

INTERNATIONAL MONETARY FUND

Global Risks, Vulnerabilities, and Policy Challenges Facing Low-Income Countries

Prepared by the Strategy, Policy, and Review Department, Fiscal Affairs Department,
and Research Department, in collaboration with the African Department and
the Asia and Pacific Department

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ACRONYMS AND ABBREVIATIONS

BEAC	Bank of the Central African State
BCEAO	Central Bank of Western African States
BRICs	Brazil, Russia, India, and China
CEMAC	Central African Economic and Monetary Community
CPI	Consumer Price Index
CPIA	Country Policy and Institutional Assessment
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
ECCB	East Caribbean Central Bank
ECCU	East Caribbean Currency Union
EMs	Emerging Markets
FDI	Foreign Direct Investment
GDVI	Growth Decline Vulnerability Index
GPM	Global Projections Model
LICs	Low-Income Countries
OECD	Organization for Economic Co-operation and Development
PMG	Pooled-Mean Group
PRGT	Poverty Reduction and Growth Trust
SSA	Sub-Saharan Africa
TOT	Terms of Trade
VAT	Value Added Tax
VEE	Vulnerability Exercise for Emerging Markets
VE-LIC	Vulnerability Exercise for LICs
WAEMU	West African Economic and Monetary Union
WEO	World Economic Outlook

PREFACE

As part of its work to help low-income countries (LICs)¹ manage volatility, the IMF has developed an analytical framework to assess vulnerabilities and emerging risks that arise from changes in the external environment (see IMF, 2011b and 2011c). This report builds on the results of the second annual Vulnerability Exercise for LICs (VE-LIC) conducted by IMF staff using this framework. The report focuses on the following separate global risks: (i) a sudden downturn in global growth; (ii) a more protracted global growth downturn, and (iii) global food and fuel price shocks; and discusses related policy challenges.

The report is organized as follows: Section I reviews recent macroeconomic developments in LICs; Section II assesses current risks and vulnerabilities; and Section III discusses policy challenges in the face of these risks and vulnerabilities.

¹ The set of LICs referred to in this paper consists of the group of 70 countries listed in Appendix I. This group includes all countries eligible for concessional financing from the IMF under the Poverty Reduction and Growth Trust (PRGT), except for Somalia and South Sudan, which have been excluded due to lack of data. It excludes six countries which graduated from concessional financing in 2010 (Albania, Angola, Azerbaijan, India, Pakistan, and Sri Lanka).

KEY POINTS

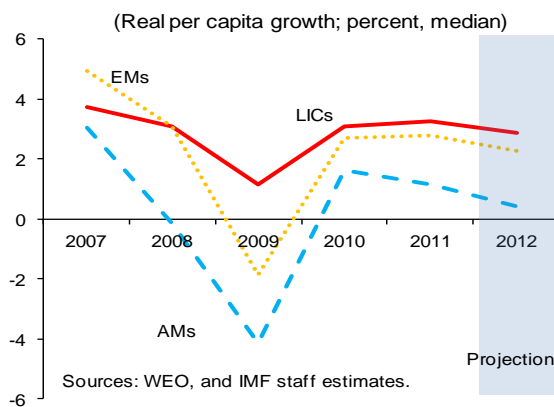
- LICs began to rebuild policy buffers as their recovery began in 2010, but progress on this front has halted and even been partially reversed over the past two years, despite continued strong growth.
- As a result, many LICs have more limited fiscal space and larger current account deficits than prior to the crisis. The level of buffers across various country groups is uneven, with, for example, larger external and fiscal policy buffers in commodity exporting LICs, and limited fiscal space in Asia and the Pacific, and Latin America and the Caribbean, especially small states LICs.
- The near term risks for LICs of a shock-induced recession have been reduced since the 2009 crisis, but vulnerabilities are re-emerging in 2012 given lower macroeconomic policy buffers and additional risk factors.
- LICs also have specific vulnerabilities that can potentially increase their exposure to shocks. This includes, among others, *risks of natural disasters* (especially in sub-Saharan Africa, the Caribbean, and some LICs in Asia and the Pacific) affecting domestic food prices and *exposure through financial links* with global markets, which heighten sensitivities to shocks (especially in Latin America and Caribbean LICs).
- Short-term risks to the global outlook are tilted to the downside. Under a *euro-centered growth shock*, the median LIC would suffer a significant loss in output, fiscal balances would worsen, and more than half of all LICs would see reserve coverage fall below three months of imports. External financing needs would also rise. Given donors' fiscal constraints, aid is unlikely to come to the rescue as it did in 2009. Countries would either have to take on more nonconcessional debt, deplete reserves, or make pro-cyclical policy adjustment. The IMF would also likely be called upon to provide additional financial assistance.
- The effects of a *protracted global growth slowdown* would be less severe in the short run. However, due to permanent output losses that accumulate over time, the effect would be substantial in the medium term. Absent adjustment, additional external financing needs would mushroom: since this is unsustainable, almost all LICs would need to adjust to some degree depending on prevailing cyclical conditions, supported by Fund financing. Policymakers would have to balance their adjustment decisions with the need to support or maintain growth and preserve priority spending.
- A *spike in global food prices* would have less severe effects on fiscal and external gaps than the other shocks. But, because of the very high weight in consumer baskets, a larger impact on inflation and poverty would be expected.
- A *spike in global oil prices* driven by a supply disruption would create additional external financing needs for LICs comparable to the euro-centered growth shock. Given pervasive price controls and support, fiscal costs would be large if policies were not modified.
- These global risks highlight the importance of domestic engines of growth in LICs that can substitute for lost global demand and reduce the impact of external shocks.

I. BACKGROUND: RECENT MACROECONOMIC TRENDS IN LICs

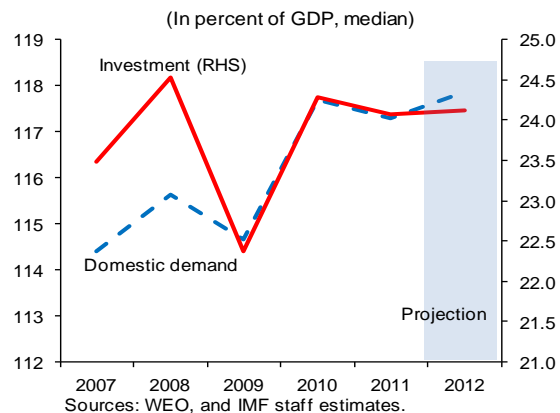
The rapid recovery in many low-income countries (LICs) following the global crisis has been sustained in 2012. Softening commodity prices have led to moderating inflation pressures in most LICs. However, progress in rebuilding policy buffers has halted over the past two years, despite continued strong growth in LICs.

1. **Most LICs recovered quickly from the 2008–09 global crisis and have experienced strong growth since early 2010.** In 2009, solid pre-crisis macroeconomic positions facilitated a countercyclical policy response to the crisis—a first for LICs.² In contrast to past global slowdowns, the recovery in LICs was swift and synchronized with the rest of the world, reflecting strong export demand from trading partners. While advanced economies still account for a large share of LICs’ trading partners, a number of fast-growing emerging markets (EMs) have played an increasing role in supporting growth in LICs. In addition to the usual trade channels, through which higher growth in EMs contributes to a rise in demand for LIC exports, some EMs have become major contributors to LIC growth more recently through remittances and financial linkages.³ The performance in EMs is likely to continue to support growth in LICs in 2012, in particular in Asia and the Pacific.⁴ Real GDP growth for the median LIC is projected at around 5 percent in 2012, repeating the 2011 performance. Over the period 2009–2010, the global environment has remained less supportive than in the pre-crisis period, and LIC growth recovery was largely driven by domestic demand, on both the consumption and investment sides. More recently, though, the role of external demand increased as investment dampened.

Economic growth has been holding up relatively well, in spite of moderation in the advanced economies.



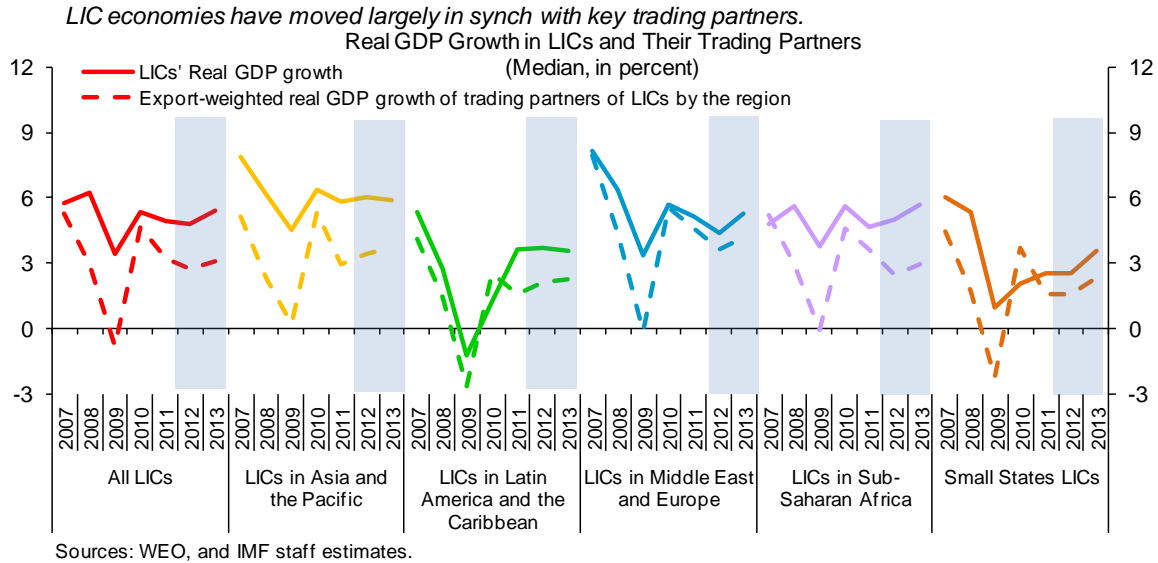
Domestic demand, including investment, led the recovery in LICs' growth.



² See [Managing Global Growth Risks and Commodity Price Shocks—Vulnerabilities and Policy Challenges for Low-Income Countries](#) (IMF, 2011c).

³ See [Spillovers to Low Income Countries: Importance of Systemic Emerging Markets](#) (WP/12/49). See also [New Growth Drivers for Low-Income Countries—The Role of BRICs](#) (IMF, 2011a).

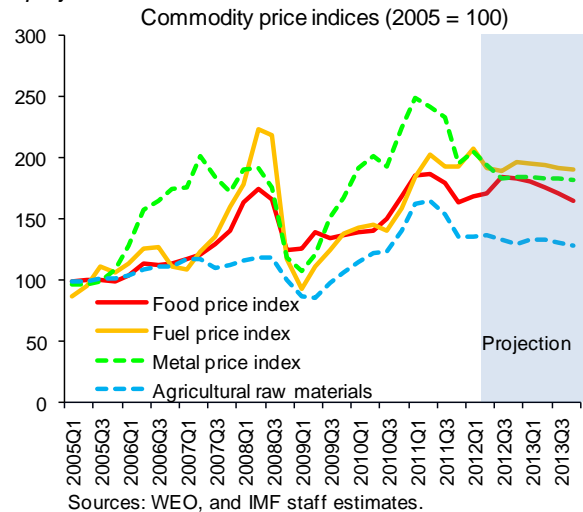
⁴ See Appendix I for LICs’ country classification.



2. The 2011 rally in commodity prices has been partially unwound but prices remain elevated, especially for food and fuel.

Commodity prices started declining in the second half of 2011, reflecting the slowdown in global growth. Price decreases have been broadly similar across different commodity groups, with the exception of food and fuel. However, despite the decline, many commodity prices have remained above pre-crisis levels and are expected to stay elevated in the near term. Global food prices were broadly flat until mid-June 2012, but have since increased sharply, driven primarily by some key crops amid concerns about weather-related supply disruptions and lower buffer stocks.⁵ Food prices are expected to moderate by the end of 2013 but would remain elevated, given short-term supply constraints. Oil prices remain volatile, reflecting political developments in the Middle East and uncertainty regarding the global economic outlook.

Commodity prices have eased somewhat but are projected to remain elevated.

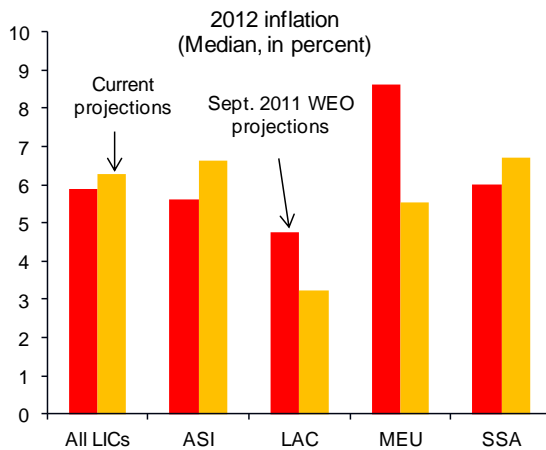


3. Inflation has generally moderated in many LICs, partly reflecting the pass-through of lower commodity prices. Cyclical external factors that helped unwind global

⁵ Drought conditions in South America and the U.S. have affected corn and soybean crops, leading both prices to reach record high levels in late July 2012. Wheat prices have also risen, prompted by lower production estimates in the Black Sea region, and there is some risk to rice output owing to a below-average monsoon in India. Moreover, stock ratios for corn and rice are below long-term historical levels and have been falling for wheat and soybeans.

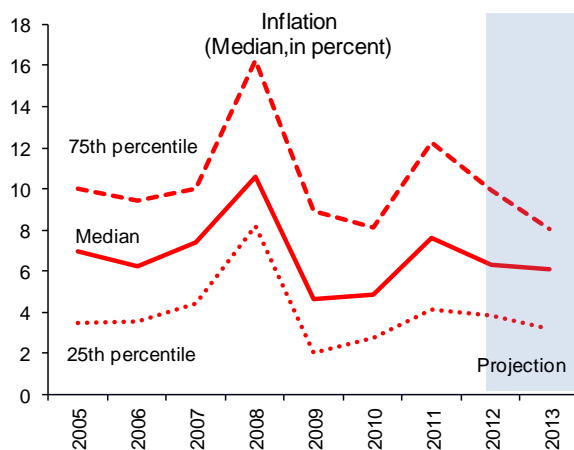
prices have dampened inflationary pressures, particularly the slowdown in global growth, declines in commodity prices, and depreciation of some major currencies. Consequently, inflation for the median LIC is expected to ease, from more than 7.5 percent in 2011 to about 6.3 percent in 2012 and 6.1 percent in 2013. At the same time, inflation slowed sharply in Latin America and the Caribbean and the Middle East and Europe, and inflationary pressures remained fairly subdued in small LICs,⁶ with median inflation projected at 4½ percent in 2012, falling to 3 percent in 2013.

On average, forecast inflation in LICs in 2012 is largely unchanged from 2011 WEO...



Sources: WEO, and IMF staff estimates.

...and inflationary pressures are expected to stay contained.



Sources: WEO, and IMF staff estimates.

