

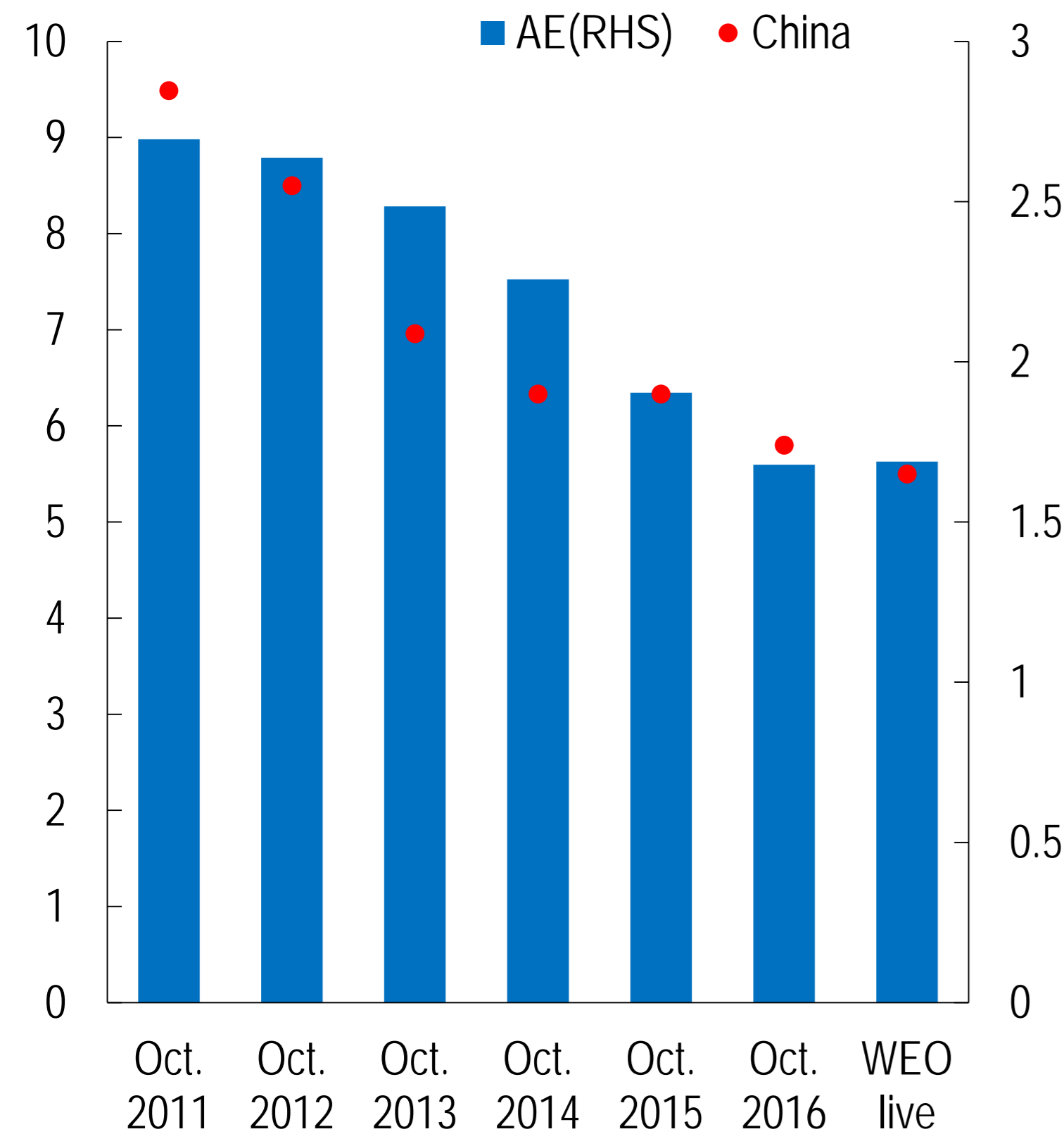


Roads Less Traveled: EMDE Growth in a Complicated External Environment

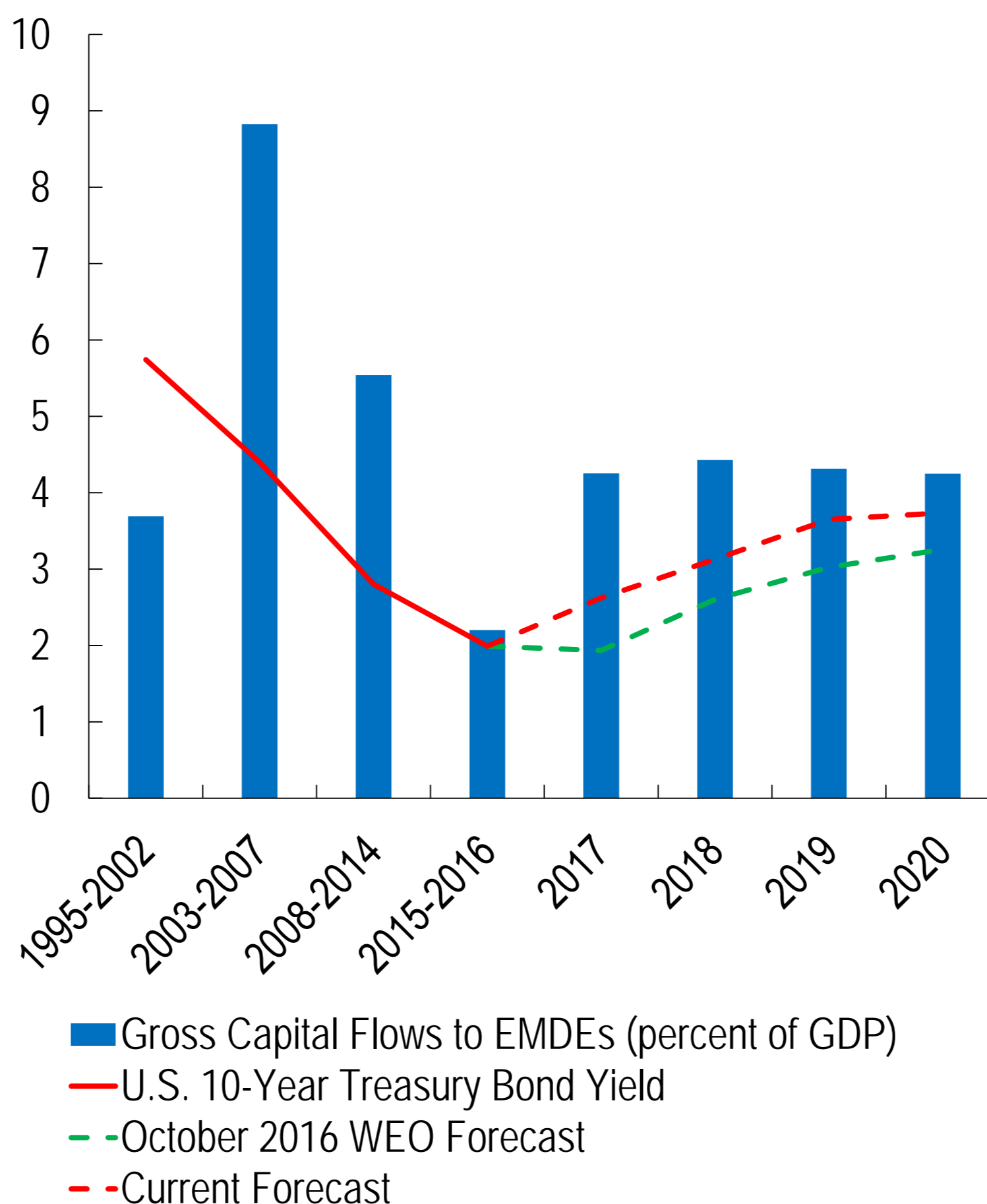
*Bertrand Gruss, Malhar Nabar (team lead) and Marcos Poplawski-Ribeiro
with support from Felicia Belostecinic, Mitko Grigorov, Ava Hong, and Jungjin Lee.*

“Complicated” external environment for EMDEs: Possibly persistent shifts in some key elements

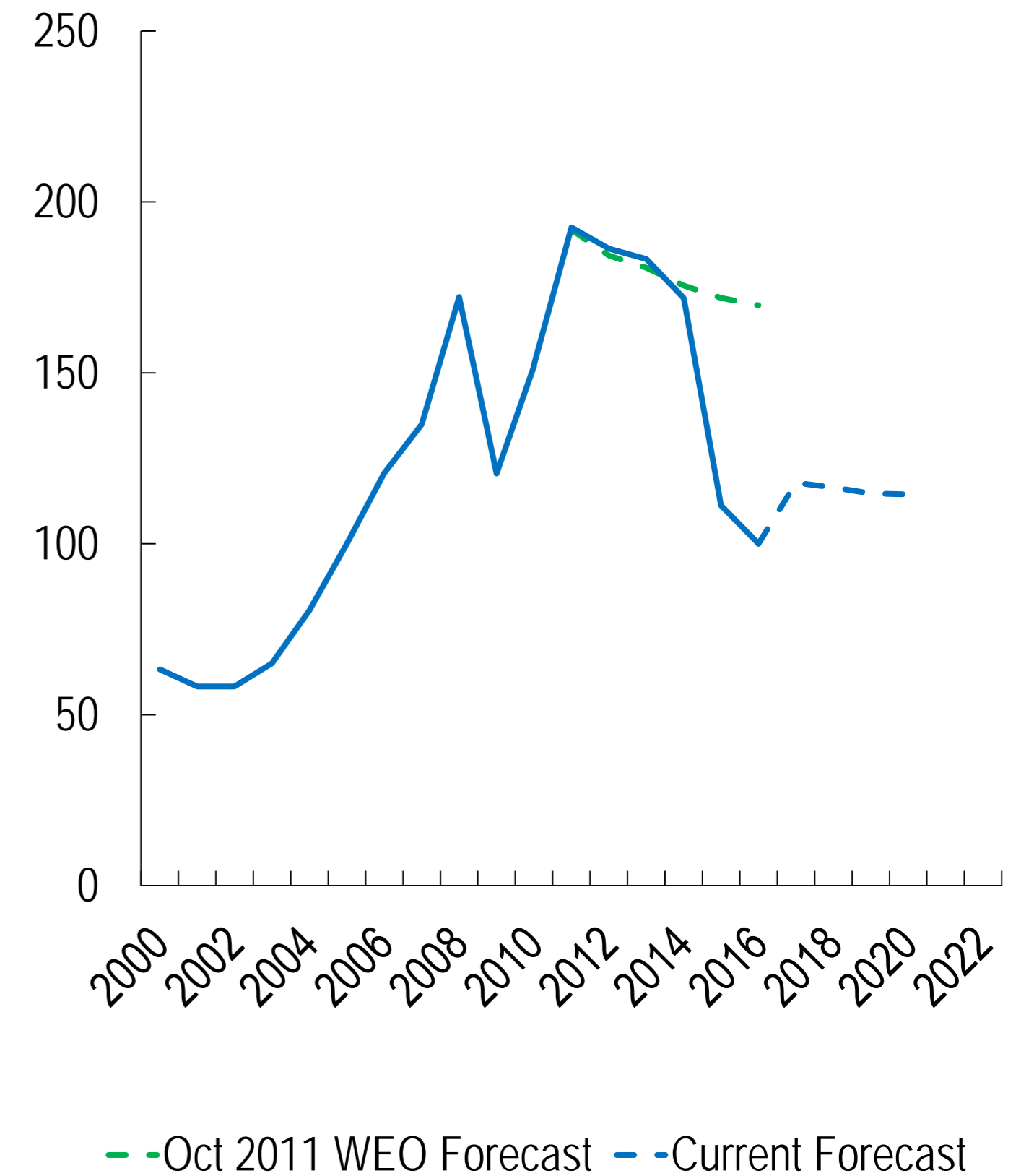
Potential growth in AE and China
(Five-year-ahead real GDP growth forecast, percent)



Capital flows and interest rates
(Percent)

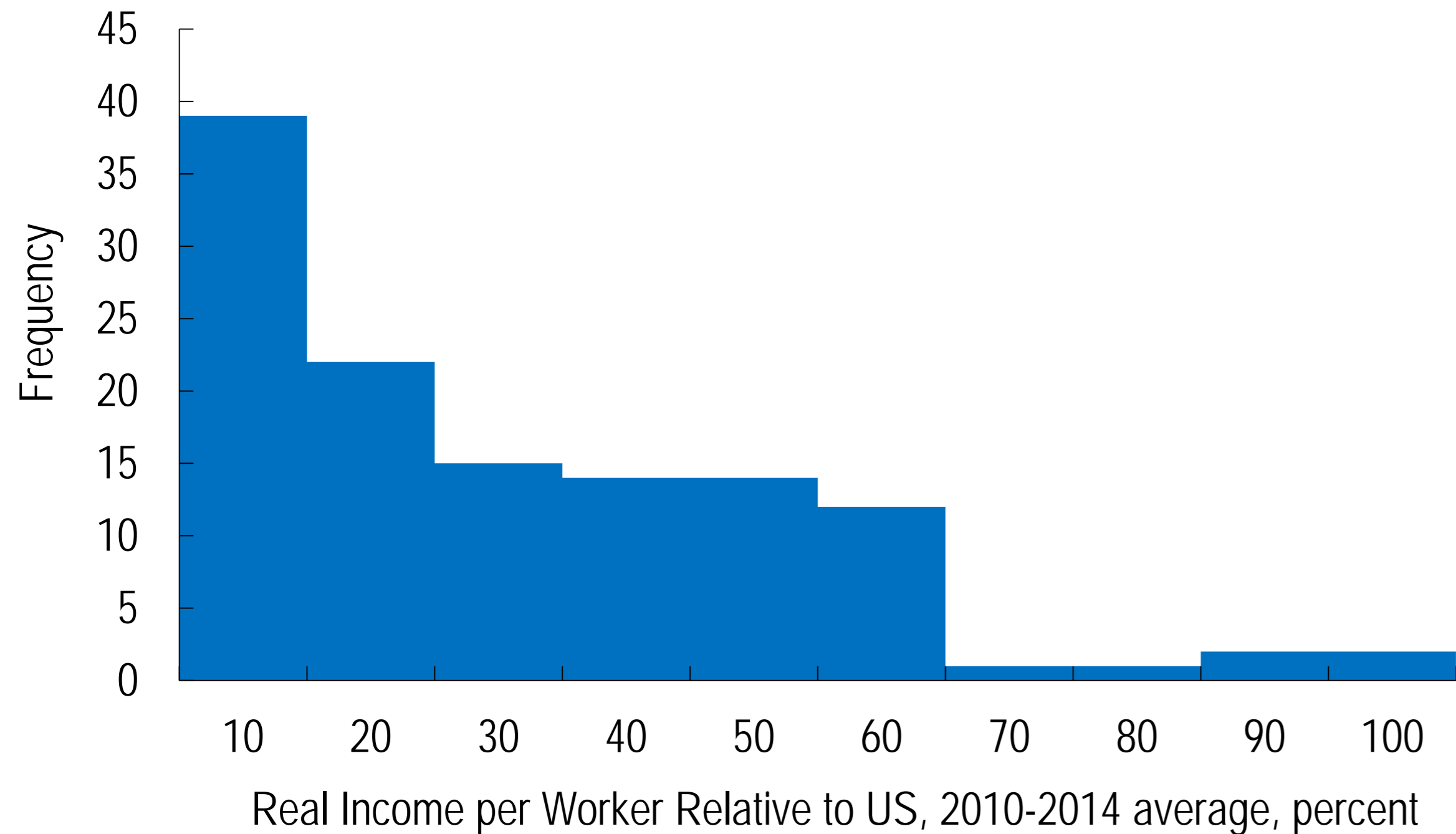


Commodity prices
(2005=100)

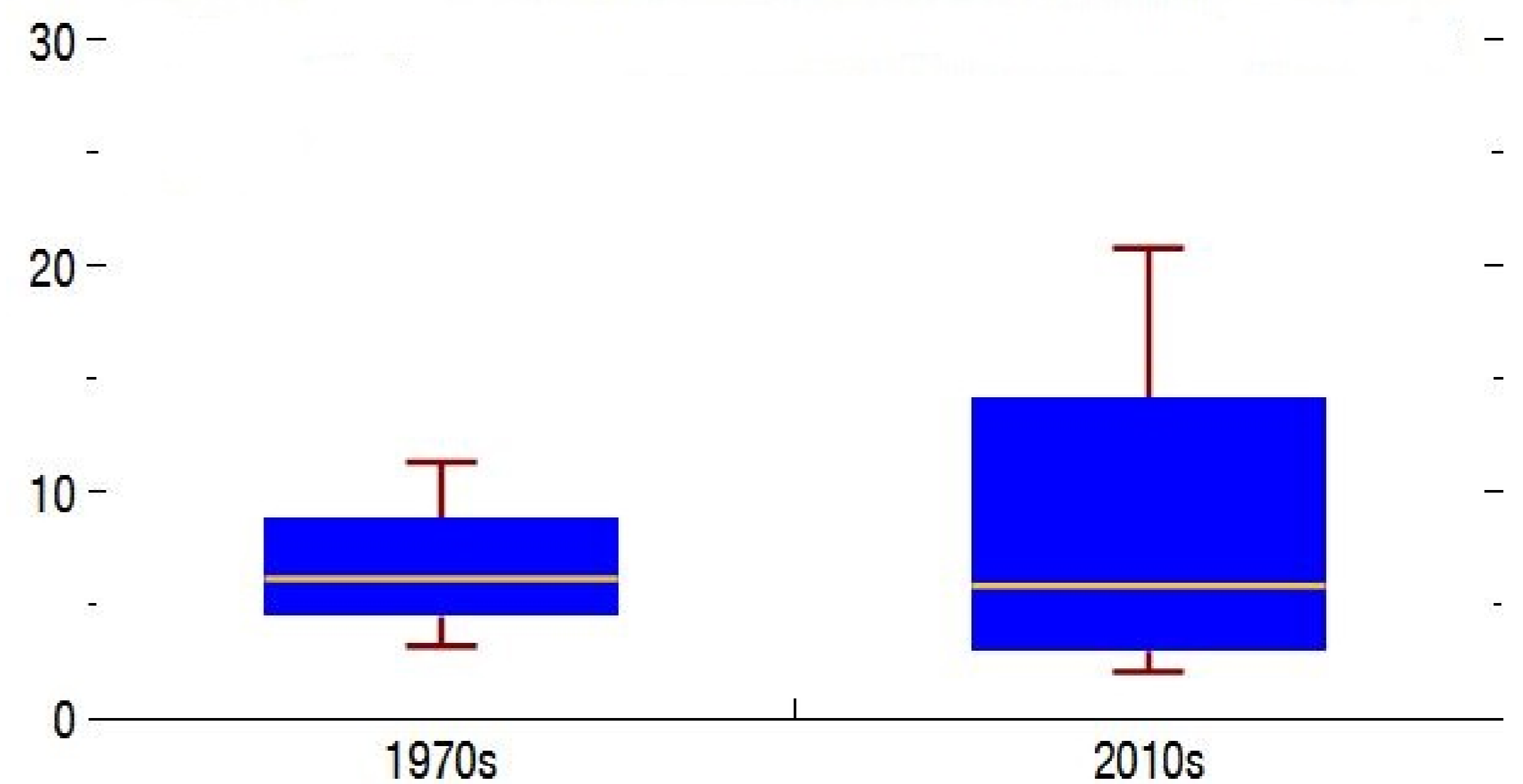


Persistent shifts in external environment should not affect EMDE potential growth, but convergence hasn't been automatic in the past

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.

