Roads Less Traveled: EMDE Growth in a Complicated External Environment

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with support from Felicia Belostecinic, Mitko Grigorov, Ava Hong, and Jungjin Lee.
“Complicated” external environment for EMDEs: Possibly persistent shifts in some key elements

Potential growth in AE and China
(Five-year-ahead real GDP growth forecast, percent)

Capital flows and interest rates
(Percent)

Commodity prices
(2005=100)

Source: IMF staff calculations.
Persistent shifts in external environment should not affect EMDE potential growth, but convergence hasn’t been automatic in the past

Room for catch up: 90 percent of EMDEs have levels of real income per capita (PPP terms) less than half that of the U.S.

Bottom 3 quintiles of EMDE relative income distribution in the 1970s: income gaps have widened for several over 1970-2014

Source: IMF staff calculations.
EMDE growth prospects increasingly relevant for the global economy

EMDEs now account for nearly 70 percent of growth in global output (bars) and consumption (markers)

Source: IMF staff calculations.
Main Questions

• How do country-specific external conditions—demand, financial, terms of trade—affect EMDEs’ medium-term growth (both its trend and its episodic nature)?

• Has the influence of external factors become more important as EMDEs have integrated into the global economy?

• Which domestic policies and structural attributes can help EMDEs get the most out of external conditions?
1. External demand conditions: export weighted growth rate of domestic absorption of trading partners

2. External financial conditions: country-specific capital flow intensity; constructed as capital flows to other EMDEs in same region as a share of their aggregate GDP

3. Terms of trade: commodity terms of trade; constructed by weighting international prices of individual commodities according to their share of net exports in GDP

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**Pairwise Correlation between Country-Specific External Conditions Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>External Demand Conditions</th>
<th>External Financial Conditions</th>
<th>Commodity Terms of Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Demand Conditions</td>
<td>1</td>
<td>-0.0016</td>
<td>1</td>
</tr>
<tr>
<td>External Financial Conditions</td>
<td>0.1288</td>
<td>1</td>
<td>0.0737</td>
</tr>
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<td>0.0737</td>
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<td>1</td>
</tr>
</tbody>
</table>

Source: IMF staff calculations.

**Correlation between Country-Specific External Conditions Variables and Global Variables over Time (Correlation coefficient)**

**EC-Demand and World GDP Growth**

**EC-Financial and Aggregate Capital Flows to EMDEs**

Source: IMF staff calculations.
Empirical strategy

Linear Growth Model

Time-varying contribution of external conditions

Episode Analysis

Role of external conditions

Domestic policies interacted with external conditions
External conditions matter for EMDE medium-term growth

Fixed-effects panel growth regression: \[ g_{it} = \alpha_i + \mu_t + \gamma Z_{it} + \beta X_{it} + \epsilon_{it} \]

- \( g_{it} \): growth rate of GDP per capita averaged over a five-year period
- \( Z_{it} \): country-specific external conditions variables
- \( X_{it} \): parsimonious set of control variables

Elasticity of medium-term GDP per capita growth with respect to external conditions

Source: IMF staff calculations.
External conditions matter differently across regions

Source: IMF staff calculations.
Linear Growth Model

- Time-varying contribution of external conditions

Episode Analysis

- Role of external conditions
- Domestic policies interacted with external conditions
Number of Identified Growth Episodes Over Time

**Accelerations**

- Trend growth in 5-year period at least $\geq 3.5$ percent
- Increase in trend growth with respect to previous 5-year period $\geq 2$ percentage points
- GDP per capita at end of episode $\geq$ max before the episode
- Persistent accelerations: not followed by banking crisis or growth reversal

**Reversals**

- Decrease in trend growth with respect to previous 5-year period $\geq 2$ percentage points
- Average GDP per capita during episode lower then average during previous 5-year period

Source: IMF staff calculations.
Persistent acceleration and reversal episodes have persistent income effects

Real per capita income in the aftermath of persistent acceleration and reversal episodes

Source: IMF staff calculations.
Persistent acceleration and reversal episodes have persistent income effects

Cumulative Growth Rate of Real Income per Capita during Episodes versus Average Growth Rate of Real Income per Capita during 1970-2015 (Percent)

Source: IMF staff calculations.
Linear Growth Model

Time-varying contribution of external conditions

Episode Analysis

Role of external conditions

Domestic policies interacted with external conditions
Comparing medians of external conditions across episodes vs. non-episodes suggests that they may play a role in the occurrence of growth episodes

Source: IMF staff calculations.