4. **Following the crisis, LICs continue to show significant resilience, despite slow progress in rebuilding macroeconomic policy buffers, which mostly reflects higher public investment spending.** Fiscal adjustment started in 2010 as revenues rebounded along with the economic recovery, but has since halted, with the fiscal deficit of the median net oil importer remaining at around 3–3½ percent of GDP in 2011–2012—a substantial widening from about 1½ percent of GDP in pre-crisis years. It is important to note, however, that in the majority of LIC groups, the counterpart to higher revenues has been increased spending on public investment, which may bode well for future growth, while recurrent spending remained relatively stable. Public debt⁷ has remained broadly stable on average, reflecting previous debt relief operations in the period leading up to the global financial crisis, and prudent borrowing policies, though for a few countries debt ratios have recently reached levels seen before debt relief operations.⁸ On the external side, current account deficits net of foreign direct

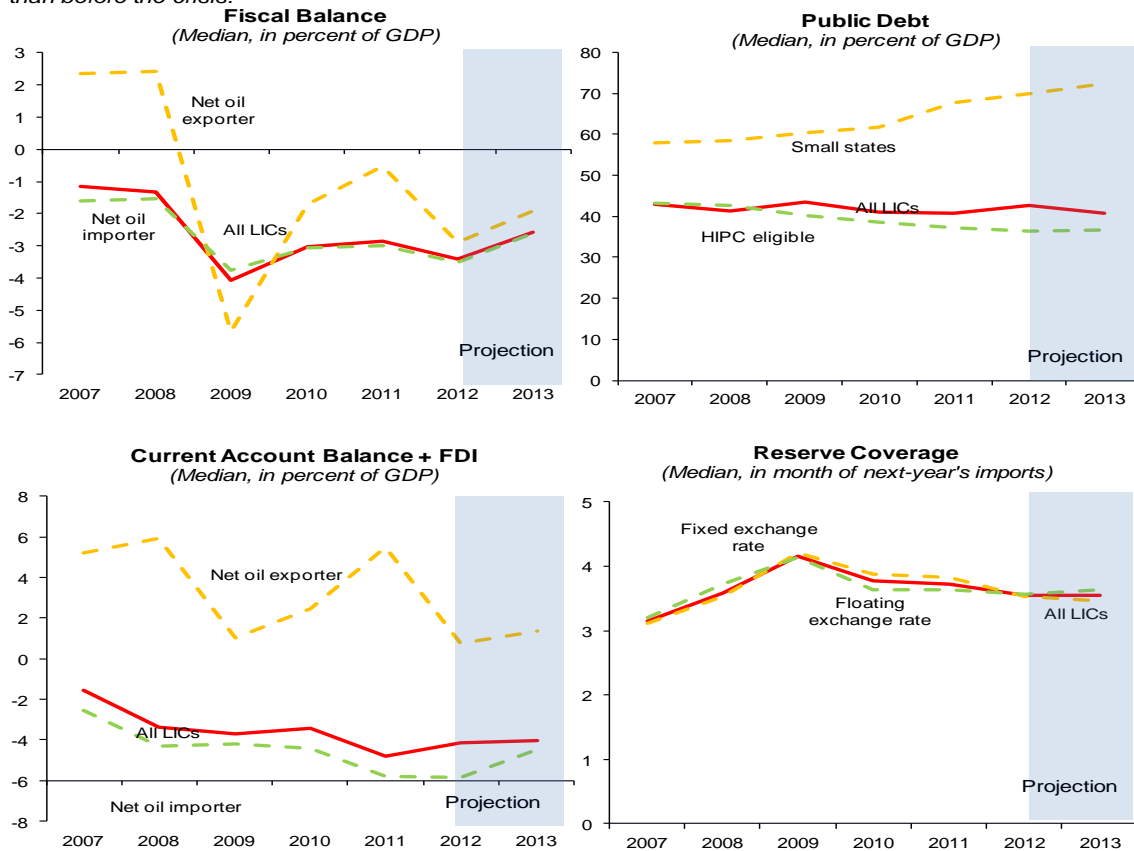
⁶ The group of “small LICs” referred to throughout this paper are those with populations below 1.5 million.

⁷ Public debt data are not always comparable across countries, including different institutional coverage (central government, general government, or public sector).

⁸ Since mid-2008, out of the 70 percent of LICs that currently have a low or moderate risk of debt distress, 16 LICs saw their risk rating improve, and only three ratings had deteriorated to high risk, while one worsened from high risk to debt distress.

investment (FDI) (hereafter referred to as the external balance) have widened since the crisis to about 4 percent of GDP in 2012 from 1½ percent in 2007 for the median LIC, with a bigger deterioration for net oil importers. Here, again, imports were on the rise in response to increased public investment spending. Reserve coverage declined slightly to about 3.5 months of prospective imports (from 3.8 months) for the median LIC over the period 2010–2012. Overall, the situation across various country groups is uneven, with, for example, relatively high external and fiscal policy buffers in commodity-exporting LICs, and limited fiscal space in Latin America and the Caribbean. LICs in Asia and the Pacific now have more limited fiscal space and larger current account deficits than prior to the crisis. Small LICs seem to fare somewhat worse than the rest, with more limited fiscal space in the median country, higher public debt, larger current account deficits, and somewhat lower reserve coverage.

LICs have been growing robustly, but macroeconomic buffers in many LICs have remained lower than before the crisis.



Sources: WEO, and IMF staff estimates.

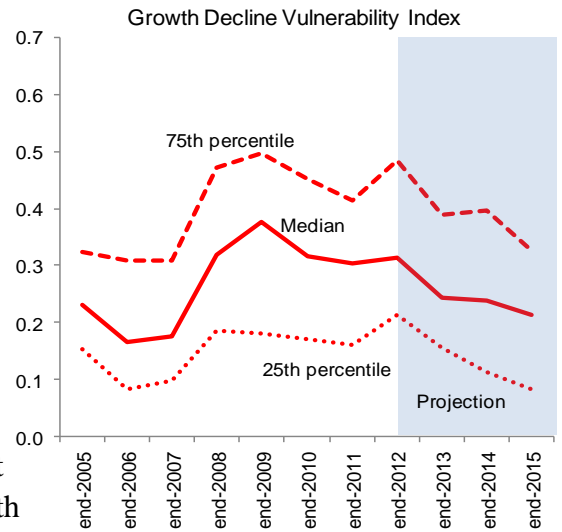
II. VULNERABILITY ANALYSIS

A. How Vulnerable are LICs to a Recession?

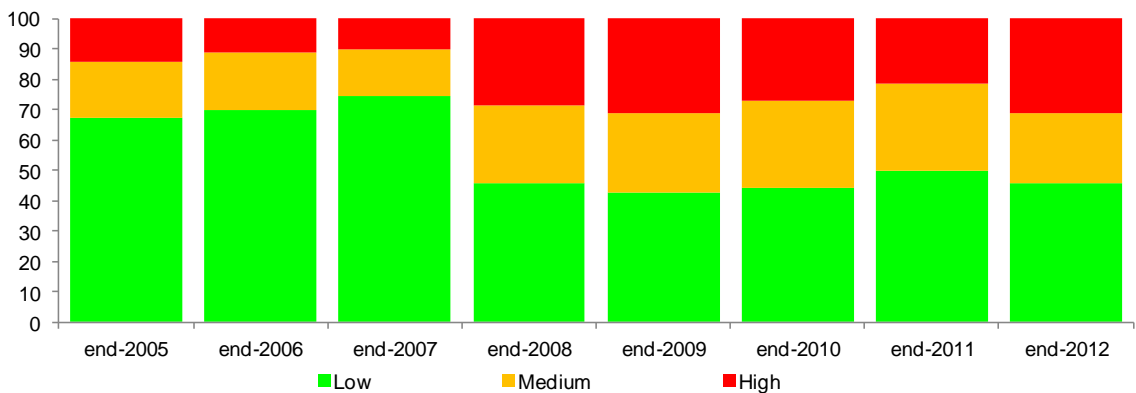
The near term risks for LICs of a shock-induced recession have been reduced since the 2009 crisis, but vulnerabilities are re-emerging in 2012 given lower macroeconomic policy buffers and additional risk factors.

5. The strong underlying growth dynamics during the recovery have reduced LICs’ near-term risk of a shock-induced recession, with improvements in fiscal indicators especially pronounced for commodity exporters.

An illustrative “growth decline vulnerability index” suggests that the near-term risk of a shock-induced recession increased in the run-up to the global crisis and peaked at the end of 2009, with just over 30 percent of LICs showing a high degree of vulnerability (see Annex II for methodology, and Box 1 for a description of the various approaches used in this paper to assess LICs’ vulnerabilities). In the context of the recovery, this share of vulnerable countries declined to about 20 percent by end-2011, but started rising again in 2012, with an expected 31 percent of LICs showing increased vulnerabilities to exogenous shocks. Here, countries with weak fundamentals (top quartile of the index) face a deterioration in a few indicators of vulnerability (particularly fiscal indicators for commodity exporters and external indicators for non-commodity exporters) that would drive up the general index for end-2012.⁹



Although strong economic growth has reduced LICs’ near term risks after the global crisis of 2008-09, more LICs are showing increased vulnerabilities to a sudden shock-induced recession.



Sources: WEO, and IMF staff estimates.

Note: The growth decline vulnerability index is constructed by considering historical relations among economic, fiscal, and external indicators with near-term growth declines and protracted growth slowdowns in the event of exogenous shocks.

⁹ If a country has less than 30 percent probability of negative per capita growth, the index falls in the green zone (low vulnerability). If a country has more than 44 percent probability of negative per capita growth, the index falls in the red zone (high vulnerability). Anything in between is in the yellow zone (moderate vulnerability). Changes in methodology since last year’s report, as described in Appendix II, also allow for more differentiation in medium- to low-vulnerability cases, with increased granularity captured by new variables, hence explaining some of the increased vulnerabilities shown.

Box 1. Assessing Vulnerabilities in LICs: Concepts and Approaches

This paper uses the various concepts and approaches defined in IMF (2011b) and IMF (2011c), to assess vulnerabilities in LICs from different angles. These include macroeconomic policy buffers, an illustrative measure of fiscal space, a growth decline vulnerability index, scenario analysis, and complementary vulnerability indicators.

- **Macroeconomic policy buffers** are indicators of the overall external and fiscal positions of an economy. Key indicators to assess buffers include the overall fiscal balance, total public debt, international reserve coverage, the external balance, and inflation. Countries with high fiscal deficits and high and/or increasing public debt stocks would generally have less flexibility to use fiscal policy when hit by a shock than countries with low deficits and debt. Likewise, countries with low current account deficits and comfortable reserve coverage may be in a better position to absorb external shocks than countries with large deficits and limited reserve cushions. Finally, countries with relatively low inflation have more scope for accommodative macroeconomic policies.
- The illustrative **fiscal space** indicator is a broad concept that considers the extent to which government expenditure can be increased (or taxes cut) without jeopardizing long-run debt sustainability. While the illustrative fiscal space indicator is closely related to the overall fiscal deficit and public debt indicators, its scope is more general and takes into account long-term growth and interest rate prospects and quality of fiscal institutions. For illustrative purposes, fiscal space is defined here as the difference between the baseline primary balance and the constant primary balance that would be needed to avoid unsustainable debt over the usual time horizon for Debt Sustainability Analysis (DSAs). The debt target used is the lowest of either the 2012 baseline debt-to-GDP ratio or the debt targets defined under the [Debt Sustainability Framework](#) (DSF). Moreover, this definition of fiscal space also allows for concessional borrowing and gradual access to financial markets at commercial rates in the longer term.
- An illustrative **growth decline vulnerability index** is used to measure a country's underlying vulnerability to sudden growth declines. The latter are characterized by negative real per capita GDP growth in the event of exogenous shocks and a protracted period of growth below the pre-shock trend. The methodology takes into account historical relations between growth decline episodes and economic, fiscal, and external indicators (see Appendix II for details).
- **Scenario analysis** is a tool for assessing the macroeconomic impact of global risks. In this paper, the focus is on a number of alternative risks: a sharp downturn in global growth, a protracted downturn in global growth, and global food and oil price shocks. The impact of these shocks on key macroeconomic variables allows for an assessment of the adequacy of external and fiscal buffers across countries, which are used to assess the ability of LICs to withstand shocks.
- Under the scenario analysis, additional **external financing needs** are calculated as the amount needed to bring international reserve coverage (in months of next year's imports) back to three months for those countries that had at least three months coverage prior to the shock. For countries with less than three months coverage of imports in the baseline, additional financing needs reflect the amount of the loss in reserves resulting from the shock. Additional financing needs are zero for countries where reserve coverage exceeds three months even after the shock, or if reserve coverage increased under the shock scenario.
- **Complementary vulnerability indicators** are analyzed to measure additional country-specific vulnerabilities arising from geographic and domestic factors, external linkages, and macroeconomic fundamentals (see Appendix IV for details). These indicators can qualify and complement the risks and vulnerabilities identified in the growth decline vulnerability index and the scenario analysis, as they capture countries' relative exposure to vulnerabilities and the *likelihood* of a shock materializing.

6. **In addition to the standard indicators used in the growth decline vulnerability index, most LICs have country-specific vulnerabilities that can potentially increase their exposure to shocks.**¹⁰ Some of the sources of vulnerability can themselves give rise to shocks and can also: (i) increase the susceptibility of being hit by a global shock, (ii) magnify the exposure to spillovers from a global shock, (iii) dampen the capacity to cope with a global shock, and/or (iv) constrain the capacity to build resilience against future global shocks. Generally, natural disasters and climate-related vulnerabilities (such as floods, drought, and earthquakes) pose additional risks to economic outcomes in most LICs, especially in Asia and the Pacific, and Latin America and the Caribbean.¹¹ Similarly, greater integration with global markets heightens countries' susceptibility to sudden shifts in trade prices in the majority of commodity exporters and countries in sub-Saharan Africa (SSA). Meanwhile, weak governance, corruption, and political instability/insecurity¹² amplify the effects and costs of global shocks (via increased risk of civil unrest and internal conflict), notably among oil exporters and fragile states. Finally, macroeconomic and financial channels can heighten sensitivity to exogenous shocks. Specifically, overvalued *real effective exchange rates* among small states and commodity-importers would affect these countries' ability to cope with a shock, as would a high *risk of debt distress*—a concern most prevalent among fragile states and net food-importers. LICs' direct exposure to global shocks via *financial channels* is limited by the relatively low degree of global financial integration, but some indirect contagion may be seen through real sector channels (a worsening of the macroeconomic environment in which parent banks operate) and global trade integration (see Box 2).

B. How Exposed are LICs to Global Shocks?¹³

The risks to the global outlook are tilted to the downside, stemming mainly from a possible intensification of the euro area crisis, which could trigger a sharp slowdown in global growth. Last year's VE-LIC report also looked at the possible effects of this scenario, and this section updates that analysis. A second separate global risk is a slowdown in potential growth in both advanced economies and emerging markets, leading to a protracted period of low global growth. Other downside risks—also considered separately—include supply-side price pressures in global commodity markets, and the section looks in particular at the effects of possible shocks to food

¹⁰ The growth decline vulnerability index measures the likelihood that a country would suffer a severe recession in the event of an exogenous shock, and the scenario analysis models the impact of pre-defined global shocks. Neither method measures countries' relative *exposure* to idiosyncratic shocks or the *likelihood* of such shocks. See Appendix IV for methodology and data sources.

¹¹ In sub-Saharan Africa, natural disasters often trigger volatility of domestic food prices that can have more pronounced macroeconomic and social consequences than the disaster itself.

¹² Such factors are often accompanied by highly unequal income distribution. See [IMF Staff Discussion Note 11/08](#) (Berg and Ostry, 2011).

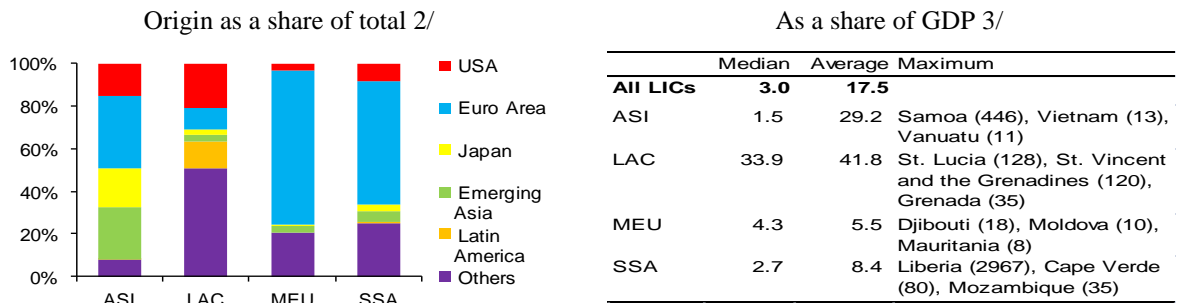
¹³ The risk scenarios in this paper were produced by the IMF's Research Department and are consistent with the most recent WEO (see Appendix III for details).

Box 2. LICs' Exposure to Global Shocks Via Financial Channels

Relatively low global financial integration shelters most LICs' financial systems from direct exposure to worsening global financial conditions. Compared to emerging markets, cross-border financial linkages in LICs have remained low, limiting the risks and costs of available funding. The following are some supporting facts:

- *Sovereign capital market access is low*, resulting in a contained impact of worsening global credit conditions (such as widening sovereign spreads relative to U.S. treasuries). Since 2006, only eight LICs have placed bonds internationally.
- *Portfolio investment liabilities (debt and equity) have remained small relative to foreign direct investment (FDI)*, thus limiting risks to LICs from global portfolio reallocation and re-pricing. Total portfolio liabilities only exceed 5 percent of GDP in around a fifth of LICs and are generally more in equity than debt. They originate mainly along regional lines and historical linkages.
- *Cross-border flows are generally low*, thus limiting exposure to deleveraging risks. Euro area banks accounted for more than half of those claims in the majority of LICs in 2010–11 (mostly along historical linkages), with the exception of Latin America and the Caribbean economies. These claims, however, remain relatively small.