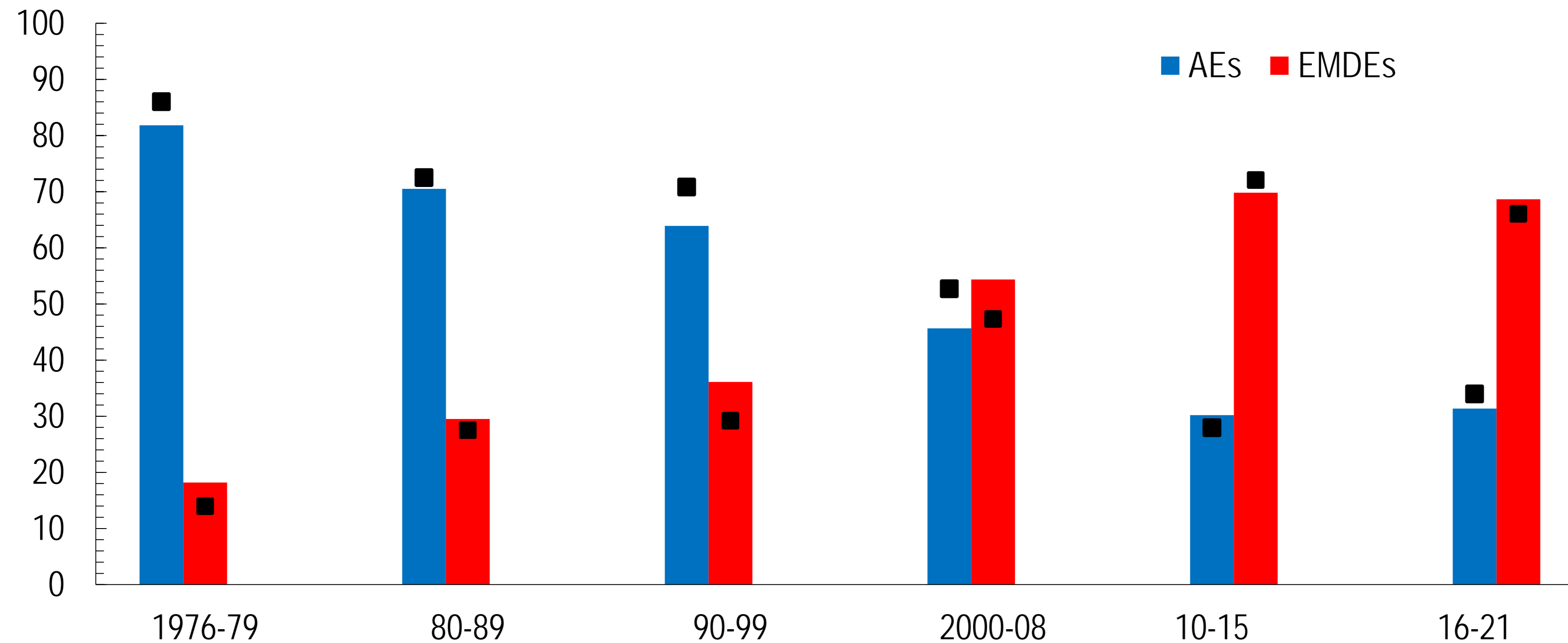


Bottom 3 quintiles of EMDE relative income distribution in the 1970s: income gaps have widened for several over 1970-2014



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?

External conditions: country-specific and exogenous

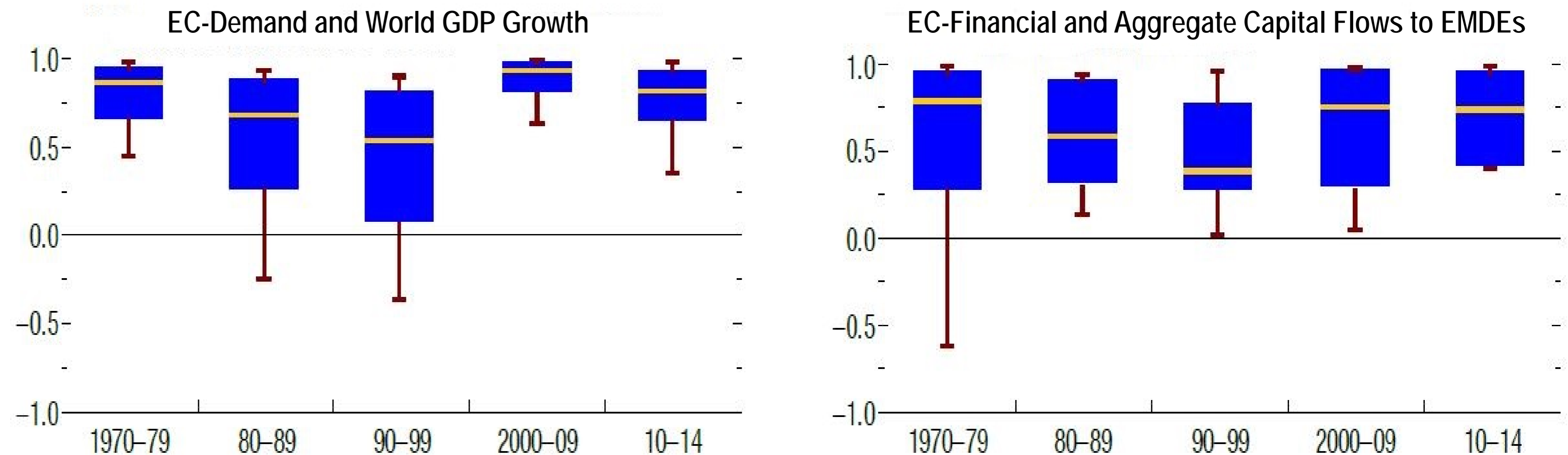
1. **External demand conditions:** *export weighted growth rate of domestic absorption of trading partners*
2. **External financial conditions:** *country-specific capital flow intensity; constructed as capital flows to other EMDEs in same region as a share of their aggregate GDP*
3. **Terms of trade:** *commodity terms of trade; constructed by weighting international prices of individual commodities according to their share of net exports in GDP*

Pairwise Correlation between Country-Specific External Conditions Variables

Variable	External Demand Conditions	External Financial Conditions	Commodity Terms of Trade
External Demand Conditions	1		
External Financial Conditions	0.1288	1	
Commodity Terms of Trade	0.0737	-0.0016	1

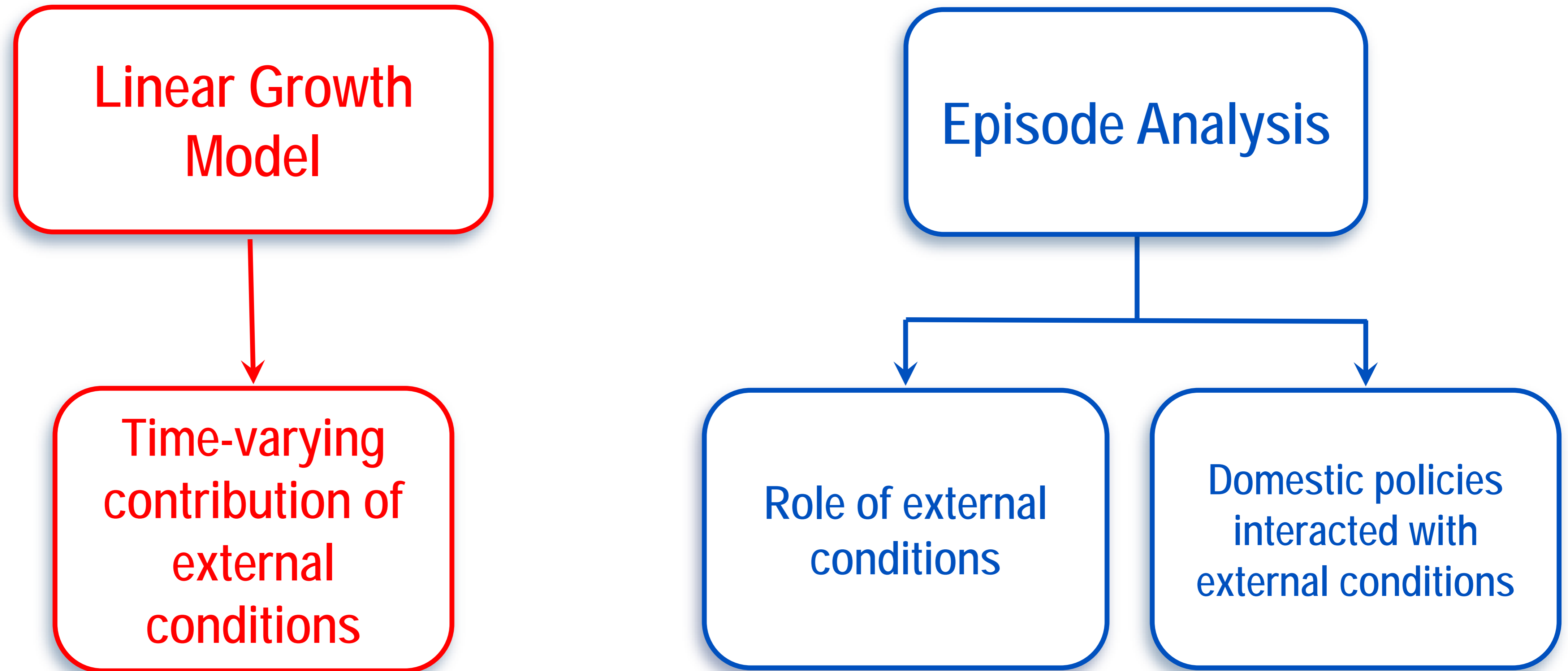
Source: IMF staff calculations.

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



Source: IMF staff calculations.

Empirical strategy



External conditions matter for EMDE medium-term growth

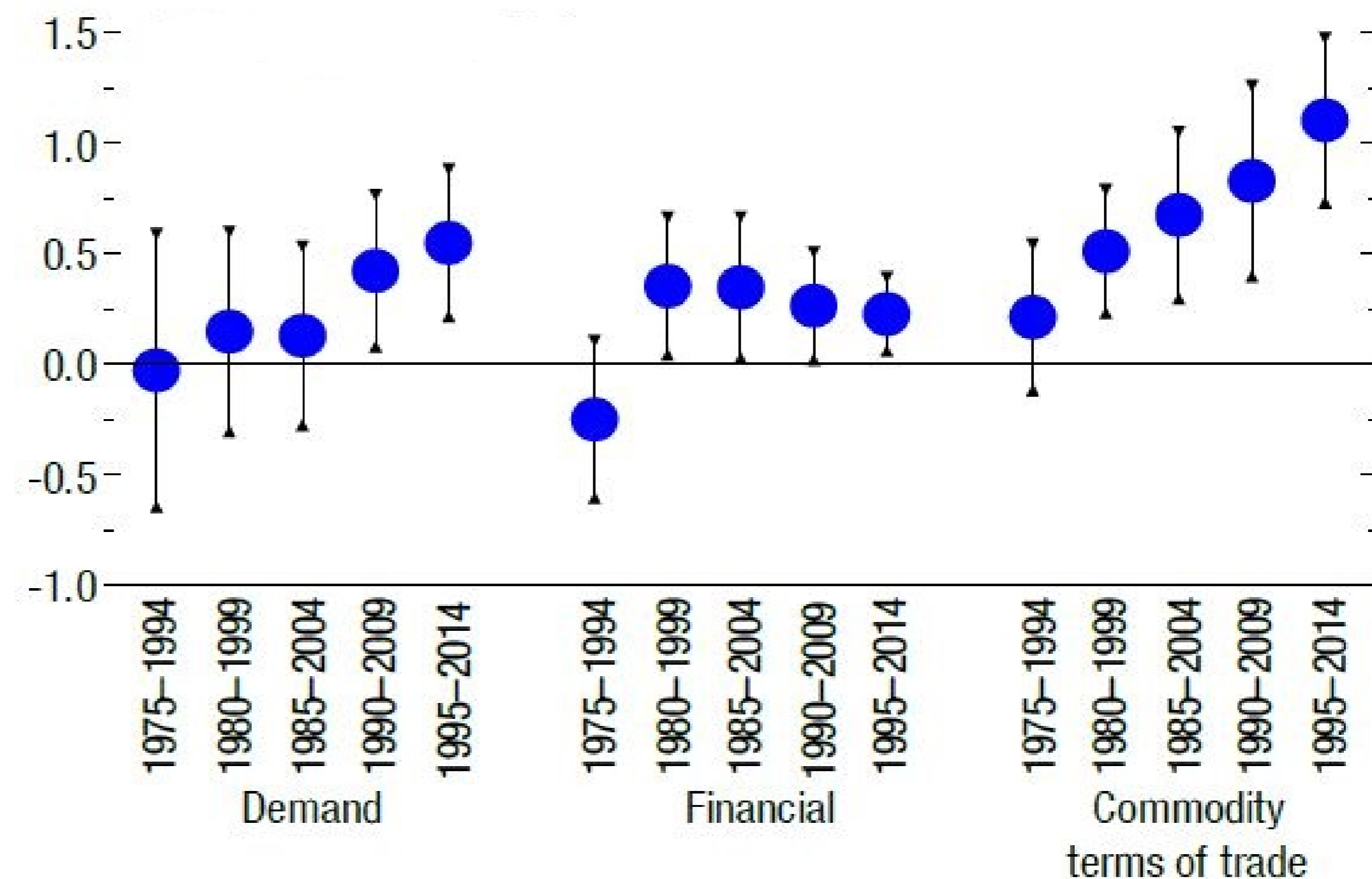
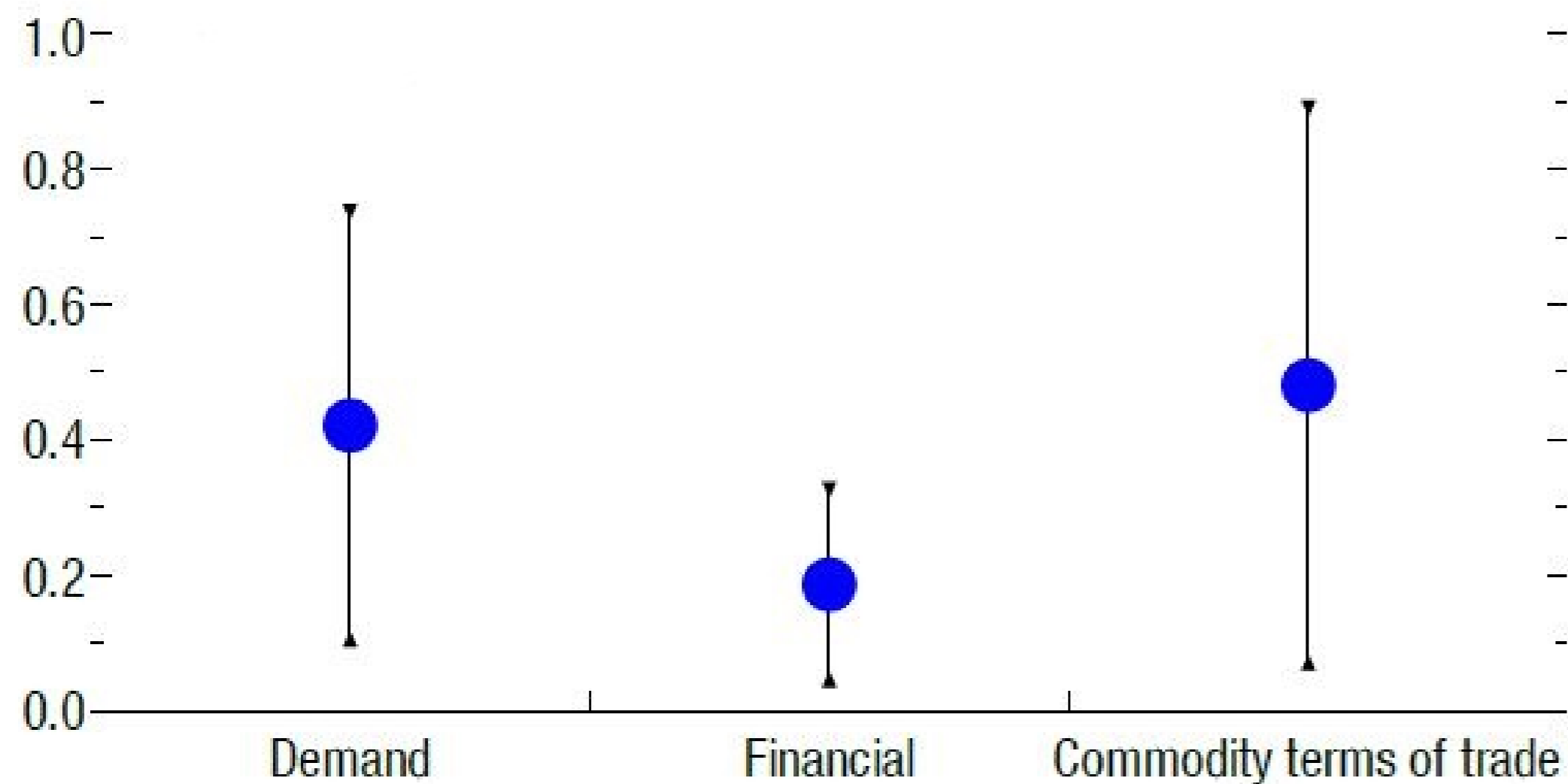
Fixed-effects panel growth regression: $g_{it} = \alpha_i + \mu_t + \gamma Z_{it} + \beta X_{it} + \epsilon_{it}$

