

# Structural Reforms and Economic Growth in Emerging-Market Economies

---

*Jeannine Bailliu and Christopher Hajzler, International Economic Analysis Department*

- Growth prospects in emerging-market economies (EMEs) are an important element of the global outlook. These economies now account for 60 per cent of world gross domestic product. Since the 2007–09 global financial crisis, however, growth has slowed in many large EMEs.
- Structural reforms can increase productivity by allocating resources more efficiently and could thus have substantial potential effects on growth. The literature suggests, however, that these gains depend critically on supportive fiscal and monetary policies and on the sequence in which reforms are implemented.
- In 2009 the G20 launched a strategy for achieving strong, sustainable and balanced growth. Promoting structural reforms across its membership was a key element of this initiative. In several large EMEs, significant progress toward these reform objectives is under way.

Growth has slowed markedly in many emerging-market economies (EMEs) since the 2007–09 global financial crisis (Chart 1).<sup>1</sup> The World Bank (2014) estimates that about two-thirds of the slowdown in EMEs is due to a decline in the cyclical component of growth, while the other third is structural, driven by slowing growth in total factor productivity (TFP). Because the global economic environment is expected to remain challenging in the foreseeable future and populations will age in parts of the emerging world, it will be increasingly important for EMEs to raise potential growth by maintaining steady progress on structural reforms. Although reforms should take into account country-specific needs, they share common goals of promoting efficient investment and reducing structural and institutional barriers to productivity growth.

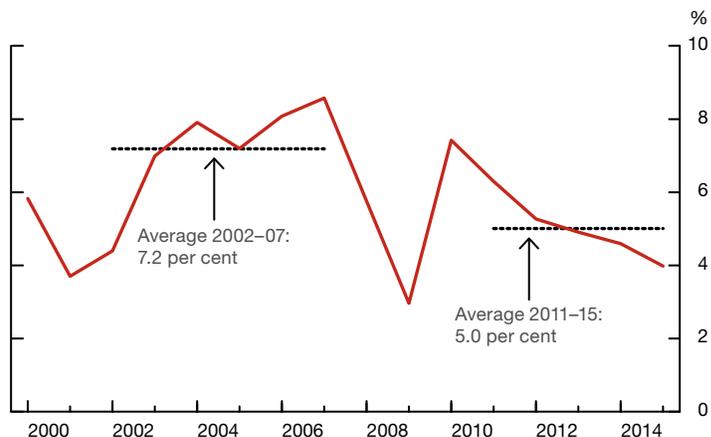
Economic performance in EMEs is a key driver of global growth, given that EMEs now account for more than 60 per cent of global gross domestic product (GDP) and 75 per cent of its growth. In addition, since the emerging world is an important consumer of commodities and many large EMEs represent rapidly expanding markets for Canadian exports, the prospects for these countries are important to the Canadian economy. Thus, Canadian monetary policy needs to be informed by an understanding of the role of structural reforms in driving EME growth.

---

<sup>1</sup> If China is excluded, growth of gross domestic product (GDP) has slowed from about 6 per cent to around 4 per cent.

**Chart 1: Growth in emerging-market economies since the global financial crisis**

Year-over-year percentage growth in real GDP in emerging markets



Source: International Monetary Fund

Last observation: 2015

This article first discusses how structural reforms support growth. It then reviews major episodes of reforms in EMEs and discusses the structural reform priorities for these countries. An assessment of how the structural reforms affect potential output growth in several large EMEs follows.

## What Are Structural Reforms and Why Are They Important for EME Growth?

Structural reforms aim to increase productivity by reducing barriers to efficient investment, employment, product and services trade, and innovation. The variety of barriers to efficient resource allocation is extensive, corresponding to an equally wide range of potential reform policies to address them. Some common barriers include cumbersome licensing, permit and tax procedures; poor contract enforcement; inflexible labour markets; and regulations that favour local monopolies and state-owned enterprises. Poor infrastructure quality can also result in lower investment and productivity by increasing the time and outlays required to establish and operate a business.

Recent research by the World Bank indicates that domestic structural impediments have contributed to the recent slowdown in productivity growth in many EMEs, particularly in Brazil, Russia, India and China (Didier et al. 2015).<sup>2</sup> Without credible reform plans, these impediments, combined with unfavourable demographics and domestic political uncertainty, will continue to weigh on growth.<sup>3</sup> With such a wide array of potentially beneficial reform policies, however, prioritizing these measures is challenging. Moreover, a number of factors must be considered when identifying the appropriate mix, sequence and timing of reforms for an individual country. These include institutional weaknesses, current economic conditions, available fiscal space and the success of any previous reforms.

◀ *Structural reforms aim to increase productivity by reducing barriers to efficient investment, employment, product and services trade, and innovation*

<sup>2</sup> The authors of this article estimate that declining potential output growth in EMEs accounts for about one-third of the growth slowdown since 2010, with roughly half of this slowdown attributed to declining productivity growth.

<sup>3</sup> Even conventional monetary and fiscal policies aimed at reducing economic slack can be rendered ineffective when investment and bank lending incentives are highly distorted (IMF 2015).

