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*Research Summaries*

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Rabah Arezki, Marc Quintyn, and Frederik Toscani

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Padamja Khandelwal and Agustín S. Roitman

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## Structural Reforms and IMF Programs and Capacity Building: An Empirical Investigation

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IMF programs usually provide both financial assistance and a set of policy prescriptions which are deemed to help restore economic health. Given the high-profile nature of many of those programs, a large literature studies the effects of IMF programs on economic outcomes such as growth and inflation. However, given the large number of factors, other than IMF programs, that influence these economic outcomes it has proven difficult to obtain any convincing results. Depending on the exact methodology used, results range from a significantly negative to a significantly positive impact with many studies finding no effect (for differing views and conclusions on the effect see for example Dicks-Mireaux, Mecagni, and Schadler, 2000; Przeworski and Vreeland, 2000; and Barro and Lee, 2005).

More recently, the emphasis has shifted to evaluating the impact of IMF programs on structural reforms since the conditions attached to IMF programs directly relate to such reforms. One might expect conditionality to directly trigger reform as a prerequisite for obtaining funding, and also indirectly create a consensus within national governments that reforms are needed. On the other hand, it has also been argued that IMF programs delay reforms by reducing the market pressure on governments or supporting governments generally unwilling to reform (see for example Dreher, 2007, and Beazer and Woo, 2011, for evidence supporting the latter hypothesis).

In a recent paper, we add to the above studies by taking a more complete view of IMF activities (Arezki, Lui, Quintyn, and Toscani, 2012). Besides providing liquidity through IMF programs, the IMF also supports its member countries with so-called capacity development, which comprises both training of officials and technical assistance. Training courses focus on a broad variety of topics that include all aspects of macroeconomic policy, national statistics, and finance. Courses are offered either in a regional location or at IMF headquarters in Washington, DC. Technical assistance is provided by the IMF in its areas of core expertise including in macroeconomic policy, tax policy and revenue administration, and exchange rate systems.

By combining a novel data set on capacity development and a novel data set on structural reforms we are able to test a number of hypotheses on the effect of IMF capacity development on structural reforms and specifically on how IMF capacity development and programs interact. The data on structural reforms were compiled by the Research Department of the IMF for a sample of 150 countries. The indices describe the degree of regulation of six sectors covering both real sectors (product and agriculture markets, trade, and current account) and financial ones (domestic financial markets and capital account). Each index contains different sub-indices summarizing different dimensions of the regulatory environment in each sector. Indices are normalized between 0–1, where 1 refers to "most liberalized." Ostry, Prati, and Spilimbergo (2009) provide a detailed discussion on the construction of indices and sub-indices. Note that we only focus on how IMF capacity development and IMF programs impact on the above measures of economic liberalization. The effect of economic liberalization on economic performance as measured for example by the above indices is a hotly debated topic; and we leave this topic as an open question.

To measure IMF capacity development we have constructed an exhaustive data set, covering both training and technical assistance to IMF member economies. IMF training data are available from 1981 to 2011. The data set is a compilation of tabulated information from the IMF's Institute for Capacity Development's (ICD) Participant and Applicant Tracking System (PATS), which tracks civil servants who participate in IMF ICD (formerly IMF Institute) training courses. PATS provides data on the country of residence, agency, age, gender, position, and detailed educational background of applicants (for a detailed discussion of this data set see Arezki and others, 2012). In our regression analysis, we use information on the number of officials trained from any given country to capture the impact of training and at the same time we use information on the number of applicants from any given country to control for a government's willingness to build capacity. The IMF technical assistance data is available for a shorter time series only, namely the 1990–2012 period. We measure technical assistance as the number of IMF staff who work on a technical assistance project in a given country for a specific year.