g_{it} : growth rate of GDP per capita averaged over a five-year period

Z_{it} : country-specific external conditions variables

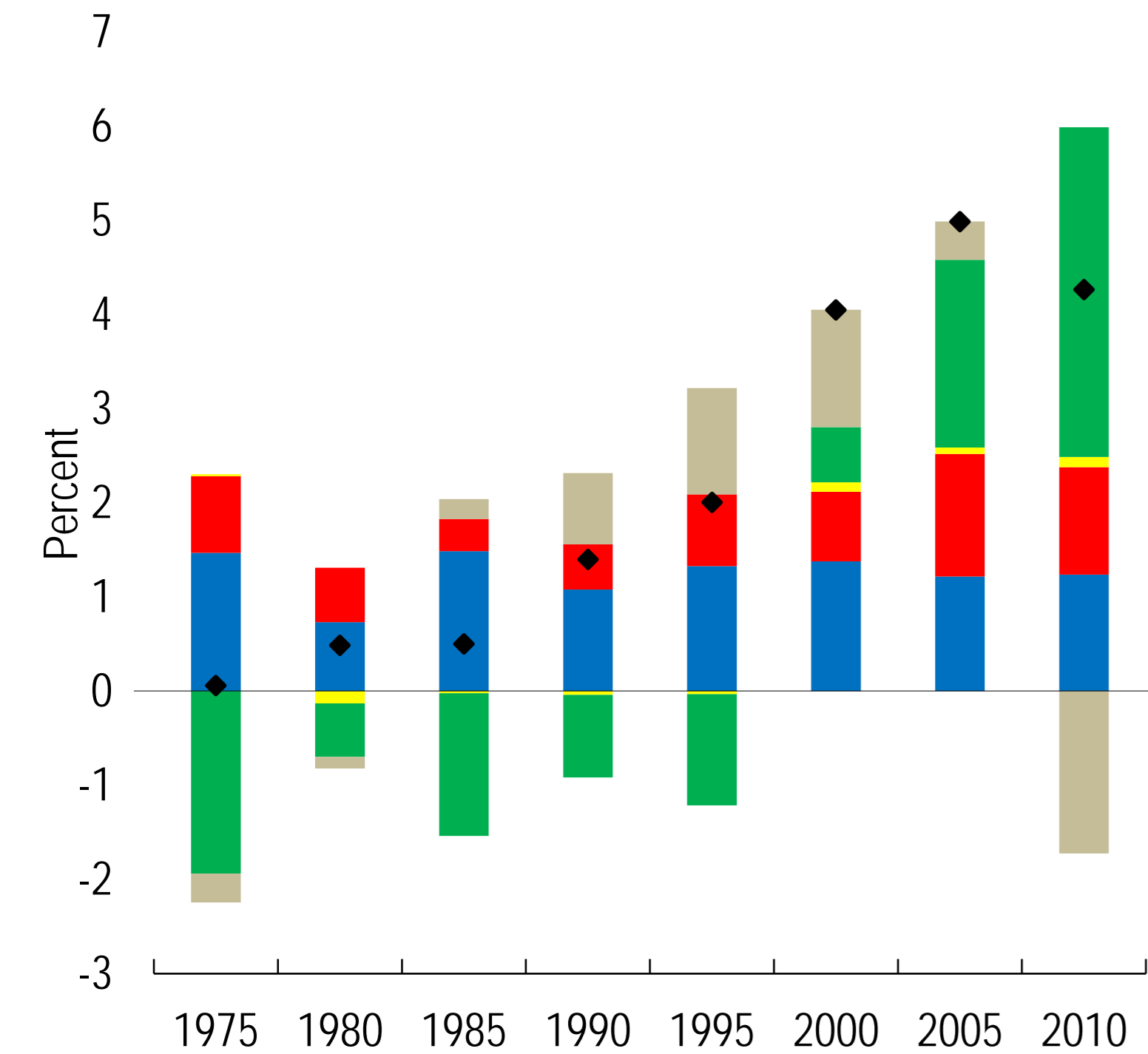
X_{it} : parsimonious set of control variables

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

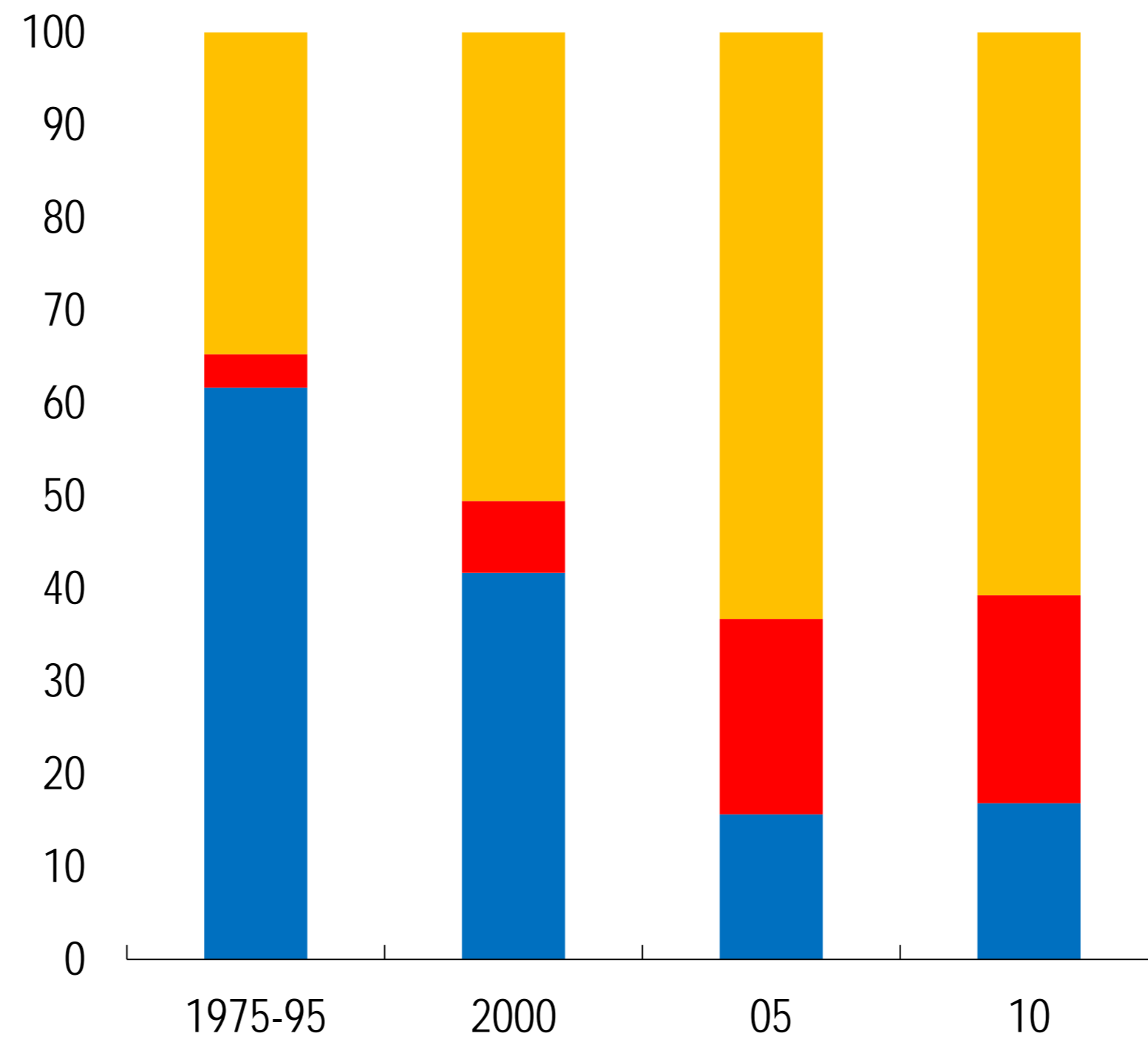


Increasing role of external financial conditions and intra-EMDE demand over time

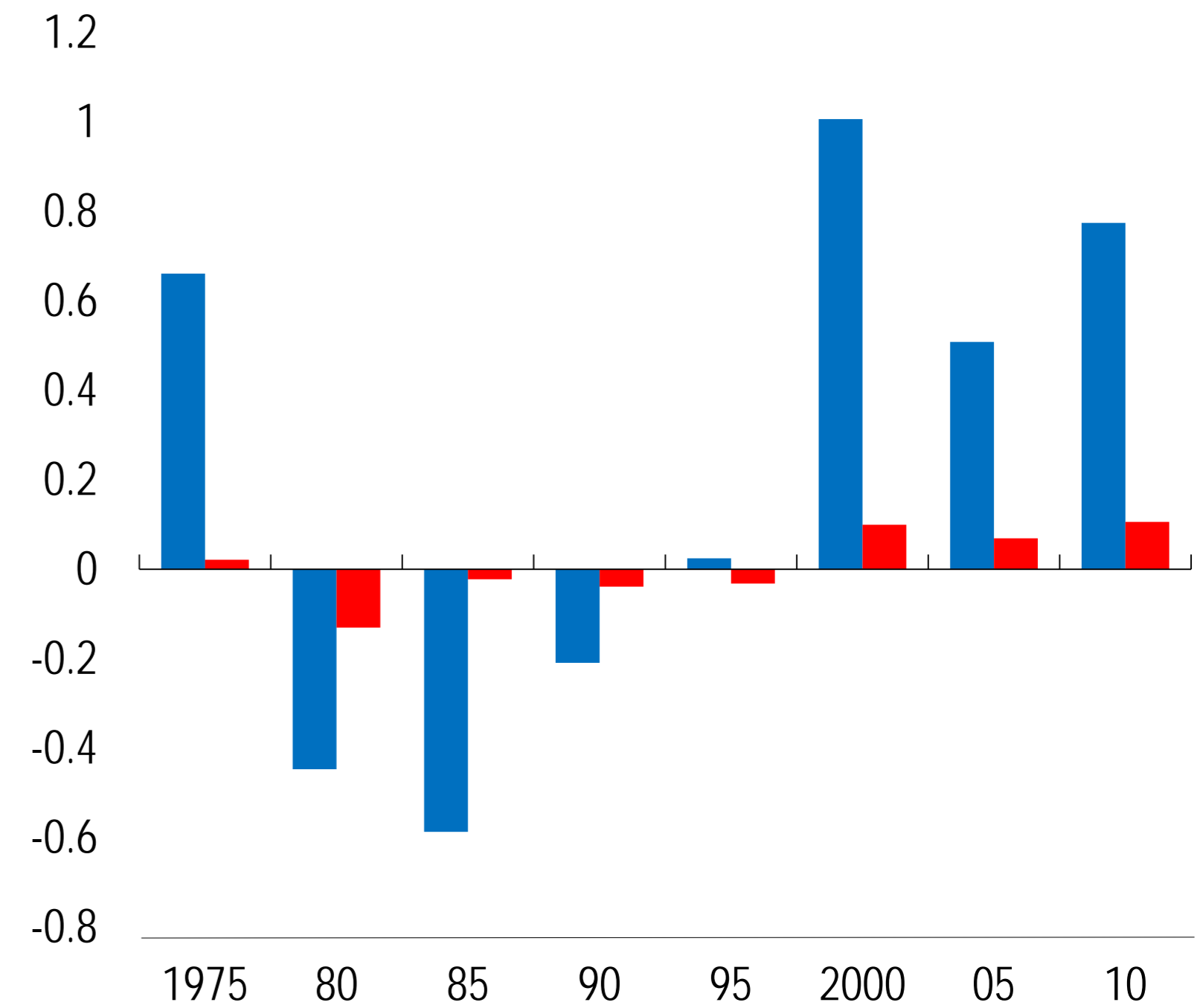
Average Contribution to GDP per Capita Growth
(Percent)



Relative Average Contribution to GDP per Capita Growth within External Demand
(Percent)



Average Contribution of CTOT, by Group of Economies
(Percent)