Note: Median calculated for time $t+1$ to $t+5$ where $t$ is the beginning of an episode. Median of benchmark countries computed over the same time interval of countries experiencing an episode.
Impact of external conditions on the probability of growth episodes

- Logit panel model with country fixed effects: 
  \[ \log \left( \frac{\Pr(episode_{it}=1)}{1-\Pr(episode_{it}=1)} \right) = \gamma Z_{it} + \beta X_{it} + \alpha_i + \epsilon_{it}, \]
- Marginal effects: impact of external conditions on probability of experiencing an episode (evaluated at the mean of the external conditions)

Change in the Probability of Occurrence of Growth Episodes, 1970-15
(Percentage points)

An increase in trading partner demand raises the probability of occurrence of persistent acceleration episodes.

Favorable external financing lowers the probability of occurrence of reversal episodes.
Impact of external conditions differs by groups of economies

Change in the Probability of Occurrence of Growth Episodes for Commodity Exporters, 1970-15
(Percentage points)

Improvements in commodity terms of trade raise the probability of occurrence of acceleration episodes for commodity exporters
Linear Growth Model

- Time-varying contribution of external conditions

Episode Analysis

- Role of external conditions
- Domestic policies interacted with external conditions
Domestic attributes are significantly different between economies that experience a persistent acceleration or reversal and economies that do not.

Source: IMF staff calculations.

Note: Median calculated for time $t-3$ to $t-1$ where $t$ is the beginning of an episode. Median of benchmark countries computed over the same time interval of countries experiencing an episode.
How do domestic policies and structural factors influence the impact of external conditions on likelihood of accelerations and reversals?

- Expanded specification to include interaction with domestic attributes:

\[
\log \left( \frac{\Pr(\text{episode}_{it} = 1)}{1 - \Pr(\text{episode}_{it} = 1)} \right) = \gamma z_{it} + \beta x_{it} + \delta (z_{it} \times x_{it}) + \alpha_i + \epsilon_{it},
\]

- How does a shift in the domestic attribute from the 25th to the 75th percentile of its distribution influences the marginal effect of ECs?

<table>
<thead>
<tr>
<th>Domestic attributes that can improve ability to benefit from favorable external conditions</th>
<th>Initial conditions</th>
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<tbody>
<tr>
<td>Trade integration</td>
<td>External debt</td>
</tr>
<tr>
<td>Capital account openness</td>
<td>Current account balance</td>
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<tr>
<td>Domestic financial development</td>
<td></td>
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<tr>
<td>Avoiding credit booms</td>
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<th>Characteristics of macroeconomic policy frameworks</th>
<th>Structural factors and institutions</th>
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<tr>
<td>Exchange rate regime</td>
<td>Quality of legal and regulatory environment</td>
</tr>
<tr>
<td>Sound fiscal framework</td>
<td></td>
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</tbody>
</table>
Change in the marginal effect of external condition when domestic attribute improves

1. Openness and Depth

Persistent Accelerations

Probability of acceleration increases further when domestic attribute improves from 25th percentile to 75th percentile

Reversals

Probability of reversal decreases further when domestic attribute improves from 25th percentile to 75th percentile

2. Initial Conditions

Source: IMF staff calculations.
3. Policy Frameworks

Probability of acceleration increases further when domestic attribute improves from 25th percentile to 75th percentile.

Probability of reversal decreases further when domestic attribute improves from 25th percentile to 75th percentile.

4. Structural Characteristics

Source: IMF staff calculations.
Looking forward: a less buoyant external environment reinforces the need for improving domestic policies and structural attributes.

Actual and Projected External Conditions for EMDEs
(Percentage points; difference relative to 2015-16)

Change in the Marginal Effect of External Financial Conditions on Reversals When Selected Domestic Attributes Improve
(Percentage points)

Benefits of sound domestic attributes are larger when external conditions are less favorable.

Source: IMF staff calculations.
Country-specific ECs have a significant effect on medium-term growth of EMDEs. They also help explain the episodic nature of growth in EMDEs.

The importance of ECs for EMDEs’ growth has increased over time, especially in the case of external financial conditions (they account for 1/3 of the increase in income per capita growth between 1995-2004 and post-2005). Demand among EMDEs has also exerted an increasing influence on growth.

The external environment is expected to be less supportive going forward. But strengthening institutional frameworks and adopting a policy mix that favors trade integration and exchange rate flexibility, and contains vulnerabilities from high current account deficits and debt levels, can help EMDEs get the most out of a weaker growth impulse from external conditions.
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