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### Research Summary

## A Broken Social Contract, Not High Inequality, Led to the Arab Spring

Shantayanan Devarajan and Elena Ianchovichina



*During the 2000s, inequality in Arab countries was low or moderate and, in many cases, declining. Yet there were revolutions in four countries and protests in several others. This so-called inequality puzzle can be explained by noting first that, despite favorable inequality measures,*

*subjective well-being was relatively low and falling sharply, especially for the middle class and in the countries where the uprisings were most intense. Increased unhappiness was associated with dissatisfaction with the quality of public services, the shortage of formal sector jobs, and corruption. These sources of dissatisfaction suggest that the old social contract, under which the government provided jobs, free education and health care, and subsidized food and fuel in return for a subdued population, was broken. The Arab Spring and its aftermath indicate the need for a new social contract under which government promotes private sector jobs and accountability in service delivery and citizens participate actively in the economy and society.*

For decades, the Middle East and North Africa (MENA) had been making steady progress in reducing extreme poverty and inequality. Not only did the region reach the United Nations Millennium Development Goals related to poverty and access to infrastructure services, but it made important strides in reducing hunger and child and maternal mortality and increasing school enrollment (Iqbal and Kiendrebeogo 2016). Inequality of opportunity declined in Egypt and some other countries in the region (Hassine 2011; Assaad and others 2015). Income inequality was either constant or declining in most MENA economies and remained moderate by international standards.

Standard development indicators did not capture the growing discontent. Once the uprisings occurred, however, issues of equity and inclusion caught the public eye. Income inequality was cited as one of the factors behind the Egyptian revolution (Hlasny and Verme 2013; Nimeh 2012; Ncube and Anyanwu 2012; Osborn 2011). The idea that income inequality is linked to revolution can be traced to ancient times (Muller 1985). Today, even though it is understood that tolerance for income inequality varies over time and across countries (Hirschman and Rothschild 1973), high income inequality

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## A Broken Social Contract, Not High Inequality, Led to the Arab Spring *(continued)*

is considered a threat to political stability and potentially harmful to investment, sustainable growth, and progress in human development (Ostry, Berg, Tsangarides 2014; Burger, Ianchovichina, and Rijkers 2015).

### Economic Inequality

This paper attempts to solve the Arab inequality puzzle, defined as the apparent disconnect between relatively low and sometimes declining inequality in the Arab countries and the series of uprisings and revolts that spread through the region in 2010–11. It takes another look at the extent of economic inequality through a combination of analytical approaches and data sources and confirms that inequality was moderate and declining in the years before the Arab Spring (Hassine 2015). It may, however, have been underestimated in the data because top incomes were not included, as shown for Egypt (van der Weide, Lakner, and Ianchovichina 2016). Moreover, wealth concentration did not appear to be higher in the MENA region than elsewhere in the world (Johannesen 2015).

The evidence from this body of research suggests that anger over economic inequality could not have triggered the Arab Spring. This conclusion is consistent with the profile of developing MENA economies as high-redistribution economies. The post-independence, state-led economic model of most MENA countries contributed to poverty reduction and equity, but the model that guaranteed public sector jobs and adequate public services became unsustainable (Devarajan and Mottaghi 2015). Fiscal imbalances increased, reflecting disappointing growth in the 1980s and rising recurrent expenditures on public wages and subsidies. Substantial increases in commodity prices in the 2000s and fast-growing domestic demand drove up the fiscal cost of subsidies and spurred subsidy reforms (Devarajan and others 2014), but these were often incomplete or reversed under public pressure (World Bank 2011a,b).

Analysis of welfare dynamics during the years preceding the uprisings suggests that the real story was the middle-class squeeze and the erosion of middle-class consensus. The real incomes of the middle 40 percent of the population were declining or growing more slowly than those of the bottom 40 or the top 20 percent (Dang and Ianchovichina 2016).