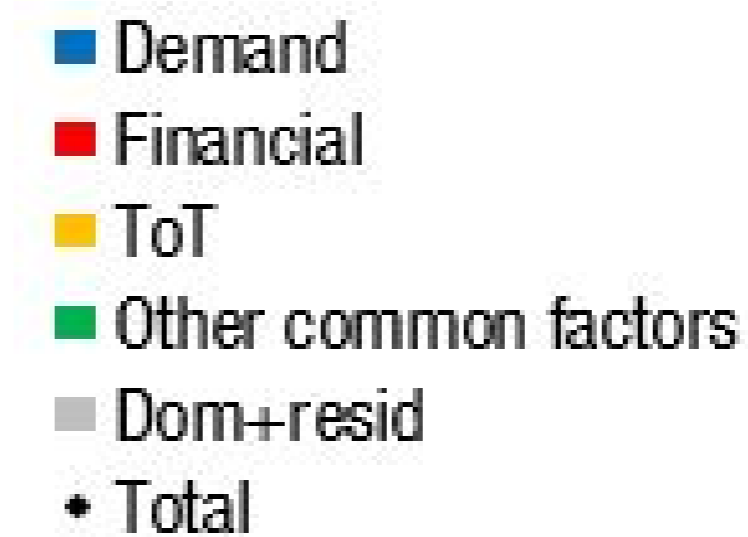
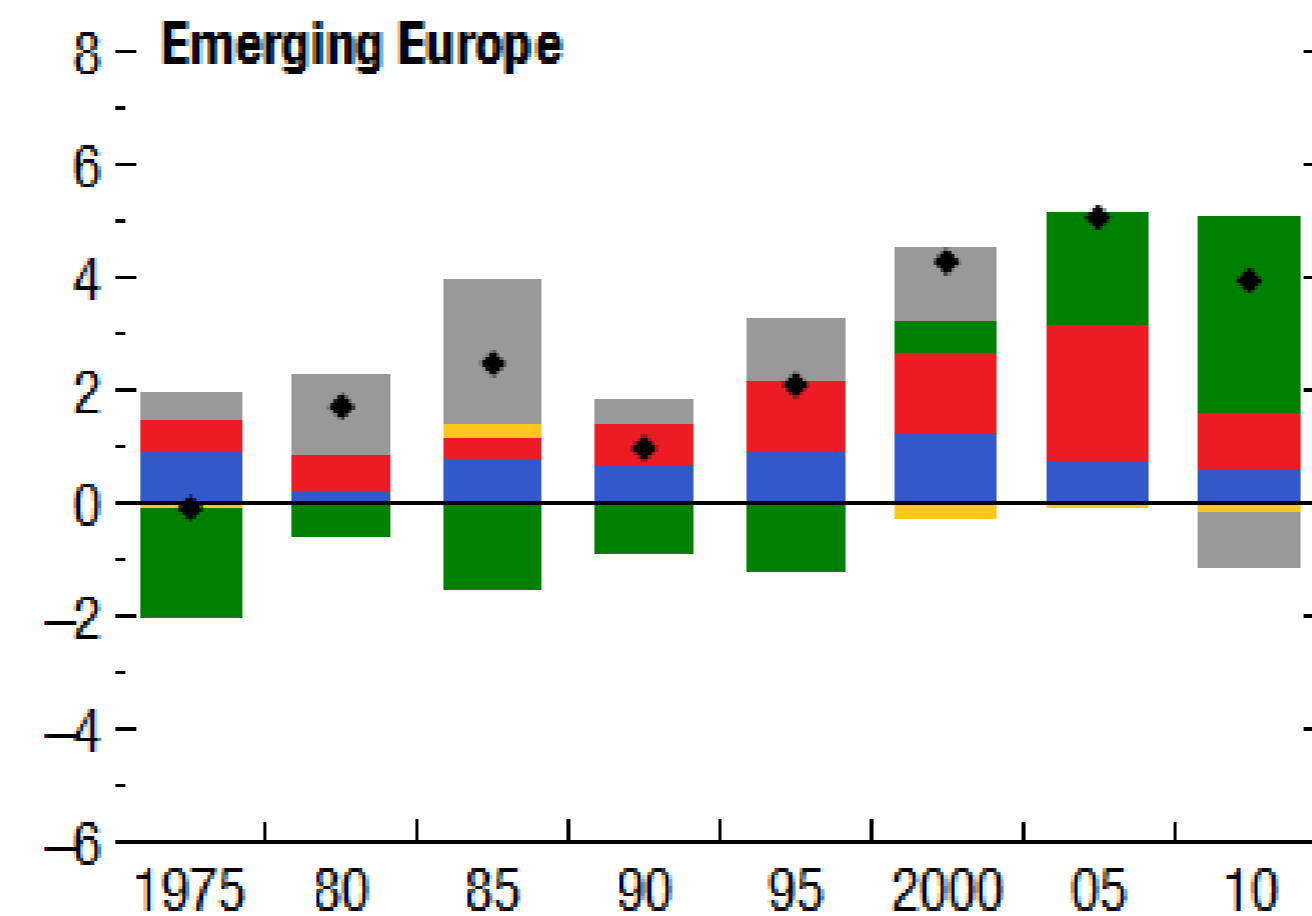
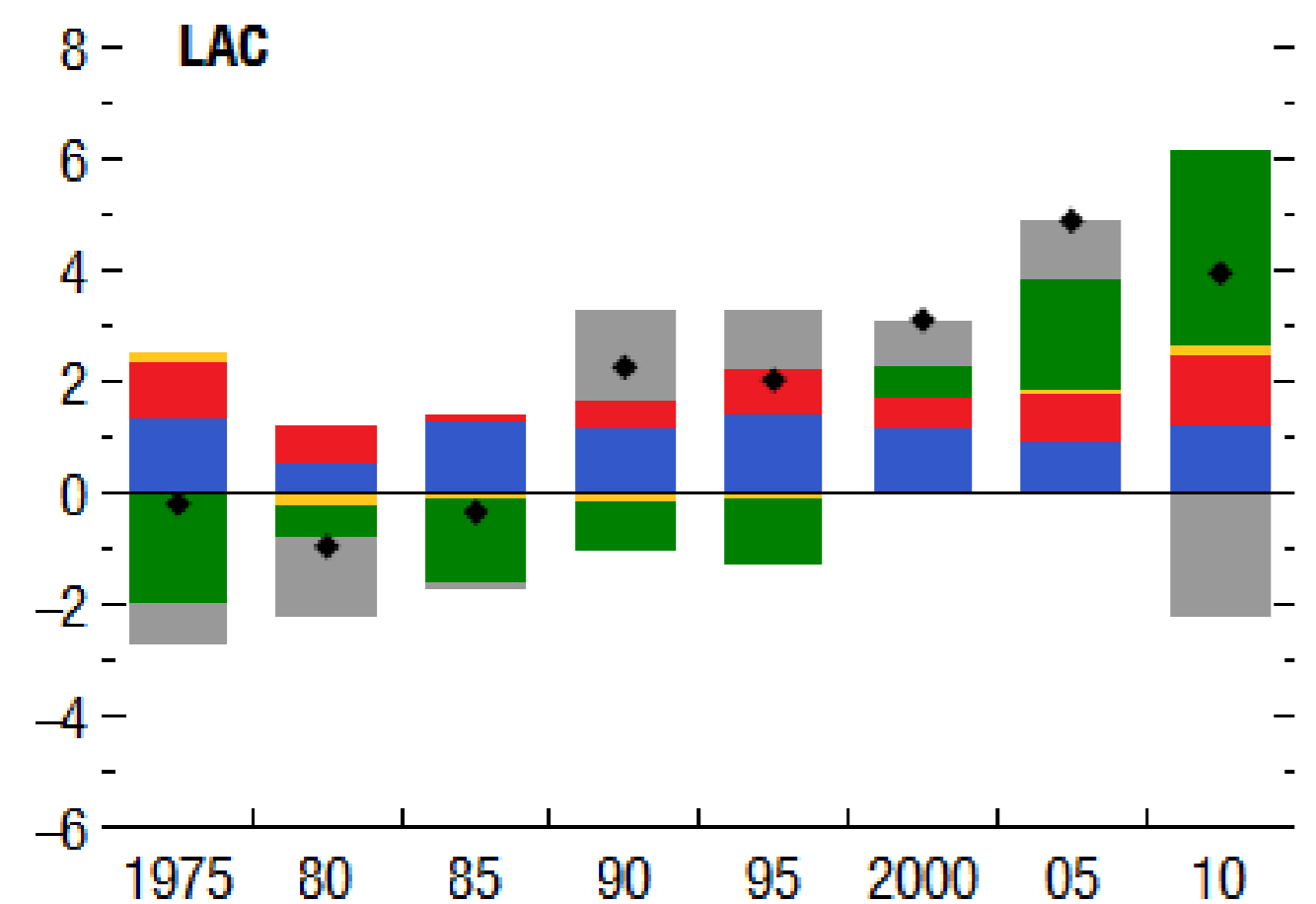
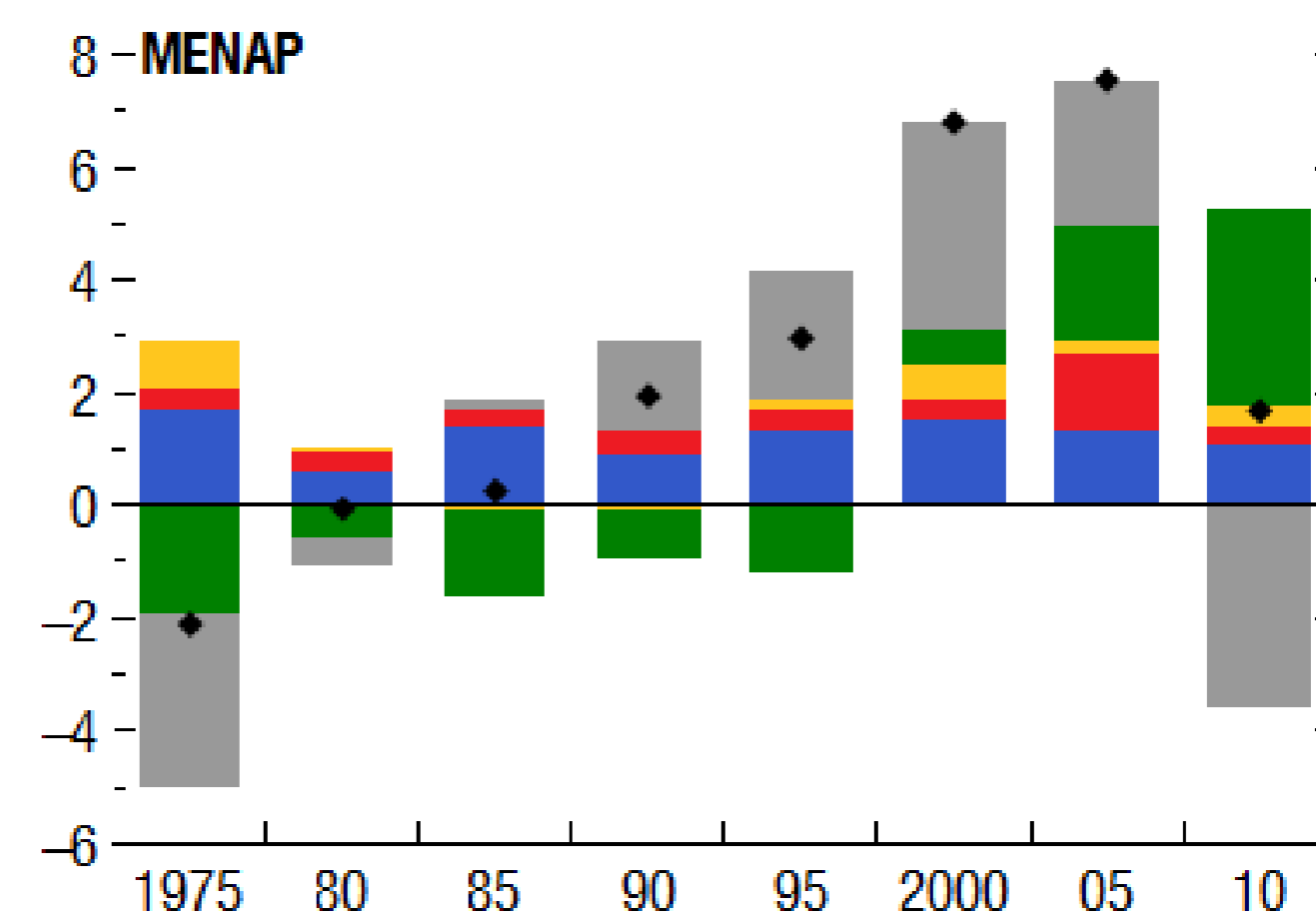
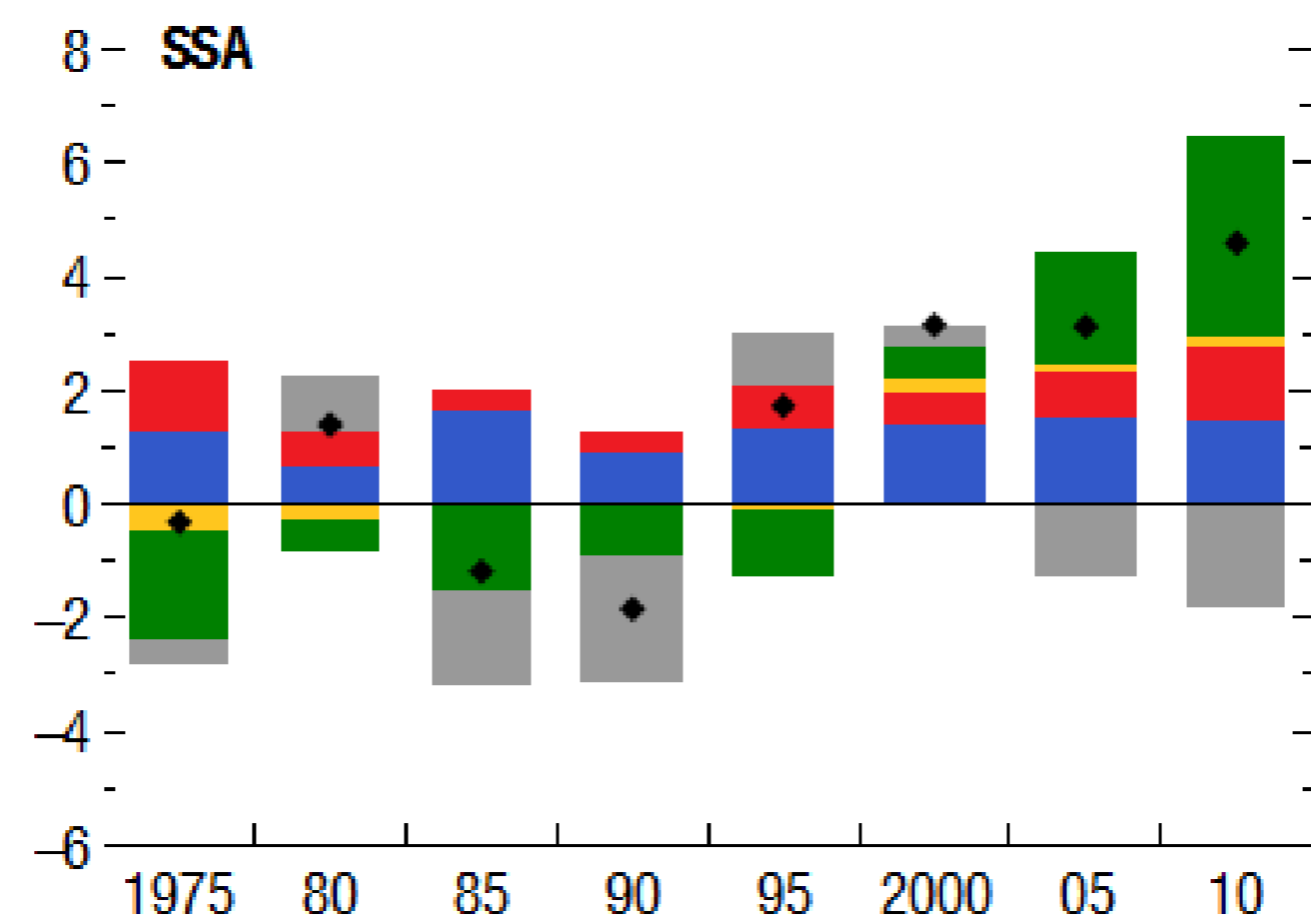
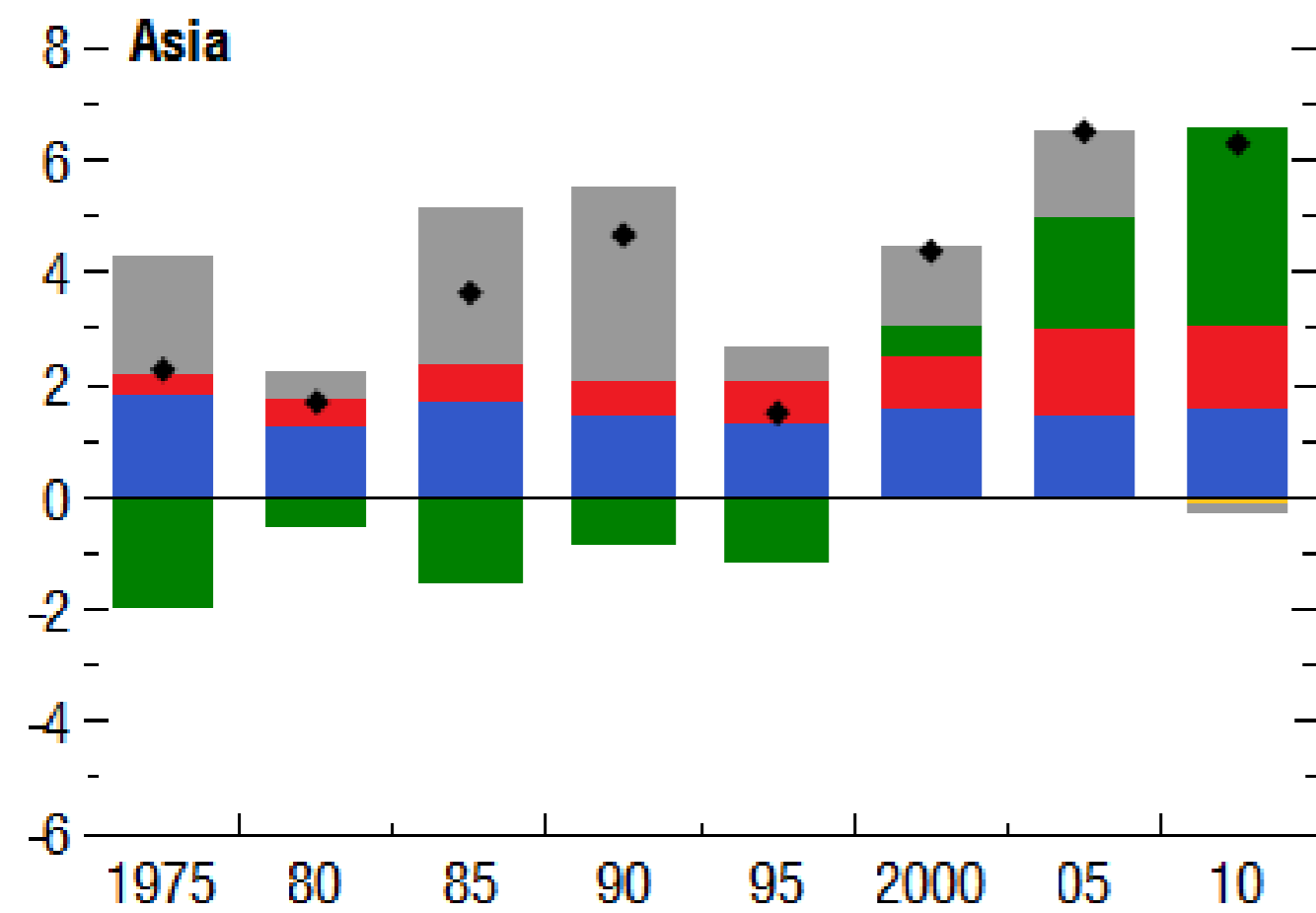
■ Demand
■ ToT
■ Dom+resid
■ Financial
■ Other common factors
◆ Total

