional challenge. Often the required skills to undertake a thorough and comprehensive analysis of international debt issuance are absent and high staff turnover is problematic. This increases the risks of a poorly executed transaction and could undermine the fiscal and external sustainability of a country. Also, institutional arrangements are needed to ensure that the proceeds from the issuance are used for intended purposes.

Addressing these challenges requires comprehensive medium-term debt-management strategies. Measures to manage refinancing risks include adopting a structured issuance strategy, and building cash buffers. Currency risk can be handled through the development of swap markets. Similarly, fixed rate issuance or interest rate swaps could mitigate interest rate risk, although, given thin markets, efforts in this area will take time. Also, the institutional capacity should be strengthened, ensuring the operational independence of the debt management office and close coordination with fiscal and monetary policy. These measures should be complemented with a communication strategy to keep investors abreast of economic and policy developments.

^{1/} The box also draws on IMF (2014c).

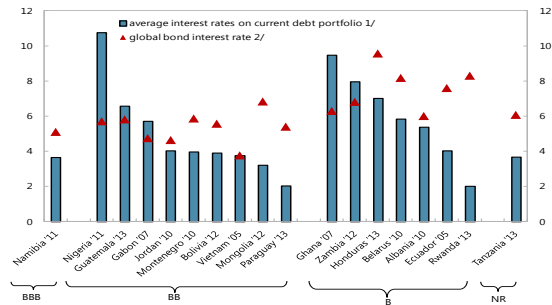
Box 6. Risks from International Sovereign Bond Issuance (concluded)

First-Time Issuers: Rollover Risk 1/
(In percent of GDP)



Source: IMF country desks and staff calculations.
1/ Country sample includes Armenia, Bolivia, Honduras, Mongolia, Namibia, Paraguay, Rwanda, Tanzania, and Zambia.

Changes in the Cost of Borrowing 1/ 2/
(In percent)



Source: Bloomberg; and IMF, WEO and staff calculations.
1/ Interest cost over previous year's debt stock.
2/ Yield as of July 2nd.

Appendix I. LIDCs and Sub-Groups

Frontier Markets	Commodity Exporters	Fragile States	Other
Bangladesh	Afghanistan #	Afghanistan #	Benin*
Bolivia*	Bolivia*	Burundi #	Bhutan
Cote d'Ivoire #	Burkina Faso*	Central African Rep. #	Cambodia
Ghana*	Burundi #	Chad	Cameroon*
Kenya	Central African Rep. #	Comoros #	Ethiopia*
Mongolia	Chad	Congo, Dem. Rep. #	Gambia, The #
Mozambique*	Congo, Dem. Rep. #	Congo, Rep. #	Honduras*
Nigeria	Congo, Rep. #	Cote d'Ivoire #	Kyrgyz Republic
Papua New Guinea	Eritrea	Djibouti	Lao PDR
Senegal*	Guinea #	Eritrea	Lesotho
Tanzania*	Guinea-Bissau #	Guinea #	Moldova
Uganda*	Malawi*	Guinea-Bissau #	Nepal
Vietnam	Mali*	Haiti #	Nicaragua*
Zambia*	Mauritania*	Kiribati	Rwanda*
	Mongolia	Liberia #	Tajikistan
	Mozambique*	Madagascar*	
	Niger*	Malawi*	
	Nigeria	Mali*	
	Papua New Guinea	Myanmar	
	Sierra Leone*	Sao Tome and Principe #	
	Solomon Islands	Sierra Leone*	
	South Sudan	Solomon Islands	
	Sudan	Somalia	
	Uzbekistan	South Sudan	
	Yemen, Rep.	Sudan	
	Zambia*	Togo #	
	Zimbabwe	Yemen, Rep.	
		Zimbabwe	

Note: *Early HIPC: Completion point before 2007.
#Late HIPC: Completion point in or after 2007.