### Problems with objective measures

The middle class was also growing more frustrated with its quality of life, but standard monetary measures of tracking poverty and inequality gave few clues as to the factors behind the Arab Spring uprisings. These monetary measures do not capture aspects important to an individual's welfare. Institutional and environmental quality, public safety, and control of corruption, for instance, strongly influence the quality of people's lives and, therefore, their standard of living and welfare, but these are not captured well in the household expenditure data used to calculate traditional welfare measures.

Objective indicators may also give an incomplete picture of how the economy evolves. Unemployment statistics may improve as people drop out of the workforce. Inflation may be underestimated if the quality of the products in the reference basket is allowed to deteriorate or the mix of goods and services is not updated to reflect changes in preferences. Increased household expenditure in countries whose public services are deteriorating may not signal improvements in welfare if citizens must opt for private services over low-quality public service providers.

Expectations also play a role in the evaluation of welfare but are not reflected in welfare measures. Relative deprivation, defined as a discrepancy between expectations and actual well-being, has been identified as a predictor of political instability and collective violence (Gurr 1971).

### Subjective Well-being

Alternative measures of welfare, based on subjective well-being data, provide a clue to the inequality puzzle. The “Cantril Ladder” scores in the Gallup World Poll are particularly suitable for measuring subjective well-being in the Arab countries. Reliance on the scores, rather than on monetary measures or indices that reflect the index maker's opinion of what matters most, gives the people a voice and gives weight to their evaluation of their own lives. The responses factor in both monetary and nonmonetary elements of subjective well-being and therefore can be used to analyze the value people place on a comprehensive set of factors and circumstances that improve their lives or contribute to their unhappiness.

These subjective well-being measures indicate that Arab people, especially in the middle class, felt stuck and frustrated on the eve of the Arab Spring. Average levels of subjective well-being were relatively low and declined just before 2010 in Tunisia, Egypt, Syria, Yemen and Libya.

This deterioration reflected dissatisfaction with falling standards of living, related to high unemployment, poor quality of public services, and corruption linked to *wasta* (or the inability to get ahead without connections) (Arampatzi and others 2015).

## A Broken Social Contract

These sources of public dissatisfaction, especially among the middle class, suggest that there was a breakdown in the old social contract between governments and citizens. The contract implicitly promised public sector jobs, free education and health care, and subsidized food and fuel for all. Perhaps in return for the state's largesse, citizens kept their voices down and tolerated some level of elite capture in the private sector.

Starting in the 2000s, it became clear that this contract was unsustainable. The public sector could no longer be the employer of choice. But the private sector did not generate enough jobs to absorb the large number of young people entering the labor force and offered few good-quality jobs (Schiffbauer and others 2015). As a result, the MENA region had the highest unemployment rate in the developing world, especially for youth. Moreover, while education and health care were free, and energy and water subsidized, the quality of these services was so poor that many people resorted to the private sector for public services. People felt that they needed connections to those in power to obtain good jobs, and many complained that they could not get ahead no matter how hard they worked (Arampatzi and other 2015). Since the government was not keeping its part of the social contract, the citizens raised their voice in protest.

## Need for New Social Contract

The events since the Arab Spring have been so turbulent that the underlying problems that caused it remain. Civil wars in four countries, terrorist attacks, and a precipitous drop in oil prices have slowed growth in the region to a trickle (Devarajan and Mottaghi 2016). Unemployment is higher today than it was in 2010, and dissatisfaction has risen further since 2010, particularly in the Arab Spring countries (Dang and Ianchovichina 2016). The quality of services has deteriorated and spawned the “You Stink” movement in response to the garbage crisis in Lebanon in summer 2015.

With improved understanding of what caused the dissatisfaction that led to the Arab Spring, it is possible to put forward ideas that can help solve the crisis. The region needs a

new social contract that compels the government to promote, rather than hinder, private sector job creation and to design public services in a way that holds providers accountable to beneficiaries. Change will not happen overnight, nor does it apply to all countries today, but the contours of a new social contract could go a long way toward helping the people of the Middle East and North Africa realize the vision many of them bravely fought for during the Arab Spring of 2011.