*"Besides providing liquidity through IMF programs, the IMF also supports its member countries with so-called capacity development, which comprises both training of officials and technical assistance."*

Figure 1 illustrates the evolution of training and technical assistance by region. It shows that the number of officials



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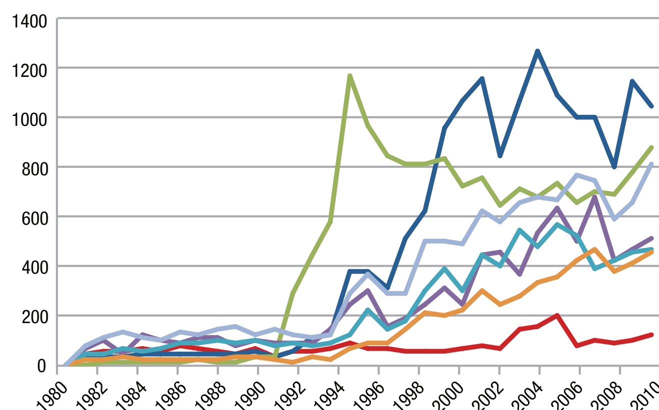
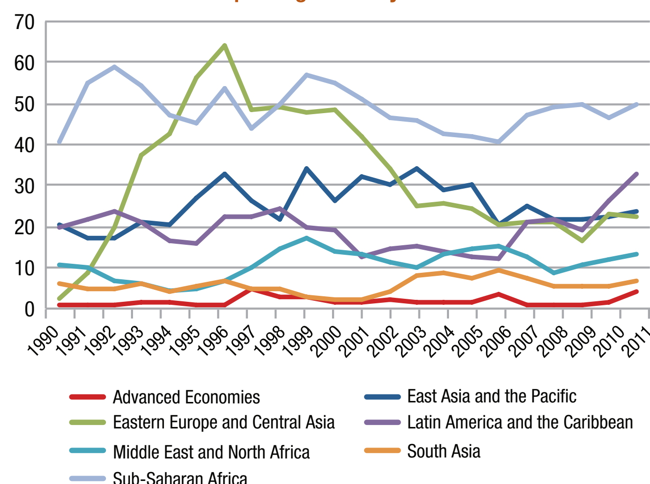
Figure 1: Number of officials trained per region and year




Number of person-year of Technical Assistance per region and year




Source: Authors' compilations.

trained is rather flat in the 1980s, but started to increase sharply during the 1990s for Central Asia and Eastern Europe. The number of officials trained also started to increase steadily for the East Asia and Pacific and Sub-Saharan Africa regions in the mid 1990s. The amount of IMF technical assistance has been rather stable for all regions except for Central Asia and Eastern Europe. Sub-Saharan Africa followed by Central Asia and Eastern Europe and East Asia have received the highest amount of IMF technical assistance.

The two key questions we are able to address with the above data are: First, does capacity building make it more likely that programs are successfully completed? And secondly, does capacity development further structural reforms? Using a fixed-effect panel regression we find that IMF training, measured as the fraction of public sector officials trained from a given country, leads to an increase in structural reforms but only through IMF programs and only when a significant share of public servants is trained.

Specifically, we find that domestic finance reforms, trade liberalization, and capital account liberalization are furthered when a substantial share of public sector workers had been trained prior to the occurrence of an IMF program. On the other hand, IMF technical assistance does not significantly lead to more structural reforms but raises the likelihood of completion of ongoing IMF programs. These results suggest that ongoing IMF capacity building activities increase the likelihood that a subsequent IMF program provides a window of opportunity for reforms in which IMF program conditionality and governments' reform ownership reinforce each other.

These results are in line with some of the theoretical hypotheses one can put forward. IMF training might foster reforms through three main channels. First, training courses raise awareness of the newest developments in the academic and policy discussion, as well as of the best practices internationally. Second, IMF training also helps officials gain familiarity with the design of the so-called IMF macroeconomic framework that embodies the latest economic projections prepared by IMF staff for the purpose of Article IV consultations. Third, IMF training courses, if delivered to a large enough group of officials in a given country, might create a consensus that reforms are needed, especially in the context of an IMF program, which encourages reforms.