In outlining some of these challenges, we focus on five broad reform categories emphasized in the literature as having significant potential for raising growth in EMEs: (i) market competition and regulation, (ii) labour market policy, (iii) quality of governance and institutions, (iv) infrastructure quality and (v) trade and financial sector liberalization. The main takeaway from this overview is that the expected benefits from progress in any one of these areas depend on the state's capacity to implement complementary sets of policies and on the sequence in which they are implemented. These conditions will vary across country contexts, reflecting both current macro-economic conditions and the history of reforms already undertaken.

This suggests that no single reform package should be expected to work equally well across all EMEs. Nevertheless, a few general lessons emerge. For example, the positive growth effects of trade liberalization are complemented by fewer regulatory barriers to competition and infrastructure bottlenecks, suggesting a lockstep approach to such reforms may be beneficial. Moreover, while some EMEs may benefit from improved infrastructure quality and financial sector liberalization, these reforms can have negative consequences in countries with relatively weak governance and institutions. Financial sector liberalization and openness can also be destabilizing in the presence of significant trade barriers. However, the optimal sequence and timing in which these reforms are implemented depends on the feasible pace of reform as well as the scope for supportive fiscal and monetary policies.

## Key areas of reform in EMEs

The potential benefits from trade and financial market liberalization are well documented in existing studies. However, reforms to product market regulation (PMR) and investment in infrastructure are receiving increasing attention. Drawing on new data sets, recent studies indicate that improvements in PMR and infrastructure investment can have just as great an impact on expansion as opening the economy to international trade and capital flows, the effect of which has been found to be substantial.<sup>4</sup>

There are several potential explanations for the recent shift in focus toward PMR reforms and infrastructure observed not only in the economics literature, but also in the reform priorities of emerging markets. First, the World Bank and others have identified deteriorating quality of infrastructure as a crucial impediment to EME growth.<sup>5</sup> Second, policy-makers often have a limited capacity to leverage the political support and government resources necessary to implement far-reaching structural reforms. The opportunity cost of pursuing further trade and financial liberalization may have risen relative to the benefits, particularly in markets where the largest gains from previous reforms in these areas have already been reaped.<sup>6</sup>

◀ *The expected benefits from progress in any one of these areas depend on the state's capacity to implement complementary sets of policies and on the sequence in which they are implemented. These conditions will vary across country contexts*

4 Djankov, McLiesh and Ramalho (2006) find that improving a country's business regulatory environment from the worst to the best quartile is associated with 2.3 per cent higher annual growth. Nicoletti and Scarpetta (2003) and Loayza, Oviedo and Servén (2005) obtain similar estimates based on alternative measures of business regulations. By comparison, liberalizing trade or capital accounts from "low" to "moderate" levels adds an estimated 1 to 2 per cent to average annual growth over the medium term (e.g., Sachs and Warner 1995; Honig 2008; Wacziarg and Welch 2008; and Saadi Sedik and Sun 2012). For evidence of the equally large effects of infrastructure, see Calderón and Servén (2010), among others.

5 See Calderón and Servén (2008), IMF (2014) and the October 2014 World Bank press release, "World Bank Group Launches New Global Infrastructure Facility," available at <http://www.worldbank.org/en/news/press-release/2014/10/09/world-bank-group-launches-new-global-infrastructure-facility>.

6 See Poloz (2016) for a discussion on the lower marginal benefits from further trade liberalization. Moreover, many EMEs appear to have made the least controversial reductions in trade barriers under previous rounds of negotiations completed by the World Trade Organization, and governments may find that eliminating the remaining barriers is costly politically.

Finally, the benefits from any single reform effort can only stretch so far without appropriate supporting policies or regulations in place. Hausmann, Rodrik and Velasco (2008), for example, develop a framework that illustrates how the benefits from reform depend crucially on addressing the most binding constraints first. As discussed in the next section, many EMEs already embarked on extensive trade and financial sector liberalization reforms during the 1980s and 1990s. Therefore, even if the gains from further liberalizations could be large under the right set of circumstances, it may be optimal to prioritize other areas of reform where recent progress has been relatively limited (such as PMRs and infrastructure). In fact, some theoretical perspectives in economics suggest that too much international goods trade or too many financial flows could even be harmful to growth if barriers to domestic competition and the accountability of governing institutions are high.<sup>7</sup> Evidence in favour of this perspective is provided by Chang, Kaltani and Loayza (2009), who show that the relationship between trade openness and growth may be negative for economies that have neglected public infrastructure investment, financial market deepening and the reduction of barriers to entry for entrepreneurs.

### Complementary structural reform policies

Several other reform categories are characterized by complementary policies. For example, although infrastructure investment increases the benefits from trade liberalization by lowering trade costs, policy-makers may also need to strengthen government accountability at the same time. (See Esfahani and Ramírez [2003], who find that gains from infrastructure investment depend crucially on the quality of contract enforcement and government credibility.) One reason improving accountability in governance matters is that the absence of appropriate checks and balances can lead to fewer public services or a misallocation of funds. Recently, some EME governments (e.g., Brazil, China and Indonesia) have taken a direct approach to addressing this problem through national anti-corruption campaigns, devoting greater resources to monitoring and investigating the actions of public officials. However, reducing administrative barriers to entry for entrepreneurs may also reduce corruption indirectly while having direct economic benefits. This is because a lighter regulatory burden for private enterprises leaves fewer opportunities for public officials to extract bribes (Djankov et al. 2002; Caselli and Gennaioli 2008).