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## Research Summary

# Structural Reform Packages, Sequencing, and the Informal Economy

Zsuzsa Munkacsi and Magnus Saxegaard



*This paper explores the macroeconomic impact of labor and product market deregulation using a small-open-economy model with formal and informal markets. We examine both the long-term effects and the transition toward post-reform equilibrium, as well as the impact of reform packages and sequencing. Our model suggests that the size of the unofficial sector is an important determinant of the impact of reforms. South Africa, an emerging market economy, is used as a case study. In the long run, both labor and product market reforms boost the economy, though there are short-term costs. A package of reforms, especially with product market deregulation, could help mitigate some of these short-term costs, though it is usually better to start with labor market reforms to speed adjustment toward the new equilibrium.*

Lackluster growth in the aftermath of the global financial crisis, coupled with limited scope for further macroeconomic stimulus, has revived interest in the impact of growth-enhancing structural reforms. For example, **European Central Bank President Mario Draghi** recently noted that, in addition to monetary policy, “structural reforms are key” to achieving prosperity.

Moreover, there has been a lot of focus recently on the impact of widespread tax evasion. The last of the three T’s discussed at the Group of Eight summit in 2013 was fighting tax evasion. **G20 leaders in November 2015** also endorsed measures to crack down on failure to pay taxes.

Tax evasion, together with avoidance of compliance with regulations (Williamson 1975), is a key challenge for economies with a large informal sector (Schneider, Buehn, and Montenegro 2010). However, we are aware of only one paper, Charlot, Malherbet, and Terra 2015, that looks at the macroeconomic effect of structural reforms in the presence of informality. Moreover, to the best of our knowledge, there are no papers that analyze the interaction between informality and trade openness.

The informal sector is, by definition, beyond government reach and will therefore not be directly affected by deregulation, or indeed by any other public policies, such as taxation. Thus, the larger the informal sector, the smaller the share of the economy directly affected by government actions.

In the absence of any linkages between the formal and informal sectors, the overall macroeconomic effects of government policies would therefore increase with the relative size of the formal sector. However, there are potentially important linkages between the two sectors, and product and labor market reforms in the formal sector are therefore likely to have significant spillover effects for the entire economy. Deregulation may discourage firms and workers from operating in the informal sector and lead to an increase in the relative size of the formal sector. There is also a productivity differential between the two sectors, (Farrell 2004; Bailey, Farrell, and Remes 2005; La Porta and Shleifer 2008), which can magnify the impact of structural reforms. On the other hand, the informal economy may act as a shock absorber in the economy—for example, by reducing the impact of adverse shocks on unemployment (Boeri and Garibaldi 2007). Also, firms in the formal sector are more likely than those in the informal sector to engage in trade with the rest of the world. Structural reforms that increase the relative size of the formal sector could therefore promote technology and skills transfer, thereby leading to higher productivity.

Although it is difficult to estimate precisely, what evidence there is suggests that the informal sector in many countries is sizable, especially in emerging market and low-income economies. For instance, Schneider (2005) estimates that 16 percent of GDP of countries that are members of the Organisation for Economic Co-operation and Development and 41 percent of African countries’ GDP is generated in the informal sector. The share of informal employment is likely higher because firms operating in the informal sector are typically concentrated in relatively labor-intensive industries (Schneider 2012). Understanding the characteristics of the informal economy is therefore important for an overall assessment of the impact of structural reforms.

The structural reforms we consider are permanent and unexpected reductions in the level of product and labor

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**Structural Reform Packages, Sequencing, and the Informal Economy** *(continued)*

