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# Structural Reforms to Accelerate Growth, Ease Policy Trade-offs, and Support the Green Transition in Emerging Market and Developing Economies

Prepared by Nina Budina, Christian Ebeke, Florence Jaumotte, Andrea Medici, Augustus J. Panton, Marina M. Tavares, and Bella Yao

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IMF Staff Discussion Notes (SDNs) showcase policy-related analysis and research being developed by IMF staff members and are published to elicit comments and to encourage debate. The views expressed in Staff Discussion Notes are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

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STAFF DISCUSSION NOTE

**IMF Staff Discussion Notes**

Research Department and Strategy, Policy, and Review Department

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Authorized for distribution by Pierre-Olivier Gourinchas and Ceyla Pazarbasioglu

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**ABSTRACT:** In the aftermath of the COVID-19 pandemic, emerging market and developing economies are grappling with economic scarring, social tension, and reduced policy space. Policy actions are urgently needed to boost growth already in the near term and support the ongoing green transition. At the same time, high public debt and persistently high inflation have constrained policy space, posing difficult policy trade-offs. This Staff Discussion Note focuses on emerging market and developing economies and proposes a framework for prioritization, packaging, and sequencing of macrostructural reforms to accelerate growth, alleviate policy trade-offs, and support the green transition. The note shows that prioritizing the removal of the most binding constraints on economic activity, bundling reforms (governance, business deregulation, and external sector reforms), and appropriate sequencing of other reforms (such as labor market and credit sector reforms) can help front-load reform gains. In emerging market and developing economies with large initial structural gaps, the estimated output effects of such a *major* reform package are sizable—about 4 percent in two years and 8 percent in four years. Achieving higher growth and lower absolute carbon emissions over time requires a well-designed strategy that includes both macrostructural and green reforms.

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# Executive Summary

**Emerging market and developing economies face the challenge of reviving growth and facilitating orderly structural transformation, including the green transition, with limited policy space.** Growth remains weak in many of these economies as they grapple with a high risk of scarring from the pandemic and macroeconomic policy trade-offs amid high inflation, high debt, and balance of payments pressures. At the same time, these economies are also facing a challenging green transition. In the context of limited policy space and multiple policy objectives, macrostructural reforms can provide policymakers with additional policy levers. This Staff Discussion Note proposes a framework for prioritization, packaging, and sequencing of macrostructural and green reforms in emerging market and developing economies to accelerate growth, alleviate policy trade-offs, and support the green transition.

**Well-calibrated reforms can help jump-start growth even when policy space is limited.** Econometric analysis yields three main results. *First*, the reforms that alleviate the most critically binding constraints to economic activity—such as governance, business regulation, and external sector reforms (first-generation reforms)—can help front-load output gains by promoting domestic and foreign investment and enhancing labor productivity. The effects of implementing a package of *major* first-generation structural reforms, defined as episodes for which an improvement in the relevant indicator is at least two standard deviations of the distribution, can be sizable. In emerging market and developing economies with large initial structural gaps, such a reform package is estimated to have lifted the level of output by 4 percent in two years and 8 percent in four years. These reforms can have positive output effects even during periods of macroeconomic stress, when other policy levers are constrained but the potential for productive factor reallocations is large. *Second*, these first-generation reforms can also help ease macroeconomic pressures (price pressures, elevated sovereign risk premiums, weak foreign direct investment inflows) through increased competition and improved investor confidence. *Third*, reform payoffs are larger when they are well sequenced (when the most binding constraints on economic activity are removed first to maximize gains from the next wave of reforms) and packaged (when governance, external sector, and business regulation reforms are implemented jointly).

**A combination of macrostructural and green reforms—such as environmental taxation and regulations—is critical to support the green transition.** By accelerating growth, structural reforms can assuage concerns about potential short-term growth costs of ambitious green reforms and create fiscal space to implement green reforms. The improved business climate can incentivize private investment and support diversification of economic activity away from carbon-intensive sectors, while trade liberalization can improve access to low-carbon technologies. The analysis yields three insights: first, the first-generation reforms can help reduce the energy and emissions intensity of output in emerging market and developing economies; second, the first-generation reforms make green reforms, especially those that operate through price signals (such as energy taxes), more effective at reducing emissions; third, the first-generation reforms tend to raise the overall level of emissions by stimulating stronger growth and therefore need to be complemented by more stringent and credible green reforms to reduce absolute emissions over time. Overall, this strategy should put these economies on a growth path with lower emissions intensity and declining absolute emissions over time.