Cross-Border Claims (average 2010–11) 1/



Source: BIS, and WEO.

1/ Domestically owned BIS-reporting bank' consolidated claims on an immediate borrower basis.

2/ Country groups are based on Global Projection Model (GPM) classification.

3/ Liberia is excluded from the SSA average and median.

In contrast, LICs' financial systems could face severe indirect exposure to external shocks through global trade integration and financial interconnectedness with relevant institutions in other LICs and emerging markets:

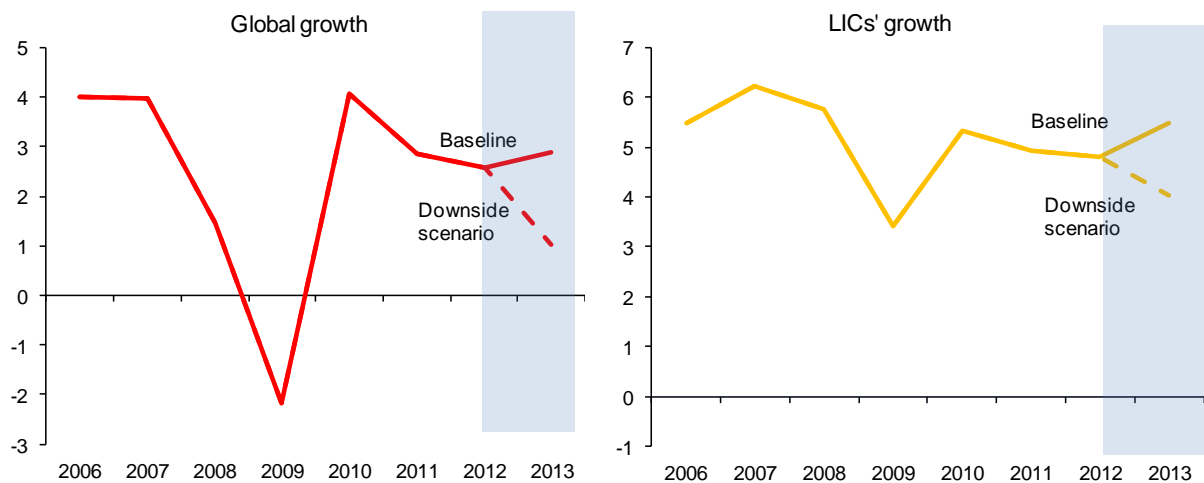
- Higher global risk aversion adversely affects global economic activity through investment, in turn dampening trade, commodity prices, and external demand. Such a worsening of the macroeconomic environment in which banks operate will hit LICs with the most trade-integrated financial sectors, i.e. those with a more open economy and those with a significant reliance on trade and trade credit.
- The macroeconomic situation and policy reaction in LICs will also affect the financial soundness and liquidity of banks, especially those with rapid credit growth. As the room for countercyclical policy responses is currently limited in many LICs, these countries may be unable to mitigate the impact on their economies of a global shock, including the attendant spillovers on the banking system. This in turn could create a severe feedback loop to the real economy.
- Regional spillovers from difficulties in financially integrated banks in LICs or emerging markets can also add to stresses in otherwise less integrated LICs. Examples include the expanding Pan-African banking groups and financial and insurance sector stresses in some Caribbean countries.

and fuel prices. The impact on LICs from these shocks will be set against more limited macroeconomic buffers that render the countries less well prepared to deal with the global risks.

A sharp downturn in global growth

7. **A 2 percent decline in global growth would reduce growth in the median LIC by an estimated 1.5 percent in 2013.**¹⁴ This sharp downside growth scenario is based on an intensification of the euro area crisis, whereby policies fail to prevent a resolution of sovereign and banking stresses in the area. Were such a shock to occur, its effects would spill over into all regions. The scenario would lower global growth by almost 2 percentage points in 2013, relative to the World Economic Outlook (WEO) baseline¹⁵—a somewhat more severe shock than was assumed in last year’s report. The impact on LIC growth would be felt across the board in LICs, with countries in the Middle East and Europe and in Latin America and the Caribbean hit hardest, especially small states. The extent of the decline in growth is driven largely by the degree of openness and exposure of many LICs to the European Union (mainly through trade channels), since Europe is the assumed epicenter of the shock (see Appendix III for details on the methodology).

A 2 percentage point decline in global growth in 2013 would shave an estimated 1.5 percent off LIC growth.

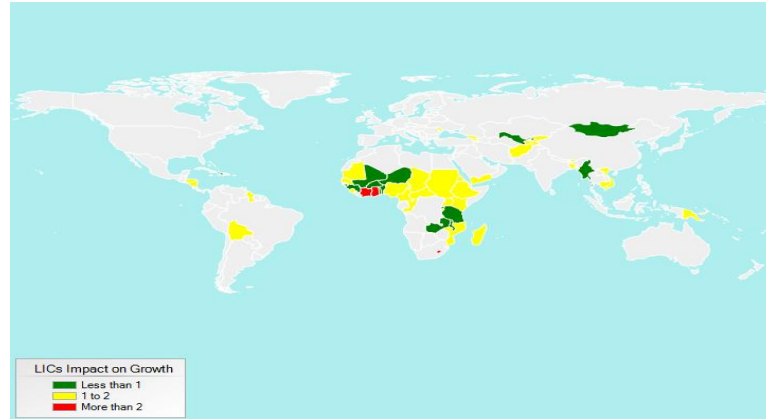


Sources: WEO, and IMF staff estimates.

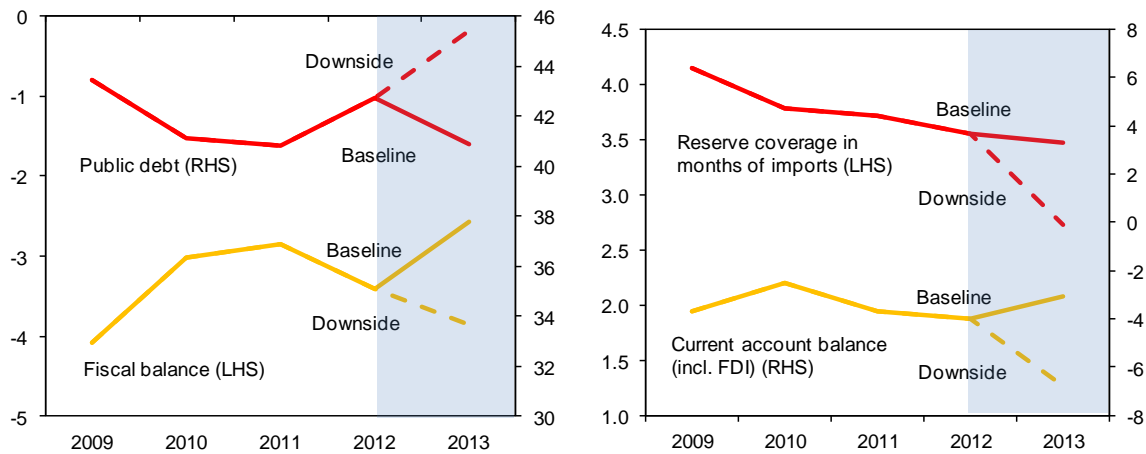
¹⁴ The scenario assumes that the shock begins in 2013.

¹⁵ The WEO baseline forecast for the world economy envisages continued global growth in the 3–4 percent range in 2012 and 2013.

Impact of a Global Growth Downturn on LIC Growth
(Percent, deviation in 2013 from the baseline)



A sharp downturn in global growth would severely erode fiscal and external buffers.
(Median, in percent of GDP)



Sources: WEO, and IMF staff estimates.

8. **A downturn in global growth would erode fiscal and external buffers.** In the baseline, the median LIC's fiscal balance is projected to improve, and its public debt ratio to decline (see chart above). Sharply lower global growth, by triggering revenue losses in LICs, could reverse these gains.¹⁶ For the median LIC, the fiscal balance would deteriorate by 1.3 percentage points of GDP in 2013, relative to the baseline, with Latin American and Caribbean economies, including small states, seeing the strongest effects. Similarly, the balance of payments of LICs would be adversely affected through lower export receipts, negative terms of trade (TOT) for some countries, and reduced remittances and FDI inflows, causing external balances to deteriorate and reserve coverage to fall. For the median LIC, the external balance would worsen by 3½ percent of GDP, reflecting in particular weaker positions in the Middle East and Europe, as well as sub-Saharan Africa and small states.

¹⁶ These results reflect a passive policy scenario (no change in policies in response to the external shock).

9. **With exports, remittances, and FDI all falling significantly in this scenario, additional external financing needs of around US\$23 billion could emerge by the end of 2013.** About half of LICs would face higher financing needs, with a significant share of total needs concentrated among a few large LICs in sub-Saharan Africa, and Asia and the Pacific. This comes against the backdrop of reduced access to traditional sources of financing, with donor financing falling recently, after a sharp increase in 2009 in response to the crisis, reflecting budgetary pressures in donor countries. In the absence of adjustment or new financing, reserve coverage in more than half of all LICs would fall below three months of imports, and 30 percent of LICs would not have any fiscal and external space to absorb the impact of the shock. In this event, the IMF would likely be called upon to provide significant financial assistance to help LICs that are affected by the shock. External and fiscal policy buffers are higher for commodity-exporting LICs, providing these countries with more scope for countercyclical policies, while fiscal space is particularly limited in small states.

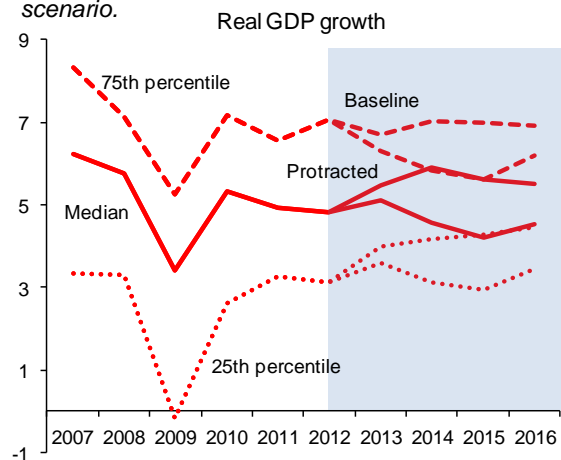
Protracted global downturn scenario

10. **An alternative scenario analyzes the potential vulnerabilities of LICs in the event of a protracted downturn in global growth, driven by a slowdown in potential growth in advanced economies and emerging markets.**¹⁷ For advanced economies, a number of factors

could lead to a sustained period of low growth, including hysteresis in unemployment, a more modest pace of technological advancement (possibly owing to high energy costs), or more cautious behavior on the part of households and firms given the damage wrought by the crisis. For emerging economies, slower advanced economy growth would imply subdued external prospects and thus a more gradual pace of catch up. Under this scenario, global growth is assumed to fall short of the baseline by 0.5 percentage points in 2013, and by an annual average 1.6 percentage points in 2014–16.

Moreover, weaker global growth translates into significantly weaker demand for commodities, as a result of which the price of oil falls by roughly 30 percent after three years, with non-oil commodity prices falling by roughly 20 percent, relative to the baseline (see Appendix III for details on methodology).

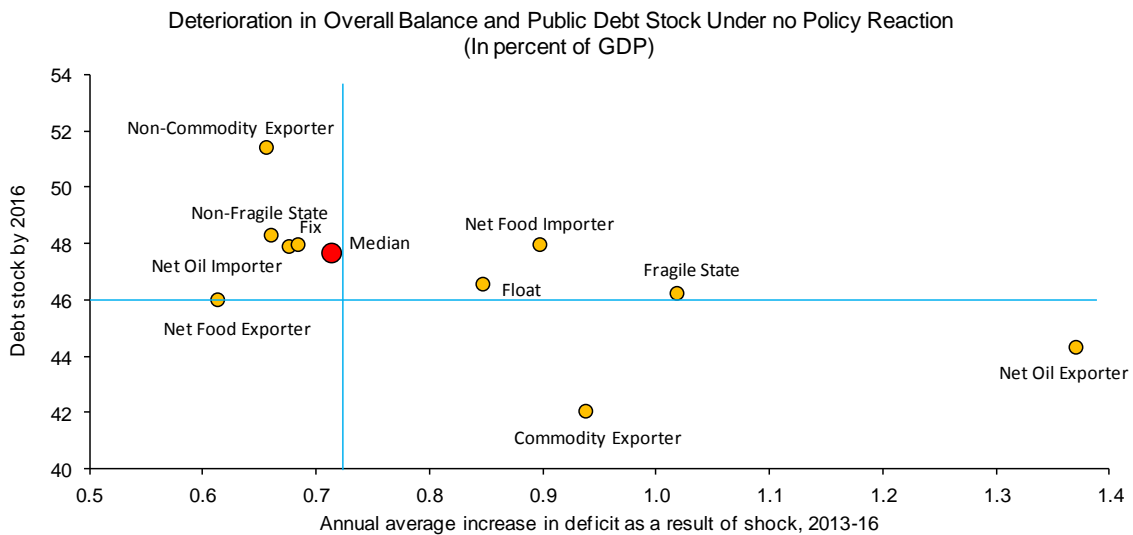
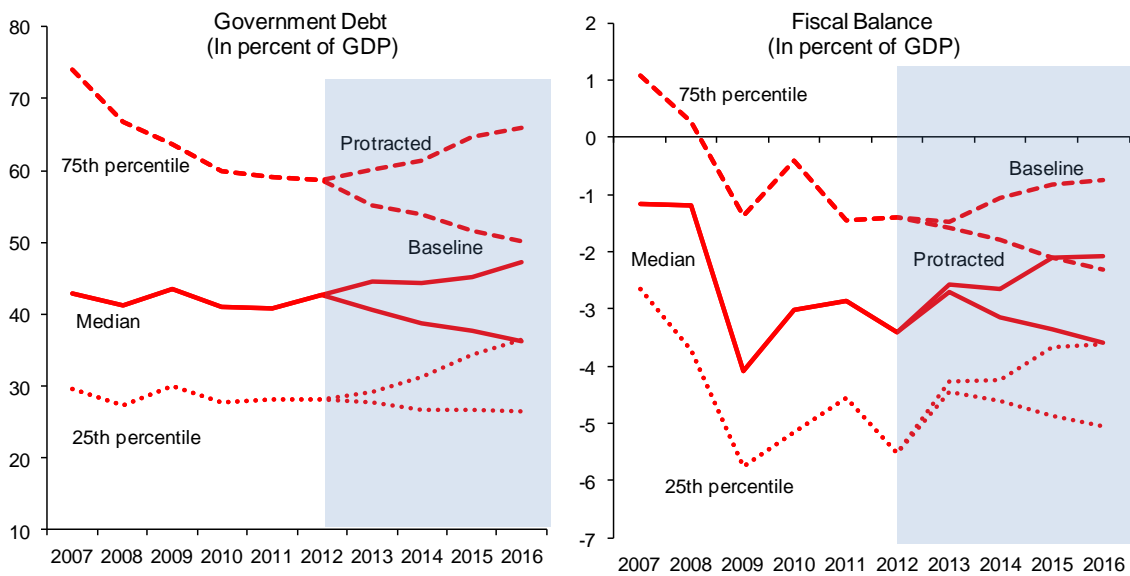
LICs could experience significant and prolonged growth moderation under the prolonged downturn scenario.



Source: WEO, and IMF staff estimates.