Conceptually, IMF technical assistance may less directly affect the decision to conduct an overhaul of existing policies or to adopt a reform program. Nonetheless, IMF technical assistance should be seen as a supporting tool for ongoing reforms, especially in the context of ongoing IMF programs. Technical assistance, because of its rather narrow focus may only improve on the implementation of reforms when the will to reform already exists. In this respect, technical assistance may further reforms through a successful implementation of an IMF program. Indeed, technical assistance in the past has been closely associated with IMF program conditionality.

Given our empirical results and the theoretical discussion it might be worth considering increasing future training in possible program countries to yield the most impact. Also, training en masse seems to yield the most impact perhaps because training a critical mass of officials may help foster a collective culture of reforms. The issue of policy ownership is central to the debate on how to raise the effectiveness of IMF programs (see Drazen, 2002 and Boughton and Mourmou-

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## Structural Reforms and IMF Programs and Capacity Building: An Empirical Investigation

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ras, 2002). IMF programs are often subject to the perception that they lack government policy ownership. Thus they may not have the expected long-lasting impact. We argue that capacity building and training in particular may help alleviate such policy ownership "deficits." In other words, IMF training provides a key tool to reconcile conditionality associated with IMF programs with higher policy ownership. By raising awareness of relevant economic policies and sharing state of the art knowledge, capacity building can help facilitate reforms especially when a window of opportunity opens through, for instance, an IMF program.

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## The Economics of Political Transitions: Implications for the Arab Spring

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Two years after the onset of the Arab Spring, political tensions remain high and social unrest has continued among the Arab countries in transition. Egypt is facing serious economic challenges and erosion in investor confidence as social and political tensions remain high despite the democratic election of a president and ratification of a new constitution. Tunisia, where the democratic transition is relatively advanced, continues experiencing social disruptions, which in turn affect economic activity. Similarly, political transitions have advanced in Jordan, Morocco, and Yemen to varying degrees. Overall, these political transitions have been accompanied by a downturn in economic activity, raising questions over the pace and strength of economic recovery.

To draw inferences for the near-term outlook within Arab countries in transition, Khandelwal and Roitman (2013) have examined past episodes of intense political instability similar to what has occurred in these Arab nations. This approach contrasts with studies that have examined transitions towards democracy, including European transition economies and countries that have experienced little social unrest (Freund and Jaud, 2013; Credit Suisse, 2011).

Various studies in the literature document a bi-directional relationship between economic growth and political instability. For instance, Alesina and others (1996) find that countries and time periods with a high propensity of government collapse are associated with significantly lower growth. Alesina and Perotti (1993) find that socio-political instability has an adverse impact on investment. Credit Suisse (2011) finds that regime change can often be derailed and countries often face multiple waves of unrest. In general, the literature covers a large and heterogeneous set of episodes of political instability, while examining a relatively small set of macroeconomic variables.

By examining a larger set of macroeconomic variables, the authors provide a more comprehensive picture of the near-term outlook. A key finding is that, in past episodes similar to the experiences of the Arab countries in transition, political instability coincided with a large decline in output and real GDP growth rates. Declines in output ranged between 1 and 7 percent in the event year (Figure 1, shaded portion reflects range between

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first and third quartile), and actual growth rates dipped below trend during the year of the event and in subsequent years. The decline in output was driven by a large fall in investment, while consumption remained broadly resilient. It is noteworthy that the recovery was sluggish—output remained below potential for four years after the initial drop, taking around five years for the recovery. Unemployment rates rose during the episode of political instability by about 1 to 1½ percentage points on average, during the first two years and took between four to five years to return to pre-crisis levels.

Economic activity in the Arab transition countries is unfolding along similar lines: countries with greater political instability (Egypt, Tunisia, and Yemen) experienced significant declines in real GDP in 2011, while Jordan and Morocco only saw growth rates dip below long-term trend (PPP-weighted averages for the transitional Arab countries are represented by the dark line in Figure 1). Consumption has remained relatively resilient, while investment has fallen sharply. Unemployment rates have increased from already high levels.