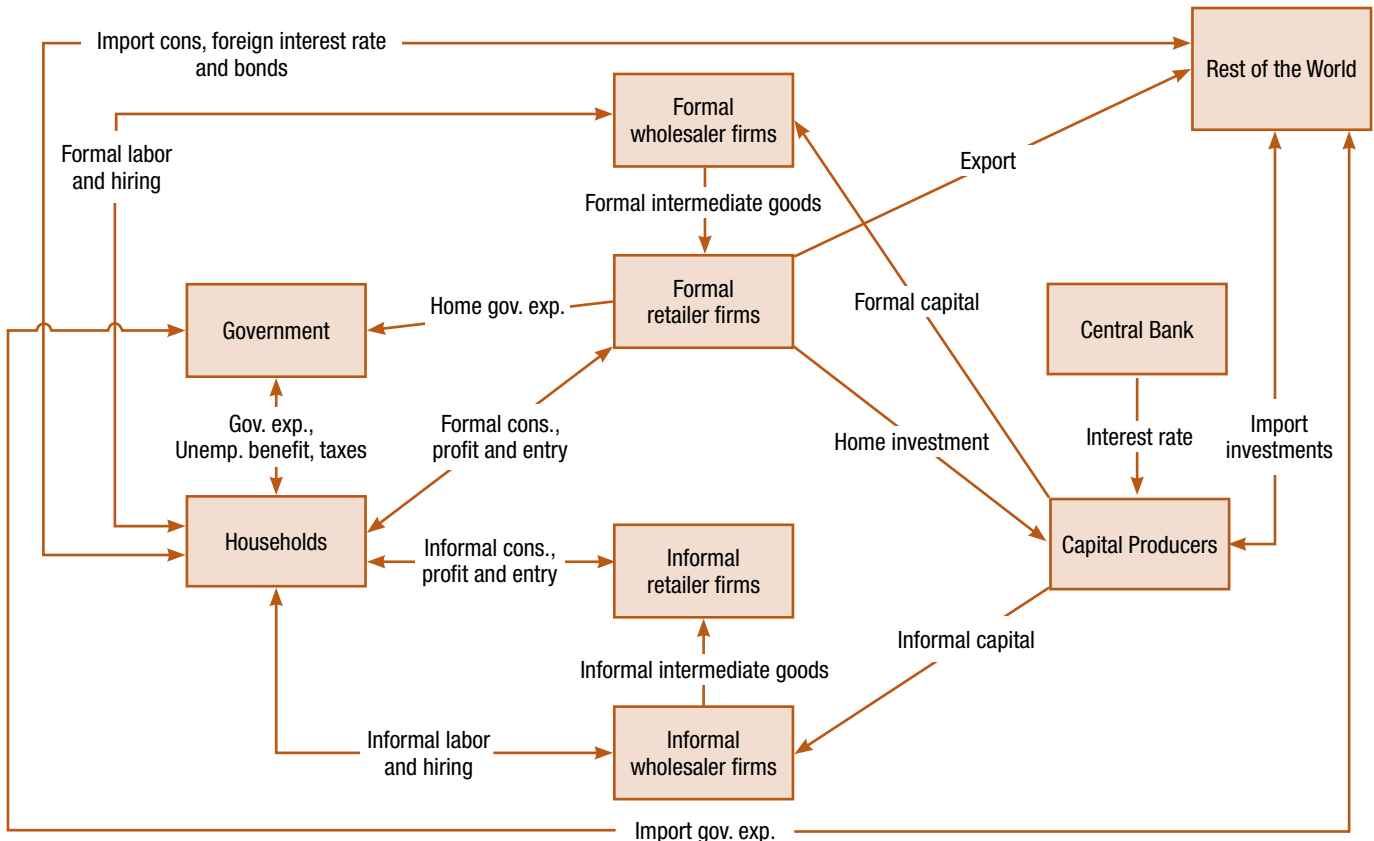
market regulations enforced in the formal sector. We assess the impact of a decrease in the cost of hiring, a reduction in the bargaining power of workers, and a decline in firms' cost of entering product markets. Other papers (Cacciatore and others 2016; Lusinyan and Muir 2013) have analyzed the impact of similar structural reforms, though not in the presence of informality. We believe that the large size of the informal sector in many countries, and potential interlinkages with the rest of the economy, makes it important to differentiate between the informal and formal sectors to gain an overall understanding of the impact of structural reforms.