Whether financial liberalization promotes growth in EMEs also depends on the quality of governance and institutions (Prati, Onorato and Papageorgiou 2013; Christiansen, Schindler and Tressel 2013). Financial liberalization boosts growth by reallocating capital to more efficient firms<sup>8</sup> and by lowering the financing costs of firm entry and research and development.<sup>9</sup> Interestingly, however, some research has found that financial sector liberalization may be detrimental to growth in countries with poor institutional quality (Prasad, Rajan and Subramanian 2007). One reason for this is the tendency for

◀ *The absence of appropriate checks and balances can lead to fewer public services or a misallocation of funds*

<sup>7</sup> More generally, according to the “theory of the second best,” if certain economic barriers or market failures cannot be immediately removed, it is possible that the next-best solution requires decisions to be made in other policy areas that would not otherwise be optimal.

<sup>8</sup> See Galindo, Schiantarelli and Weiss (2007) and Abiad, Oomes and Ueda (2008) for emerging-market evidence.

<sup>9</sup> See Rajan and Zingales (1998) and Gorodnichenko and Schnitzer (2013).

corrupt bureaucrats or corporate insiders to embezzle funds. Opportunities for embezzlement increase with more open financial markets and poor enforcement of contracts.<sup>10</sup>

Policy-makers also need to consider cyclical factors when determining the appropriate mix of structural reforms because the cost of some reforms can be amplified during recessions. Bordon, Ebeke and Shirono (2016) show, for example, that gains from labour market reforms tend to be offset in the first few years by a greater rate of job destruction if reforms are implemented during periods of economic slack.<sup>11</sup> They also show that PMR reforms do not increase employment during periods of fiscal consolidation or monetary tightening.

### Optimal sequencing of reforms

The sequence in which a complementary set of reforms is implemented may also matter. Reflecting on the failure of trade liberalization in Latin America during the 1970s, Edwards (1984), Frenkel (1982) and others asked whether one reason liberalization benefited some countries and not others is that in many cases trade and foreign capital flows were not liberalized in the right sequence. They argue that liberalizing capital flows without having first liberalized trade had destabilizing effects through large initial exchange rate movements.<sup>12</sup>

More recent research also makes a case for liberalizing trade before initiating other key reforms. Specifically, strengthening property rights and removing domestic barriers to competition (for example, through PMR reforms) before liberalizing trade may encourage relatively inefficient firms to enter the market, lowering aggregate productivity (Asturias et al. 2016). In contrast, other research suggests that if reforms in all three of these areas cannot be accomplished in reasonably short succession, improving contract enforcement and reducing competition barriers should be prioritized because they can produce immediate benefits while considerably augmenting the efficiency gains from more open trade down the road (see Chang, Kaltani and Loayza 2009; Bolaky and Freund 2004). Ultimately, then, the ideal sequence in which these three areas of reform are addressed will depend on the political and financial capacity of governments to tackle the reforms quickly.<sup>13</sup>

◀ *The sequence in which a country implements a complementary set of reforms may also matter*

## Major Episodes of Structural Reforms in EMEs

Structural reforms in EMEs have progressed in four big waves (IMF 2008). The first wave started in the 1980s in the aftermath of the debt crisis. It focused on trade liberalization and represented a break with unsuccessful

<sup>10</sup> See Blackburn and Forges-Puccio (2010), La Porta et al. (2000), and Djankov et al. (2008). These perspectives are also consistent with evidence in Herwartz and Walle (2014), who find that very high levels of financial openness generally erode the growth-promoting role of financial market development while high trade openness strengthens it.

<sup>11</sup> Additional evidence is provided in Bouis et al. (2012).

<sup>12</sup> Liberalizing the capital account with a simultaneous reduction in barriers to trade can result in productivity losses because of an initial overshooting of both capital inflows and the real exchange rate, with the latter eroding the country's export market competitiveness. See also Johnson (1967) for a similar perspective.

<sup>13</sup> In contrast, in many post-Communist transition economies, the interconnectedness of reforms was the motivation for the "big bang" approach—trying to deal with all the major distortions early and simultaneously—with varied results. The political-economy models of Dewatripont and Roland (1995) and Wei (1997) show why such big bang strategies have sometimes failed to receive the political support necessary to be effective. They also illustrate how the ideal sequence of reforms under a more gradualist approach depends on the pace in which reforms can be feasibly implemented.

## Box 1

## G20 Initiatives to Promote Structural Reforms

In 2009, leaders of the G20 launched the Framework for Strong, Sustainable, and Balanced Growth. Structural reforms that foster private demand and strengthen long-run potential output growth have formed a key element of this strategy (IMF 2016a).