Appendix II. Identifying Frontier Market Economies

This note identifies economies within the wider group of LIDCs that can be viewed as “frontier market economies” (FMs). The specific countries identified as FMs are Bangladesh, Bolivia, Côte d’Ivoire, Ghana, Kenya, Mongolia, Mozambique, Nigeria, Papua New Guinea, Senegal, Tanzania, Uganda, Vietnam, and Zambia.

1. There is no generally accepted definition of frontier markets. Common dimensions used in identifying FMs have included (i) a financial sector that is starting to share some similar characteristics of emerging market economies in terms of financial market depth; (ii) access to international capital markets; (iii) fast sustained growth; and (iv) sound institutions.¹

2. Whether a country is considered to be a frontier market or not could depend on the issue at hand. If the objective is to assess the risks associated with the issuance of sovereign bonds, it is important to focus on countries that have issued sovereign bonds. Analyzing possible macroeconomic impacts of capital flow reversals would entail a focus on countries with significant portfolio inflows. An assessment of financial vulnerabilities would tend to emphasize the depth of financial sectors as well as their integration. Accordingly, there has been varying coverage of FMs in analytical pieces and flagships at the Fund.

3. This note proposes a framework focusing on a set of financial indicators for identifying FMs. The starting point is the recently introduced WEO list of 60 LIDCs. The selection criteria focus on the depth and openness of the financial system and the issuance of sovereign bonds. Appendix Table 1 (Section A) provides information on the variables used for the analysis and data sources. Each LIDC is benchmarked against EMs as follows: (i) LIDCs that are within one standard deviation below the EM average for the following variables: M2 to GDP;² cross border loans/deposits,³ stock market capitalization, and portfolio inflows;⁴ and LIDCs that have accessed (or have the potential to access: proxied by sovereign ratings similar to those that have issued sovereign bonds)⁵ sovereign bond markets, putting them on the radar screen of international fund managers. Figure 1 provides a good visualization of the benchmarking exercise between EMs and FMs, focusing on two of the key variables: M2 and cross-border loans and deposits over GDP.

¹ IMF (2011d) adopts the following criteria to come up with a list of F-LICs: (i) recent growth dynamics and perspectives; (ii) financial market development; (iii) general institutional conditions and evolution; (iv) natural resource richness; and (v) political conditions and perspectives.

² Between two closely correlated summary indicators of financial depth, M2/GDP and credit/GDP, the former is preferred as a selection criterion because it turns out to be more widely and frequently reported.

³ According to BIS, these capture asset and liability positions of banks located in a country vis-à-vis nonresidents.

⁴ This indicator focuses on countries that have attracted portfolio inflows into the domestic markets by looking at the actual portfolio inflows (capturing nonresident involvement in the stock and bond markets).

⁵ A country with a sovereign rating of BB-, consistent with the most common rating for LIDCs that have issued, is considered to have the potential to issue.

Appendix Table 1. Description and Definition of Variables

Variable	Variable Definition	Source
A. Financial Sector Depth		
M2/GDP	Sum of money and quasimoney	WDI
Cross border loans or deposits	External loans and deposits of reporting banks vis-à-vis all se	BIS
Stock market capitalization (in percent of GDP)	Market capitalization (also known as market value) is the share price times the number of shares outstanding.	
Portfolio inflows	Portfolio inflows (debt securities)	CPIS Survey
Sovereign bond issuance	Sovereign bond issuance or potential to issue (similar soverere ratings with other LIDCs that have issued).	Bloomberg L.P.
B. Institutions		
CPIA	Country Policy and Institutional Assessment	World Bank
Heritage Foundation overall score	Score based on 10 broad factors of economic freedom.	Heritage Foundation
C. Sustained real GDP growth		
Real GDP growth		WEO

4. An LIDC is identified as an FM if it meets four out of the five conditions indicated above. The resulting list comprises the following (14) countries: Bangladesh, Bolivia, Côte d'Ivoire, Ghana, Kenya, Mongolia, Mozambique, Nigeria, Papua New Guinea, Senegal, Tanzania, Uganda, Vietnam, and Zambia (Appendix Table 2).