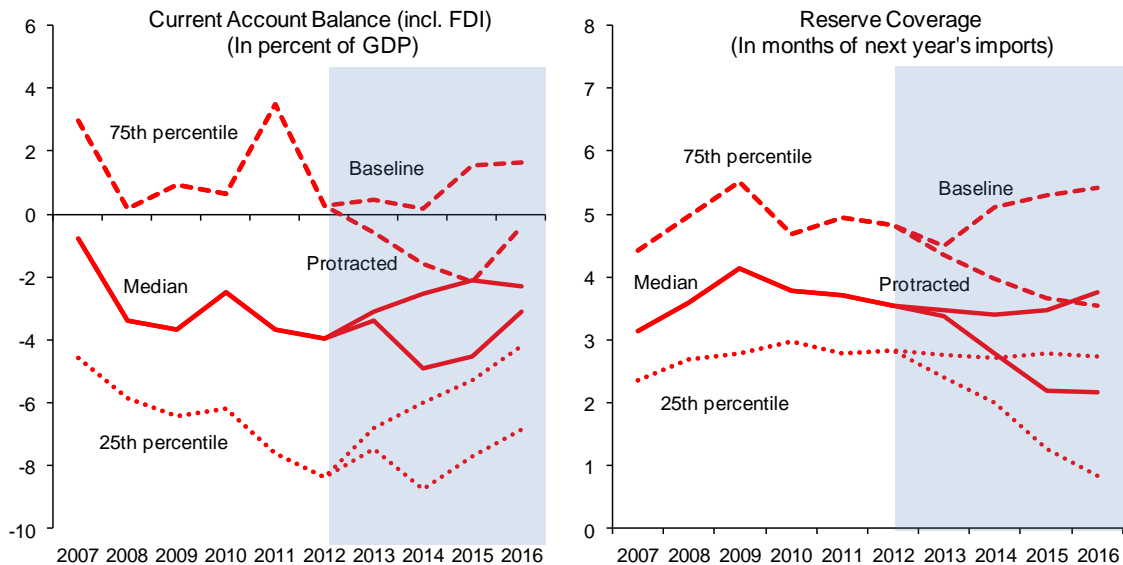
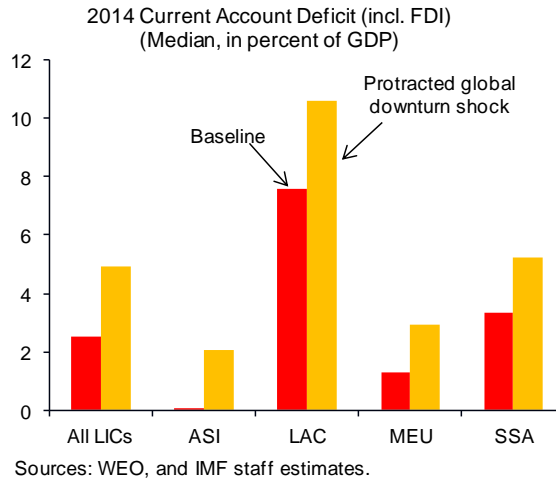
¹⁷ This would be a materially different situation than that seen during 2008–09 global crisis, when rapid recoveries in LICs were supported by high demand growth in emerging markets. Under the scenario considered here, such support for demand would be absent.

11. **Under such a scenario, absent any policy response, macroeconomic buffers in all LICs would progressively weaken as the permanent output loss accumulates over time.** All countries could experience protracted lower growth, as the demand for their exports, FDI inflows, and remittances would stay below trend, especially driven by spillovers from emerging markets. The cumulative output loss over the period 2013–16 in the median LIC would be 4.4 percentage points, with output losses ranging from 2.3 to 8.5 points. As a result, macroeconomic buffers would weaken more slowly than in the sharp shock scenario, but could get progressively more depleted over time. Without a policy response, the illustrative fiscal space indicator would continue to deteriorate in the majority of LICs, and LICs would accumulate significant public debt—a marked reversal of the gradual improvement in debt ratios projected in the baseline.



12. **A protracted downturn in global growth would also erode external balances.** For the median LIC, the external balance would worsen by 0.3 and 2.4 percent of GDP in 2013 and 2014, respectively, with the hit broadly similar across LICs. The cumulative worsening in the external balance over the period 2013–16 in the median LIC would be 5.9 percentage points of GDP—a substantial deterioration.

Protracted global downturn could lead to significant deterioration in external balances, in particular, in Latin America and the Caribbean.



13. **Such imbalances could not be financed indefinitely.** Additional cumulative financing needs could be as large as US\$26 billion by the end of 2014, reaching about US\$83 billion by end-2016.¹⁸ This comes against the backdrop of falling growth in donor

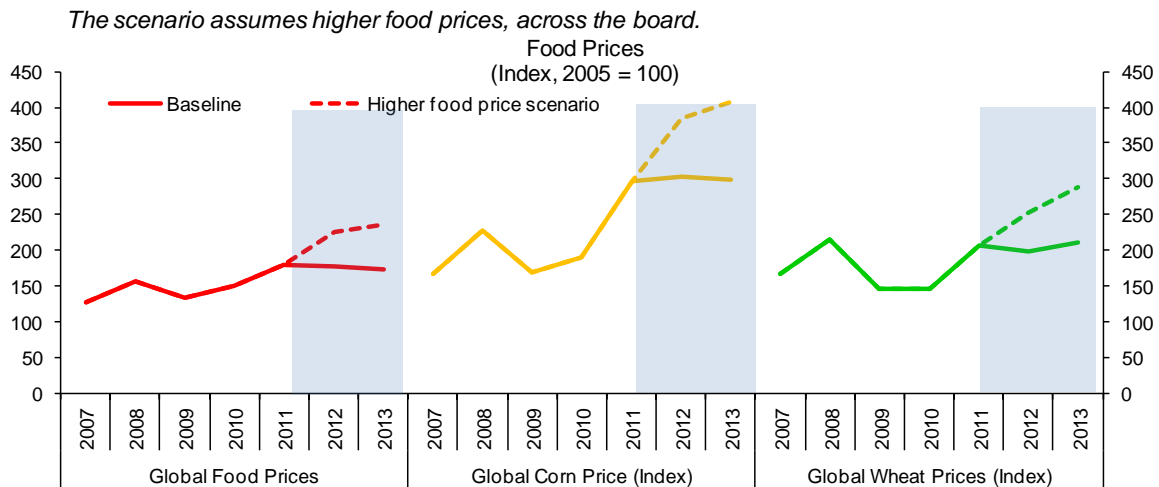
¹⁸ The scenario assumes no adjustment in policies (passive scenario).

financing, as noted above. Since aid flows have depended historically on the size and duration of a shock in donor countries, a protracted decline in growth may result in further reductions in aid envelopes.¹⁹ This implies that countries would typically need to undertake medium-term adjustment in the face of such a shock. The IMF would also likely be called upon to provide significant financial assistance to help LICs that are affected by the crisis. (See Section III for a further discussion).

Commodity price shocks

Last year's report looked at the possible effects of generalized increases in global commodity prices. This section looks instead at particular shocks to food and fuel prices, stemming from assumed supply-side shocks. Such supply disruptions to two vital commodities affecting LICs could aggravate the effects of either of the global demand shocks considered above, if they were to coincide.

14. **Given the dependence of many LICs on food imports, a third downside scenario analyzes their potential vulnerabilities to a sharp increase in global food prices.** The scenario assumes that food prices would increase by 27 percent in 2012 and 36 percent in 2013, relative to the baseline, driven primarily by global supply shocks. (The current WEO baseline scenario projects a decline in food prices of 1 percent in 2012 and 3 percent in 2013, compared to 2011.)



Sources: WEO, and IMF staff estimates.

Note: Global food prices are assumed to increase by 27% in 2012, 36% in 2013, relative to the baseline across all food commodities.

¹⁹ Regression analysis suggest that a 1 percentage point reduction in donors' projected real GDP growth would reduce planned aid by about 3 percentage points. Simulations point to a potential reduction in real CPA of about \$1.5 billion over the period 2012–15. Data on planned and disbursed CPA are drawn from various editions of the [OECD Surveys](#).

15. **A fourth downside scenario assumes a sharp surge in oil prices driven by a supply disruption from geopolitical uncertainty in the Middle East.** Under such a scenario, oil prices would increase by 50 percent in 2012 and 40 percent in 2013, relative to the baseline projections.

16. **Global spikes in food prices expose LICs to inflationary pressures that could undermine price stability and increase poverty.** Under a global food price shock, assuming that the pass-through from global to domestic prices follows historical patterns and that, as in the past, only mild countervailing monetary policy action is undertaken, inflation could more than double, to a median of around 14 percent in 2013 from the current projection of about 6 percent. This reflects the high share of food in LICs' Consumer Price Index (CPI) baskets. The impact on growth is likely to be muted, with a marginal increase in the risk of recession in LICs, but the global food price shock would also lead to weaker fiscal positions in the median LIC (worsening by about 0.3 percentage points), with noticeable effects across all regions.

Under the higher global food price scenario, inflation in LICs could more than double relative to the baseline projection.



Sources: WEO, and IMF staff estimates.

Note: Scenario simulated impact based on an increase in global food prices by 27 and 36 percent in 2012 and 2013, respectively, compared to baseline.

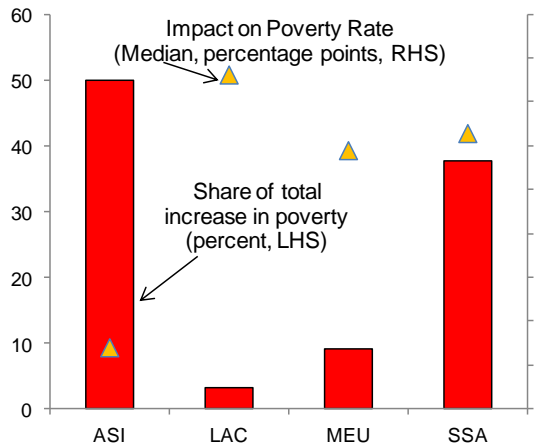
17. **The inflationary impact of an oil price shock would be considerably smaller than that of a food price shock, partly reflecting incomplete pass through to domestic fuel prices given price controls.** Under the oil price shock scenario, inflation in the median LIC could increase to 8.7 percent, with the largest effect on LICs in the Middle East and Europe. The impact is more muted compared to a food price shock due to a smaller share of fuel prices in the CPI basket of LIC consumers. Conversely, the impact on the fiscal balance in the median LIC would be more pronounced under an oil shock (with a deterioration of about 0.6 percentage points), given low domestic substitutability of oil imports, pervasive price controls and support, as well as a traditionally large presence of state-owned enterprises in energy sectors in LICs.²⁰

²⁰ In some countries with good VAT systems in place, an increase in VAT taxes on fuel imports may help cushion the impact on fiscal balances, though it would add somewhat to the inflation effect.

18. An additional 14 million people in LICs could be pushed into poverty by 2013 under a food price shock scenario, compared to 7 million people under the oil shock.²¹

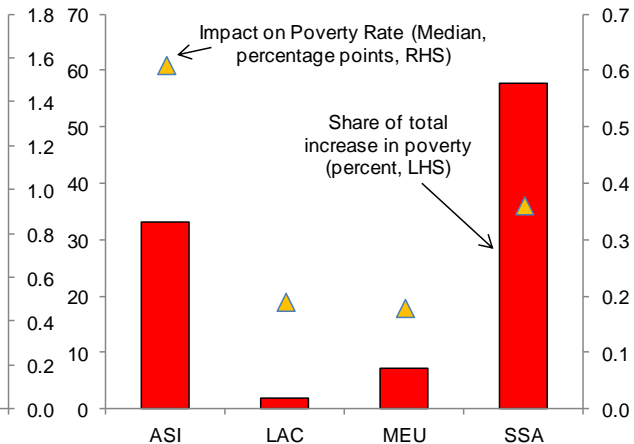
Without taking into account policies to mitigate the impact on the poor,²² the median poverty rate is estimated to increase by 1.3 percentage points by 2013, under the food prices shock. In contrast, under an oil price shock scenario, the median poverty rate would increase by 0.3 percentage points in the same year.

A sharp increase in global food prices could leave an additional 14 million people in poverty in 2013



Sources: WEO, and IMF staff estimates.

... while a sharp increase in global oil prices could push an additional 7 million in poverty.



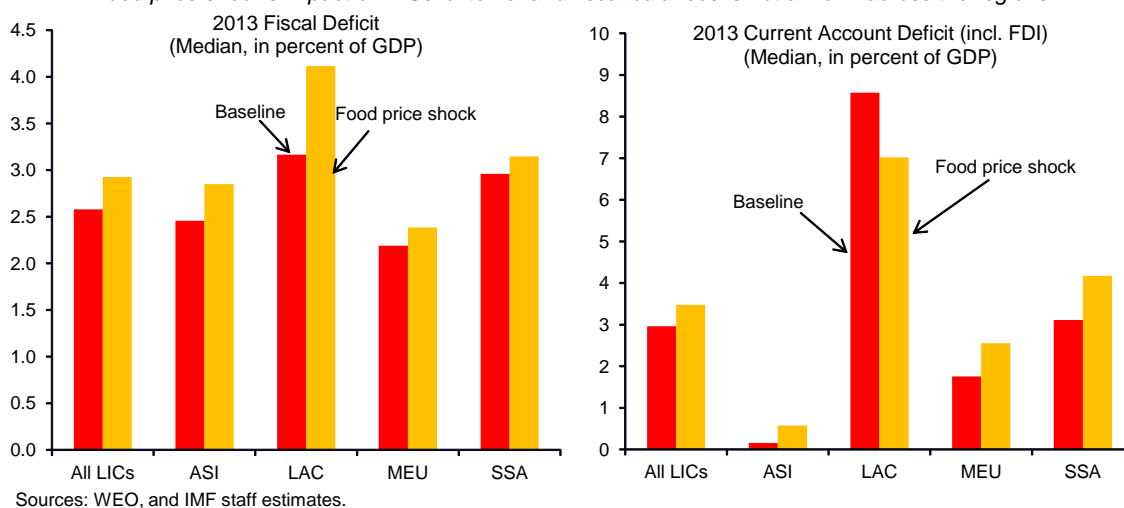
Sources: WEO, and IMF staff estimates.

19. The external impact of a food price shock would differ significantly across LICs depending on their trade structure, but the large majority would be adversely affected, with additional financing needs reaching US\$6 billion by the end of 2013. Net food importers would be most hit due to increased spending pressures and worsening terms of trade, while net food exporters (about 13 countries) will experience a positive terms of trade shock, with improving current account balances. On balance, the 2013 median external balance could widen to 3½ percent of GDP compared to 3 percent under the baseline. The external balance in the median net food importer would worsen by about 0.7 percentage points, while that in net food exporters would improve by about 0.8 percentage points. Almost all regions would be adversely affected, with the largest impact seen in the Middle East and Europe as well as sub-Saharan Africa. The scenario would also cause reserve coverage in the median LIC to decline to 3.3 months of imports in 2013, with LICs in the two worst-hit regions requiring 75 percent of the financing needs.

²¹ Poverty is defined as consumption below US\$1.25 per person per day and the calculations are based on given elasticities (see [Ravallion, Chen, and Sangraula, 2009](#) and Appendix VII of [IMF, 2011c](#) for a description of the methodology).

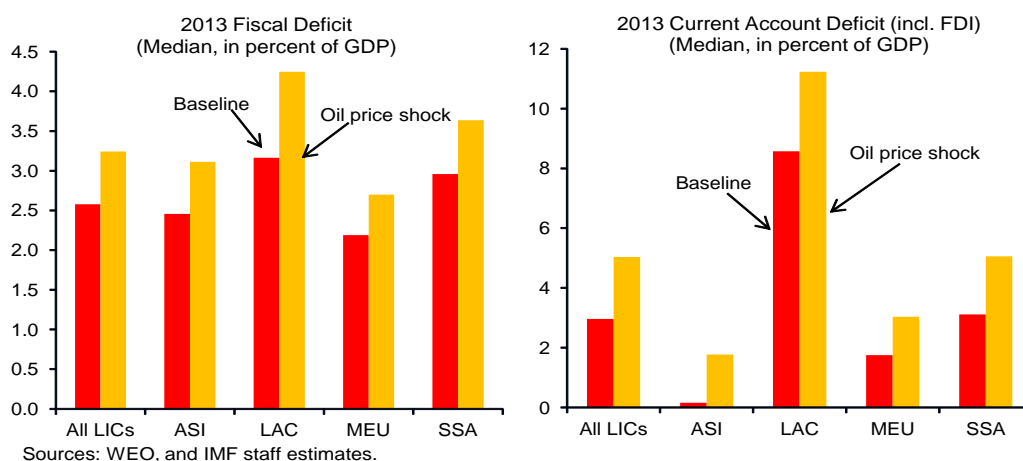
²² Including social safety nets and access to self-insurance instruments such as microcredit.

A food price shock's impact on LICs' external and fiscal balances is not uniform across the regions.