As a consequence of falling revenues and higher expenditures, past episodes of political instability were characterized by a deterioration in the overall fiscal balance of about 1 percent of GDP during the event year, and a cumulative 1¾ percent of GDP in the subsequent two years. Revenues recovered slowly, so that fiscal deficits returned to pre-crisis levels only in year T+4 (Figure 2). The deterioration in fiscal balances and the decline in GDP had an adverse impact on government debt (in percent of GDP).

It is clear from Figure 2 that the Arab countries in transition entered a state of political instability with much higher fiscal deficits than previous political transitions, and have seen a larger deterioration in their fiscal positions during 2011–12. Their overall fiscal deficit increased in 2012 (relative to 2010) by about 2½ percent of GDP owing to a decline in revenues, as well as an increase in public expenditures, especially on untargeted food and energy subsidies. Government debt also rose. Going forward, while the countercyclical fiscal stance has helped mitigate the economic downturn, the lack of fiscal space will require a large fiscal consolidation to restore debt sustainability that will weigh on the recovery. Mobilization of external financing can help smooth the adjustment.

Although most countries in our sample had large current account deficits before the occurrence of political instability, not all of them saw an improvement in the subsequent five years. More generally, investor confidence suffered as a result of the political instability, and inward FDI fell (Figure 3). Official ex-

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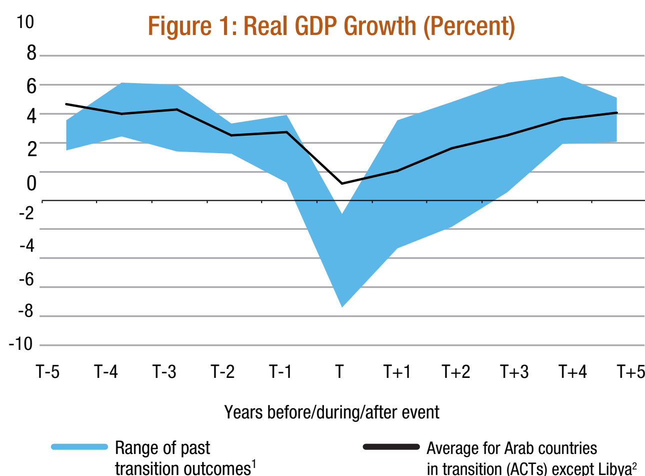
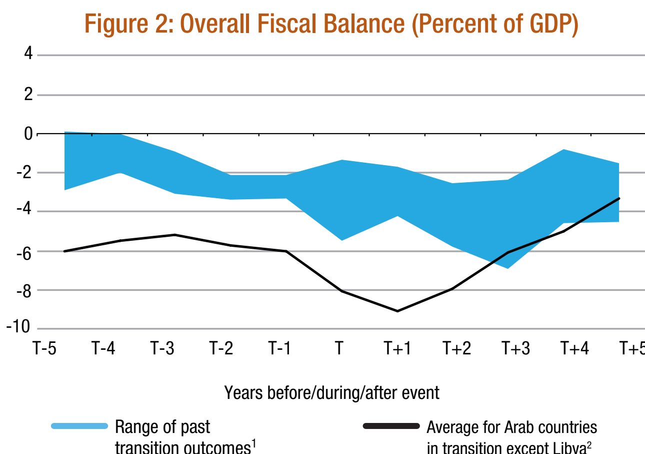



Sources: National authorities; and IMF staff estimates
¹Spread between 1st and 3rd quartile.
²For the ACTs, year T is 2011. Data beyond 2012 are IMF staff projections.