To illustrate our findings, we calibrate and Bayesian estimate STRESS, a small-open-economy dynamic general equilibrium (DGE) model for South Africa (Figure 1) whose informal economy is relatively small, but where structural reforms are at the forefront of the policy debate. STRESS

stands for Structural Reforms and Shadow Sector, and it reflects the need for (stress of) structural reforms that most countries face today, especially in the presence of a (large) shadow economy. The framework was developed by Rahul Anand, Purva Khera, Zsuzsa Munkacsi, and Magnus Saxegaard and was also published in Anand and Khera 2016. The model includes unemployment due to hiring costs and wage bargaining, following Blanchard and Gali 2010, and endogenous firm entry as in Bilbie, Ghironi, and Melitz 2012. What is unique about this framework is the distinction between the formal and informal sectors in the labor and goods markets.

In particular, the informal economy is characterized by tax evasion and a relatively lower regulatory burden. Firms in the formal sector pay more, in terms of both money and time, to enter the goods markets and incur greater hiring costs than informal firms do. Hiring costs may be associated with training to make up for workers' educational or experiential deficits, but they could also reflect administrative costs such as the time spent on hiring.

Figure 1. Structure of the Structural Reforms and Shadow Sector (STRESS)



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Strong labor unions, a more robust legal environment, and more substantial employment protection mean that workers in the formal sector have more bargaining power in wage negotiations and are less likely to be fired than those in the informal sector.

The formal and informal sectors also differ in areas not directly related to the regulatory environment. Notably, only formal-sector labor income falls under the taxation umbrella, and labor productivity in the informal sector is lower than in the formal sector. In addition, because of administrative regulations and lack of financing in the informal sector, the government may purchase goods only from the formal sector. Moreover, investment goods are produced using intermediary goods from the formal sector only. Finally, only formal goods are traded with the rest of the world, given that entering foreign markets requires meeting certain legal obligations; the fact that trading abroad is limited to formal goods constitutes the main example in our model of the interaction between the shadow economy and openness.

Our results suggest that the relative size of the informal sector has significant bearing on the effectiveness of structural reforms. This is especially true for labor market policies, but the impact of product market deregulation is also affected.

In the long run, both labor and product market reforms have a significant positive impact on South African output. Labor market reforms are somewhat more successful than product market reforms in reducing unemployment. In addition, structural reforms decrease informality by increasing employment in the formal sector, but have little impact on the absolute level of employment in the informal sector.

The short-term costs of these reforms are not trivial. They include lower consumption, exports, and output; reduced wages, and decreased product-market competition. Implementing two reforms at the same time helps mitigate short-term costs, especially if one of those reforms is carried out in the goods markets. Nevertheless, if reforms

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## Structural Reform Packages, Sequencing, and the Informal Economy *(continued)*

are implemented sequentially, our model suggests that it is better to start with labor market reforms because this helps the economy reach postreform equilibrium faster.

Possible avenues for future research include the role of monetary or fiscal policies in limiting the short-term costs of structural reforms and in reducing the size of the informal economy.

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## Seven Questions on Fintech

By Tommaso Mancini-Griffoli



*The IMF recently published a paper on the potential effects of fintech on the financial sector and how regulation should adapt: “Fintech and Financial Services: Initial Considerations,” co-authored by Dong He, Ross Leckow, Vikram Haksar, Tommaso*

*Mancini-Griffoli, Nigel Jenkinson, Mikari Kashima, Tanai Khiaonarong, Céline Rochon, and Hervé Tourpe*

### Question 1: The term “fintech” sounds very general. What does it cover?

Fintech—the application of technology to the financial sector—is a broad term. Artificial intelligence, big data, biometrics, and distributed ledger technology, such as blockchains, are just a few of the technologies that fall under the fintech umbrella.

Financial services are already beginning to change as a result of fintech. Peer-to-peer funding is making some headway, messaging applications are offering payment services, cybersecurity risks are increasingly analyzed by machines that track online behavior, and credit scoring is gradually reflecting the vast amount of data on borrowers. Financial activity may shift away from traditional intermediaries like banks toward networks in which market participants do business directly with each other.

End-users may benefit from these changes, but the question for policymakers is the impact fintech could have on the structure and role of banks, financial stability, customer safety, financial inclusion, and monetary policy transmission.