5. Are FMs more advanced than peers in a broader sense? By way of validating the focus on financial selection criteria, FMs turn out to have had stronger institutions and sustained growth performance than peers.⁶ Strength of institutions is measured by a composite index assigning equal weight to the Heritage Foundation overall score (2004–12), and the overall CPIA score (2010–12). Growth performance is assessed by real GDP growth during the period 2003–13. With the exception of Côte d'Ivoire, all FMs have relatively stronger institutions and sustained growth performance, well above the respective LIDC averages.

⁶ Each of the variables relating to institutions is standardized from 0 to 1 into an index Z' using the Min and Max approach: $Z' = \frac{(X - X_{min})}{(X_{max} - X_{min})}$, where X_{min} and X_{max} stand for the minimum and maximum of X , respectively.

Appendix Table 2. Financial Sector Depth Index 1/ 2/ 3

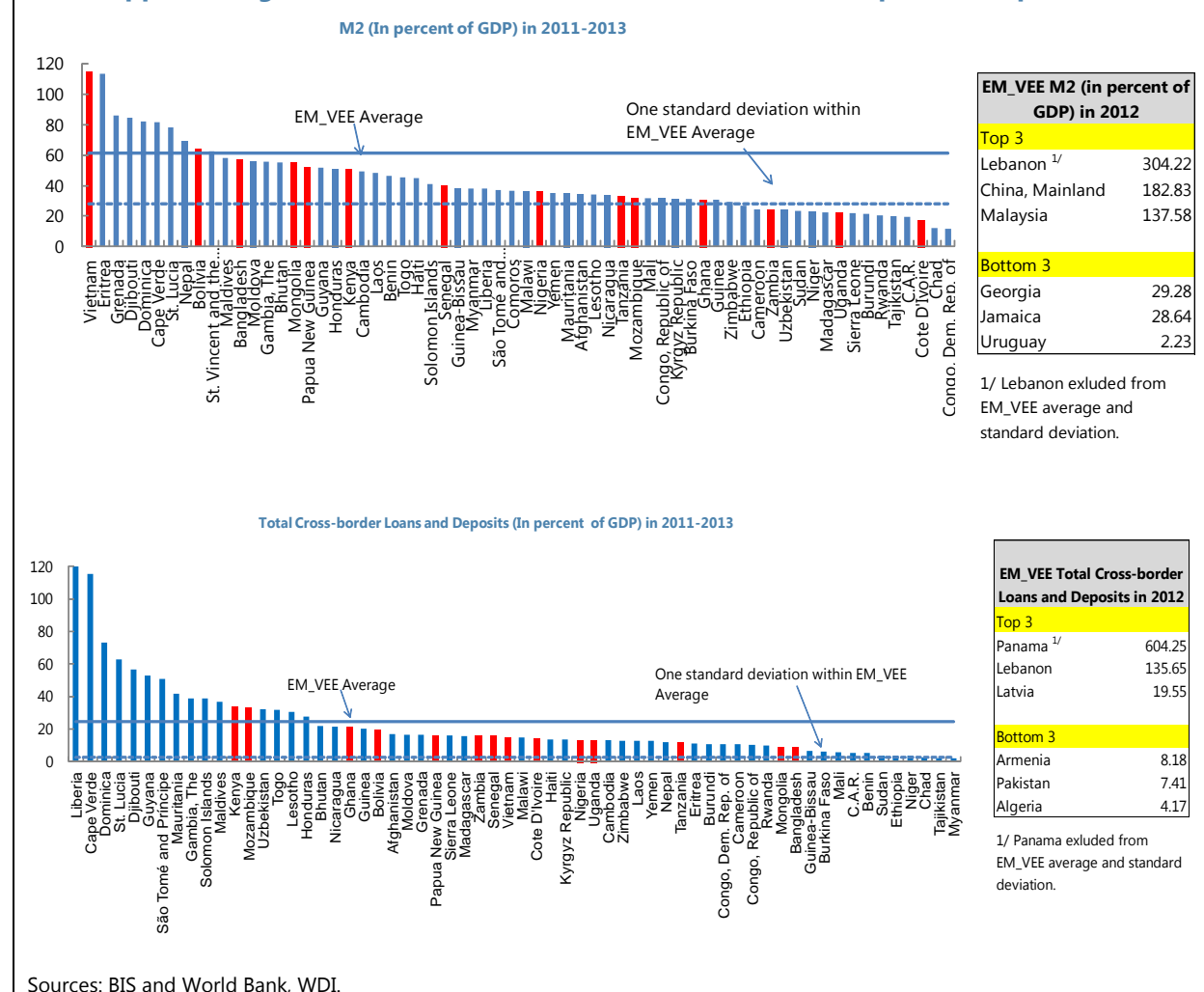
Country	M2 (in percent of GDP) 1/	Cross Border Loans or Deposits (in percent of GDP) 1/	Stock Market Capitalization (in percent of GDP) 1/	Portfolio Inflows ^{1/}	Sovereign Bond Issuance ^{2/}	Index ^{3/}
Ghana	1	1	1	1	1	1.0
Kenya	1	1	1	1	1	1.0
Mongolia	1	1	1	1	1	1.0
Papua New Guinea	1	1	1	1	1	1.0
Vietnam	1	1	1	1	1	1.0
Nigeria	1	1	1	1	1	1.0
Bangladesh	1	1	1	0	1	0.8