■ AEs ■ China ■ Other EMDEs

■ Commodity exporters ■ Average EMDE

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

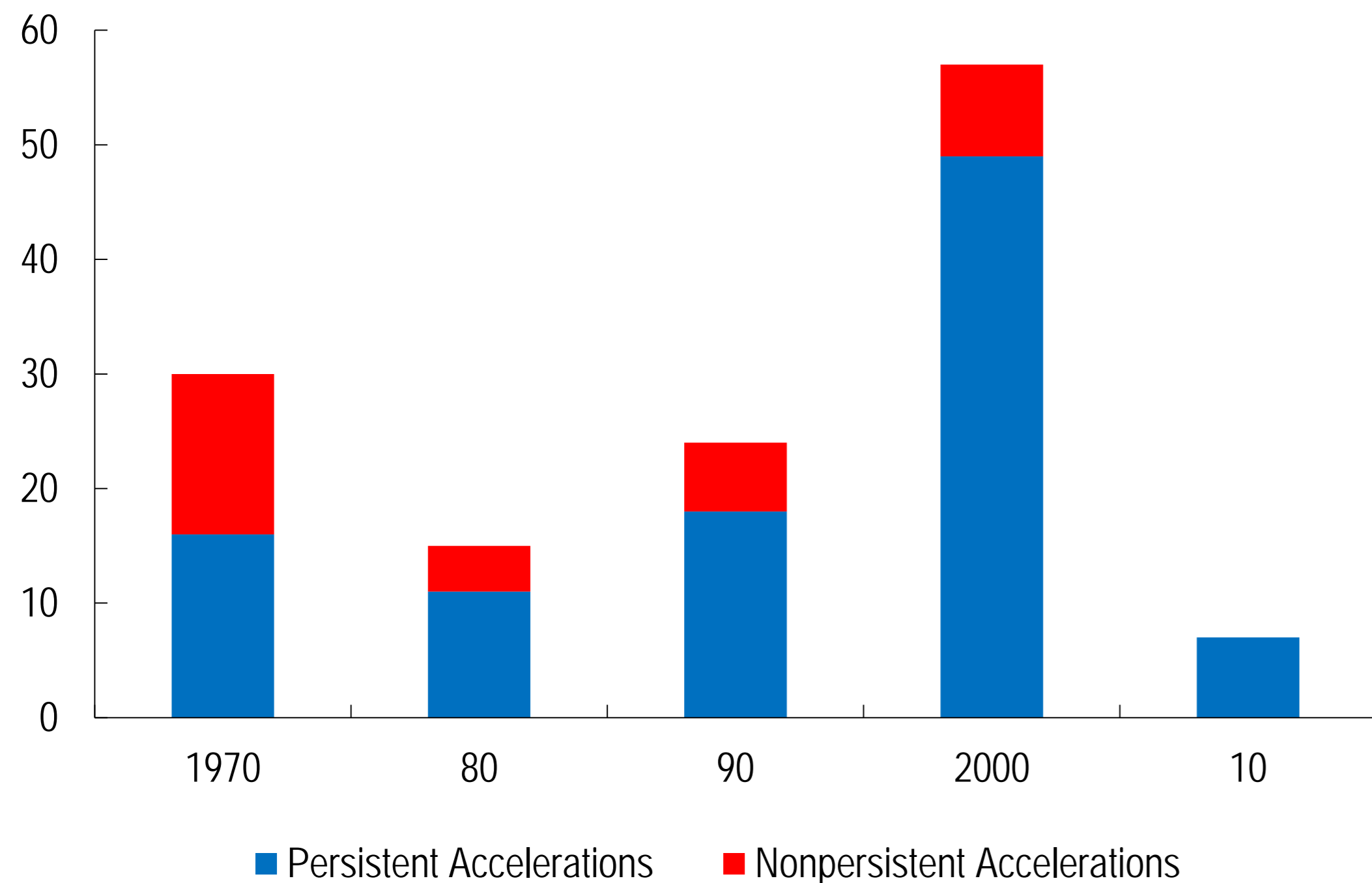
**Role of external
conditions**

**Domestic policies
interacted with
external conditions**

Number of Identified Growth Episodes Over Time

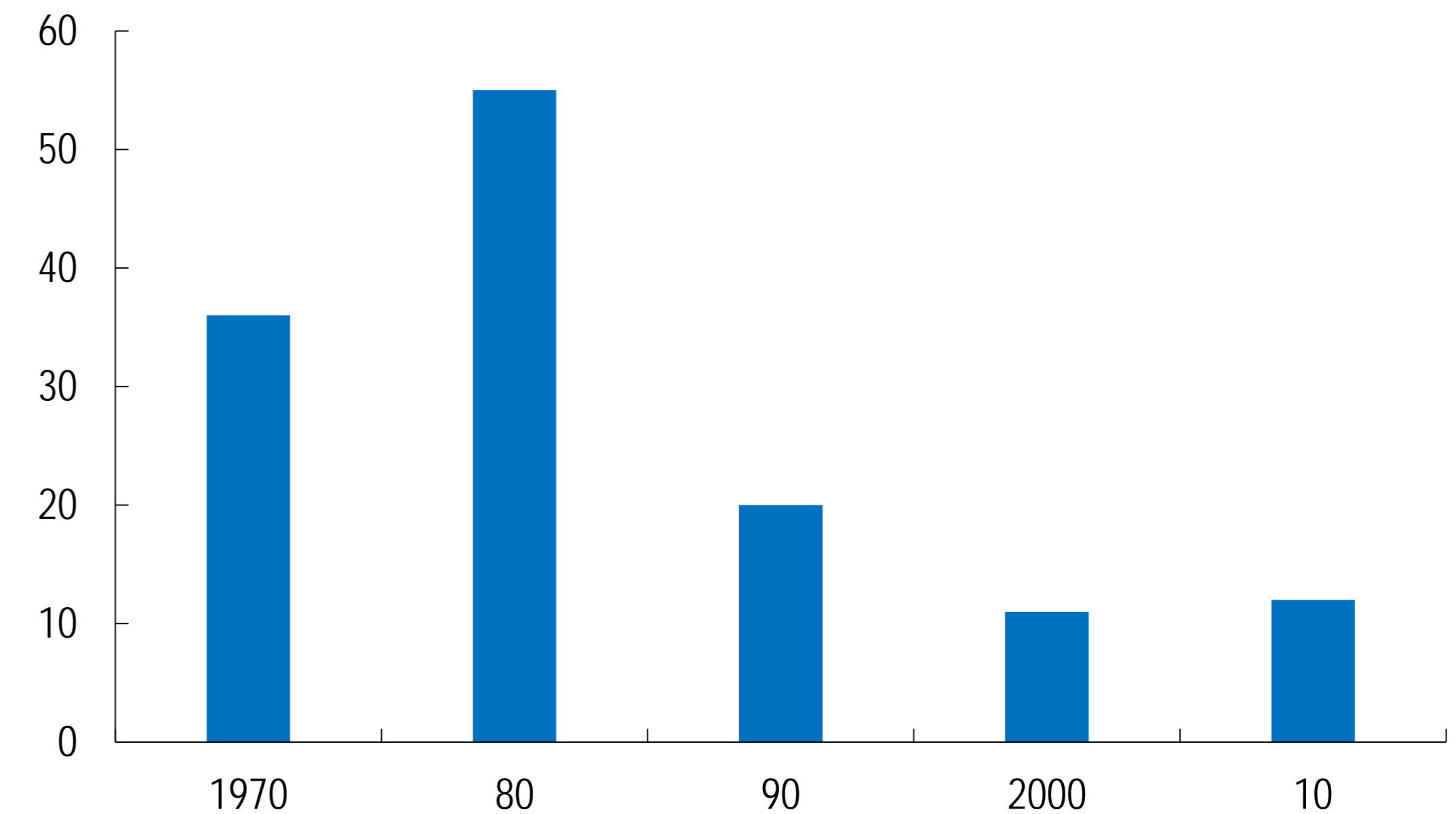
Accelerations

- Trend growth in 5-year period at least ≥ 3.5 percent
- Increase in trend growth with respect to previous 5-year period ≥ 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

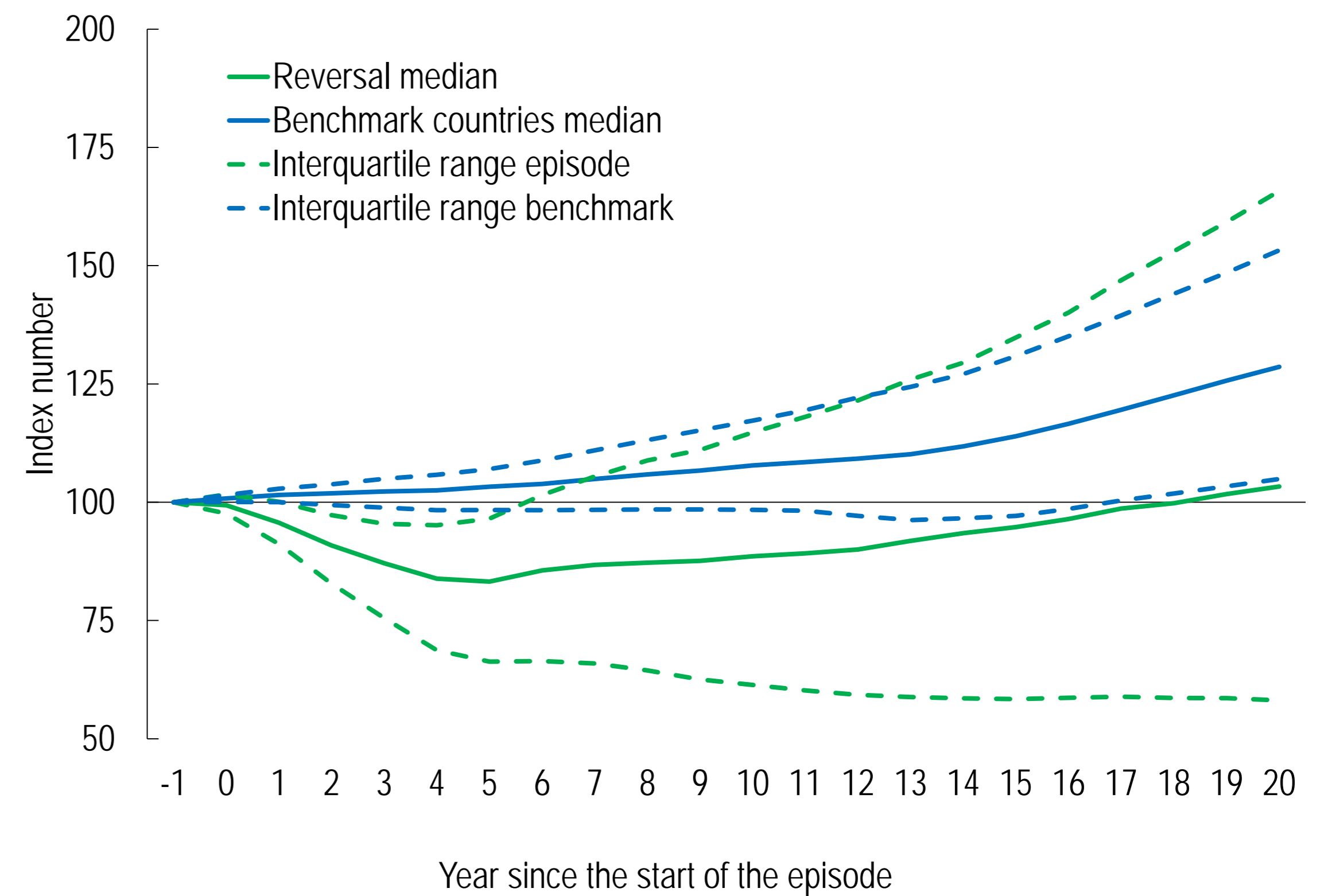
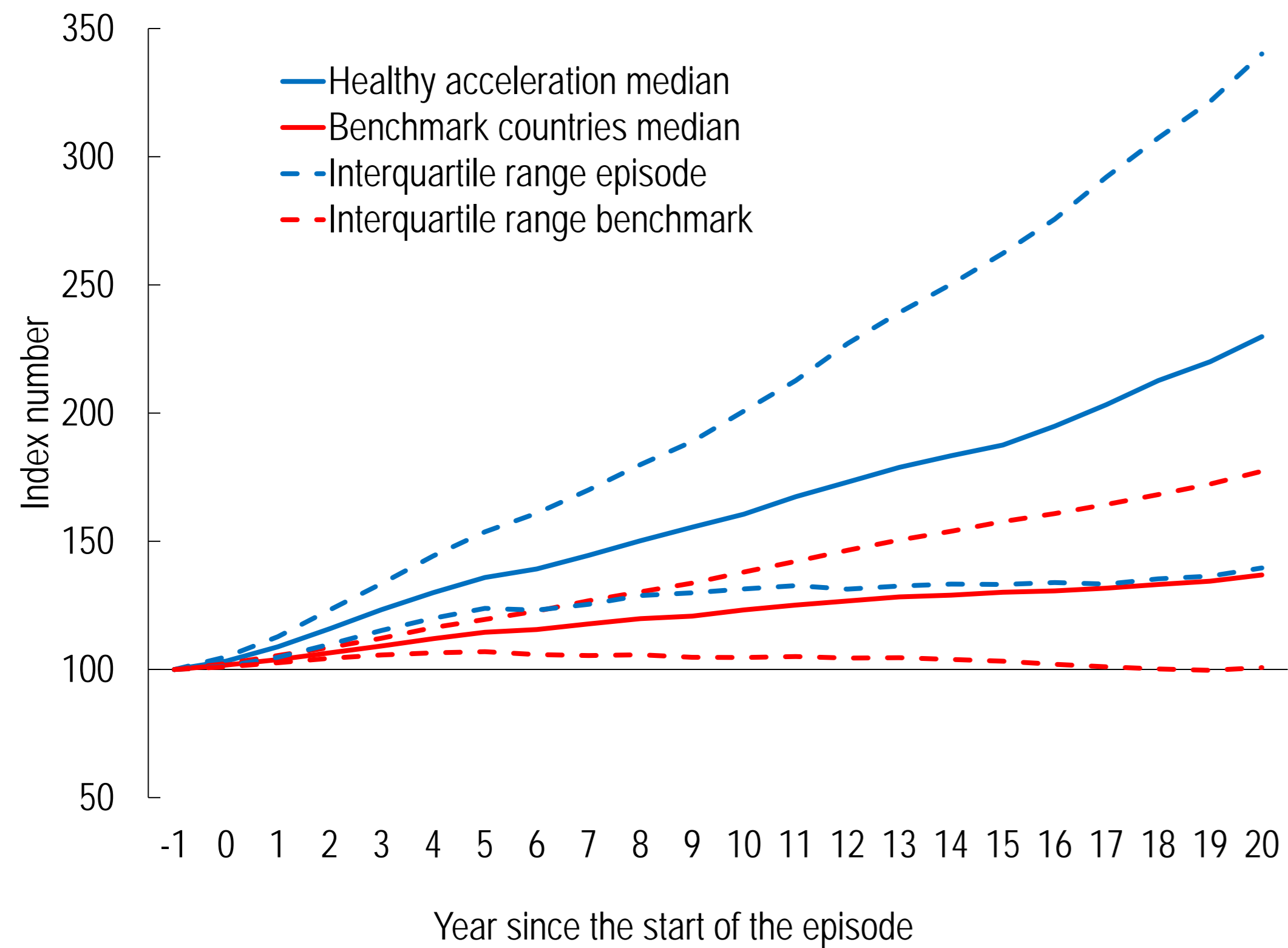
- Decrease in trend growth with respect to previous 5-year period ≥ 2 percentage points
- Average GDP per capita during episode lower than average during previous 5-year period



Source: IMF staff calculations.