20. By comparison, the oil scenario's impact on external balances would be relatively large with additional financing needs that could reach US\$21 billion in 2013. The external deficit in the median LIC could worsen to 5 percent of GDP (from 3 percent in the baseline), with LICs in Latin America and the Caribbean most affected. Oil exporters would of course benefit from the shock, with the median external surplus in these countries reaching more than 3 percent of GDP (from about 1 percent in the baseline). Reserve coverage for the median LIC would fall to 2.6 months of imports, while rising in oil exporting LICs to 6.7 months. LICs in Asia and the Pacific and sub-Saharan African economies would account for the bulk of the additional financing need.

An oil price shock would lead to a sharp deterioration in fiscal and external balances in the median LIC across all regions.

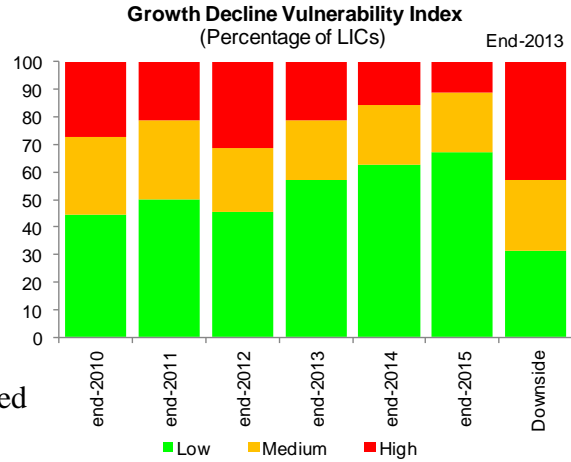


C. Conclusions from the Vulnerability Analysis

21. LICs remain vulnerable to global risks, and a sharp slowdown in global growth would significantly raise the near-term recession risk for many countries. The illustrative growth decline vulnerability index would increase significantly in the event of a

sharp downturn in global growth in 2013 (a decline in global growth by about 2 percentage points). The number of LICs at high risk of going into recession would roughly double, with over 40 percent of LICs showing increased vulnerabilities to further exogenous shocks (substantially higher than the levels experienced at the height of the global crisis). The majority of countries would experience a pronounced worsening in external sector indicators vis-à-vis the baseline, and non-commodity exporters would suffer from worsened fiscal vulnerabilities (a reversal compared to the projected improvement in the baseline).

LICs' near-term vulnerability to a shock induced recession would increase sharply in the case of a sharp global downturn.

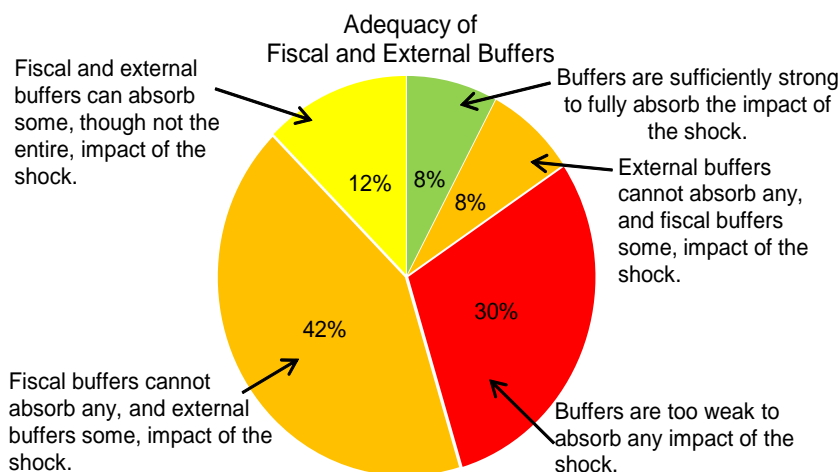


22. Macroeconomic buffers are much lower than prior to the 2008–09 global economic crisis and remain insufficient to address the risks facing many LICs, although vulnerabilities vary significantly across countries. In the current environment, with fiscal and external room for maneuver reduced after the global crisis, the ability to absorb the impact of global shocks would be limited:

- Under a *food price shock*, a third of LICs would not have any fiscal and external buffers to absorb the shock, while nearly 20 percent would have room to absorb the impact in full.
- Similarly, under a *fuel price shock*, a third of LICs would not have any room to absorb the shock, while just above 10 percent would be able to fully cushion the impact.
- Under a *sharp decline in global growth*, as with the other shocks, a third of LICs would be fully exposed (i.e., would not have any fiscal and external buffers to absorb the shock), while about one in ten would have room to absorb the impact in full.

Macroeconomic policy buffers of many LICs have not yet been sufficiently rebuilt to insulate against potential shocks.

Distribution of LICs' Ability to Absorb Impact of a Sharp Decline in Global Growth in 2013¹
(Percent of LICs)



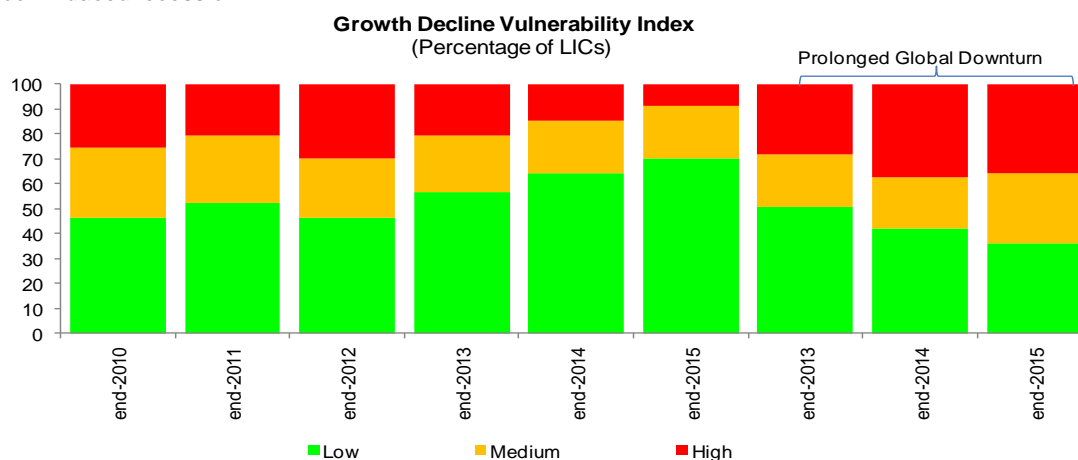
¹ Based on simulated impact on fiscal space and international reserve coverage of the global risk scenario of a sharp growth slowdown.

- Looking specifically at **currency unions**,²³ the Central African Economic and Monetary Community (CEMAC) has adequate external buffers to accommodate the impact of a sharp decline in global growth and both commodity price shocks. Reserves at the Bank of the Central African States (BEAC) would remain above three months of imports, as in the baseline. In fact, with a number of large oil exporters in the CEMAC, reserve coverage increases significantly under an oil price shock. The West African Economic and Monetary Union (WAEMU) has adequate external buffers to accommodate the impact of both commodity price shocks. A sharp decline in global growth could push reserves at the Central Bank of Western African States (BCEAO) just below three months of imports. However, neither the BEAC nor the BCEAO would have adequate reserves to absorb, even partially, the impact of a protracted decline in global growth. Conversely, the East Caribbean Currency Union (ECCU) would not be able to cushion the impact of any of the shocks considered, given that reserve coverage at the Central Bank (ECCB) is currently below three months of imports and would be further reduced under all scenarios, with the largest impact seen under the oil shock (see Appendix III for details on methodology).

²³ The discussion only covers PRGT eligible members of currency unions (i.e. in the case of the ECCU for instance, four out of the eight members are PRGT-eligible). The calculation of reserve adequacy is then based on those members' imputed share of union reserves.

23. **A protracted global downturn would raise recession risks further in LICs.** The illustrative growth decline vulnerability index would increase significantly in both 2013 and 2014 and ease only slightly thereafter. Fiscal vulnerabilities for all LICs would increase sharply owing to permanent output losses. Similarly, weaker commodity prices would amplify the impact on commodity exporters and would lead to a marked and persistent increase in external vulnerabilities.²⁴

A prolonged global downturn would lead to very high and persistent increases in LIC's vulnerability to a shock-induced recession.



III. MACROECONOMIC POLICY CHALLENGES IN THE FACE OF GLOBAL RISKS

Despite the unfavorable global environment, and so long as their growth remains buoyant, LICs should take the opportunity to gradually rebuild their policy buffers, without unduly compromising other development needs. Should risks materialize, LICs would have to manage the short-run consequences of the shocks, taking into account longer term objectives. In the event of a sharp global downturn, the scope for fiscal stimulus would be more limited than in 2009 for most LICs, given weaker fiscal buffers and constrained aid envelopes. In the face of a protracted slowdown in global growth, further realignment of fiscal, monetary, and exchange rate policies may be necessary, as neither buffers nor external financing would likely be adequate to deal with the crisis. LICs also remain highly vulnerable to global commodity price shocks. The impact on poverty from a food price shock will be significant, with implications for social and priority fiscal spending, while an oil price shock would incur large fiscal costs and generate large additional financing needs.

²⁴ While a decline in global demand, remittances, and FDI would exert pressures on external balances of non-commodity exporters, most would experience a terms of trade gain from lower commodity prices, providing a partial offset in the general increase in the index.

Sharp global growth decline

24. **In the event of a sharp global downturn, support for growth would be warranted, where feasible, subject to maintaining medium-term fiscal and external sustainability.**

Scope for fiscal stimulus would be more limited than in 2009 for most LICs given weaker fiscal buffers and constrained external aid envelopes. Countries with sufficient fiscal room should maintain spending levels, depending on the prevailing cyclical conditions, to avoid aggravating the negative economic and social effects of the shock. With donor countries facing severe budget constraints, LICs may find it difficult to finance larger deficits and some adjustment may be inevitable, alongside greater reliance on domestic financing.²⁵ On monetary policy, since LICs did not fully exploit the scope for monetary easing during the 2009 global crisis, more active monetary easing may be appropriate in countries with moderate inflation to mitigate the impact of the shock. The effectiveness of monetary policy would vary among LICs, however, depending on the transmission mechanism, the functioning of financial markets, and the credibility of central banks. For a few LICs where inflationary pressures have recently spiked, a more conservative monetary policy response may still be appropriate.²⁶

Protracted global downturn scenario

Fiscal Policy

25. **Limited fiscal buffers and the permanent nature of the protracted growth shock imply that most LICs would need to pursue some degree of fiscal consolidation over the next 3–5 years.** Primary fiscal deficits, which increased significantly during the global crisis, would remain elevated because of the growth slowdown. Instead of converging toward sustainable levels, these deficits would remain close to 2 percent of GDP after the shock.

26. **However, fiscal space varies substantially across LICs, affecting the magnitude of the required fiscal adjustment.**²⁷ For example, the median LIC in Latin America and the Caribbean would need a surplus in their primary balance to achieve medium-term debt sustainability, while the median LIC in Asia and the Pacific would have room for a small

²⁵ This option of relying on domestic financing is limited in many LICs given underdeveloped capital markets. In addition, resort to external commercial credit may alter the risk profile of countries going forward.

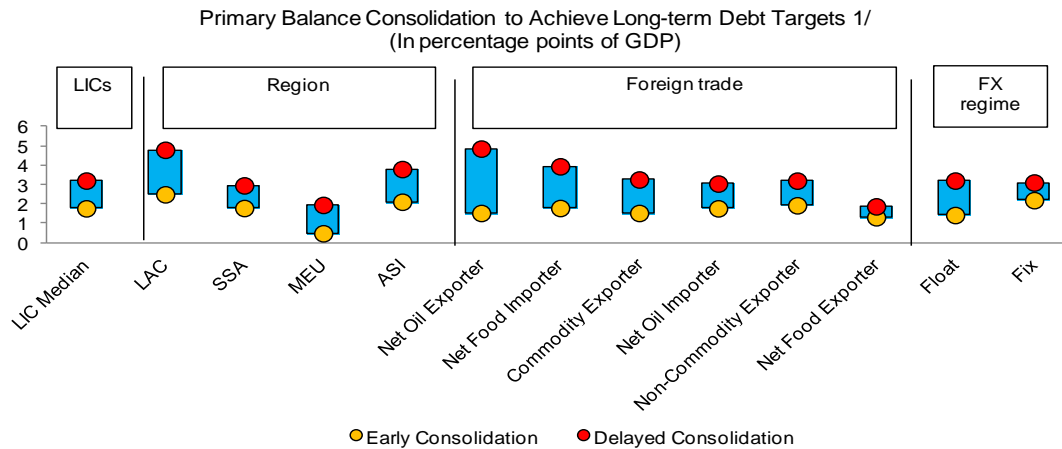
²⁶ For a more detailed policy prescription under a sharp global growth decline scenario, see [Managing Global Growth Risks and Commodity Price Shocks—Vulnerabilities and Policy Challenges for Low-Income Countries](#) (IMF, 2011c).

²⁷ The main assumption behind fiscal adjustment is the need to have a primary balance target that is consistent with long-term debt sustainability targets (see Box 1 above). These targets are determined on the basis of country-specific factors that take into account initial debt levels and institutional capacity.

deficit.²⁸ The magnitude and timing of the adjustment would also vary depending on initial public debt ratios and other factors.

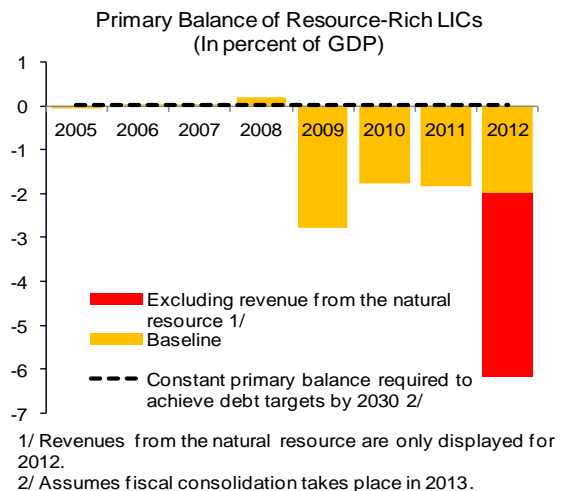
Primary Balance Under Fiscal Consolidation
(Median, in percent of GDP)

	25th percentile	Median	75th percentile
LICs	-0.6	0.0	0.6
Sub-Saharan Africa	-0.6	0.0	0.3
Asia	-0.4	-0.1	1.2
Latin America and the Caribbean	-0.5	0.5	1.5
Middle East and Europe	-0.9	0.2	1.2
Small States	0.0	1.1	2.7
Fragile States	-0.6	0.1	0.7



1/ Calculated as the difference between the constant primary balance required to achieve debt targets by 2030 and the primary balances after the PGGGS shock assuming no policy reaction.

27. **Long-term consolidation would also be needed in resource rich countries.** While these countries were running primary surpluses prior to the global crisis, their primary balances are now negative. This indicates that they would also need to rebuild their buffers to manage challenges arising from volatility and exhaustibility of natural resources. Once resource revenues are exhausted, the non-resource primary balance for these countries would converge to the primary balance. Unless these countries have sufficient financial savings,



²⁸ The calculation assumes that interest-growth differentials ($r-g$) remain negative during the projection period given that most LICs will continue to borrow in concessional terms. The value increases somewhat over time to reflect the fact that the share of nonconcessional borrowing increases gradually.

they would need to undertake large fiscal adjustment in the future.²⁹

28. **Another key issue is the appropriate pace and composition of the adjustment.** The composition of the adjustment should strike a balance between revenue mobilization and expenditure measures, taking into account their impact on the economy. In general, a combination of revenue and expenditure measures is more appropriate in LICs for achieving a durable fiscal adjustment than relying exclusively on either type of measures.³⁰ LICs have relatively low tax-to-GDP ratios and would need to strengthen their tax administration and avoid, reverse, or resist extending *ad hoc* tax reductions or exemptions that undermine the revenue base (such as lowering taxes on petroleum products in the face of rising international prices and providing preferential treatment to particular types of investment). There is also scope for improving the effectiveness of the value-added tax (VAT), where applicable. These measures would help limit the burden of adjustment falling excessively on the expenditure side and protect high priority expenditures (e.g., infrastructure and social sector spending). Moreover, making budgetary spending more growth-friendly, for example, by reallocating spending from untargeted subsidies to productivity-enhancing investments, and replacing them with well-targeted transfers that protect the poor would not only improve the quality of adjustment, but also support domestic demand.