### Question 2: Can you outline some big trends in fintech?

There are two main forces that could be especially disruptive.

The first is the explosion of available customer data—on financial transactions, constraints, and goals but also on identity, preferences, habits, and connections. There is a huge opportunity for change depending on who can aggregate and control this data and who can link it to easy-to-use interfaces and applications that may already be in use.

The other big change relates to payments. Ever since the invention of double-entry bookkeeping, we have perfected

and increasingly relied on the account-based system of payments. That is, instead of handing cash to each other, we have instructed banks to alter entries in their ledgers. This requires costly identity verification, accounts, liquidity and risk management, and payment clearing and settlement services ultimately provided by central banks. Currently, cash is nearly a rarity.

But fintech could change all that. Depending on the course of technology, and of central banks, we may start to use the electronic equivalent to cash—electronic tokens—even for payments across borders. Imagine the potential changes to the banking system, to the role of trust, to the speed and cost of transactions, even to the expansion of the decentralized service economy requiring small-value payments within and across borders. The implications could be huge.

### Question 3: So what could be the effects beyond new and better services?

This IMF paper introduces a framework for thinking about the effects of fintech on market structure. The focus is first on identifying shortcomings of current services—areas in which better services thanks to new technologies could cause a jump in demand. The focus then shifts to how these same technologies could affect the need for financial intermediaries, as opposed to standard market platforms; the organizational structure of these intermediaries; and barriers to new entrants. The hope is that the framework will still be useful in future work.

Intermediaries—such as banks, firms specialized in messaging services, and correspondent banks clearing and settling transactions across borders—are common in financial services, but will face significant competition. Some may partner, others will change, and a few will bow out.

New technologies such as identity and account verification could lower transaction costs and offer more information on counterparties, making intermediaries less relevant.

Existing intermediaries may be pushed to specialize and outsource well-defined tasks—possibly including customer due diligence—to technology companies.

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## Seven Questions on Fintech *(continued)*

And intermediaries are likely to change the way they are organized. The degree to which they maintain control over their clients' data will determine how much they can cross-sell other financial products. But the value of access to other types of data as well, such as on preferences and habits, may favor partnerships and bundling deals with other types of companies, such as social media firms.

Barriers to entry will also evolve. On the one hand, the lower cost of offering financial services, such as by automating manual back-office tasks, is likely to favor entry. On the other hand, trust will still be vital, if not in financial intermediaries then in financial services—how stable and secure they are. Such trust will still require a large investment on the part of service providers, which will bar entry for some. In addition, network effects will remain relevant: new firms' ability to communicate and transact on existing financial networks or markets will determine how easily they get up and running.

### Question 4: What are the greatest challenges facing regulators and how might they respond?

Regulation is intended to protect consumers, prevent monopolistic behavior by banks, and promote financial stability and integrity. Fintech introduces risks on all these fronts.

Take algorithms—machine learning—for instance. If you rely on them for trading, you could be exposed to the risk that they will become procyclical by trading all at the same time; that they will fail; or that they will be compromised in a cyberattack. Will regulators have to be software engineers who can check code?

Another challenge is increasing access to customer information. More readily available data clearly has benefits, but the flip side is a greater risk of compromised digital identities. If someone gains access to your retina scan, which you use to secure transactions, you cannot change your retina as you can a compromised credit card number.

New rules may be needed to ensure sufficient consumer safeguards, including privacy protection, and to guard against money laundering and terrorism financing, particularly when it comes to decentralized virtual currencies.

Other challenges include the shift from regulating entities to regulating activities. As financial activities

shift to networks, they cannot be effectively regulated solely by focusing on intermediaries that no longer provide them. Striking an appropriate balance between entity- and activity-based regulation will be a key challenge for regulators.

International cooperation will be critical. Advances in technology know no borders, and such cooperation will ensure a level playing field and effective cross-border regulation.

Finally, regulation should continue to function as an essential safeguard to build trust in the stability and security of the networks and algorithms.