Bolivia	1	1	1	0	1	0.8
Cote D'Ivoire	1	1	1	1	1	0.8
Senegal	1	1	...	1	1	0.8
Tanzania	1	1	1	0	1	0.8
Uganda	1	1	1	0	1	0.8
Zambia	0	1	1	1	1	0.8
Mozambique	1	1	...	1	1	0.8
Burkina Faso	1	1	...	0	1	0.6
Cambodia	1	1	...	0	1	0.6
Honduras	1	1	...	0	1	0.6
Malawi	1	1	1	0	0	0.6
Nepal	1	1	1	0	0	0.6
Zimbabwe	1	1	1	0	0	0.6
Eritrea	1	1	...	1	0	0.6
Solomon Islands	1	1	...	1	0	0.6
Burundi	1	1	...	1	0	0.6
Congo, Rep.	1	1	...	1	0	0.6
Rwanda	0	1	...	1	1	0.6
Afghanistan	1	1	...	0	0	0.4
Benin	1	1	...	0	0	0.4
Bhutan	1	1	...	0	0	0.4
Cameroon	0	1	...	0	1	0.4
Comoros	1	1	...	0	0	0.4
Djibouti	1	1	...	0	0	0.4
Ethiopia	1	1	...	0	0	0.4
Gambia, The	1	1	...	0	0	0.4
Guinea	1	1	...	0	0	0.4
Guinea-Bissau	1	1	...	0	0	0.4
Haiti	1	1	...	0	0	0.4
Kyrgyz Republic	1	1	0	0	0	0.4
Laos	1	1	...	0	0	0.4
Lesotho	1	1	...	0	0	0.4
Mali	1	1	...	0	0	0.4
Mauritania	1	1	...	0	0	0.4
Moldova	1	1	...	0	0	0.4
Nicaragua	1	1	...	0	0	0.4
São Tomé and Príncipe	1	1	...	0	0	0.4
Sudan	1	1	...	0	0	0.4
Togo	1	1	...	0	0	0.4
Yemen	1	1	...	0	0	0.4
Sierra Leone	0	1	...	1	0	0.4
Liberia	1	...	...	0	0	0.2
C.A.R.	0	1	...	0	0	0.2
Congo, Dem. Rep.	0	1	...	0	0	0.2
Kiribati	...	1	...	0	0	0.2
Madagascar	0	1	...	0	0	0.2
Myanmar	1	0	...	0	0	0.2
Uzbekistan	0	1	...	0	0	0.2
South Sudan	0	...	...	0	0	0.0
Chad	0	0	...	0	0	0.0
Niger	0	0	...	0	0	0.0
Somalia	...	...	...	0	0	0.0
Tajikistan	0	0	...	0	0	0.0