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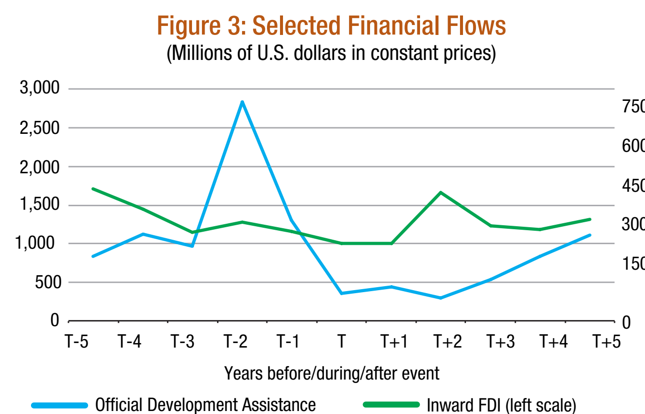


Sources: National authorities; and IMF staff estimates



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# Seven Questions on the Neutral Interest Rate in Latin America and Beyond

Nicolas E. Magud and Evridiki Tsounta

*Deciding whether to cut, raise, or keep on hold the policy rate is an important issue in the minds of central bankers and market participants alike. The neutral interest rate is a benchmark interest rate often used to guide this policy decision. This Q&A article provides brief answers to seven questions about the neutral interest rate through the recent experience of 10 Latin American countries.*

## Question 1: What is the neutral interest rate and why is it relevant?



An increasing number of countries have been strengthening their monetary policy frameworks to contain inflation and anchor inflation expectations in recent decades. Some of them moved to inflation targeting, using a policy interest rate as the main instrument. When calibrating the monetary policy stance, policymakers need to know how the current policy interest rate compares to a benchmark or neutral rate. The concept of the *neutral* interest rate was originally suggested by Wicksell (1898), who defined the *natural* real interest rate as the long-run equilibrium rate that equates saving and investment (thus, being non-inflationary, or neutral); and which in the absence of frictions would equal the marginal product of capital. However, since policymakers are mostly interested for the short to medium term, and given frictions and other market imperfections in the economy, in applied economics we typically focus our attention on the short-run (or "operationally") *neutral* real policy interest rate. That is the real policy rate consistent with a closed output gap and stable inflation—which might differ from the long-run natural interest rate because of market frictions or other temporary conditions. In Magud and Tsounta (2012), we analyze various issues about the neutral interest rate considering the recent experience of 10 Latin American countries. For our purposes here, we refer to the neutral real policy interest rate as the neutral real interest rate (NRIR).

## Question 2: How can we calculate the neutral interest rate?

The NRIR is not an observable variable, so there is no unique way to estimate it. Moreover, it can change over time given changes in macroeconomic fundamentals and global interest rates. For these reasons, the task of estimating the NRIR has become particularly complex in the current conjecture: there have been significant structural changes in domestic capital markets in numerous countries, improved macroeconomic fundamentals in many emerging economies, as well as sharply lower global interest rates.

As there is no single best estimation method, and recognizing differences in country characteristics and data availability, recent papers usually utilize a variety of different methodologies to compute an NRIR range for a country rather than a specific point estimate. (See for example Adolfson and others (2011) for Sweden, Duarte (2010) for Brazil, Gonzalez and others (2012) for Colombia, Laubach, and Williams (2003) for the United States, Magud and Tsounta (2012) for a large group of Latin American countries, Ogunc and Batmaz (2011) for Turkey, and Pereda (2010) for Peru). These studies largely utilize static methods (such as those based on the interest parity condition or fitting a consumption-smoothing model) as well as dynamic methods (which, based on statistical filters, estimate neutral rates for systems of equations that fit a Phillips curve—with or without an investment-savings equation—or considering the term structure of the yield curve of a country).

## Question 3: How do policymakers use the neutral interest rate in their monetary policy decisions?

Central bankers are interested in the interest rate gap—i.e., the difference between the actual real policy rate (i.e., central bank's benchmark/policy rate deflated by expected inflation) and the estimated NRIR. When the real policy rate is lower than the estimated neutral real interest rate, then monetary policy is considered expansionary, and vice-versa. This helps policymakers to make decisions on whether changes on the policy rates are warranted, conditional on the cyclical state of the economy.

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### Question 4: What do recent estimates of neutral interest rates suggest for Latin America?