29. **The pace of adjustment would need to take into consideration a country's available fiscal space and growth prospects (i.e., its cyclical position).** In particular:

- In countries with a *strong cyclical position*, more frontloaded adjustment would be feasible, especially in cases where fiscal space is more limited. This would have the advantage of reducing the size of the overall required adjustment over time and limit the need for additional financing. Countries with more fiscal space could follow a slower pace of adjustment, provided that this is consistent with short-term macroeconomic stability (i.e., low inflation and sustainable current account deficits).
- In countries with a *weak cyclical position*, a more gradual adjustment would be desirable, as frontloading the adjustment would compound the negative growth impact and result in an even weaker fiscal position. However, a gradual adjustment may not be feasible in countries with no available fiscal space. In such cases, official financing would help smooth out the required adjustment over time.

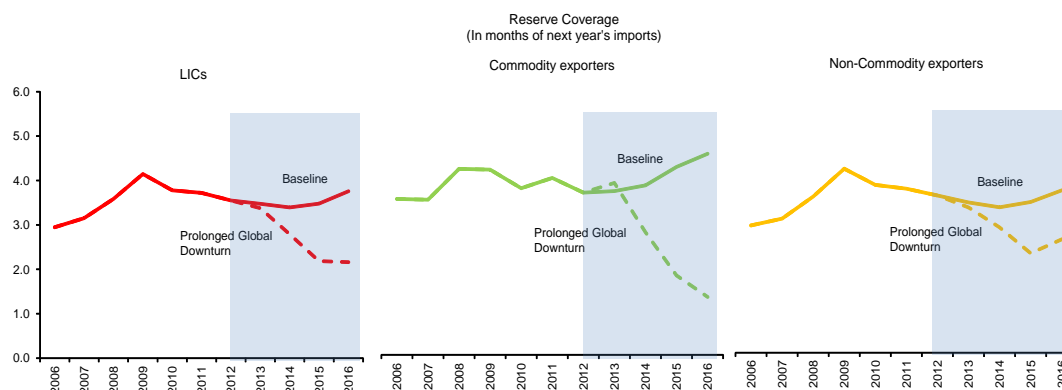
²⁹ See [Macroeconomic Policy Frameworks for Resource Rich Developing Countries](#) (IMF, 2012b) and Appendix III for details on methodology.

³⁰ See Chapter 3 in [Helping Countries Develop: The Role of Fiscal Policy](#) (2004) and [Staying the Course: Maintaining Fiscal Control in Developing Countries](#) (Brookings Trade Forum 2003). These studies find that revenue increases and fiscal history are critical for sustaining fiscal adjustment, while expenditure reductions play a minor role in LICs.

Monetary and exchange rate policies

30. The burden of adjustment on fiscal policy can also be shared by some adjustment in monetary policy, on the external side, and in private sector behavior:

- *The vast majority of LICs would have sufficient policy space to reduce interest rates in the event of a protracted global growth decline.* Substantial easing of commodity prices accompanied by the protracted fall in output and widening excess capacity would bring headline inflation down and create scope for an accommodative monetary policy in most LICs. In a few countries with currently high inflation rates, the shock would help accelerate the disinflation process.
- *Some external adjustment can also be undertaken, especially in countries with overvalued exchange rates, to help mitigate the impact of a protracted global downturn on domestic economies and preserve foreign exchange reserves.* For commodity exporters without hard pegs, a persistent drop in commodity prices under a protracted global downturn would call for an exchange rate adjustment. Absent such a policy adjustment, median reserve coverage for commodity exporters would decline from 4 months of imports in 2011 to about 1¼ months by 2016. Countries with fixed exchange rate regimes and high initial level of reserves could afford to smooth the required adjustment to avoid unduly depressing output at the height of the shock.



- *Given the protracted nature of the shock, some adjustment in private sector behavior will also help partially offset the impact of lower external demand.* The realization of lower domestic economic growth for a sustained period of time would come gradually. In that context, private sector economic agents may gradually adjust their imports to be consistent with the new, lower economic growth path (as well as new relative prices). As a result, the deterioration in the external balance under the protracted lower growth scenario would be lower at the tail end of the period compared to the initial period, resulting in a smaller reduction in reserve coverage.

Structural policies

31. The global risks highlight the importance of stoking domestic engines of growth in LICs that can, over time, substitute for lost global demand and reduce the impact of

external shocks. These alternative drivers of economic activity would need to be nurtured through a range of structural reforms. Such reforms could include measures to deepen the financial sector and develop domestic debt markets, coupled with strengthened supervisory frameworks,³¹ as well as better-targeted investments in infrastructure to increase productivity and living standards by addressing bottlenecks, supported by measures to improve the business climate.³² The positive impact of reforms on growth and economic resilience could be amplified if they were pursued on a region-wide basis, given positive cross-country spillovers.

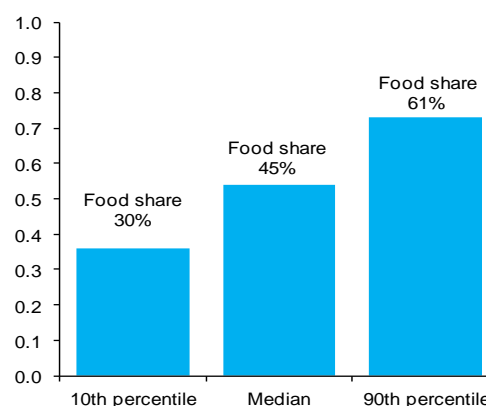
Commodity price shocks

32. Under the global food and fuel price shock scenarios, the appropriate monetary policy response would depend on initial conditions such as inflationary pressures and levels of foreign exchange reserves. For LICs with weak external buffers or high initial

inflation,³³ some degree of policy tightening may be needed, supported by exchange rate flexibility where appropriate. For countries with fixed exchange rate regimes, tighter monetary policies may be required to avoid excessive losses in reserves. Countries should avoid imposing restrictions on food exports or administrative measures to control domestic food prices, even if temporary, as these would exacerbate supply disruptions and price increases. Members of monetary unions may not face immediate and intensified pressures for a shock-induced external adjustment even at relatively low levels of

reserves, given the availability of regional reserve buffers and regional safety nets such as common pools of foreign exchange liquidity. Nevertheless, individual countries would need to tighten policies if macroeconomic imbalances lead to high inflation and widening current account deficits, or if global food and fuel price increases do not abate.

Pass-through from spikes in global food prices increases sharply with the share of food items in the CPI basket.



33. While headline inflation in LICs may be strongly affected by global food price increases, given the large share of food in the CPI basket, policies need to focus on preventing generalized price pressures.³⁴ Accommodating first-round effects from global

³¹ For further details on policies on financial deepening in LICs, see [Enhancing Financial Sector Surveillance in Low Income Countries: Financial Deepening and Macro-stability](#) (IMF, 2012a).

³² The IMF stands ready to provide technical assistance where requested, to assist LICs in designing and implementing these reforms.

³³ In one in ten LICs that have reserve coverage of less than three months of imports, inflation would rise above 20 percent.

³⁴ For most LICs, the pass-through from higher fuel prices to headline inflation is estimated to be more limited than that for food, even if domestic prices are automatically adjusted.

food price shocks would increase headline inflation and, as a result, lead to real exchange rate appreciation. When possible, monetary policy should target underlying rather than headline inflation, as this would help stabilize both output and inflation volatility, and head-off second-round price effects. Significant differences across LICs (reflecting aggregate demand and structural factors) imply a relatively wide range of longer-run pass-through effects from spikes in global food prices. The pass-through to inflation is more significant for very open small and dollarized LICs (mostly net food importers), exerting pressures on reserves and the exchange rate.

34. **To mitigate the impact of high food and fuel prices and the resulting inflationary pressures on the poor, social safety nets need to be made more effective.** Where fiscal space exists, countries should put in place temporary fiscal measures, such as a reduction in food taxes, to help mitigate the impact of higher food prices on the poor. Longer lasting measures should include scaling up effectively targeted social safety nets, drawing on external financing and support where available.

Appendix I. List of Low-Income Countries (LICs)

The group of LICs analyzed in this work is formed by the 70 PRGT-eligible countries for which data were available,¹ which include, by region:

Sub-Saharan Africa:

Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Eritrea, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Tanzania, Togo, Uganda, and Zambia.

Middle East and Europe:

Armenia, Djibouti, Georgia, Kyrgyz Republic, Mauritania, Moldova, Sudan, Tajikistan, Uzbekistan, and Republic of Yemen.

Asia and the Pacific:

Afghanistan, Bangladesh, Bhutan, Cambodia, Kiribati, Lao People's Democratic Republic, Maldives, Mongolia, Myanmar, Nepal, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Vanuatu, and Vietnam.

Latin America and Caribbean:

Bolivia, Dominica, Grenada, Guyana, Haiti, Honduras, Nicaragua, St. Lucia, and St. Vincent and the Grenadines.

Country Groups:

LICs are grouped according to the following criteria:

- Exchange rate regimes (based on the data from the Annual Report on Exchange Arrangements and Exchange Restrictions);
- Country Policy and Institutional Assessment (CPIA) rating (based on the guidance for the IMF/WB Debt Sustainability Framework);
- Net oil exporter/importer (based on WEO data);
- Net food exporter/importer (based on data from the United Nations' Commodity Trade Statistics);
- Small states (based on population size of less than 1.5 million people as of end-2010); and
- HIPC eligible (based on status-of-implementation report of the HIPC and MDRI Initiative and SPR-DP HIPC database).

¹ This group includes all countries eligible for concessional financing from the IMF under the Poverty Reduction and Growth Trust (PRGT), except for Somalia and South Sudan both of which have been excluded due to lack of data.

Appendix II. Methodology for the Growth Decline Vulnerability Index

This appendix briefly describes refinements in the methodology for developing the Growth Decline Vulnerability Index (GDVI).¹ The index aims to capture LICs' underlying vulnerabilities to sharp growth declines when hit by large exogenous shocks. The GDVI relates the likelihood of a sharp growth decline occurring in the event of a large exogenous shock to various economic and structural vulnerability variables.²

1. **Selection of vulnerability indicators:** For the 2012 VE-LIC exercise, the GDVI has been refined to include more variables than that constructed for the 2011 exercise, and with different weights. Variables found effective in explaining growth crises, following a shock, are grouped into three clusters: overall economy and institutions, external sector, and fiscal sector. Compared to the 2011 VE-LIC exercise, sectoral weights have been rebalanced based on probit regressions and the following additional variables have been included in the analysis to improve the fit of the model by capturing additional dimensions of vulnerability (see charts and Table 1 below):

- i. *Capturing differentials in structural and institutional aspects:* The country-specific sample average of real GDP per capita growth is used as a proxy for a combination of cross-country differences in some underlying structural and institutional conditions. The long-run historical performance of income per capita can capture shock amplifiers that are not already in the index,³ such as relative diversification of trade and production, a broader measure of inequality, and the broader impact of weaker institutions.
- ii. *Controlling for the size of exogenous external shocks:* In constructing the GDVI, large shock episodes are identified from country-specific distributions.⁴ The implication is that the *size* of the shocks in the tail of the country-specific distributions can differ substantially across countries. To take account of countries experiencing larger “tail shocks” (thereby suffering from more severe growth declines when shocks materialize), two additional variables were added: growth in trading partners weighted by lagged exports to GDP, and the lagged change in export prices weighted by lagged exports to GDP. The impact of external demand scaled by the country-specific exposure is pronounced, while large downward swings in commodity prices would have a marked effect especially on commodity-exporters. Conversely, a very favorable

¹ Based on [IMF \(2011b\)](#), and a forthcoming IMF working paper by Era Dabla-Norris and Yasemin Bal Gündüz which extends this work.

² A sharp growth decline is deemed to occur when, following a shock, a country experiences negative per capita real GDP growth in the year of the shock and below-trend output per capita level in two post-shock years.

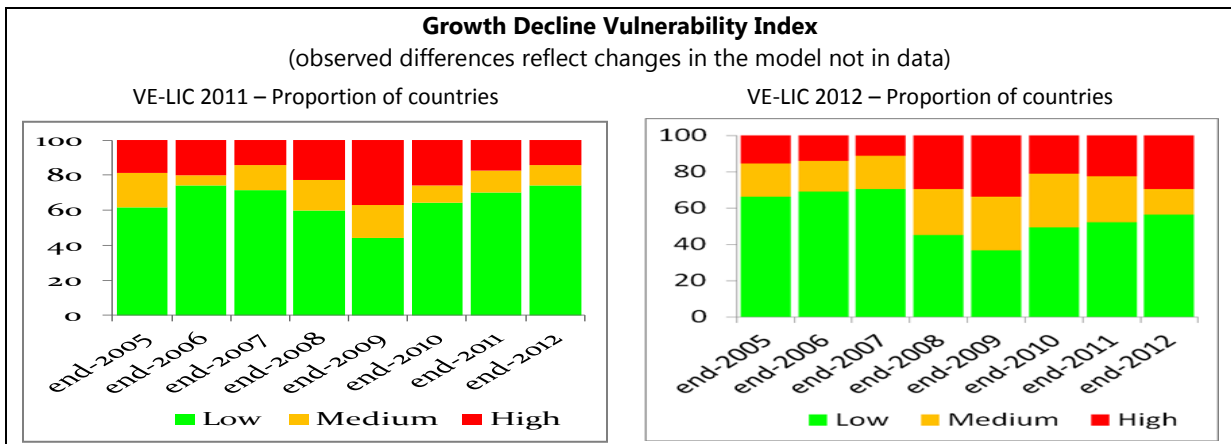
³ Using average income per capita during the period 1990 to 2008, thus covering both positive and negative shocks.

⁴ Country-specific thresholds are used to identify large shock episodes for each country by equalizing the frequency of shocks.

external environment may shield a country with weak policies and institutions from growth crises, possibly hiding its existing vulnerabilities during good times.

- iii. *Capturing balance of payments pressures:* The exchange market pressure index was found to be significant as a potential “shock amplifier” in the GDVI model. This variable is a composite index comprised of depreciation of official exchange rates, the change in the stock of international reserves (in months of imports of goods and services), and the black market premium.

2. *Methodology:* The approach, which is also used in the Vulnerability Exercise for Emerging Markets (VEE), examines a range of individual indicators to identify variables and thresholds that separate crisis from non-crisis cases. For each of the individual indicators, the approach involves searching for a split that minimizes the combined percentages of missed crisis (Type I error) and false alarms (Type II error). Thresholds that yield the best split are used to map indicator values into zero–one scores. These indicators are then aggregated into sectoral indices using weights that depend on the individual indicator’s ability to discriminate between crisis and non-crisis cases. The overall vulnerability index, which ranges from zero (low vulnerability) to one (high vulnerability), is a summary measure of underlying vulnerabilities to a growth decline.⁵ The charts and table below compare the results using the modified index with those based on last year’s model. Increased granularity in the index allows for more differentiation in medium to low vulnerability cases, likely reflecting additional dimensions captured by the new variables.



⁵ Within the index, the post-shock policy variables and the size of the contemporaneous simulated shocks will change the projected post-shock flags for the overall index.

Table 1: Non-Parametric Signaling Approach: Performance of Indicators and Model Fit

Variables ^{1/}	Direction to be safe	Thresholds ^{2/}	Type I error	Type II error	Index Weight	Index Weight (VE-LIC 2011)
Overall economy and institutions						
Real GDP growth	>	2.96	0.24	0.26	0.37	0.47
CPIA	>	3.00	0.49	0.20	0.11	0.20
Gini coefficient	<	44.95	0.23	0.36	0.07	0.11
GDP per capita growth, sample average	>	0.84	0.30	0.33	0.11	0.15
External sector						
Reserve coverage (GIR/Imports G&S)	>	2.30	0.42	0.33	0.33	0.25
Real growth in exports of goods and services	>	1.77	0.52	0.33	0.09	0.15
Exchange market pressure index	<	0.48	0.37	0.39	0.05	0.10
Growth in trading partners weighted by lagged exports to GDP	>	0.48	0.37	0.43	0.08	
Change in export prices weighted by lagged exports to GDP	>	0.35	0.27	0.55	0.06	
Fiscal sector						
Government balance (% GDP)	>	-4.21	0.40	0.36	0.30	0.28
Public debt (% GDP)	<	65.32	0.01	0.80	0.10	0.08
Real government revenue (Cumulative two year % change)	>	4.73	0.43	0.27	0.05	0.05
Government tax revenue (% of GDP)	>	10.51	0.64	0.29	0.13	0.13
Fit of the Model						
Overall Index Threshold ^{3/}					0.44	0.42
Proportion of Crises Missed ^{4/}					0.16	0.20
Proportion of Non-Crises mis-specified (false alarms) ^{4/}					0.31	0.29
Overall error					0.28	0.27

1/ The variables are lagged one period, except real GDP growth, growth in trading partners, and change in export prices.