1/ 1 if a country is three-year average exceeds one standard deviation from EM average and 0 otherwise in 2010-2012; "..." indicates missing data. Sample of countries includes 60 LIDCs for which there is data available. Armenia and Georgia are excluded because they graduated from PRGT. EM includes 49 countries based on VEE sample of countries. Stock market capitalization criteria met for Côte d'Ivoire, which hosts the regional (WAEMU) stock market and accounts for 31 of its 36 listings."

2/ Indicates whether a country has issued, or has the potential to issue a sovereign bond; Yes=1, No=0. Congo, Rep. is excluded due to issuance in the context of debt restructuring.

3/ Measures the proportion of indicators that meet the qualification threshold.

Appendix Figure 1. Selected Indicators of Financial Sector Depths and Openness



Appendix III. Methodology Underlying the Financial Vulnerability Index

1. **For frontier markets, whose financial system share similar characteristics with emerging markets, the VE-E financial vulnerability index (FVI) is calculated as an indicator of underlying financial vulnerability.** The VE-E exercise (IMF, 2007) distinguishes between vulnerability and crisis risk assessments. This is because countries with severe vulnerabilities may still face low risks in a benign global environment. The risks envisaged relate to capital account crises (connected to domestic and external financial imbalances), which have been marked by large swings in cross-border capital flows. These have often prompted currency crises and frequently lead to sovereign debt crises, financial and corporate sector crises, as well as both. The vulnerability index is constructed as a summary measure of underlying vulnerability, combining information from a wide range of economic and financial indicators.

2. **Five variables make up the financial vulnerability index of the VE-E:** capital adequacy ratio, return on assets, bank credit over bank deposits, cumulative three-year growth of credit over GDP, and foreign liabilities measured as cross border loans and deposits over domestic credit.¹ Other potential risk indicators, such as non-performing loans (NPLs) of the banking sector or provisioning thereof, have been excluded as they are often backward looking and/or not standardized across countries.²

3. **The financial vulnerability of frontier markets is assessed using the thresholds and weights of the VE-E (Appendix Table 3).** The FVI ranges from zero (low vulnerability) to one (high vulnerability). It is a weighted average of zero/one scores for individual indicators (one if the indicators breach their thresholds). The thresholds are determined by searching for the values of each indicator that separates crisis from non-crisis cases while minimizing the combined percentages of missed crisis (Type I error) and false alarms (Type II error).³ The aggregation weights depend on the individual indicator's ability to discriminate between crisis and non-crisis cases. A country is considered low-risk if the index is lower than 0.33, high-risk, if it exceeds 0.45, and medium-risk otherwise.⁴

¹ Based on the 2013 Vulnerability Exercise for Emerging Markets (VE-E) methodology. There is a concern that the VE-E financial vulnerability index applied here may not reflect the full extent of vulnerabilities in EMs. As a result, a newer methodology (including variables such as real estate prices) is now applied to a subset of more advanced EMs for which data is available.

² For example, NPLs tend to be understated when credit is growing too fast and underwriting standards weaken, such as in a credit bubble, thus failing to point to underlying vulnerabilities.

³ A crisis event is identified by combining quantitative indicators of sudden stop and analysis of narrative records (to eliminate spurious crisis events).

⁴ Thresholds for the overall index is derived by minimizing an asymmetrically weighted loss function which penalizes missing crisis (Type I error) more.