We employ a battery of commonly used methodologies and estimate ranges of neutral interest rates for 10 inflation targeting countries in Latin America for the period 1990–2012. Despite the differences in methodologies, each country's neutral interest rate point estimates are usually clustered within a 200 basis points band—in particular for the more developed Latin American economies. As expected, we find lower levels of the neutral interest rate in more economically and financially developed economies; Brazil is an exception, however. We also document a downward trend in the neutral interest rate for all the countries in our sample during recent years. Stronger domestic economic fundamentals (lower exchange rate risk and inflation risk premiums, as well as fiscal consolidation) and easing global financial conditions are possible explanations for this trend. In all cases, we observe that near-record low global interest rates following the 2008 global financial crisis affected neutral interest rates. Based on these estimates, we find that for most countries, the monetary stance is currently appropriate—close to neutral and in line with closing output gaps.

### Question 5: Has monetary policy been effective in Latin America?

Our analysis can provide some preliminary insights on the effectiveness of monetary policy. In particular, does it affect the output gap, future economic growth, and inflation rates? More rigorous causality tests would be needed for more concrete and definite answers. However, visual inspection in financially integrated economies reveals that interest rate gaps and output gaps are positively correlated. This observed correlation would suggest that central banks have been responding counter-cyclically to business cycle fluctuations. In addition, monetary policy appears to have been effective in fine-tuning the business cycle, as periods of accommodative monetary policy (negative interest rate gaps) are often followed by shrinking (negative) output gaps—and vice versa.

For most of the countries studied, we also find that the interest rate gap is negatively correlated with future GDP growth. Periods of expansionary monetary policy are followed by above-trend growth (typically within nine months). However, the impact on GDP dissipates as the interest rate approaches its neutral level. These findings are in line with the work of Neiss and Nelson (2003).

When comparing interest rate gaps with deviations of inflation from the target rate (the inflation gap), as in Woodford (2003), we observe that central banks typically undertake restrictive monetary policies if the rate of inflation exceeds the target (and vice-versa). Uruguay and Mexico are exceptions, probably owing to the persistently above target inflation rates that they have experienced for the whole sample period.

### Question 6: In recent years, did Latin American countries deploy unconventional monetary policies to affect their financial conditions?

We document that in recent years Peru and Brazil have used less conventional measures to affect financial conditions. These measures, or macroprudential policies, include, among others, changing reserve requirements and imposing limits on currency mismatches or on loan-to-value ratios. Following significant monetary easing amid the global financial crisis, both Brazil and Peru started implementing restrictive macroprudential policies in the second half of 2009 to contain domestic credit, without altering their policy rate.

### Question 7: Is the neutral interest rate relevant given an increasing use of unconventional monetary measures?

The simple answer seems to be yes! The experience of Brazil and Peru suggest that macroprudential policies appear to affect the estimated neutral real interest rate, possibly through their effect on credit conditions. Implicitly, it seems that the NRIR is affected by the workings of the credit channel. Specifically, these economies in recent years had experienced a surge in their (carry-trade driven) capital inflows, resulting in increasing domestic currency deposits and, thus, credit growth. Macroprudential polices seem to have lowered the NRIR by mitigating the expansionary effect of the credit channel on GDP by containing the demand for loanable funds. Thus, macroprudential policies could supplement standard macroeconomic policies by directly affecting the credit channel; and they could thereby safeguard financial stability without the unintended consequences of higher capital inflows that a rise in the policy rate might entail. That said, more research is needed to better understand and quantify the impact of specific macroprudential policies on credit growth, the output gap, and thus the neutral real interest rate, as well as to determine whether this impact is of a temporary or permanent nature.

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## Seven Questions *(continued from page 7)*

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## The Economics of Political Transitions: Implications for the Arab Spring

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ternal assistance was often delayed. The already large current account deficits and lower capital inflows led to a decline in international reserves in many countries.