At the 2014 Brisbane Summit, G20 leaders endorsed the Comprehensive Growth Strategies Initiative, which was designed to lift GDP by more than 2 per cent above the baseline trajectory over the following five years. In addition to stimulating short-term demand, the strategies were designed to raise potential growth through (i) product and labour market reforms, (ii) investment in public infrastructure, (iii) tax reforms, and (iv) innovation policies. The

G20 members have since proposed more than 1,000 structural policy measures to achieve their growth commitment.

Implementation of these structural reform initiatives has so far been uneven and incomplete. Analysis by the International Monetary Fund, the World Bank and the Organisation for Economic Co-operation and Development suggested that implementation of structural reforms to date would raise global GDP growth by only about one-third of the target (IMF 2016a). At their Chengdu meeting in July 2016, G20 finance ministers and central bank governors noted the relatively weak implementation of structural reforms and reaffirmed their importance in bolstering growth in potential output.

policies that focused on import substitution.<sup>14</sup> As part of these efforts, EMEs participated in several rounds of multilateral and regional trade negotiations during the 1980s and 1990s.

In the early 1990s, the second wave of reforms started, focusing on opening both the domestic financial sector and the capital account. These reforms are believed to be key to sustaining growth performance by raising investment, spurring innovation, facilitating technology transfer and promoting a more efficient allocation of capital (Dabla-Norris et al. 2014). The third wave of reforms, which focused on the adoption of more market-friendly agricultural policies, gathered speed during the 1990s (IMF 2008). The final wave of EME reforms, which focused on deregulation of the telecommunication and electricity sectors, started in the second half of the 1990s.

These structural reforms, coupled with a favourable external environment, likely boosted TFP growth.<sup>15</sup> Over the past 15 years, however, the pace of structural reforms has stalled. This slowdown is thought to be an important factor behind the post-crisis moderation in EME growth.<sup>16</sup> Recognizing this key link and in an attempt to stimulate global growth, the G20 launched a strategy, in 2009, for achieving strong, sustainable and balanced growth, with the promotion of structural reforms across its membership (which includes both advanced economies and EMEs) a key element of this initiative (Box 1).

◀ *The pace of structural reforms has stalled over the past 15 years*

## Recent Structural Reforms in Major EMEs and Priority Needs

Although progress on structural reforms is highly varied across EMEs, several recently announced reform initiatives appear to target the most binding constraints and therefore offer significant scope for elevating potential output

<sup>14</sup> An import-substitution strategy entails raising import barriers in targeted industries to encourage local production for local consumption, rather than producing for export markets, with the aim of generating employment, reducing foreign exchange demand and/or promoting self-sufficiency.

<sup>15</sup> For example, Cubeddu et al. (2014) found that TFP growth rose by 1.5 percentage points in the period leading up to the global financial crisis and argues that structural reforms from previous decades were a factor driving this rise in TFP growth.

<sup>16</sup> See Didier et al. (2015, 43–44), among others.

growth.<sup>17</sup> Most major EMEs have identified at least one priority for product market reform and most have committed to increase public spending for infrastructure significantly between 2015 and 2018. Several have also prioritized reductions in barriers to foreign investment and in the prevalence of inefficient state-owned enterprises. However, many of the proposed policy packages are ambitious, and implementation has been challenging.

A review of recently initiated reform agendas across several large EMEs reveals variable progress in the five broad reform categories identified above. In Brazil, India and Indonesia, structural impediments to growth appear to be substantial across all categories.<sup>18</sup> China faces relatively few bottlenecks in terms of infrastructure and labour market flexibility, but it lags behind the other EMEs in terms of openness to international trade and investment and absence of barriers to competition. Turkey, by contrast, is relatively open to international trade and investment, though labour and product market regulations appear to be larger reform priorities.

In general, although reforms to date have been uneven and incomplete, they appear to be focused on priority needs: reasonably steady progress on reforms has been observed in three out of every four areas where we have noted critical structural impediments. These reforms should boost potential growth, with larger gains in China, India and Mexico, where the most severe structural blockages are being more aggressively targeted. Large public infrastructure investments and much-needed PMR reforms are being implemented in these three markets. Moreover, as suggested by the recent research on the complementarity of various reforms, improvements in infrastructure and a number of policies aimed at reducing regulatory burdens could augment the gains from trade liberalization that has occurred over the past two decades. China, India, Indonesia and Mexico have also recently taken steps to increase foreign investment and strengthen investor and creditor protection laws. These steps are expected to improve corporate governance and complement previous and ongoing financial sector liberalization.