Appendix Table 3. Financial Vulnerability Index Parameters

	Threshold	Weight
Capital adequacy ratio (percent) *	12.3	0.22
Return on assets (percent) *	0.2	0.11
Loan-to-deposit ratio (percent)	110	0.22
3-year cumulative credit-to-GDP growth (per	9.4	0.19
Foreign liabilities (percent domestic credit)	14.7	0.26

Sources: BankScope; BIS; World Bank; and IMF staff estimates.

* Larger values of this variable are associated with a lower risk of crisis.

Appendix IV. Food Decline Vulnerability Index and Natural Disasters

This note develops a food decline vulnerability index (FDVI) to assess the vulnerability of the least-developed countries among the LIDCs to sudden food declines.¹

1. Understanding the interplay between the impact of natural disasters on access to food and the available coping mechanisms is important.

The analysis requires operational definitions of food supply and food decline episodes. Based on the database of the Food and Agriculture Organization (FAO) of the United Nations, food supply measures the “total quantity of foodstuffs produced in a country added to the total quantity imported and adjusted to any change in stocks that may have occurred since the beginning of the reference period.” Food decline episodes are matched with natural disaster shocks which are identified if the number of people affected or the damage caused by natural disasters falls above the 50th percentile of the country-specific distribution.²

2. Drawing on the literature,³ a general-to-specific approach was used in selecting variables for the univariate signaling approach.

The analysis uses 12 variables, based on results from probit regressions and a number of variables considered in the literature as main determinants of food supply decline (Appendix Table 4): food supply growth (measured in kilograms per capita for the period 1990–2009);⁴ The World Bank’s CPIA index; Gini coefficient; life expectancy; share of agriculture in total GDP; natural disasters; fiscal and external indicators; and growth in trading partners.

3. Results show that underlying structural and institutional aspects best explains food decline vulnerabilities.

For each indicator, the 2nd and 3rd columns in Appendix Table 4 show the food decline and non-food decline observations. A maximum of 22 food decline episodes were found to match with the occurrence of natural disasters.⁵ The fourth column presents the estimated thresholds followed by the corresponding Type I (i.e., ability of an indicator to predict a food supply

¹ The basic approach draws on the methodology for the GDVI. For details on the GDVI, see the following: IMF (2013a) and “Dabla-Noris and Bal Gündüz (2014).

² Conditional on these natural disaster shocks, food decline episodes are identified if the post two-year average of food supply per capita falls below its pre three-year average ($(fs_t + fs_{t+1})/2 < (fs_t + fs_{t-1} + fs_{t-2})/3$) and if food supply growth was negative.

³ See the following; (i) Burg (2008); (ii) Lucas and Hilderink (2004); (iii) Capaldo and others (2010); and (iv) The Economist Intelligence Unit (2013).

⁴ To take into account food supply growth beyond 2009 in the FDVI indicator, we use a simple regression based on lagged food supply growth, lagged natural disaster shocks and a constant to forecast food supply growth in subsequent years.

⁵ In the overall sample, 22 food decline episodes were found. However, Appendix Table 4 only reports the crisis episodes which coincide with the data availability of each variable. Therefore, the number of crisis episodes varies for each variable between 2 and 20 observations.

decline) and Type II errors (i.e., occurrence of false alarms). The weight of each indicator in the overall FDVI is shown in the last column and represents the importance of each indicator in the overall index. The top predictor of food supply decline is the overall economy and institutional sector (responsible for 55 percent of the index weight), with the Gini coefficient and food supply growth being the main predictors within this cluster. The second most important sector with a weight of 25 percent is the fiscal sector followed by the external sector with a weight of 20 percent.