### Question 5: What are some tangible predictions in the new paper?

A key part of the paper focuses on cross-border payments. The idea was to pick a slice of the financial sector, close to the international mandate of the IMF, to consider the impact of fintech through the lens of the paper's analytical framework.

People are generally unhappy with cross-border payments. Sending money abroad is slow, unpredictable, and costly. These shortcomings in part reflect the limitations of technology. Without an international central bank, most payments are cleared and settled by private correspondent banks.

Fintech solutions come in various flavors. Distributed ledger technology and artificial intelligence could lower back-office costs, help track payments and reconcile invoices, and manage liquidity. It could also lower the cost of complying with regulations through easier capture, checking, and sharing of customer identity.

But the larger impact on market structure and regulation would come from the use of tokens for transactions across borders. These networks could bypass the large commercial banks with the press of a button and eliminate the need for separate communication networks.

Such networks may never take off for a number of reasons, but the implications for market structure are significant if they do. Just as email eliminated the need for ways to send letters domestically and internationally, payments could change dramatically if we start using tokens.

### Question 6: What work on fintech has the IMF produced to date?

This is the second Staff Discussion Note on fintech published by the IMF. The first came out in January 2016 on the topic of *virtual currencies*, such as bitcoin, and

whether they would take off and revolutionize the world. The short answer is no.

This paper takes a bit of a step back and proposes a framework for thinking about how fintech could affect the financial sector and how regulation might need to respond. It then applies that framework to gauging implications for cross-border payments—a subject at the heart of the IMF mandate.

**Question 7: Clearly there are a lot of emerging issues that the industry is still grappling with. With that in mind, how do you see the IMF's work on fintech evolving?**

There is potentially an enormous amount of work to do in thinking through various scenarios of fintech development and adoption.

Fintech could affect any of the five key needs for financial services, as seen from the perspective of end-users: paying, saving, borrowing, managing risks, and getting advice on financial services. In this Staff Discussion Note, we tackled only the subset of payments.

Future work will likely focus on areas with the potential for a significant impact on financial stability and inclusion and monetary policy transmission.

Fintech's effect on monetary policy transmission has generated an interesting debate, summarized in the paper, on whether central banks should introduce digital currencies. Would monetary policy transmission change? Would banks disappear? Could privately issued virtual currencies compete or possibly even do better than traditional currencies? Would weak currencies—issued by central banks lacking credibility—disappear? Would a first mover's currency become the new reserve currency? Who said economics was boring?!

## IMF Economic Review



*IMF Economic Review* is the official research journal of the International Monetary Fund. The journal is dedicated to publishing peer-reviewed, high quality, context related academic research that addresses important policy questions.

Following is a listing of articles featured in the latest issue of the journal:

### **Macroeconomic Effects of Capital Account Regulations**

Bilge Erten and José Antonio Ocampo

### **Fiscal Devaluation in a Monetary Union**

Philipp Engler, Giovanni Ganelli, Juha Tervala, and Simon Voigts

### **Distributional Consequences of Fiscal Adjustments:**

#### **What Do the Data Say?**

Jaejoon Woo, Elva Bova, Tidiane Kinda, and Y. Sophia Zhang

### **Shifting Motives: Explaining the Buildup in Official Reserves in Emerging Markets Since the 1980s**

Atish R. Ghosh, Jonathan D. Ostry, and Charalambos G. Tsangarides

### **Do Borders Really Slash Trade? A Meta-Analysis**

Tomas Havranek and Zuzana Irsova

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Patrick Carter and Jonathan R. W. Temple

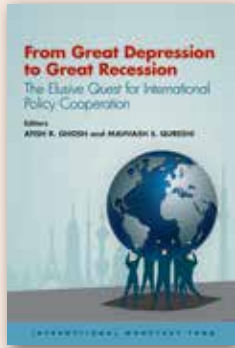
### **Non-FDI Capital Inflows in Low-Income Countries:**