Against this background, some countries with high external vulnerabilities, comprising both fixed and flexible exchange rate regimes, faced difficulties in maintaining stable exchange rates and prices during the political crisis. As pressures on reserves intensified, policymakers allowed large currency depreciations, which fed into inflation. On the other hand, in countries with manageable external vulnerabilities, exchange rates and prices remained stable. Improvements in the real effective exchange rate occurred over the medium term and helped reduce current account deficits in some countries.

Among the Arab countries in transition, external current account deficits have widened during the 2011–12 period by around 2 percent of GDP. FDI and other financial inflows have fallen, and gross official reserves have declined sharply. In this regard, policymakers in these particular Arab countries have limited exchange rate movements in 2011–12, while inflation developments remained generally benign. In early 2013, as international reserves continued to fall in Egypt, policymakers allowed greater exchange rate flexibility with the potential for inflation to increase. Going forward, as political reforms progress, policymakers in many countries in the region are looking to develop a richer monetary policy toolkit (including greater exchange rate flexibility) to help address rising external vulnerabilities and strengthen external competitiveness.

The experience of other countries is instructive for the Arab countries in transition, both in terms of similarities and differences. Many of the economic trends that have characterized historical episodes of political instability have become evident in this group of countries. Output declined in 2011 in Egypt, Tunisia, and Yemen, but remained more stable in Jordan and Morocco. Economic activity has remained at low levels in 2012, and similar to past episodes of political instability, unemployment has increased. Macroeconomic stability has come under pressure as fiscal deficits have widened from already high levels, and external current account deficits have deteriorated. International reserves have declined. Inflation has remained muted in most countries due to weak aggregate demand.

In terms of prospects over the medium term, economic recovery in the Arab countries in transition could be delayed even more than in past episodes of political instability. Weak external demand (especially from European trading partners), high food and fuel prices, and the need for sizable fiscal consolidation due to weak initial fiscal positions are likely to weigh on the recovery. Pressures on fiscal and external stability are also likely to be more intense. Although policy actions can help mitigate some of these adverse factors, weak

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transitional governments may find it politically difficult to implement measures to maintain macroeconomic stability and avoid a prolonged growth slump.

Measures that need to be implemented include a growth-friendly fiscal adjustment to reduce generalized subsidies, bolster investment, and strengthen targeted social safety nets. International financing could facilitate a gradual fiscal adjustment. Greater exchange rate flexibility could improve the ability of the economy to withstand and cope with external shocks, while implementation of institutional and regulatory reforms could raise potential growth and create greater and more equal access to economic and employment opportunities. As populations see new governments deliver higher standards of living, this will also reduce the likelihood of a recurrence of political instability.

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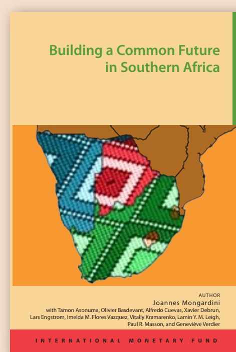


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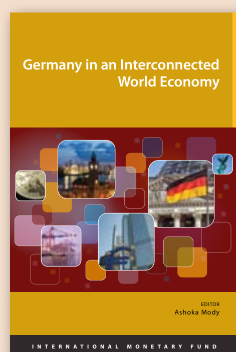


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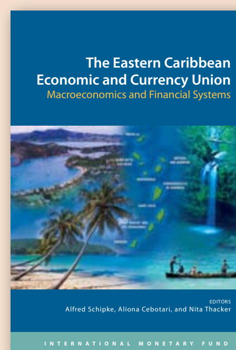


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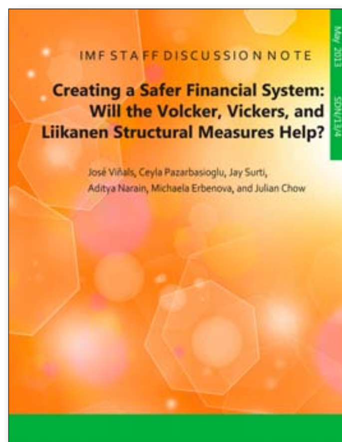


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