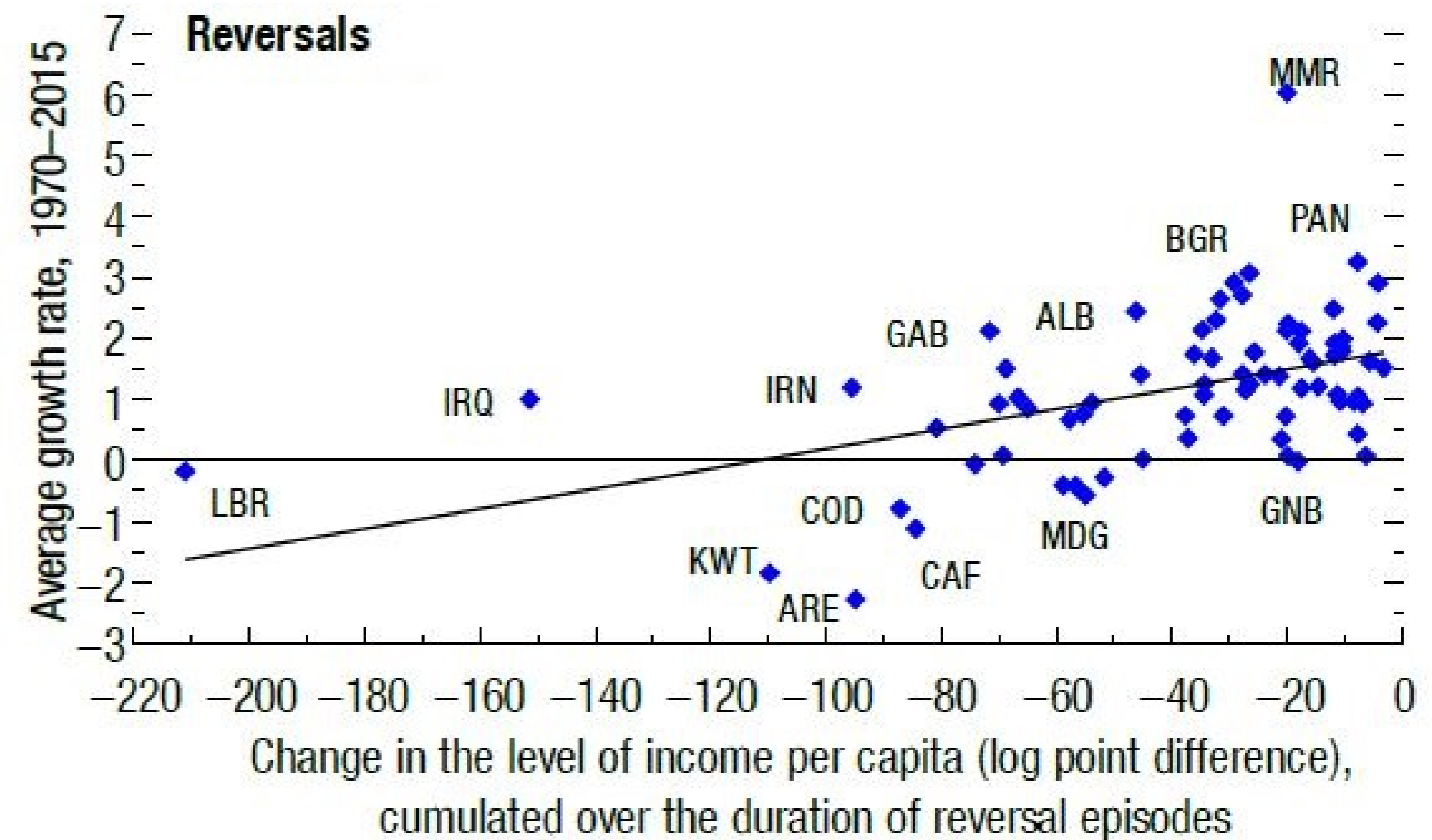
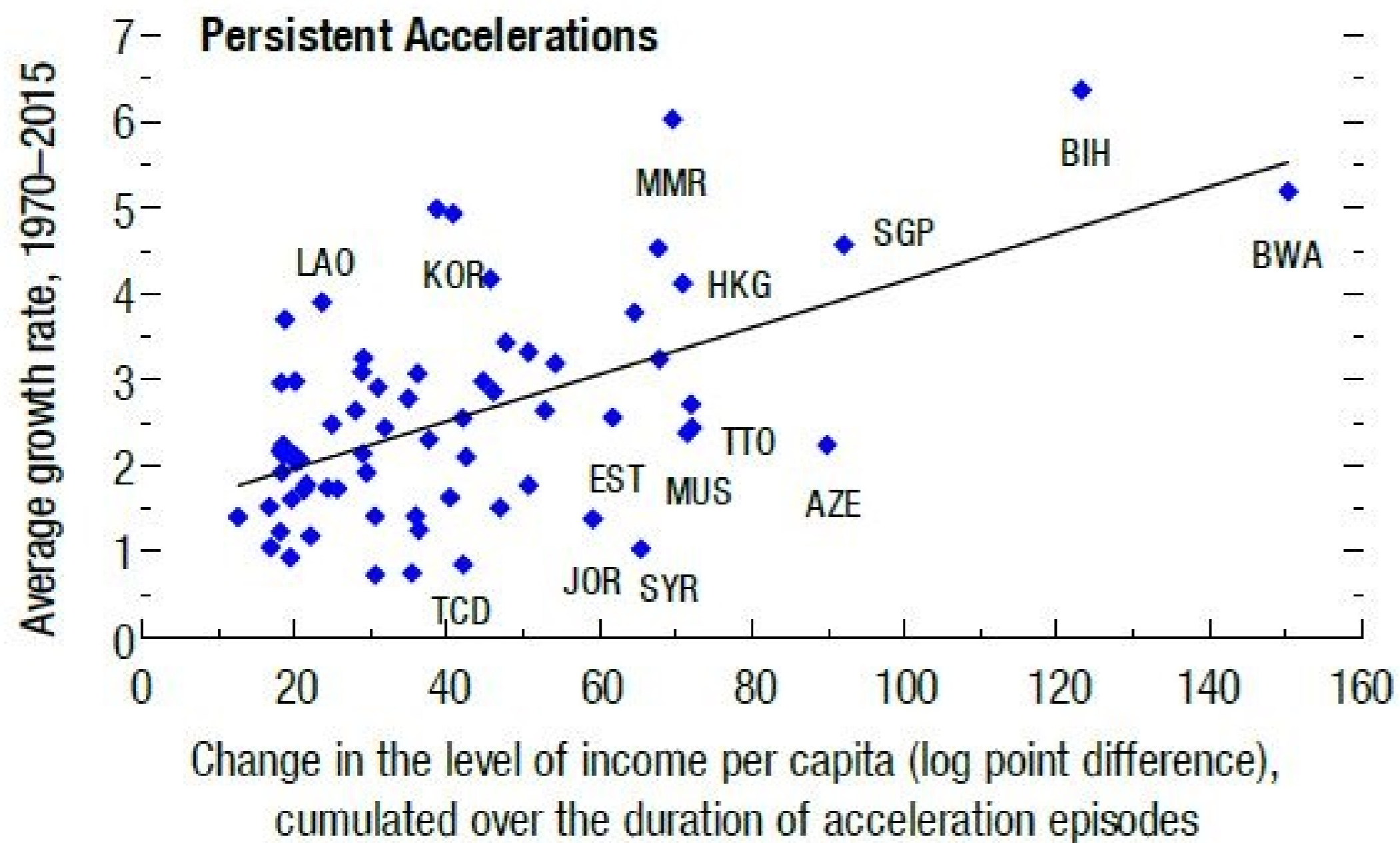
Persistent acceleration and reversal episodes have persistent income effects

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



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)



**Linear Growth
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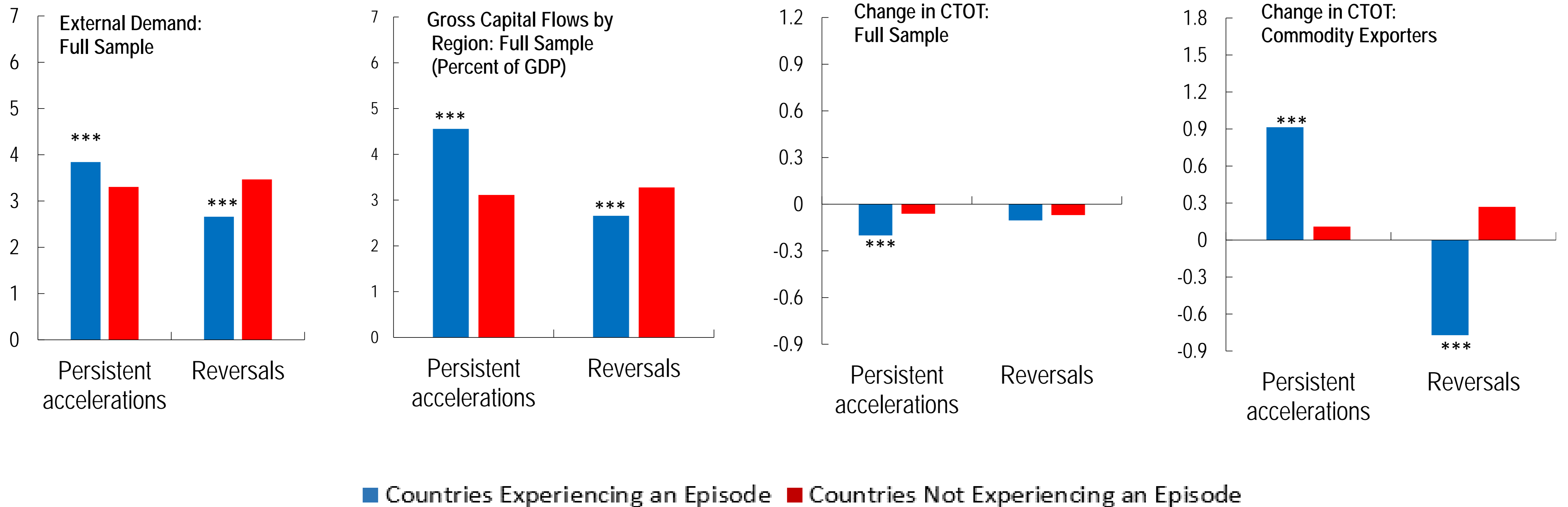
Episode Analysis

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External conditions and growth episodes

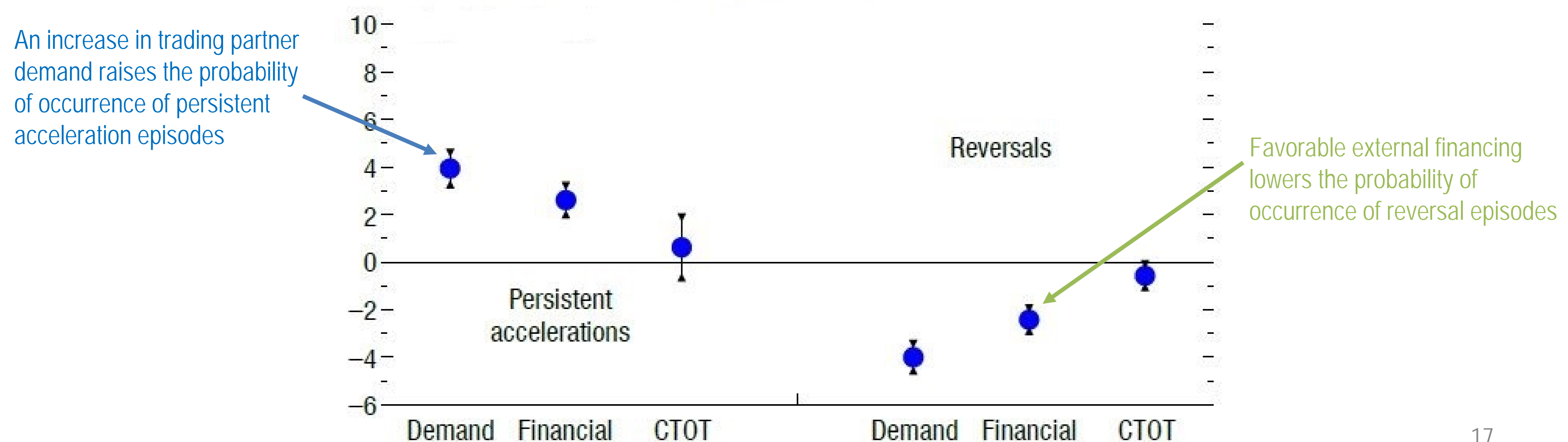
Comparing medians of external conditions across episodes vs. non-episodes suggests that they may play a role in the occurrence of growth episodes



Impact of external conditions on the probability of growth episodes

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

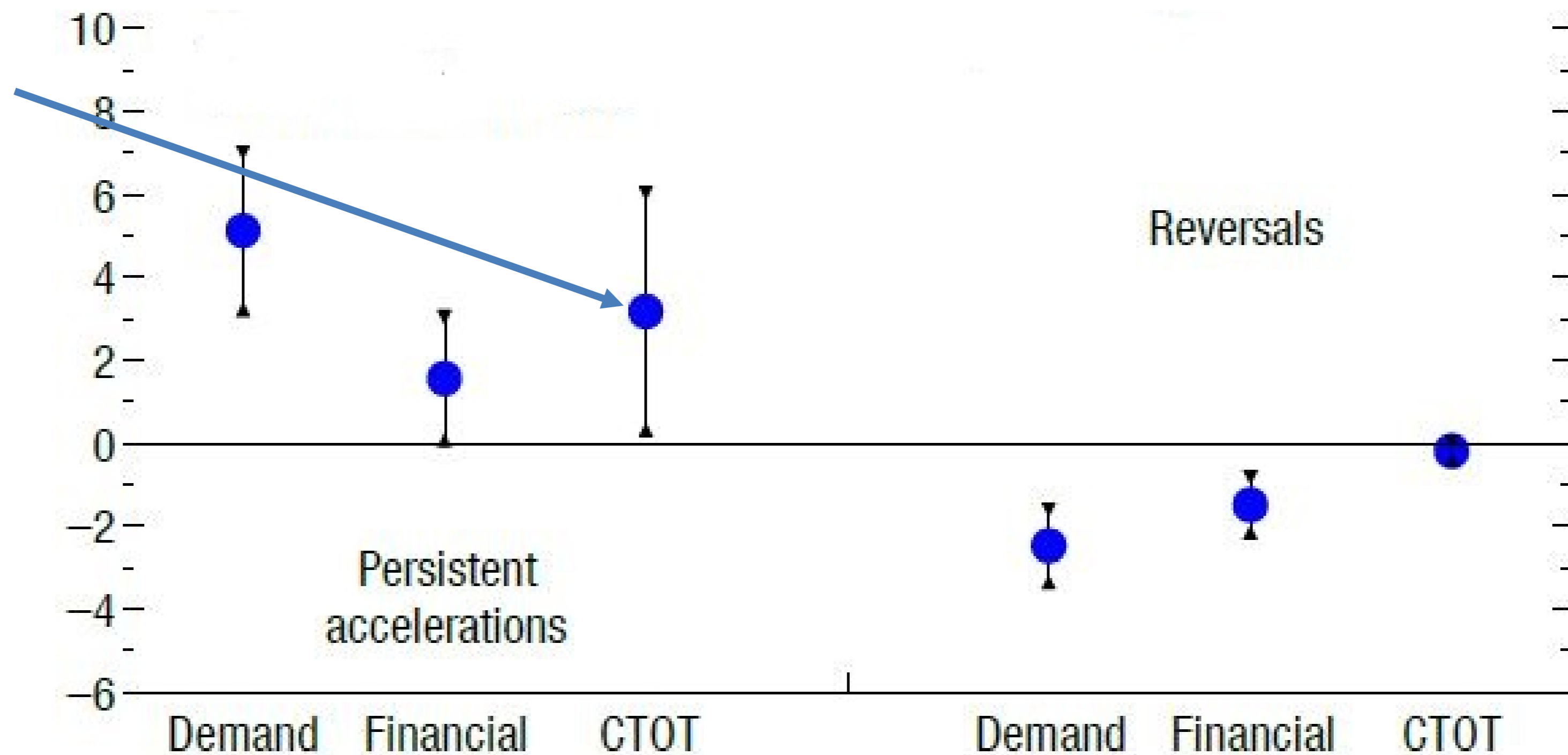
Change in the Probability of Occurrence of Growth Episodes, 1970-15
(Percentage points)



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
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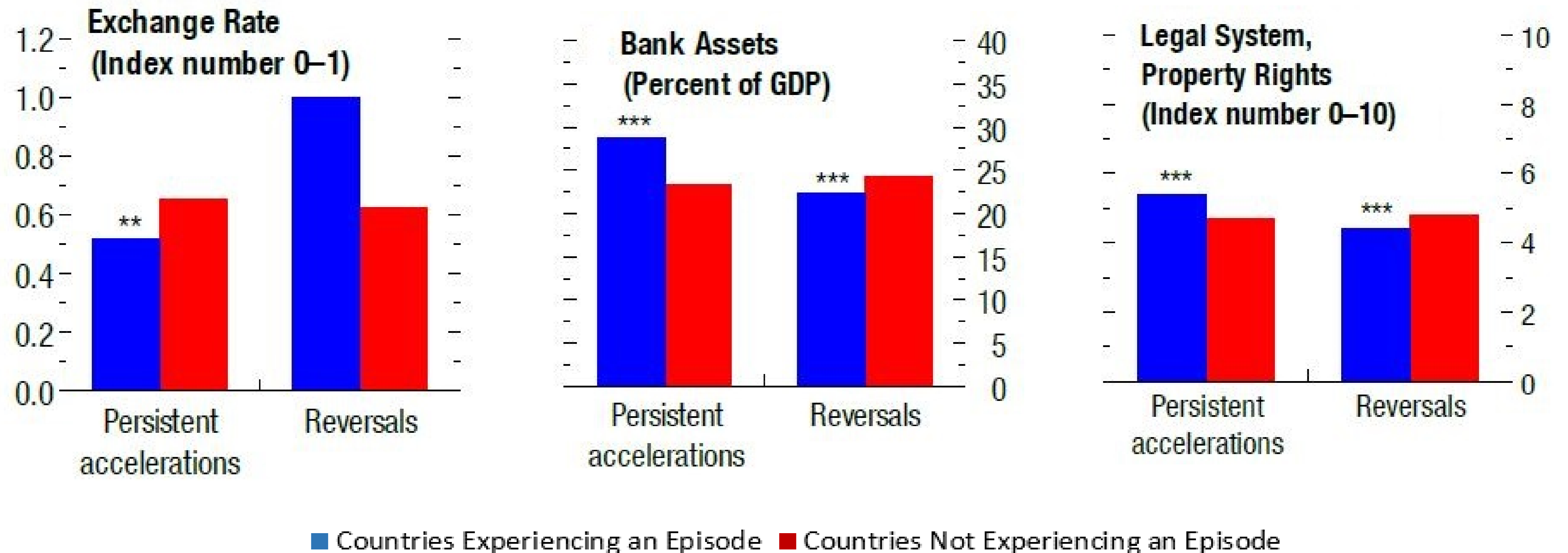
Episode Analysis

**Role of external
conditions**

**Domestic policies
interacted with
external conditions**

Domestic attributes and growth episodes

Domestic attributes are significantly different between economies that experience a persistent acceleration or reversal and economies that do not



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?