#### **Catching the Wave?**

Juliana D. Araujo, Antonio C. David, Carlos van Hombecq, and Chris Papageorgiou

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RECOMMENDED READINGS FROM IMF PUBLICATIONS



*Selected as a Financial Times “Summer 2017: Readers’ Picks”*

**From Great Depression to Great Recession: The Elusive Quest for International Policy Cooperation**

edited by Atish R. Ghosh and Mahvash S. Qureshi

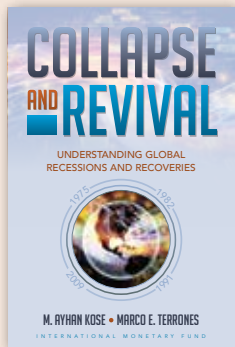
2017. 299pp. Paperback ISBN 978-1-5135-427-7

**A Short Excerpt from “Chapter 17. Toward a More Stable International Monetary System: Key Takeaways”**

*“International policy cooperation is very much like Nessie, the lovable Loch Ness monster: oft-discussed, seldom seen. The first question that arises in talking about cooperation is, what does it mean in an international policy context? The answer is not straightforward, because cooperation is an ill-defined concept that means different things to different people. At its most basic level, cooperation might simply mean explaining the logic of domestic policy actions to others. In this sense, policy cooperation has happened in the past and is on an upward trend—not least with central banks being more transparent domestically.*

*“Cooperation could also refer to the creation of multilateral institutions and arrangements. If so, we have made progress on that front as well. Examples include the provision of liquidity through central bank swap lines and IMF liquidity provision facilities set up after the global financial crisis.”*

**Also of Interest**



**Collapse and Revival: Understanding Global Recessions and Recoveries**

by M. Ayhan Kose and Marco E. Terrones

2015. 292 pp. Hardcover ISBN 978-1-51357-002-0. \$65

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Luc Eyraud, Diva Singh, Bennett W. Sutton

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Edda Zoli

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Divya Kirti

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Paolo Dudine, João Tovar Jalles

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Mar Delgado-Téllez, Victor Duarte Lledo, Javier J. Pérez

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Lorenzo Forni, Andrea Bonfatti

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Rakesh Mohan, Partha Ray

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#### Optimal Tax Administration

Michael Keen, Joel Slemrod

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#### Price and Wage Flexibility in Hong Kong SAR

Si Guo

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#### Collect More, Spend Better: Public Investment in Asian Frontier Markets

Manuk Ghazanchyan, Ricardo Marto, Jiri Jonas, Kaitlyn Douglass

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Ivo Krznar, Troy D. Matheson

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Divya Kirti

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Rabah Arezki, Zoltan Jakab, Douglas Laxton, Akito Matsumoto, Armen Nurbekyan, Hou Wang, Jiaxiong Yao

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Seung Jung Lee, Lucy Qian Liu, Viktors Stebunovs

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Jongsoo Shin

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Luc Eyraud, Vitor Gaspar, Tigran Poghosyan

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Alexander Herman, Alexander D. Klemm

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Stephen Snudden

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Kevin Clinton, Tibor Hlédik, Tomás Holub, Douglas Laxton, Hou Wang

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Erkki Vihriälä

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### No. 17/03

#### **Labor and Product Market Reforms in Advanced Economies: Fiscal Costs, Gains, and Support**

Valerio Crispolti, Era Dabla-Norris, Romain Duval, Davide Furceri, Takuji Komatsuzaki, and Tigran Poghosyan

### No. 17/03

#### **Technical Appendix I. Labor and Product Market Reforms in Advanced Economies: Fiscal Costs, Gains, and Support**

Valerio Crispolti, Era Dabla-Norris, Romain Duval, Davide Furceri, Takuji Komatsuzaki, and Tigran Poghosyan

### No. 17/03

#### **Technical Appendix II. Labor and Product Market Reforms in Advanced Economies: Fiscal Costs, Gains, and Support—Case Studies of Finland, Germany, Ireland, the Netherlands, and the United Kingdom**

Angana Banerji, Vizhdan Boranova, Christian Ebeke, Olena Ftomova, Nan Geng, and William Oman

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Gustavo Adler, Romain Duval, Davide Furceri, Sinem Kiliç Çelik, Ksenia Koloskova, and Marcos Poplawski-Ribeiro