**Front-loading reform gains can increase public buy-in, including of the green transition.** Reforms are often at risk of being derailed by concerns about their adverse distributional effects, perceived long growth lags, resistance by vested interests, and in some cases, lack of administrative capacity. By frontloading the growth gains, well-designed reform packages could at least partly overcome the political economy impediments and improve public buy-in. Mitigating the potential adverse distributional effects of reforms will require complementary policies, including targeted support to ensure that the benefits of reforms are shared broadly.

**Maintaining global trade openness is critical to support emerging market and developing economies' reform efforts.** External sector reforms are an important part of first-generation reforms. But emerging market and developing economies will only be able to reap the economic benefits of these reforms if an open global trading system is maintained. Rising protectionist measures would also be an obstacle to the development of the green sector in these economies, given their reliance on scarce foreign inputs and technologies.

# I. Introduction

**Emerging market and developing economies face weak growth prospects and challenging structural transitions with limited policy space.** Many of these economies are still grappling with post-COVID scarring, sticky inflation, and weak growth. Policy actions are needed to raise living standards, tackle structural challenges, and support the green transition. However, policy space is often constrained by elevated public debt, high inflation, and balance of payments pressures. These lead to difficult policy trade-offs among objectives of strong growth, price and financial stability, reduced emissions intensity, and debt sustainability, which at times compete with one another. Finally, rising geoeconomic fragmentation may further weaken global growth and derail the green transition, including because of the added challenges of maintaining energy security and ensuring an adequate supply of critical minerals and agricultural goods.

**This note expands the literature on the economic effects of structural reforms—including both macrostructural and green reforms—in four areas.** First, it aims to assess the economic impact of macrostructural reforms in emerging market and developing economies; previous studies focused largely on advanced economies. Second, it explores ways of front-loading reform benefits—through accelerating growth or expanding the policy space—building on the literature that has focused mainly on quantifying the medium-term effects of individual structural reforms (for example, IMF 2019). Third, it shows that the front-loading of reform gains can be achieved through prioritization, packaging, and sequencing of reforms and proposes specific reform packages for emerging market and developing economies that could deliver reform benefits earlier than previously envisioned. Early gains are key to easing policy trade-offs, creating broader buy-in, and facilitating climate mitigation and adaptation. Fourth, while other studies have examined structural reforms and green transition separately, this note examines the role of both macrostructural reforms and green reforms in accelerating green growth—that is, growth characterized by low emissions intensity and a declining trend of absolute emissions over time.

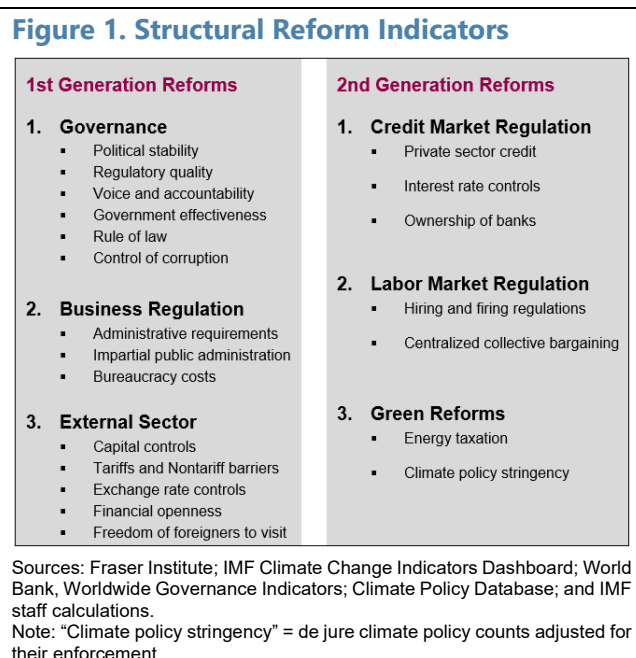
**The focus on structural reforms is necessary and timely, given multiple pressing challenges facing these economies, including the green transition.** The removal of the most binding constraints to economic activity through a well-designed package of first-generation reforms can help ease some of the near-term policy trade-offs and create fiscal and political space to implement the green transition. The green transition requires a reallocation of resources from more to less carbon intensive activities. Macrostructural reforms can facilitate such reallocation, including by allowing a greater role for private sector investment. While structural reforms could initially lead to more emissions because of their positive impact on growth, this remains compatible with the principle of *common but differentiated* responsibilities under the Paris Agreement, which takes the development needs of emerging market and developing economies into account. While there is a duty for all countries to take climate action, emerging market and developing economies may reduce emissions more gradually than advanced economies given their need to grow strongly, and progress should initially be measured by the pace of reducing the emission intensity of growth. That said, stringent green reforms will ultimately be needed to ensure a strong enough reduction in the emissions intensity of economic activity, which will over time enable emerging market and developing economies to cut absolute emissions to reach net zero while supporting growth.