Brazil and Turkey face several obstacles to meeting their reform objectives. The slower pace of reform implementation in these economies is, in part, attributable to adverse cyclical conditions combined with fiscal constraints and high inflation. Previous studies indicate that significant gains from some reforms critically depend on supportive fiscal and monetary policies. Thus, in these markets, improving fiscal and monetary policy space may be an important first step toward further reforms, particularly public infrastructure investment and employment and benefits legislation.<sup>19</sup>

◀ *Reforms to date have been uneven and incomplete, but they appear to focus on priority needs*

<sup>17</sup> Several major reform proposals are described in the G20 Comprehensive Growth Strategies summarized in Box 1. However, a number of additional policies have been planned independently as part of ambitious national reform packages such as China's 2013 Third Plenum and Mexico's 2012 "Pacto por México." We draw on these various sources to identify a list of 90 significant reform objectives announced across the six largest emerging markets (Brazil, China, India, Indonesia, Mexico and Turkey) and track policy steps taken toward meeting these objectives.

<sup>18</sup> Our assessments of structural bottlenecks are based on multiple indicators for each reform category. For example, in evaluating the extent of market competition and regulation, the indicators we consider are the OECD Product Market Regulation Index, the OECD Services Trade Restrictiveness Index (which captures restrictions on foreign competition in the network and financial services sectors), the cost of business start-up procedures as a percentage of gross national income (from the World Bank's Doing Business Survey), and the average number of hours required by businesses to prepare and pay taxes (also from the Doing Business Survey). Data used to evaluate all reform categories are for 2010–14 and are obtained mainly from OECD.Stat's regulation and tax indicators, IMF Article IV market assessments and the World Bank. Our assessments on reform progress are based on information compiled from a range of media reports, publicly available OECD and IMF documents, and national government sources.

<sup>19</sup> Targeting severe structural bottlenecks in areas with benefits that do not critically depend on maintaining accommodative fiscal and monetary policies may be necessary to alleviate these constraints. As weak growth persists, domestic tax revenues shrink relative to social spending and debt financing, further eroding fiscal policy space (Didier et al. 2015).

Another potential hurdle for EMEs facing recessions is that they can be politically difficult to implement during downturns because the costs of reforms are paid early on while their benefits accrue slowly over time. Indeed, when the economy is sluggish, those who benefit from barriers to competition may be better able to leverage resistance to change. Ultimately the capacity to build broad political support for structural reforms will depend on the outcomes of bargaining between various interest groups (IMF 2015).

## Quantifying the Impact of Structural Reforms on Potential Growth in EMEs

What will be the potential contribution of the recently implemented and planned structural reforms to economic growth in these markets? An extensive literature provides valuable insights into the potential benefits of various types of reform and into the conditions on which they depend. However, drawing on these insights to quantify the economic impacts of different reform policy agendas in particular countries presents several data and modelling challenges.

To quantify the effects of the recent wave of diverse structural reform objectives in large EMEs, we use the semi-structural, augmented Solow growth model developed by the Organisation for Economic Co-operation and Development (OECD). This model combines average empirical relationships based on estimates from a large number of cross-country linear regression models (capturing the effects of dozens of reform indicators) to construct a unified model of the aggregate economy. We summarize key features of the model in **Box 2**.

Our analysis focuses on the EMEs that have been the most active in implementing and planning reforms since 2014: China, India, Indonesia and Mexico. Because we do not have access to the detailed OECD survey data necessary to directly impute the changes in model indicators associated with each structural reform, assumptions must be made on how these indicators change with respect to recent reforms. We assume that a significant policy reform improves the relevant indicator value to equal the score of the next least-restrictive country.<sup>20</sup> To capture the effects of recent and planned infrastructure initiatives, we estimate the implied changes in the stock of infrastructure capital between 2014 and 2018 (based on the difference between average pre-reform expenditures and planned expenditures) and use Bom and Ligthart's (2014) meta-analysis output elasticity estimate to impute the effects on output.<sup>21</sup>

The estimated impacts from 2016 to 2018 are reported in **Table 1**. These estimates indicate that the contributions to potential output from each PMR reform, trade and foreign direct investment reform, and infrastructure construction could be substantial, increasing GDP growth in these markets by as much as 2 percentage points annually by 2018. For PMR and trade liberalization reforms, almost all of the estimated contribution is additions to TFP growth.<sup>22</sup>

◀ *The contributions of anticipated structural reforms could be substantial, increasing GDP growth in these markets by as much as 2 percentage points annually by 2018*

<sup>20</sup> Depending on the indicator, the data sample varies from 12 to 25 EMEs. In most instances, this assumption results in rather conservative counterfactual changes in the associated index. Limited time series data on both past reforms and these various index measures for EMEs preclude direct estimation of average index changes in response to specific reforms. Given that our assumed policy impacts are constrained by limited data, they should be taken to be suggestive.

<sup>21</sup> Bom and Ligthart's mid-point estimate from recent studies of the elasticity of GDP with respect to infrastructure capital is approximately 0.15, implying that an increase in infrastructure capital of 10 per cent raises the level of GDP by 1.5 per cent.

<sup>22</sup> Because the impact of infrastructure investments is estimated based on assumptions outside of the model, we are unable to decompose the productivity impacts into TFP contributions and additions to the aggregate capital stock.