Appendix Table 4. Food Decline Vulnerability Index Estimation Results /1

Variables 1/	Direction to be safe	Crisis observations	Non-crisis observations	Thresholds	Type I error	Type II error	Index weight
Overall economy and institutions							
Food supply growth (kgs)	>	20	259	-0.9	0.1	0.3	0.18
CPIA (t-1)	>	20	261	3.1	0.5	0.4	0.01
Gini coefficient (t-1)	<	2	15	56.4	0.0	0.3	0.24
Food supply growth average (kgs)	>	20	263	0.6	0.3	0.4	0.04
Life expectancy (t-1)	>	20	257	65.0	0.0	0.8	0.02
Agriculture value added (in percent of GDP) (t-1)	>	13	193	25.6	0.5	0.3	0.02
Natural disaster (in percent population)	<	13	249	3.3	0.2	0.6	0.01
GDP growth (t-1)	>	15	201	2.0	0.7	0.2	0.02
							0.55
External Sector							
Reserve coverage (months of imports) (t-1)	>	19	226	1.0	0.8	0.1	0.10
Growth in trading partners weighted by lagged exports to GDP	>	19	262	2.0	0.1	0.9	0.10
							0.20
Fiscal Sector							
Government balance (in percent of GDP) (t-1)	>	20	277	-8.3	0.6	0.1	0.23
Government tax revenue (in percent of GDP) (t-1)	>	12	181	11.9	0.4	0.6	0.02
							0.25

Sources: FAO; World Bank; EM-DAT; and IMF, WEO and staff estimates.

1/ Sample includes 63 PRGT-eligible countries for the time period 1990–2008. Due to the identification of food supply crisis episodes (where the post two year average is necessary) the estimation period has to stop in 2008 despite the availability of food supply data until 2009.

Appendix V. Case Studies: Key Trends

(2013 and in percent of GDP, unless otherwise indicated)