2/ The thresholds are achieved by minimizing type I and type II errors.

3/ Threshold for the overall index is derived by minimizing the asymmetrically weighted loss function giving more weight to type I error.

4/ Missed crises plus false alarms as percent of total observations.

Appendix III. Methodology of Scenario Analysis

This Appendix describes the refinements undertaken to strengthen the quality of the vulnerability analysis in the VE-LIC framework and the methodology used for scenario analysis.¹ The framework is extended to construct multiyear modeling, which, unlike the V-shaped growth shock examined in the 2011 exercise, analyzes the dynamic response of macroeconomic variables to a protracted growth decline scenario, taking into account the cumulative (multiyear) effects of the shock.

1. The 2012 VE-LIC exercise extends the framework used in 2011 from a single year shock impact analysis to a multiyear one. In addition to analyzing the impact of a sharp *decline in global growth* (V-shaped shock) on LIC growth and macroeconomic indicators in the year of the shock, the 2012 exercise models dynamic adjustment across macroeconomic indicators to examine LICs' exposure to multiyear downside scenarios. The downside scenarios includes an analysis of a *protracted decline in global growth* throughout the period 2012–2016 driven by renewed escalation of the euro area crisis, as well as studying the impact of a *sharp increase in food prices*, based on the Fall 2012 WEO scenarios and data.² Regardless of the nature of the shock, the 2012 VE-LIC framework assesses the first round impact of tail risk scenarios on LICs' *economic growth, external balances, and fiscal balances* as follows:

- To assess the **impact on LICs' economic growth**, as with the 2011 VE-LIC, two channels of transmission are taken into account: (i) external demand (partner country growth) and (ii) terms of trade.³ On the first channel, *partners' growth* was calculated using weighted averages of trading partners' GDP growth, based on DOTS 2008 bilateral trade flows. In the regression analysis, partners' growth was interacted with the degree of trade openness (expressed as the ratio of exports and imports to GDP) to control for its impact on the size and magnitude of spillovers effects across LICs. A dummy for commodity-exporters is also interacted to test for different elasticities for commodity versus non-commodity exporters. However, unlike the 2011 exercise, where only the elasticity with respect to BRICs was applied to commodity exporters, the elasticity with respect to all trading partners was applied, scaled by openness. On the second channel, the regression analysis finds that the elasticity of growth to changes in *terms of trade* is statistically significant only for the most open economies (i.e., countries in the top quartile in trade openness).

¹ Based on [IMF \(2011c\)](#).

² Declines in commodity prices are considered as part of the growth decline scenario, and are studied as part of the multiyear shock framework. The impact of declines in global GDP on commodity prices is estimated using relevant estimated elasticities.

³ Based on the empirical results provided by [Spillovers to Low Income Countries: Importance of Systemic Emerging Markets](#) (2012).

- To more fully assess the **impact on exports and imports**, the analysis includes dynamic effects in the behavior of a country's trade volumes to reflect the adjustment of the economy to the permanent external shock.⁴ The methodology includes: (i) estimating dynamic panel export and import equations using a panel error correction model that allows for adjustment of export/import volumes with respect to long-run fundamentals (relative export prices and external demand); (ii) estimating elasticities of exports and imports with respect to demand and relative prices; and (iii) estimating export and import equations for different types of commodities (food, metals and ores, fuel, and non-fuel products), using the pooled-mean group (PMG) estimator,⁵ to capture the heterogeneity of the composition of LICs' exports and imports. Data are drawn from the [Baci database](#) for 1995–2010.⁶
- To more fully assess the **impact on remittances**, the methodology used in the 2011 VE-LIC exercise⁷ was extended by introducing dynamic effects that enable an adjustment in remittances in the years following the crisis. In addition, unlike the 2011 exercise, the bilateral country remittances' shares are no longer fixed shares, but are time-variant, taking into account changes in income in source countries/regions.
- Similarly, the **impact on foreign direct investment (FDI)**, takes into account dynamic effects in the years following the crisis. In addition, the effect of changes in the real interest rate in source countries or regions are included in the analysis (a product of the elasticity of FDI flows with respect to interest rates and the weighted average of the change in real interest rates).⁸ As in the case of remittances, bilateral country FDI shares is time-variant taking into account changes in income in source countries/regions.
- **Fiscal indicators in a protracted growth slowdown scenario:** The analysis of the fiscal impact of a protracted global growth decline scenario comprises three approaches: (a) the impact of a passive policy scenario; (b) modeling of a benchmark policy response based on an illustrative fiscal space; and (c) the analysis of the increase in LIC financing needs as a result of the shock.
 - a. *Passive policies:* The impact on revenues is estimated as a weighted average of revenues from general economic activity, assumed to be affected by GDP growth, and also by the impact from natural resources when relevant, as affected by the corresponding commodity price index (calculated based on export shares). Primary

⁴ Based on Muscatelli, Srinivasan, and Vines (1992), Reinhart (1994), and Emran and Shilpi (2007).

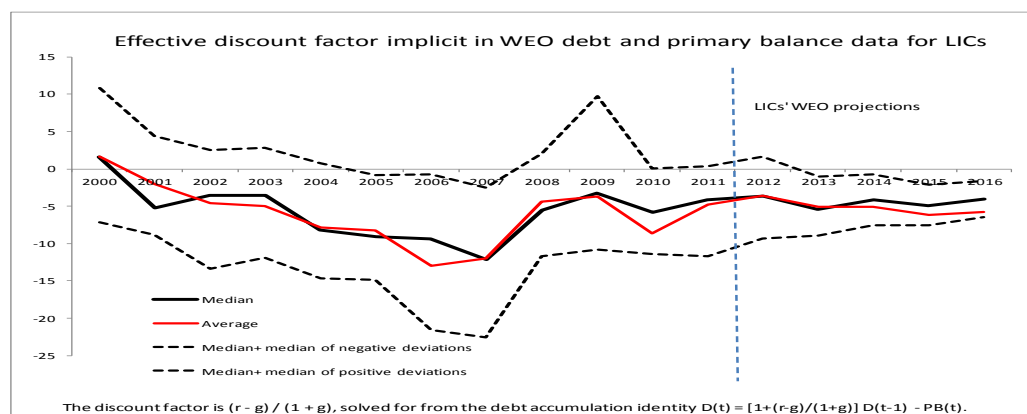
⁵ Based on Pesaran, Shin, and Smith (1999).

⁶ Based on Jarreau and Poncet (2012) and Gaulier, Lahrèche-Révil, and Méjean (2008).

⁷ Based on Lueth and Ruiz-Arranz (2008).

⁸ Based on Dabla-Norris, Honda, Lahreche, and Verdier (2010).

expenditures are assumed to remain at the baseline level in nominal terms. As a result, spending as a percent of GDP changes only to the extent GDP (the denominator) is affected by the global growth slowdown. It is also assumed that LICs gradually access financial markets at commercial (as opposed to concessional) interest rates over time, while also gradually overcoming financial repression that allow systematically negative real interest rates that are observed in the sample period. This methodology results in more conservative (less negative) discounting than under baseline WEO projections, based on the assumption that the discount factor under a protracted growth downturn scenario should be higher than the baseline given: (i) lower GDP growth rates; (ii) higher interest rates (based on an increase in sovereign spreads as weakened fiscal positions worsens creditworthiness); and (iii) an increase in share of market financing at commercial interest rates as other concessional sources of financing decline.



- b. *Policy reaction*: Given the permanent nature of the protracted growth decline shock, the analysis of the fiscal policy stance focuses on (i) the *magnitude* of structural fiscal consolidation that might be necessary to remain fiscally sustainable in the long term; and (ii) the *timing* of the consolidation over a transition period over which the shock unravels.
- The *magnitude* of the consolidation is assessed according to the constant primary balance consistent with long-term public debt sustainability targets, which are assumed to be reached by 2030. The long-term debt targets are set at the CPIA upper-threshold if the pre-shock debt stock (at end 2012) is above the CPIA upper threshold; or the end-2012 level if the pre-shock debt stock (at end 2012) is above the CPIA upper threshold. These assumptions are set so as to allow countries to gradually rebuild their fiscal buffers over the long-term. For countries with high initial levels of public debt, the calculations would result in the minimum need for consolidation, given the use of a debt sustainability upper-threshold. For countries with lower debt ratios than the CPIA thresholds, the calculations take into account the need to rebuild buffers to the levels prevailing before the global growth and commodity shocks in 2009, to the extent these have been used, or to the pre-shock level.

- The *timing* of the policy response includes two calculations, which are meant to represent the extremes of a fiscal policy reaction spectrum: ***Early response***, where it is assumed that countries adjust their primary balances in full in 2013. This assumes that policymakers realize that the onset is permanent, knowing its depth and duration with certainty and that they have full policy flexibility to deliver the necessary measures. ***Delayed response***, where it is assumed that no policy reaction takes place through the protracted downturn period (2013–2016), and governments continue with their baseline expenditure plans in nominal terms while allowing automatic stabilizers to act. As a result, deficit and debt accumulation proceed as under no policy response until the end of 2016. The policy reaction would then take place starting in 2017. Realistically, the actual policy reaction can be expected to take place at some intermediate point within the two bounds above, as policy makers react gradually and partially, and the policy response builds over time through the shock period 2013–2016 –as the shock reveals itself and policymakers are assumed to identify and implement their plans.

The primary balances corresponding to the two extreme bounds of the timing of the policy response are calculated by setting the appropriate initial levels and year of public debt. In the case of “early response,” the end-2012 debt stock is used. In the case of “delayed response,” the end-2016 debt stock under no policy response is used instead. The change in the primary balance required to achieve the debt targets is finally calculated as the difference between the baseline primary balance in 2013 after LICs are hit by the shock, and the primary balances under early and delayed consolidation, respectively. The primary balances used in the calculation of public debt dynamics through 2013–2016 are as follows: (a) for the case of “early adjustment” the constant primary balances that achieve long-term debt targets when fiscal consolidation takes place in 2013; and (b) for the case of “delayed adjustment” the primary balances under no policy response until end-2016 (as in this case it is assumed that fiscal consolidation takes place starting in 2017, as explained above).

For simplicity, the same framework is applied for resource rich countries, though in these cases a more complex assessment focusing on net wealth would be warranted (see [Macroeconomic Policy Frameworks for Resource Rich Countries](#), IMF, 2012b).

- c. *Impact on financing needs*: The increase in the financing needs under a protracted growth downturn scenario are obtained as the difference between the annual increase in public debt under the scenario (separately for both policy reaction bounds explained above), and the increase in public debt under baseline projections. For the purposes of the calculation of financing needs of all LIC

countries as a group, only those countries with positive financing needs are included in the total LICs amount.

2. The following tables depict the main assumptions used in the global risk scenarios under the 2012 VE-LIC exercise, as provided by the IMF Research Department and consistent with the most recent WEO:

GDP Growth Projections under the Sharp Growth Downturn Scenario

	Baseline		Downside		Difference	
	2012	2013	2012	2013	2012	2013
World	3.3	3.6	3.3	1.7	0.0	-1.9
USA	2.2	2.1	2.2	0.4	0.0	-1.7
Euro Area	-0.4	0.3	-0.4	-3.5	0.0	-3.8
Japan	2.2	1.2	2.2	-0.1	0.0	-1.3
Emerging Asia 1/	6.8	7.3	6.8	6.4	0.0	-1.0
Latin America 2/	3.2	4.0	3.2	3.2	0.0	-0.8
Rest of the World 3/	2.1	2.5	2.1	0.5	0.0	-2.0

1/ Includes: China, Hong Kong SAR, India, Indonesia, South Korea, Malaysia, Phillipines, Singapore, Taiwan Province of China, and Thailand.

2/ Includes: Brazil, Chile, Mexico, Colombia, and Peru.

3/ Includes: Argentina, Australia, Bulgaria, Canada, Denmark, Israel, New Zealand, Norway, Russia, South Africa, Sweden, Switzerland, Turkey, United Kingdom, Venezuela, and Bolivia.

GDP Growth Projections under the Protracted Growth Decline Scenario

	Baseline					Scenario				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
World	3.3	3.6	4.1	4.4	4.5	3.3	3.1	2.4	2.4	3.3
USA	2.2	2.1	2.9	3.4	3.4	2.2	1.7	1.2	1.6	2.8
Euro Area	-0.4	0.3	1.2	1.5	1.6	-0.4	-0.2	-0.6	-1.1	0.0
Japan	2.2	1.2	1.1	1.2	1.1	2.2	0.9	-0.2	-0.9	-0.3
Emerging Asia 1/	6.8	7.3	7.6	7.8	7.9	6.8	6.5	5.0	5.3	6.2
Latin America 2/	3.2	4.0	4.0	4.0	4.0	3.2	3.6	2.8	2.8	3.1
Rest of the World 3/	2.1	2.5	2.9	3.1	3.1	2.1	2.0	1.5	1.5	2.0

1/ Includes: China, Hong Kong SAR, India, Indonesia, South Korea, Malaysia, Phillipines, Singapore, Taiwan Province of China, and Thailand.

2/ Includes: Brazil, Chile, Mexico, Colombia, and Peru.

3/ Includes: Argentina, Australia, Bulgaria, Canada, Denmark, Israel, New Zealand, Norway, Russia, South Africa, Sweden, Switzerland, Turkey, United Kingdom, Venezuela, and Bolivia.

Appendix IV. Methodology for the Vulnerability Indicators

This appendix reports the definitions, thresholds, and data sources used for the vulnerability indicators discussed in Section II.A. Aiming at measuring LICs' relative idiosyncratic exposure to specific shocks, they can qualify and complement the growth decline vulnerability index and the scenario analysis.

Table 1. Vulnerability Indicators – Definitions, Thresholds and Data Sources

Indicator	Definition	Thresholds	Data Source
(i) Geography/Climate			
• Natural disasters ^{1,2}	<i>I = average annual disaster cost-to-GDP ratio in the past 25 years (i.e., 1987–2011)</i>	Thirtiles	EM-DAT, WEO
	<i>I = average annual people affected-to-population ratio in the past 25 years (i.e., 1987–2011)</i>	Thirtiles	EM-DAT, WEO
• Food price inflation ¹	<i>I = standard deviation of (domestic food price inflation weighed by the share of food in the CPI basket) over the past decade (i.e., 2000M1–2011M12)</i>	Thirtiles	VE-LIC questionnaire
(ii) External Linkages			
• Terms of trade (here: 1 st round income effect) ¹	<i>I = standard deviation of (ΔEXP price * EXP/GDP - ΔIMP price * IMP/GDP) over the past decade (i.e., 2002–2011)</i>	Thirtiles	WEO
• Cross-border claims	<i>I = consolidated foreign claims of BIS reporting banks by as a share of GDP (2010–2011 average)</i>	Thirtiles	BIS, WEO
(iii) Domestic Factors			
• Political stability and security	<i>I = WGI political stability and no violence indicator in 2010 (percentile rank of 213 countries)</i>	Thirtiles	World Bank
• Corruption	<i>I = corruption perception index in 2011 (rank out of 188 countries)</i>	Thirtiles	Transparency International
(iv) Macroeconomic Fundamentals and Financial Indicators			
• Debt distress	<i>I = latest available debt distress risk rating</i>	3 categories (0="no risk", 1="moderate risk", 2="high risk" or "in debt distress")	last available DSA (as of end-July 2012)
• Exchange rate	<i>I = latest available real exchange rate alignment assessment</i>	3 categories (0="equilibrium", 1="undervalued", 2="overvalued")	last available Article IV staff report (as of end-July 2012)
• Non-performing loans	<i>I = composite index of (R1=ratio of non-performing loans (NPLs) to total loans (%) and R2=ratio of provisions for NPLs to total NPLs (%) in 2011)</i>	3 categories (0="R1<=5 AND R2>=70", 1="R1>5 AND 60<=R2<70", 2="R1>5 AND R2<60")	VE-LIC questionnaire
• Credit-to-GDP	<i>I = percentage change of the private credit-to-GDP ratio between 2011 and 2008</i>	3 categories (0="R<=10", 1="10<R<=25", 1="R>20")	IFS

1/ Countries are excluded if data coverage is less than a third of the specified time period.

2/ Natural disasters include droughts, earthquakes, epidemic, extreme temperature, flood, insect infestation, mass movement (wet and dry), storm, volcano, and wildfire.