## Box 2

## A Quantitative Model of Structural Reforms

Researchers from the Organisation for Economic Co-operation and Development (OECD)<sup>1</sup> have developed a model mapping reforms into changes in labour productivity (and real GDP) based on the following empirical conditional convergence relationship:

$$\Delta \ln y = (0.09 - 0.02 \cdot PMR) \cdot (\ln y^* - \ln y),$$

where  $\ln y$  is output per hour worked,  $\ln y^*$  is long-run output per hour worked and  $PMR$  is an index of product market regulations (with higher values indicating more extensive restrictions). Current and long-run output per work-hour, in turn, are endogenously determined by a large number of empirically estimated relationships linking various exogenous policy, regulatory and market friction indicators (including the product market regulation index) to investment, trade, foreign direct investment, human capital accumulation, employment and research and development.<sup>2</sup>

The International Monetary Fund (IMF) and the OECD have combined a similar framework with the IMF's global general-equilibrium model to estimate the country impacts of the G20 reform commitments discussed in Box 1. The effects that reforms have on growth in output per worker and employment are estimated by simulating shocks to each of the relevant policy indicators in the model, based on the change in the indicators implied by country survey responses or imputed based on past changes in the indicator as a result of similar reforms.

The estimated changes to employment and labour productivity are then used to simulate the effects on global GDP using the IMF's general-equilibrium G20 model, which is able to capture international spillovers resulting from international trade and global price changes. The IMF G20 model is also used to estimate the effects of each country's public infrastructure investments, which are not directly captured by the OECD model.<sup>3</sup>

1 Full model details are documented in Barnes et al. (2013). Model parameters are based on estimates of the average marginal effects of policy on economic outcomes taken from several OECD studies.

2 Most of the model parameters are based on empirical, reduced-form relationships that have been estimated independently using cross-country data (mainly from OECD members). A few parameters are calibrated by assumption. The model consists of 24 endogenous variables and 26 policy-related exogenous variables. Many of the policy-related indicators are constructed by coding responses of national governments to periodic surveys on several regulatory and legal measures. For details, refer to the OECD website: <http://www.oecd.org/eco/growth/indicatorsofproductmarketregulationhomepage.htm#Sources>.

3 Because infrastructure investment is not explicitly modelled in the OECD framework, it is necessary to supplement this framework with estimates of the effects of this key area of reform based on a second model or using empirically estimated output elasticities. The full methodology used by the G20 to obtain their reform impact estimates is described on the OECD website: <https://www.oecd.org/g20/summits/brisbane>.

**Table 1: Impact of anticipated structural reforms on potential output growth**

Average annual percentage-point increase in real potential GDP, 2016–18

	China	India	Indonesia	Mexico
Product market regulation reforms	0.62	0.42	0.27	0.27
Trade and FDI liberalization	0.47	0.68	-	0.72
Infrastructure <sup>a</sup>	0.72	0.36	1.20	0.95
Other	0.18–0.26	0.02	0.19–0.30	-
<b>Total</b>	<b>2.0–2.1</b>	<b>1.5</b>	<b>1.7–1.8</b>	<b>1.9</b>

a. Estimates are based on full implementation of announced investment plans from 2015 to 2018. Realized investments may be lower. In the case of Mexico, there is no estimated addition to potential output in 2016, given 2015 realized expenditures.

Note: FDI means foreign direct investment.

Although these estimates capture complementarities between various structural reforms, they do so in a rather rudimentary way. In the model, structural reforms affect labour productivity growth by raising both the long-run level and the incremental rate at which this level is reached. Thus, by increasing long-run productivity, improvements in one reform indicator magnify the incremental growth impacts of other reforms. Because of its relatively simple structure, however, the model does not capture potentially important, general-equilibrium effects of reforms that micro-founded, general-equilibrium (GE) models do, such as spillover effects resulting in changes to relative prices. Moreover, the sequence of reforms does not play a meaningful role within this framework.

Simulating reform impacts using country- and reform-specific GE models is a practical alternative approach for evaluating the short- and long-run spillover effects of a particular reform on distinct but interconnected sectors (or markets) of the economy, as in García-Santana and Pijoan-Mas (2014). These models also allow the researcher to compare outcomes under alternative, counterfactual reform scenarios. This comparison is useful, for example, in studying the optimal sequence of reform implementation, as in Asturias et al. (2016). However, while GE models work well when evaluating only a handful of key reforms and spillovers across sectors or markets that are of primary interest, they can become analytically and computationally intractable when analyzing a broad set of reform policies such as those analyzed here.<sup>23</sup>

Given that the OECD model parameters are estimated largely based on historical, average relationships for OECD countries, mainly advanced economies, these simulations could underestimate the impact of reforms in EMEs. As Didier et al. (2015) note, the dispersion of productivity and misallocation of capital and labour among sectors tend to be greater for EMEs. Moreover, recent reform initiatives in China, India, Indonesia and Mexico have been broad-based. Therefore, complementarities that are not captured by the model are likely to exceed the historical relationships among advanced economies.

Our simulations may also overstate the contributions of reforms in these EMEs for several reasons. Some of the initiatives considered in this analysis are at early stages. This suggests that the benefits may be realized with a longer lag than we assumed in our simulations, and several of the previously outlined challenges currently facing EMEs may result in unanticipated delays in implementation. The large growth contributions from infrastructure, for example, are based on planned fiscal expenditures over this period, but restraints on budgets may result in lower actual investments. The impact of these policies also depends on the reform sequence, and some of the reforms may have less impact than the OECD average if necessary legal and institutional pillars are not already well established.