	DJI	GHA	HTI	HND	KEN	MOZ	VNM
Population (Mio)*	0.9	24.9	10.2	7.9	40.7	25.2	88.8
GNI per capita ¹ Atlas method (current USD)**	1,030(2005)	1,760	810	2,180	930	590	1,730
Public debt***	53.46	57.39	16.91	43.39	43.46	53.13	50.55
External public debt***	47.57	25.65	15.03	27.88	23.30	44.16	28.83
o/w concessional (share of total, 2012)**	75.83	47.10	85.35	55.09	65.73	78.07	50.87
Domestic currency denom. domestic public debt***	5.89	31.75	1.88	15.51	20.15	8.98	21.72
Debt vulnerability trend (rating in past 3 DSAs)*** 1/	→ (H,H,H)	→ (M,M,M)	→ (H,H,H)	↓ (L,M,M)	→ (L,L,L)	↓ (L,M,M)	→ (L,L,L)
HIPC relief (PV, decision point year)****	x	29.7	2.9	7.8	x	51.2	x
MDRI relief*****	x	8.81	11.37	14.47	x	13.28	x
Lowest public debt-to-GDP ratio since 2001 (year)***	53.46/2013	26.13/2006	9.73/2011	23.36/2008	39.16/2007	21.85/2007	22.88/2001
CPIA overall score: trend, rating, score 2/**	→W (3.17)	↓W (3)	→W (3.17)	↓W (3)	→S (4.5)	→S (4.17)	→S (4.17)
Macroeconomic management	→M (3.5)	↓W (3)	↑S (4)	↓W (3)	→S (4.5)	→S (4.5)	→S (4)
Fiscal policy	→W (3)	↓W (2.5)	↓W (3)	↓W (2.5)	→S (4.5)	→S (4)	→S (4.5)
Debt policy	→W (3)	↓M (3.5)	→W (2.5)	↓M (3.5)	→S (4.5)	→S (4)	→S (4)
Social protection	→W (3)	↑S (4)	→W (2)	↓W (3)	↓M (3.5)	↓M (3.5)	→M (3.5)
Public sector mgmt. & institutions cluster	→W (2.7)	↓M (3.7)	→W (2.4)	↓W (3)	→M (3.4)	→M (3.3)	→M (3.5)
Quality of budgetary and financial mgmt.	→W (2.5)	↓W (3)	→W (2.5)	↓M (3.5)	→M (3.5)	↑S (4)	↓M (3.5)
Efficiency of revenue mobilization	→M (3.5)	→S (4)	→W (2.5)	↓M (3.5)	→S (4)	→S (4)	↑S (4)
Quality of public administration	→W (2.5)	→M (3.5)	→W (2.5)	→W (2.5)	→M (3.5)	→W (3)	→M (3.5)
Trade openness *3/	95.6	80.9	70.4	89.0	52.8	120.2	163.0
Financial openness (2011) *****/4/	237.0	84.9	57.1	119.9	73.6	165.7	108.0
Aid-dependency (2012) *5/	n.a.	4.69	16.12	3.34	7.00	14.76	2.76
Market access year *****/6/	No	2007, 13	No	2013	2014	2013	2005, 09, 10
Fund program *****	ECF(99,08), SMP(05)	ECF(09)	ECF(06,10)	ECF(04),SBA(08,10),SCF(10)	ECF(00,03,11)	ECF(99,04),PSI(07,10,13),E SF(09)	ECF(01)
Macro stability (average in last 5 years)*							
Real p.c. growth	1.7	5.9	0.7	0.3	2.9	4.4	4.6
CPI inflation	4.0	16.8	6.6	5.4	6.0	5.6	5.2
Int. reserves (months of next year's imports)	-4.3	-2.9	-3.4	-3.2	-3.4	-3.3	0.0
Fiscal balance	-3.3	-8.7	-3.7	-4.4	-4.7	-4.3	-4.4
Current account balance	-14.1	-9.3	-4.0	-6.7	-7.3	-26.6	0.3
Progress towards MDGs****							
#1: Eradicate extreme hunger and poverty	Met	Met	Seriously off target	Met	Met	Seriously off target	Met
#2: Achieve universal primary education	on track	Met	Insufficient data	Met	Met	Seriously off target	Met
#3: Promote gender equality and empower women	off track	Seriously off target	Insufficient data	Met	moderate off target	Insufficient data	Sufficient progress
#4: Reduce child mortality	on track	Moderate off target	Moderate off target	Sufficient progress	seriously off target	Sufficient progress	On track
#5: Improve maternal health	on track	Moderate off target	Seriously off target	Moderate off target	seriously off target	Moderate off target	Sufficient progress
#6: Combat HIV/AIDS, malaria and other diseases	off track	Seriously off target	Seriously off target	Insufficient data	insufficient data	Seriously off target	Met
#7: Ensure access to improved water sources	off track	Met	Seriously off target	Met	moderate off target	Seriously off target	Insufficient progress
#8: Global partnership for development	off track	Seriously off target	Insufficient data	Seriously off target	insufficient data	Seriously off target	Sufficient progress

Sources: * IMF, WEO. **World Bank, WDI. ***IMF, SPR/DSA database. **** IMF HIPC and MDRI statistical update 2013, IMF PRSP Djibouti 2012, Kenya MDGs progress Leo and Barmeier (2010), UN MDGs report on Vietnam 2011. ***** IMF, the External Wealth of Nations Mark II database. ***** IMF, Bonds, Equities and Loans (BEL) database. ***** IMF press release.

Note: 1/ L, M and H mean low, medium and high risk of debt distress. 2/ The CPIA score ranges from 1 (=low) to 6 (=high). A strong CPIA performer (labeled "S") is defined as one whose CPIA score is 3.75 or above, whilst a medium performer (labeled "M") has a score within the range of 3.25 to 3.75, and a weak performer (labeled "W") has a score of less than 3.25. ↑ [resp. ↓] indicates an upgrade [resp. downgrade] of one rank (e.g., from S to M [resp. M to S]) and ↑↑ a change of two ranks (e.g., from W to S [resp. S to W]) between 2007 and the latest available observation in 2013. 3/ Calculated as (Imp+Exp/GDP). 4/ Calculated as (FA+FL/GDP). 5/ Defined as ODA as a proportion of total revenue. 6/ Defined as issuance of sovereign bond.

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