<p>Domestic attributes that can improve ability to benefit from favorable external conditions</p> <ul style="list-style-type: none"> Trade integration Capital account openness Domestic financial development Avoiding credit booms 	<p>Initial conditions</p> <ul style="list-style-type: none"> External debt Current account balance
<p>Characteristics of macroeconomic policy frameworks</p> <ul style="list-style-type: none"> Exchange rate regime Sound fiscal framework 	<p>Structural factors and institutions</p> <ul style="list-style-type: none"> Quality of legal and regulatory environment

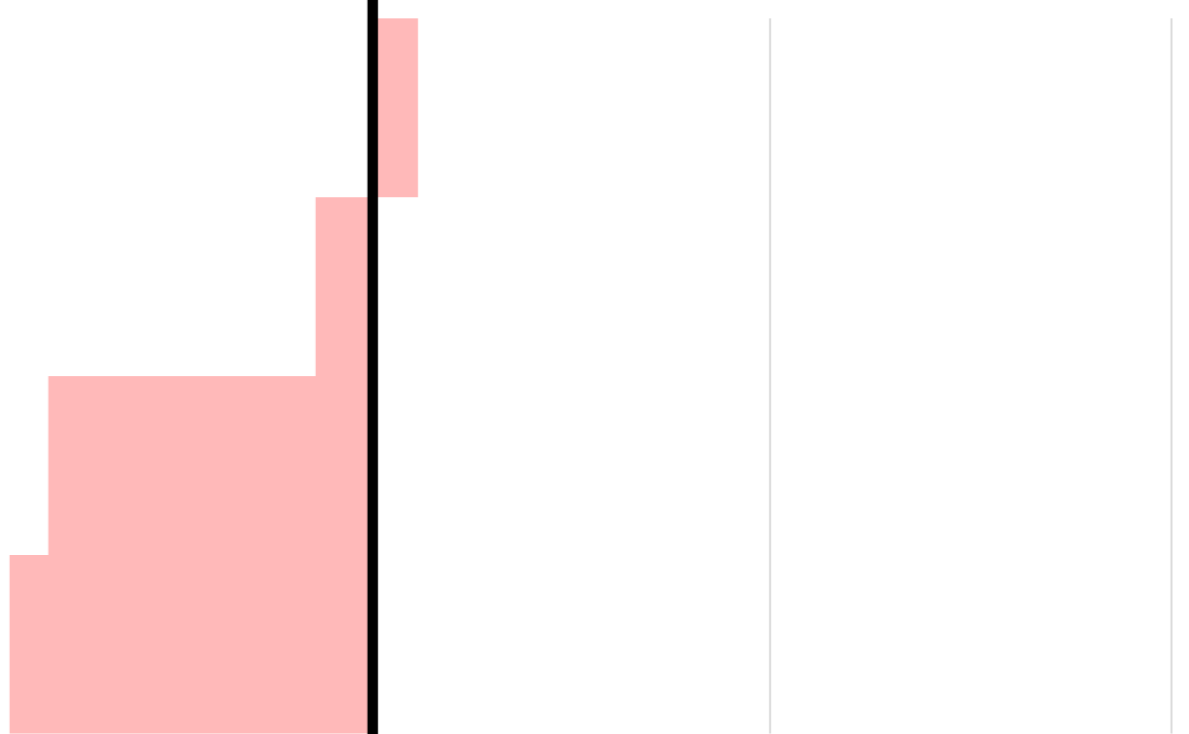
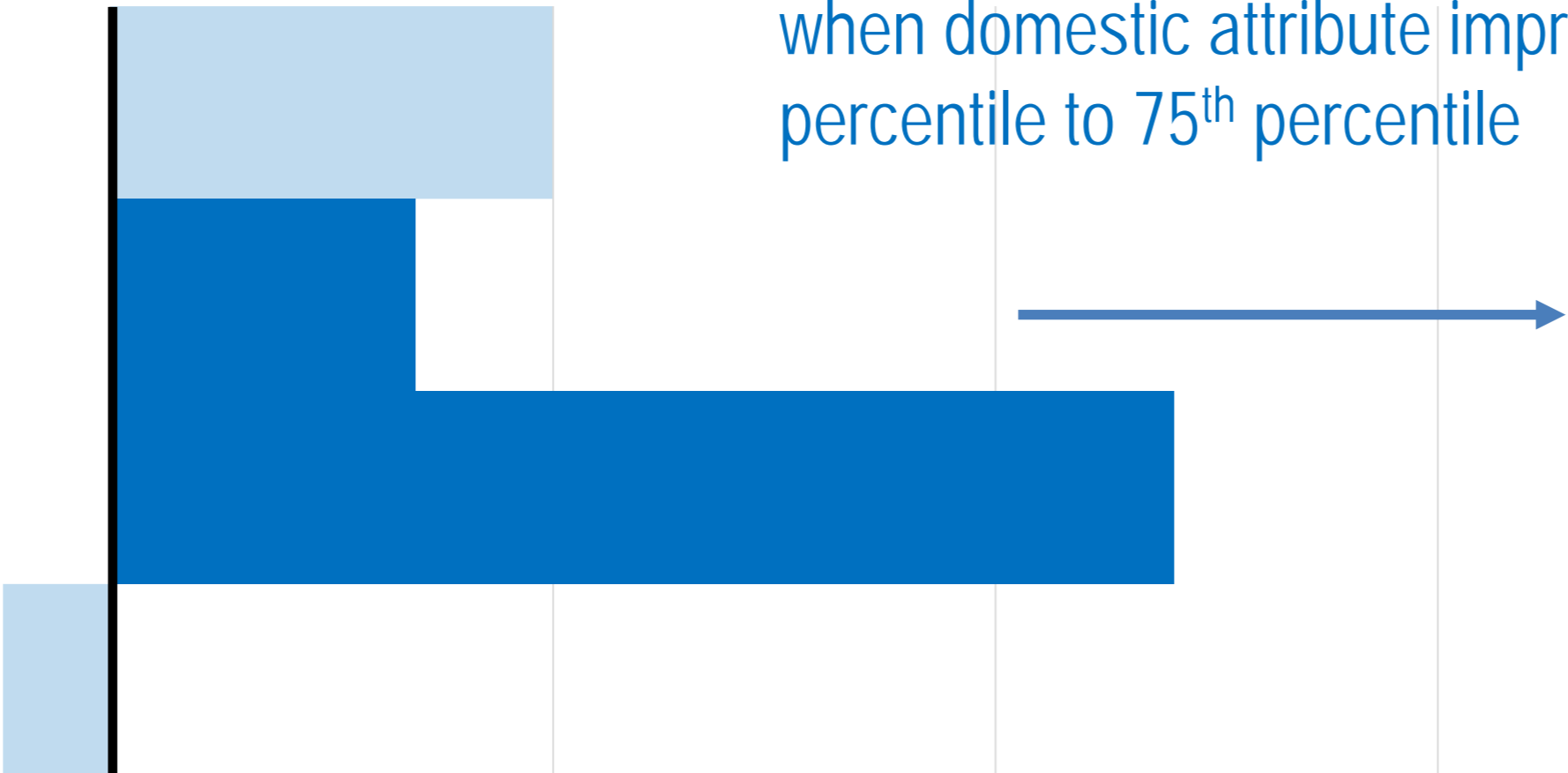
Change in the marginal effect of external condition when domestic attribute improves

Persistent Accelerations

Reversals

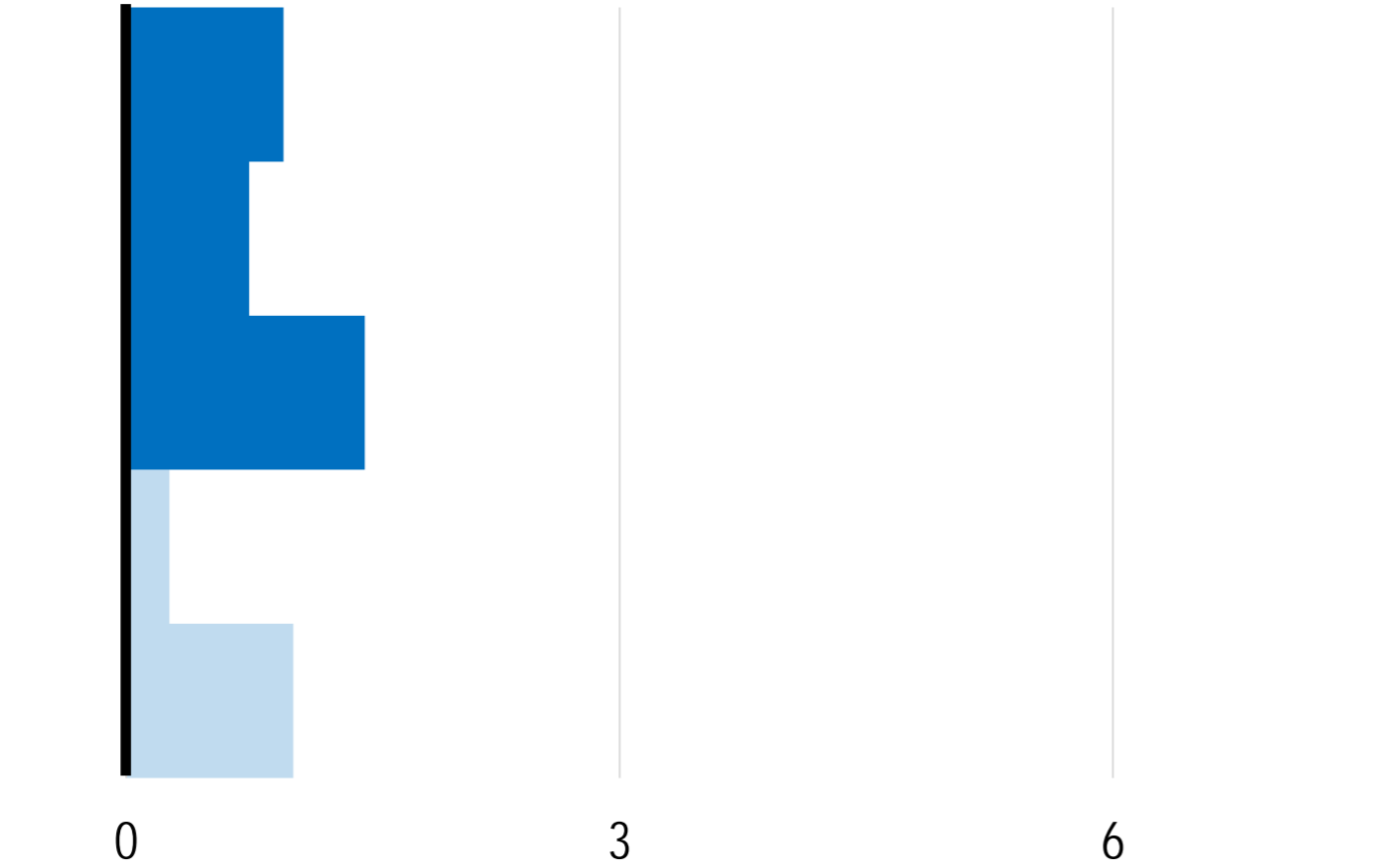
1. Openness and Depth

Trade	Demand
Bank assets agreements	Financial
Sound credit growth	Financial
Capital account openness	Financial

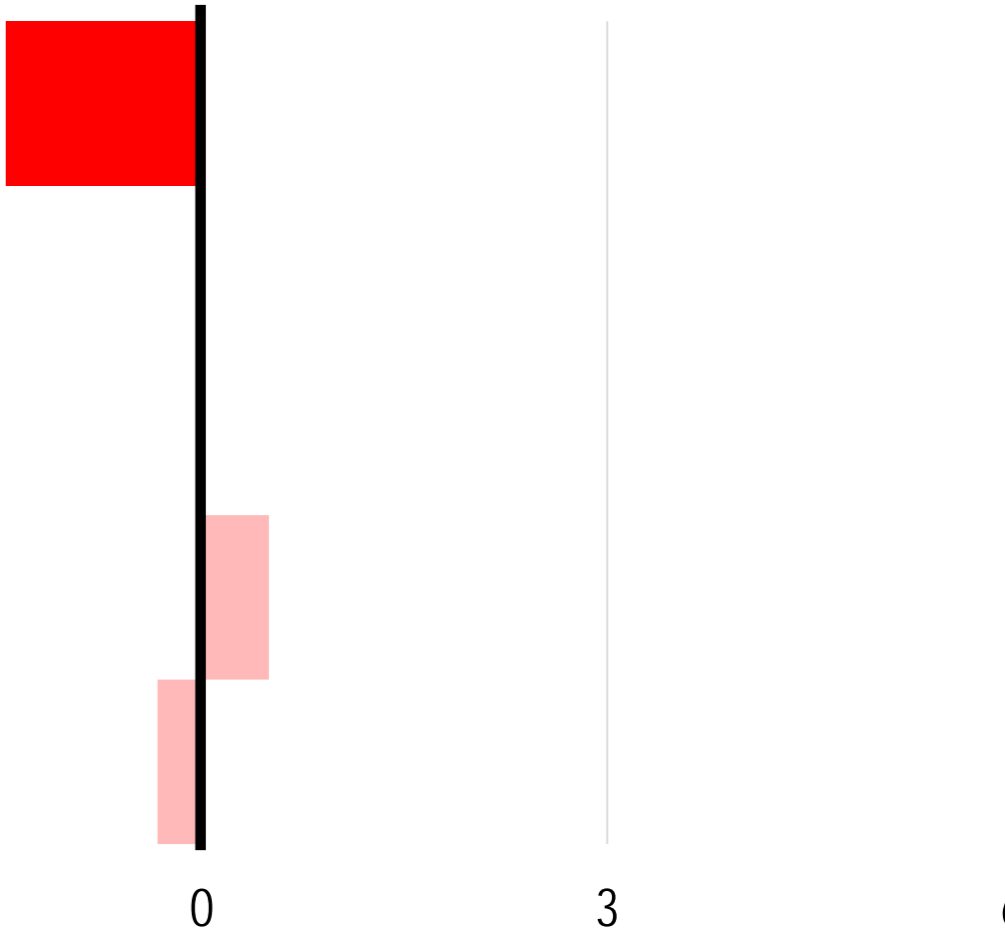


2. Initial Conditions

Current	Demand
Current	Financial
External debt	Demand
External debt	Financial
External debt	TOT



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



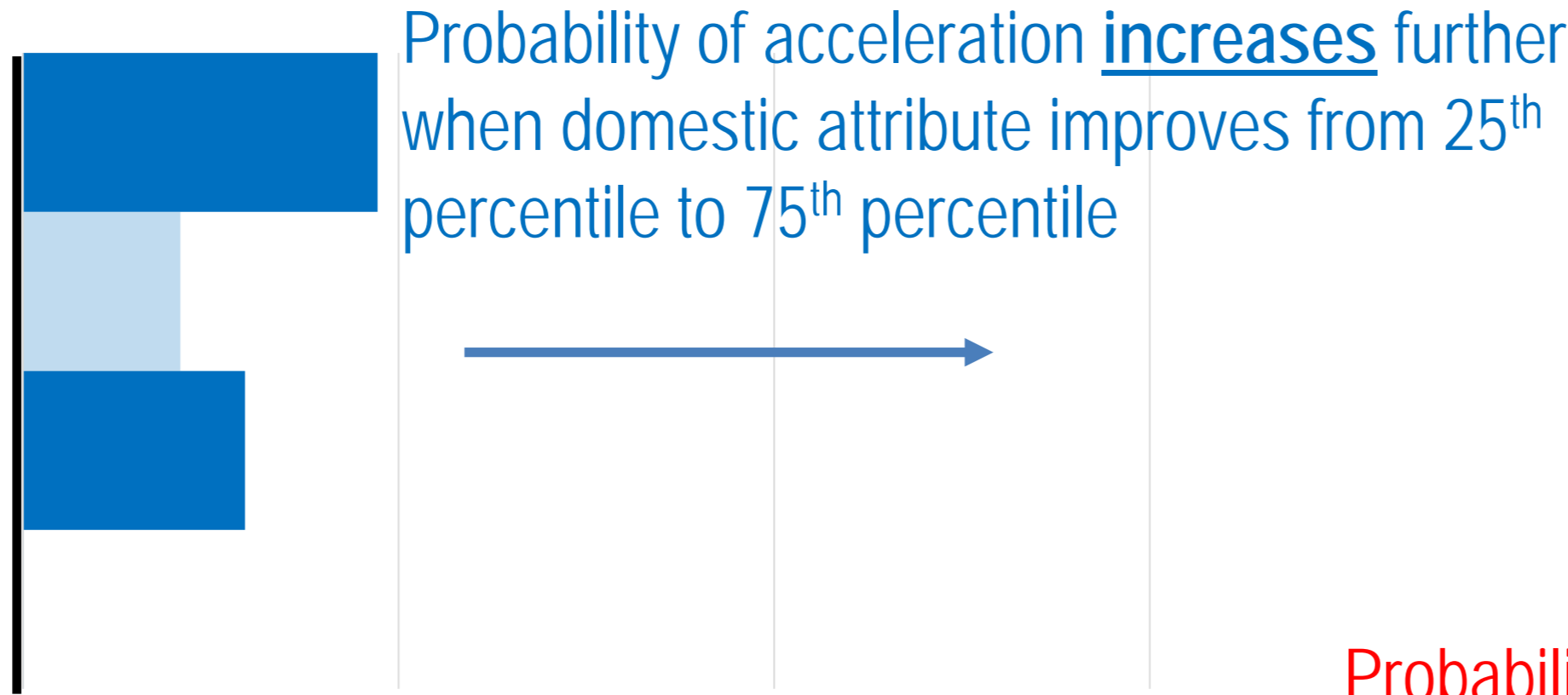
Source: IMF staff calculations.