## Conclusion

The future global economic environment will not be as supportive for EMEs as it was in the decade leading up to the financial crisis. EMEs will need to implement structural reforms to achieve sustainable robust growth and to foster convergence to higher income levels. Governments in several large EMEs have recently been making significant progress on their reform

---

<sup>23</sup> Calibrating model parameters for several EMEs is a potentially data-intensive exercise (particularly if the reforms studied necessitate multi-sector models) that may require data that are not readily available for some EMEs.

agendas. These reforms are expected to contribute to higher TFP growth and to support capital accumulation, and our model estimates suggest the impacts could be substantial. Given that the emerging world now accounts for the better part of world GDP, such growth prospects are an important determinant of the global outlook. Although the focus of this article is EMEs, securing sustainable growth in advanced economies also requires the implementation of structural reforms. As the IMF (2016b) stipulated, reforms that entail fiscal stimulus, such as infrastructure spending and reducing labour tax wedges, in addition to reforms that lower barriers to entry in product and services markets, may be most valuable at the current juncture since they would enhance both near- and medium-term GDP growth. Such reforms would also benefit EMEs by helping to strengthen global demand.

---

## Literature Cited

- Abiad, A., N. Oomes and K. Ueda. 2008. "The Quality Effect: Does Financial Liberalization Improve the Allocation of Capital?" *Journal of Development Economics* 87 (2): 270–282.
- Asturias, J., S. Hur, T. J. Kehoe and K. J. Ruhl. 2016. "The Interaction and Sequencing of Policy Reforms." *Journal of Economic Dynamics and Control* (forthcoming).
- Barnes, S., R. Bouis, P. Briard, S. Dougherty and M. Eris. 2013. "The GDP Impact of Reform: A Simple Simulation Framework." Organisation for Economic Co-operation and Development (OECD) Economics Department Working Paper No. 834.
- Blackburn, K. and G. F. Forges-Puccio. 2010. "Financial Liberalization, Bureaucratic Corruption and Economic Development." *Journal of International Money and Finance* 29 (7): 1321–1339.
- Bolaky, B. and C. L. Freund. 2004. "Trade, Regulations, and Growth." World Bank Policy Research Working Paper No. 3255.
- Bom, P. R. and J. E. Ligthart. 2014. "What Have We Learned from Three Decades of Research on the Productivity of Public Capital?" *Journal of Economic Surveys* 28 (5): 889–916.
- Bordon, A. R., C. Ebeke and K. Shirono. 2016. "When Do Structural Reforms Work? On the Role of the Business Cycle and Macroeconomic Policies." International Monetary Fund (IMF) Working Paper WP/16/62.
- Bouis, R., O. Causa, L. Demmou, R. Duval and A. Zdzienicka. 2012. "The Short-Term Effects of Structural Reforms: An Empirical Analysis." OECD Economics Department Working Paper No. 949.
- Calderón, C. and L. Servén. 2010. "Infrastructure in Latin America." World Bank Policy Research Working Paper No. 5317.
- . 2008. "Infrastructure and Economic Development in Sub-Saharan Africa." World Bank Policy Research Working Paper No. 4712.

- Caselli, F. and N. Gennaioli. 2008. "Economics and Politics of Alternative Institutional Reforms." *Quarterly Journal of Economics* 123 (3): 1197–1250.
- Chang, R., L. Kaltani and N. Loayza. 2009. "Openness Can Be Good for Growth: The Role of Policy Complementarities." *Journal of Development Economics* 90 (1): 33–49.
- Christiansen, L., M. Schindler and T. Tressel. 2013. "Growth and Structural Reforms: A New Assessment." *Journal of International Economics* 89 (2): 347–356.
- Cubeddu, L., A. Culiuc, G. Fayad, Y. Gao, K. Kochhar, A. Kyobe, C. Oner, R. Perrelli, S. Sanya, E. Tsounta and Z. Zhang. 2014. "Emerging Markets in Transition: Growth Prospects and Challenges." IMF Staff Discussion Note 14/06.
- Dabla-Norris, E., G. Ho, K. Kochhar, A. Kyobe and R. Tchaidze. 2014. "Anchoring Growth: The Importance of Productivity-Enhancing Reforms in Emerging Market and Developing Economies." *Journal of International Commerce, Economics and Policy* 5 (2).
- Dewatripont, M. and G. Roland. 1995. "The Design of Reform Packages Under Uncertainty." *American Economic Review* 85 (5): 1207–1223.
- Didier, T., M. A. Kose, F. Ohnsorge and L. S. Ye. 2015. "Slowdown in Emerging Markets: Rough Patch or Prolonged Weakness?" World Bank Policy Research Note 15/04.
- Djankov, S., R. La Porta, F. Lopez-de-Silanes and A. Shleifer. 2008. "The Law and Economics of Self-Dealing." *Journal of Financial Economics* 88 (3): 430–465.
- . 2002. "The Regulation of Entry." *Quarterly Journal of Economics* 117 (1): 1–37.
- Djankov, S., C. McLiesh and R. M. Ramalho. 2006. "Regulation and Growth." *Economics Letters* 92 (3): 395–401.
- Edwards, S. 1984. "The Order of Liberalization of the External Sector in Developing Countries." *Essays in International Finance* 156 (December): 1–28.
- Esfahani, H. S. and M. T. Ramírez. 2003. "Institutions, Infrastructure, and Economic Growth." *Journal of Development Economics* 70 (2): 443–477.
- Frenkel, J. 1982. "The Order of Economic Liberalization: Lessons from Chile and Argentina: A Comment." In *Carnegie-Rochester Series on Public Policy* 17: 199–201. North-Holland Press.
- Galindo, A., F. Schiantarelli and A. Weiss. 2007. "Does Financial Liberalization Improve the Allocation of Investment?: Micro-Evidence from Developing Countries." *Journal of Development Economics* 83 (2): 562–587.