3/ There is no common definition of NPLs used here. Instead, data are collected from country desks reflecting each country's specific circumstances.

Table 2. Vulnerability Indicators - Share of Countries in the Low Risk (L), Medium Risk (M) and High Risk (H) Category

	(i) Geography/Climate									(ii) External Linkages						(iii) Domestic Factors						(iv) Macroeconomic Fundamentals and Financial Indicators											
	Natural Disasters						Food Price Inflation			Terms of Trade			Cross-Border Claims-to-GDP			Political Stability and Security			Corruption			Debt Distress			Exchange Rate Alignment			Non-Performing Loans			Credit-to-GDP		
	Cost			People Affected			Volatility			Volatility																		Change					
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
All LICs	33	34	33	33	34	33	33	34	33	33	33	33	33	34	33	33	34	33	33	28	39	38	35	26	52	3	45	20	12	68	42	35	23
ASI	18	18	65	24	35	41	21	57	21	27	45	27	53	29	18	47	29	24	29	29	41	44	25	31	44	6	50	33	11	56	53	27	20
LAC	0	22	78	22	56	22	67	33	0	22	44	33	0	44	56	44	44	11	38	50	13	29	43	29	33	0	67	29	0	71	67	33	0
MEU	10	40	50	40	10	50	30	40	30	50	40	10	30	40	30	20	30	50	20	20	60	22	33	44	33	0	67	20	20	60	57	29	14
SSA	56	44	0	38	35	26	29	24	47	33	24	42	32	32	35	26	35	38	38	24	38	42	39	18	66	3	31	7	13	80	26	42	32
Small states	29	24	47	35	35	29	40	40	20	31	23	46	24	18	59	76	24	0	69	19	13	20	33	47	38	0	63	7	0	93	50	44	6
Non-small states	34	38	28	32	34	34	31	33	37	34	36	30	36	40	25	19	38	43	23	30	47	44	36	20	56	4	40	26	19	56	39	33	28
Fragile State	59	23	18	45	32	23	14	33	52	11	47	42	55	32	14	9	32	59	9	14	77	15	40	45	48	5	48	10	10	80	45	15	40
Non-Fragile State	21	40	40	27	35	38	41	35	24	43	27	30	23	35	42	44	35	21	45	34	21	49	33	18	53	2	44	23	13	65	40	45	14
Net Oil Importer	30	35	35	28	35	37	35	37	28	35	35	30	35	32	33	37	33	30	39	29	32	35	38	27	48	2	50	15	12	73	37	38	25
Net Oil Exporter	50	30	20	60	30	10	20	20	60	22	22	56	20	50	30	10	40	50	0	20	80	60	20	20	75	13	13	38	13	50	70	20	10
Net Food Importer	37	31	33	41	27	33	28	36	36	31	36	33	35	31	35	37	24	39	35	21	44	32	32	36	47	2	51	10	7	83	40	40	21
Net Food Exporter	24	43	33	14	52	33	45	30	25	38	29	33	29	43	29	24	57	19	29	43	29	52	43	5	62	5	33	42	25	33	47	26	26
Net Food and Oil Importer	33	31	36	36	29	36	33	40	28	33	36	31	36	26	38	43	21	36	41	22	37	27	35	38	43	3	55	8	8	83	36	42	22
Non-Net Food and Oil Importer	31	41	28	28	45	28	29	35	35	26	46	29	28	48	24	17	55	28	20	40	40	54	36	11	65	4	31	35	18	47	37	46	17
Commodity Exporter	45	41	14	41	23	36	19	38	43	15	30	55	36	45	18	23	41	36	14	27	59	33	43	24	65	10	25	21	7	71	48	24	29
Non-Commodity Exporter	27	31	42	29	40	31	39	33	28	42	35	23	31	29	40	38	31	31	43	28	30	41	32	27	46	0	54	19	15	67	39	41	20
Fixed exchange rate	38	27	36	31	36	33	35	33	33	37	29	34	40	27	33	36	40	24	34	32	34	29	44	27	51	2	47	21	10	69	37	45	18
Floating exchange rate	24	48	28	36	32	32	29	38	33	27	41	32	20	48	32	28	24	48	32	20	48	54	21	25	52	4	43	17	17	67	50	21	29
CPIA-weak	62	23	15	42	27	31	24	24	52	17	46	38	42	35	23	19	35	46	19	15	65	16	28	56	46	4	50	7	7	86	36	32	32
CPIA-medium	17	40	43	17	37	47	38	41	21	38	19	42	33	33	33	30	40	30	31	41	28	52	38	10	57	4	39	19	25	56	50	38	12
CPIA-strong	15	46	38	46	46	8	42	33	25	58	33	8	8	38	54	69	23	8	69	23	8	55	45	0	54	0	46	36	0	64	38	38	23
HIPC Eligible	47	42	11	29	42	29	29	26	45	30	30	41	32	37	32	18	42	39	29	32	39	35	41	24	53	3	44	16	11	74	34	40	26
Non-HIPC Eligible	16	25	59	38	25	38	38	45	17	38	38	23	34	31	34	50	25	25	39	23	39	43	29	29	50	3	47	23	14	64	52	30	19
IMF Program	40	33	26	31	43	26	40	29	31	34	34	32	24	36	40	33	38	29	37	27	37	30	43	28	50	3	48	12	16	72	41	33	26
Non-IMF Program	22	33	44	37	22	41	21	42	38	33	33	33	48	30	22	30	30	41	26	30	44	50	25	25	52	4	44	33	7	60	41	41	18

Note: See Appendix VI for definitions, thresholds and sources.

Appendix V. Selected Economic Indicators (continued)

	GDP growth (in percent)					Inflation (in percent)					International Reserves (in months on next year imports)					Fiscal Balance (in percent of GDP)					Current Account Balance incl. FDI (in percent of GDP)					Gross Public Debt (in percent of GDP)						
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013		
Nepal	4.5	4.8	3.9	4.6	3.6	12.6	9.5	9.6	8.3	8.0	5.7	5.6	6.8	7.2	6.5	-2.6	-0.8	-1.0	1.9	-0.8	4.4	-2.1	-0.5	4.8	0.0	39.3	35.4	32.9	28.3	27.4		
Nicaragua	-1.5	4.5	4.7	3.7	4.0	11.6	3.0	7.4	8.2	8.3	3.4	3.1	2.9	2.8	2.8	-1.9	-0.5	0.5	-1.4	-0.9	-5.2	-6.7	-4.7	-9.9	-8.6	82.1	79.9	70.7	63.5	58.3		
Niger	-0.9	8.0	2.3	14.5	6.6	1.1	0.9	2.9	4.5	2.0	2.9	2.8	2.2	2.8	2.9	-5.5	-2.6	-2.8	-4.2	-3.9	-11.1	-2.6	-9.0	-10.8	-11.9	20.1	17.6	16.6	20.4	23.6		
Nigeria	7.0	8.0	7.4	7.1	6.7	12.5	13.7	10.8	11.4	9.5	7.9	4.8	4.5	5.5	6.0	-9.4	-6.7	0.2	-0.4	2.8	12.5	8.1	6.9	6.0	5.6	15.2	15.5	17.3	14.7	15.4		
Papua New Guinea	6.1	7.6	8.9	7.7	4.0	6.9	6.0	8.4	6.8	6.7	3.8	3.6	4.6	4.9	5.4	-9.6	3.1	0.5	-2.5	-2.0	-11.2	-16.9	-22.6	-20.6	-14.0	31.5	25.6	25.2	23.2	21.3		
Rwanda	4.1	7.2	8.6	7.7	7.5	10.3	2.3	5.7	7.0	6.1	5.4	4.5	5.2	5.0	4.4	0.3	0.4	-1.8	-2.9	-3.2	-5.1	-5.2	-5.6	-7.3	-8.3	23.0	23.2	24.0	25.8	24.3		
Samoa	-5.1	0.4	2.0	1.5	1.9	14.6	-0.2	2.9	6.2	2.0	5.5	6.7	4.7			-4.2	-7.5	-6.4	-5.4	-4.4	-3.1	-7.2	-8.6	-11.4	-12.3	45.3	53.6	76.4	80.3	84.2		
Senegal	2.1	4.1	2.6	3.7	4.3	-1.7	1.2	3.4	2.3	2.1	4.9	4.1	3.9	3.9	3.7	-4.9	-5.2	-6.3	-6.5	-4.7	-4.7	-2.4	-4.4	-5.9	-5.1	34.2	35.7	40.8	46.1	47.6		
Sierra Leone	3.2	5.3	6.0	21.3	7.5	9.2	17.8	18.5	13.7	7.0	4.6	2.4	2.8	2.9	2.8	-2.5	-5.1	-4.6	-2.2	-2.6	-3.4	-1.8	-10.0	-2.4	-2.8	47.8	48.9	41.1	34.4	34.2		
Solomon Islands	-4.7	7.8	10.7	7.4	4.0	7.1	0.9	7.4	6.6	3.3	3.2	5.2	6.8	7.1	6.6	1.8	6.2	9.0	0.9	0.5	-1.9	3.7	9.5	0.7	-4.1	33.2	27.8	20.6	14.5	13.0		
St. Lucia	0.1	0.4	1.3	0.7	1.3	-0.2	3.3	2.8	3.2	2.8	2.7	3.0	3.0	3.0	3.0	-3.1	-4.8	-6.8	-10.5	-7.5	0.6	-6.0	-16.5	-17.4	-13.7	60.8	65.5	70.1	79.5	84.5		
St. Vincent & Grens.	-2.3	-1.8	0.0	1.2	1.5	0.4	0.8	3.2	2.6	1.7	2.7	3.5	2.8	2.2	1.5	-3.2	-5.8	-3.9	-2.0	-1.8	-13.8	-16.3	-14.2	-12.3	-11.2	64.8	66.8	68.1	68.3	69.8		
Sudan	4.6	2.2	-4.5	-11.2	0.0	11.3	13.0	18.3	28.6	17.0	1.5	1.8	1.8	1.6	1.6	-4.2	-0.4	-1.3	-4.0	-3.9	-4.9	2.3	3.7	-4.4	-2.8	72.5	74.0	74.1	112.1	116.3		
São Tomé and Príncipe	4.0	4.5	4.9	4.5	5.5	17.0	13.3	14.3	10.5	6.2	4.5	3.2	3.0	3.7	3.5	-18.4	-10.6	-12.0	-8.7	-12.3	-14.8	-2.4	-9.9	-14.2	-16.0	69.2	78.2	80.9	83.5	76.6		
Tajikistan	3.9	6.5	7.4	6.8	6.0	6.5	6.5	12.4	6.0	8.1	0.7	1.0	0.8	0.9	1.1	-5.2	-3.0	-2.1	-2.9	-1.9	-5.6	0.0	0.7	1.8	0.2	36.2	36.3	35.5	36.4	37.2		
Tanzania	6.0	7.0	6.4	6.5	6.8	12.1	7.2	12.7	15.6	9.8	4.5	4.1	3.3	3.3	3.4	-6.0	-6.5	-5.0	-4.8	-4.9	-4.9	-4.9	-8.2	-9.6	-7.6	39.0	42.7	45.4	46.8	48.8		
Timor-Leste, Dem. Rep.	12.8	9.5	10.6	10.0	10.0	0.7	6.8	13.5	12.0	8.0	2.8	3.3	5.0	6.4	7.8	48.7	50.4	52.7	39.9	33.0	51.7	48.1	57.2	45.4	37.9							
Togo	3.5	4.0	4.9	5.0	5.3	1.9	3.2	3.6	2.5	4.2	4.6	4.1	4.4	4.5	4.4	-2.8	-1.6	-2.9	-6.3	-5.2	-6.3	-5.1	-5.4	-6.4	-6.5	73.4	48.6	47.2	46.1	45.2		
Tonga	0.9	1.6	1.5	1.4	1.5	3.5	3.9	5.3	4.5	5.3	4.2	4.6	5.7	5.7	6.0	-0.9	-4.6	-2.7	-0.2	0.8	-2.0	-0.5	-2.2	-2.5	-1.3	39.3	41.2	41.8	45.4	43.6		
Uganda	7.0	6.1	5.1	4.2	5.7	13.1	4.0	18.7	14.6	6.1	5.8	4.7	4.2	4.3	4.3	-1.9	-6.3	-4.8	-6.0	-2.6	-4.2	-5.3	-6.8	-6.1	-6.0	22.2	27.0	33.3	36.2	38.9		
Uzbekistan	8.1	8.5	8.3	7.4	6.5	14.1	9.4	12.8	12.9	10.7	13.1	12.3	13.3	14.1	14.7	2.8	4.9	9.0	3.0	2.0	4.7	10.3	9.0	6.8	6.2	11.0	10.0	9.1	8.8	8.6		
Vanuatu	3.5	1.5	2.5	2.6	4.3	4.3	2.8	0.9	2.0	3.0	4.9	4.9	5.0			-0.7	-3.2	-2.3	-3.4	-2.6	-6.3	-5.1	-6.5	-6.1	-10.2	21.2	21.0	20.4	19.3	18.5		
Vietnam	5.3	6.8	5.9	5.1	5.9	6.7	9.2	18.7	8.1	6.2	1.9	1.7	1.3	1.8	2.3	-7.2	-3.1	-3.2	-4.6	-3.4	0.8	2.7	5.9	5.4	3.8	51.2	54.0	50.4	50.4	50.6		
Yemen, Republic of	3.9	7.7	-10.5	-1.9	4.1	3.7	11.2	19.5	15.0	12.7	7.5	6.7	4.1	4.2	3.6	-10.2	-4.0	-4.3	-5.7	-6.0	-10.9	-6.5	-5.1	-4.2	-5.4	49.8	40.9	42.4	44.9	45.1		
Zambia	6.4	7.6	6.6	6.5	8.2	13.4	8.5	8.7	6.4	6.2	4.0	3.3	3.3	3.5	3.7	-2.5	-3.1	-3.0	-5.8	-3.8	7.5	11.0	5.6	2.8	3.9	26.9	25.8	26.0	28.0	28.5		
Medians																																
All LICs	3.4	5.3	4.9	4.8	5.4	4.7	4.9	7.6	6.3	6.1	4.1	3.8	3.7	3.6	3.6	-4.1	-3.0	-2.9	-3.4	-2.6	-3.7	-3.4	-4.8	-4.1	-4.0	43.5	41.1	40.8	42.7	40.7		
Sub-Saharan Africa	3.7	5.6	4.6	5.0	5.6	6.1	4.1	7.2	6.7	5.9	4.5	4.0	3.5	3.7	3.7	-3.6	-3.8	-3.0	-3.8	-3.0	-4.0	-3.9	-5.5	-3.3	-3.5	39.5	36.2	37.2	36.3	36.8		
Asia	4.5	6.4	5.8	6.1	5.9	5.4	6.0	7.7	6.6	6.7	4.0	4.4	4.7	4.9	5.4	-3.5	-2.9	-2.8	-3.4	-2.5	-1.9	-0.5	-0.5	-2.5	-1.3	45.3	41.8	42.4	43.1	41.7		
Middle East and Europe	3.4	5.7	5.1	4.4	5.2	3.6	7.3	10.5	5.5	7.1	4.4	3.6	3.7	3.6	3.5	-5.2	-2.7	-1.8	-2.7	-2.2	-5.2	-3.9	-2.2	-4.8	-3.6	43.6	40.0	38.9	40.6	41.2		
Latin America and Caribbe	-1.3	1.2	3.6	3.7	3.6	3.0	3.3	5.0	3.2	4.7	3.4	3.5	3.4	3.2	2.9	-3.2	-2.9	-3.7	-3.6	-3.2	-2.9	-6.0	-4.7	-9.6	-8.6	62.8	65.5	68.1	63.5	60.0		
Net oil exporters	5.0	7.6	3.8	6.1	5.1	5.5	6.4	9.6	7.5	6.4	3.8	3.9	4.6	4.5	4.8	-5.7	-1.7	-0.5	-2.9	-1.9	1.1	2.5	5.5	0.8	1.3	49.8	25.8	27.0	23.4	24.2		
Net oil importers	3.1	5.2	5.0	4.6	5.5	4.7	4.4	7.5	6.1	6.0	4.2	3.8	3.6	3.5	3.4	-3.8	-3.1	-3.0	-3.5	-2.6	-4.2	-4.4	-5.8	-5.9	-4.5	41.6	41.3	41.0	43.1	40.9		

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