Change in the marginal effect of external condition when domestic attribute improves

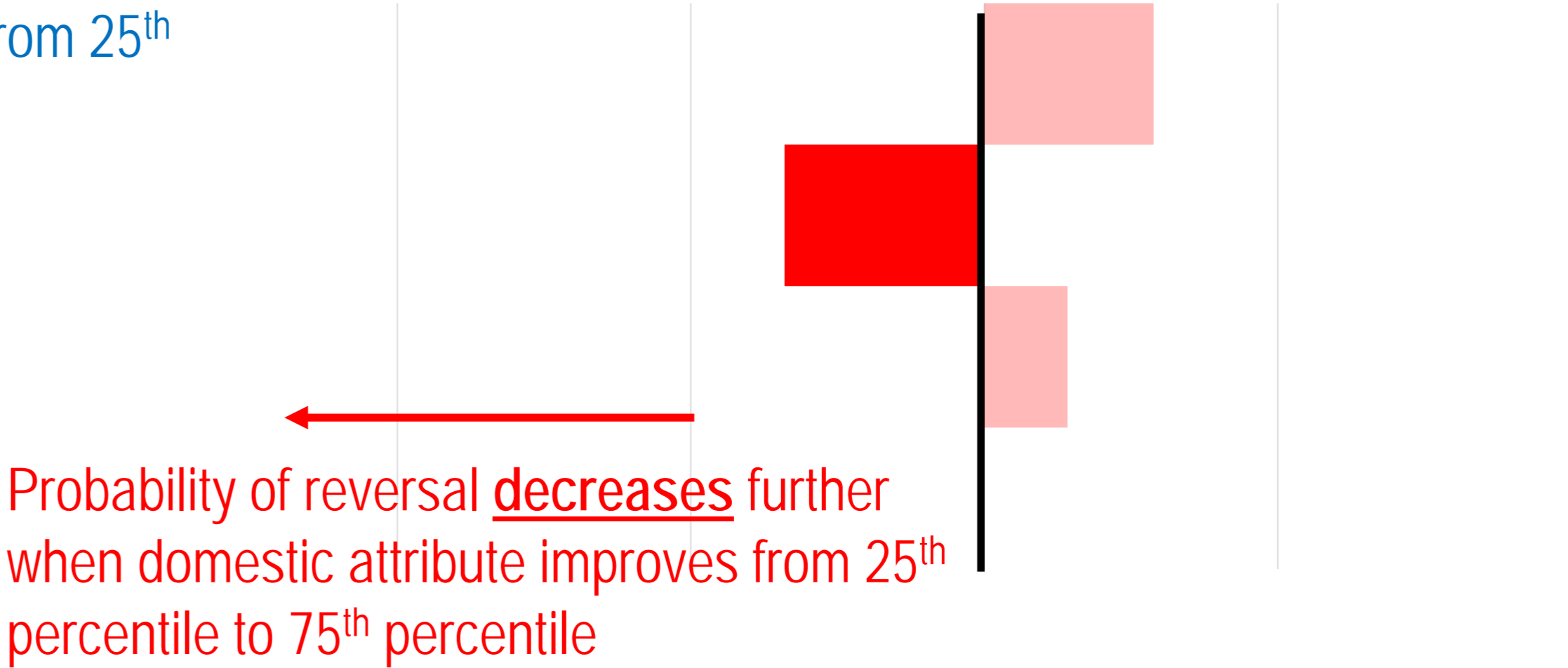
3. Policy Frameworks

ER flexibility	Demand
ER flexibility	Financial
Public debt	Demand
Public debt	TOT

Persistent Accelerations

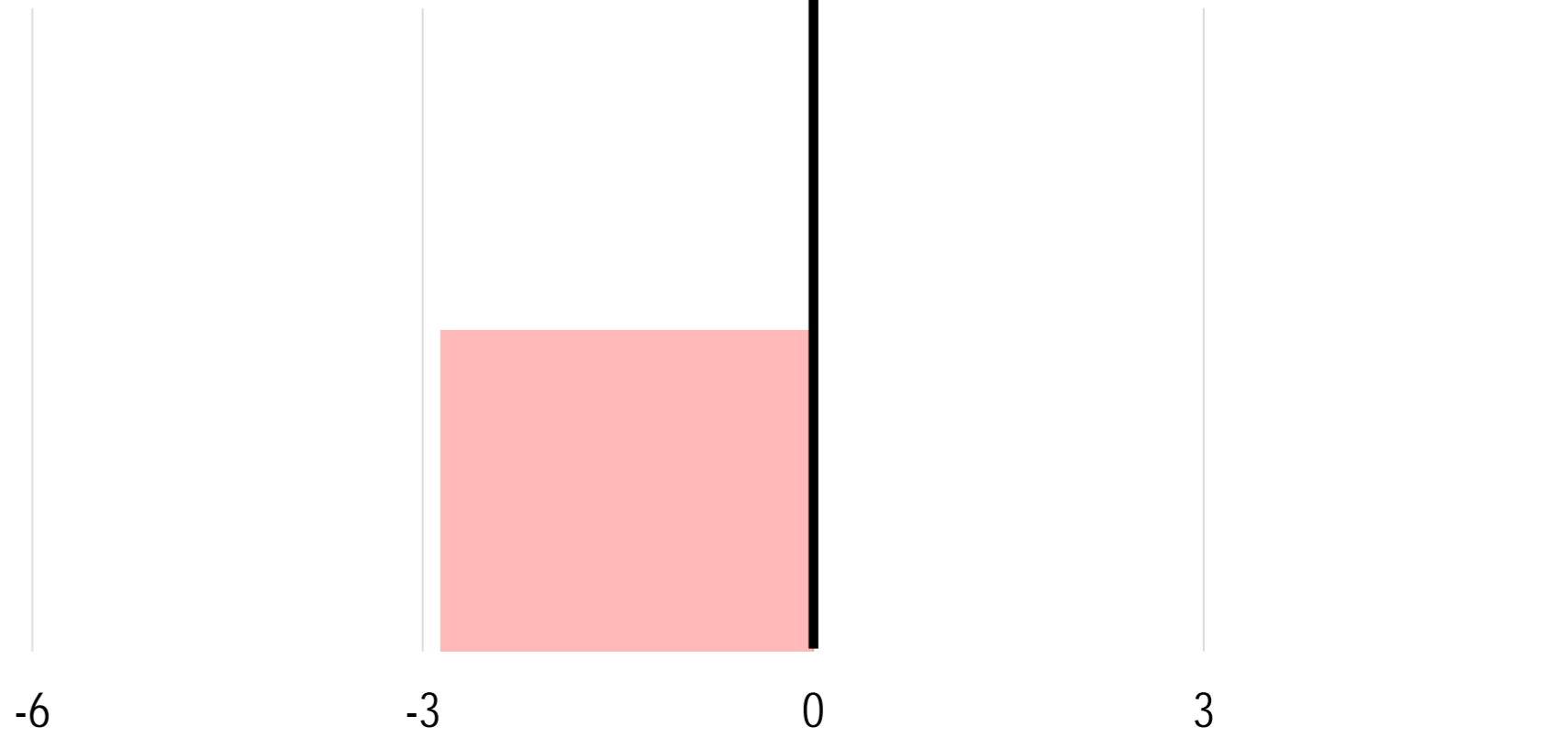
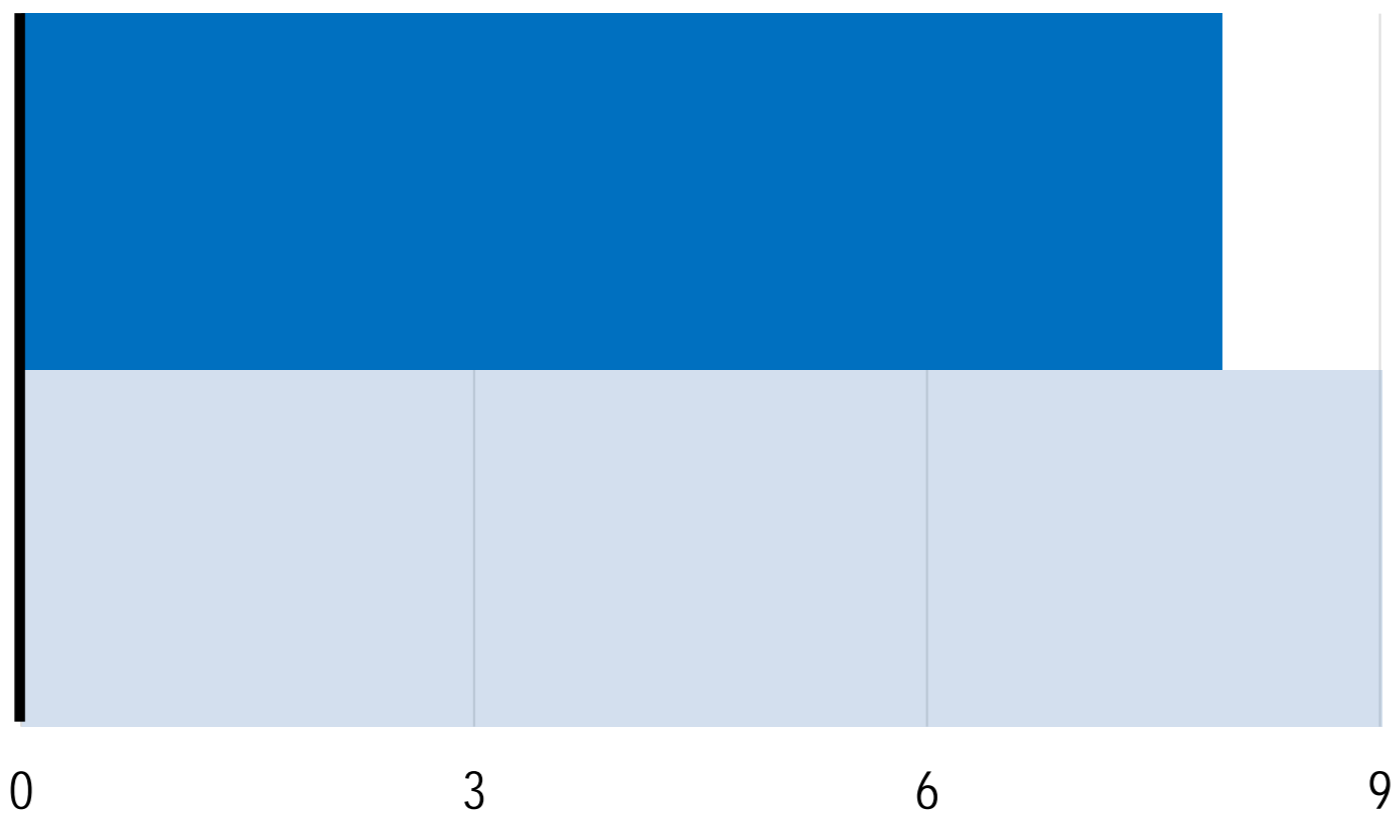


Reversals



4. Structural Characteristics

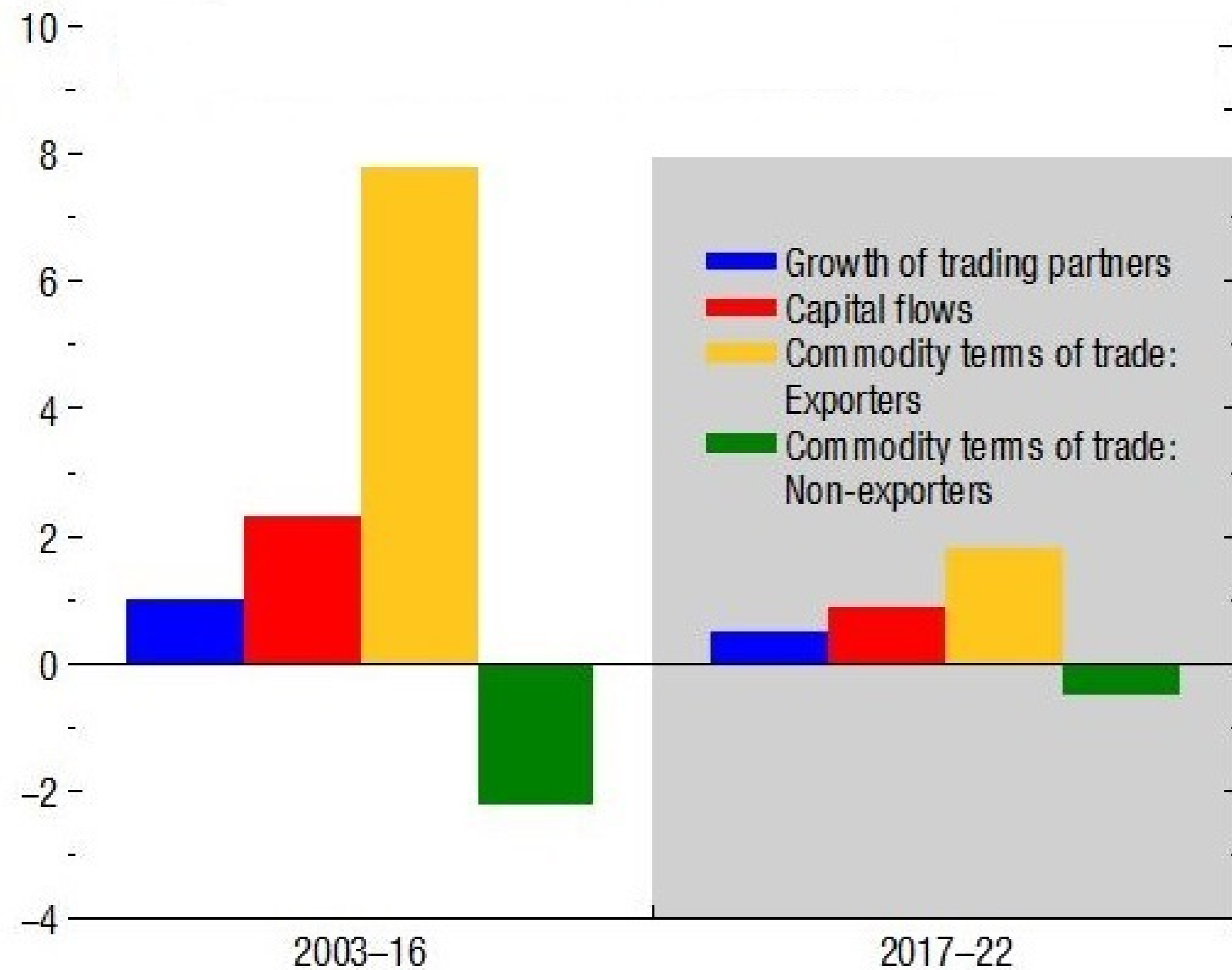
Regulation	Demand
Legal system and prop rights	Demand



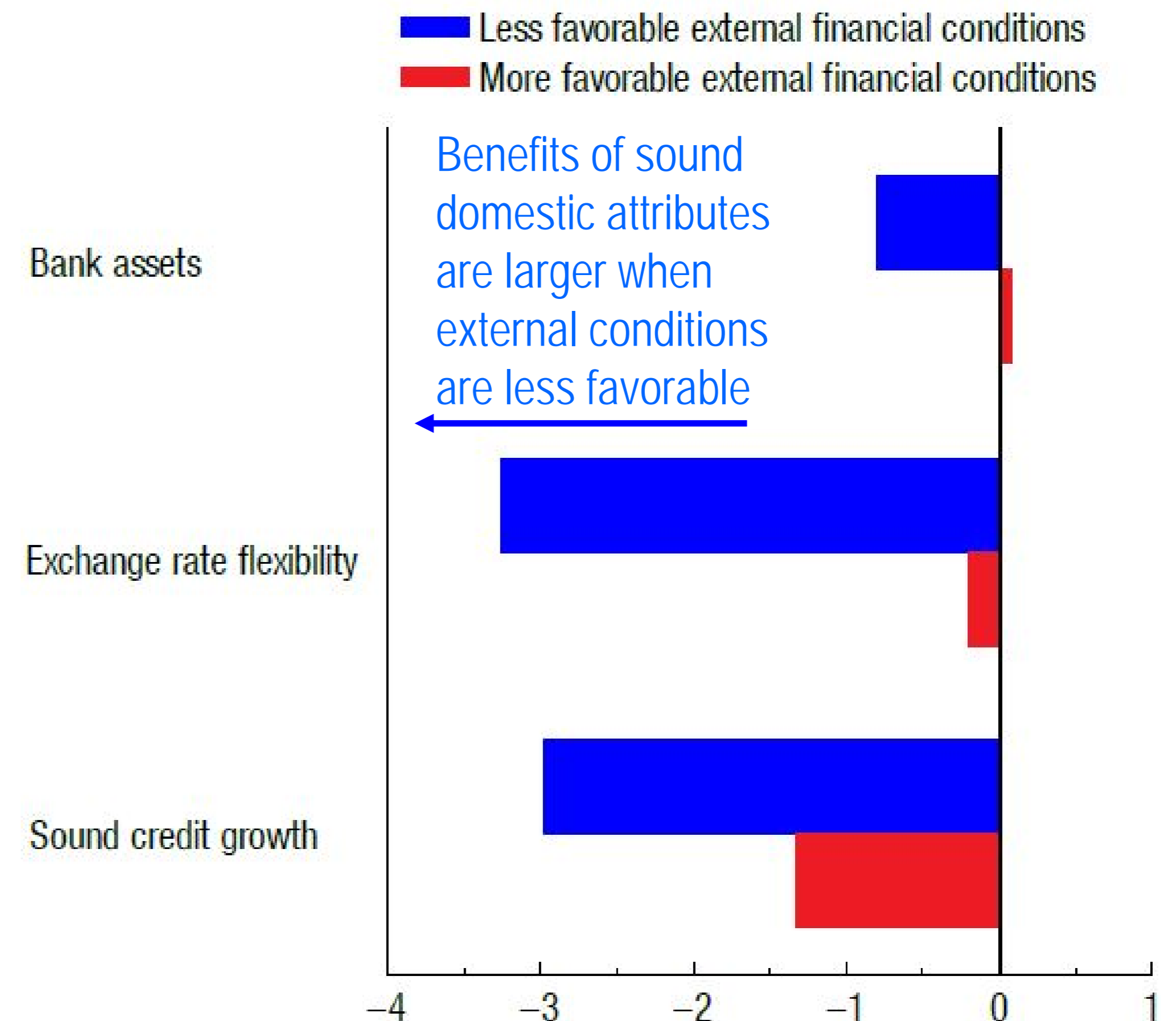
Source: IMF staff calculations.

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)



Conclusion and policy implications

- 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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