- García-Santana, M. and J. Pijoan-Mas. 2014. "The Reservation Laws in India and the Misallocation of Production Factors." *Journal of Monetary Economics* 66: 193–209.
- Gorodnichenko, Y. and M. Schnitzer. 2013. "Financial Constraints and Innovation: Why Poor Countries Don't Catch Up." *Journal of the European Economic Association* 11 (5): 1115–1152.
- Hausmann, R., D. Rodrik and A. Velasco. 2008. "Growth Diagnostics." In *The Washington Consensus Reconsidered: Towards a New Global Governance*, edited by N. Serra and J. E. Stiglitz, 324–355. New York: Oxford University Press.
- Herwartz, H. and Y. M. Walle. 2014. "Openness and the Finance-Growth Nexus." *Journal of Banking & Finance* 48: 235–247.
- Honig, A. 2008. "Addressing Causality in the Effect of Capital Account Liberalization on Growth." *Journal of Macroeconomics* 30 (4): 1602–1616.
- International Monetary Fund (IMF). 2016a. "Staff Note for the G20—A Guiding Framework for Structural Reforms." IMF Policy Papers, March.
- . 2016b. "Time for a Supply-Side Boost? Macroeconomic Effects of Labor and Product Market Reforms in Advanced Economies." *World Economic Outlook* (April), Chapter 3.
- . 2015. "Structural Reforms and Macroeconomic Performance: Initial Considerations for the Fund." *IMF Policy Papers*, October.
- . 2014. "Is it Time for an Infrastructure Push? The Macroeconomic Effects of Public Investment." *World Economic Outlook* (October), Chapter 3.
- . 2008. "Structural Reforms and Economic Performance in Advanced and Developing Economies." Research Department, June.
- Johnson, H. G. 1967. "The Possibility of Income Losses from Increased Efficiency or Factor Accumulation in the Presence of Tariffs." *Economic Journal* 77 (305): 151–154.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny. 2000. "Investor Protection and Corporate Governance." *Journal of Financial Economics* 58 (1): 3–27.
- Loayza, N. V., A. M. Oviedo and L. Servén. 2005. "The Impact of Regulation on Growth and Informality: Cross-Country Evidence." World Bank Policy Research Working Paper No. 3623.
- Nicoletti, G. and S. Scarpetta. 2003. "Regulation, Productivity and Growth: OECD Evidence." *Economic Policy* 18 (36): 9–72.
- Poloz, S. S. 2016. "A New Balance Point: Global Trade, Productivity and Economic Growth." Remarks to the Investment Industry Association of Canada and Securities Industry and Financial Markets Association, New York, New York, 26 April.

- Prasad, E., R. Rajan and A. Subramanian. 2007. "Foreign Capital and Economic Growth." *Brookings Papers on Economic Activity* 2007 (1): 153–230.
- Prati, A., M. G. Onorato and C. Papageorgiou. 2013. "Which Reforms Work and Under What Institutional Environment? Evidence from a New Data Set on Structural Reforms." *Review of Economics and Statistics* 95 (3): 946–968.
- Rajan, R. and L. Zingales. 1998. "Financial Dependence and Growth." *American Economic Review* 88 (3): 559–586.
- Sachs, J. D. and A. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity* 1995 (1): 1–118.
- Saadi Sedik, T. and T. Sun. 2012. "Effects of Capital Flow Liberalization: What is the Evidence from Recent Experiences of Emerging Market Economies?" IMF Working Paper No. 12/275.
- Wacziarg, R. and K. H. Welch. 2008. "Trade Liberalization and Growth: New Evidence." *World Bank Economic Review* 22 (2): 187–231.
- Wei, S. J. 1997. "Gradualism Versus Big Bang: Speed and Sustainability of Reforms." *Canadian Journal of Economics* 30 (4): 1234–1247.
- World Bank. 2014. "Growth in the Post-Crisis Global Economy: Policy Challenges For Developing Countries." Development Committee of the Board of Governors of the World Bank and the IMF, March.