**Experience shows that reform implementation also requires political space.** The political economy challenges associated with undertaking comprehensive reform packages are well known, especially amid strong opposing vested interests (Rajan and Zingales 2003). First, reforms may generate public backlash when some parts of society perceive them as harmful to employment prospects, if no proper compensation or social contract is in place or when powerful vested interests oppose reform action. Second, reform gains are often

perceived as taking too long to materialize, diverting the attention of policymakers to what they see as more pressing needs. The buy-in for deeper, structural reforms can however be improved by well-designed reform packages and sequencing that prioritize early benefits and by complementing them with distributional measures that help mitigate the uneven accrual of reform benefits across households, firms, and demographic groups.<sup>1</sup> Overcoming public skepticism requires fostering broad understanding of the objectives and benefits of structural reforms through public communication and improvements to administrative capacity.

**This note aims to identify specific reforms and reform packages that can help front-load the growth gains, alleviate policy trade-offs, and support a growth-friendly green transition.** The note uses a new comprehensive data set on structural and green policies (Figure 1) in emerging market and developing economies to shed light on potential yields from various macrostructural reform strategies. Specifically, the note addresses the following questions:

- *What are the key channels through which macrostructural reforms can help accelerate growth and ease some of the macroeconomic policy trade-offs (for example, high inflation, low growth, high debt)?*
- *How can the packaging and sequencing of macrostructural reforms help increase their effectiveness, including when structural gaps are large and macroeconomic pressures are acute?*
- *Which reforms could help support the green transition, including by easing potential short-term growth-climate trade-offs? How do traditional macrostructural and green reforms interact to help support the green transition?*



**This note builds on the previous literature and uses a novel data set of reform indicators in emerging market and developing economies.** Past studies had found that reforms in areas such as governance, domestic and external finance, trade, and labor and product markets could yield sizable output gains in the medium term (IMF 2019). However, the capacity of these reforms to deliver front-loaded economic gains, individually or in combination, in an environment characterized by difficult policy trade-offs is not well understood in the context of emerging market and developing economies. Furthermore, thanks to newly available data on selected climate policies across countries, the specific effects of green reforms on green growth can be assessed in cross-country regressions, a still underexplored area in the literature. The note presents analysis based on an updated database of structural reform indicators in several macrostructural and green reform areas for a sample of 51 low-income countries and 78 emerging markets during 2000–20 (Figure 1). See Annex Table 1.2 for the sample of economies covered in this note.

<sup>1</sup> Fabrizio and others (2017) show that carefully designed reform packages could mitigate the often adverse distributional consequences of structural reforms in low-income developing countries while preserving their growth benefits. This insight finds resonance in the work of Ostry, Berg, and Kothari (2021), who, through their empirical examination of structural reforms across various economies, found evidence of a growth-equity trade-off in specific reforms (financial and capital account liberalization).

**There are other reforms, not covered in this note, that can potentially support growth and/or help ease policy trade-offs.** For example, [fiscal structural reforms](#), encompassing areas such as revenue mobilization, public finance management, or spending efficiency, can enhance fiscal space and reduce fiscal risks over time. [Improved monetary policy and macroprudential frameworks](#), aiming for example to enhance central bank credibility and independence and address financial stability risks, are key to improving monetary policy transmission and macroeconomic stability. In addition, reforms aimed at facilitating factor accumulation, such as improving education systems and public infrastructure or removing barriers to women's participation in the economy, have the potential to deliver substantial growth benefits over the medium to long term.

**The rest of the note is organized as follows.** Section II presents relevant stylized facts such as the extent of economic scarring risks in emerging market and developing economies, existing structural gaps, macroeconomic imbalances, and climate change mitigation performance. Section III outlines the key transmission channels through which structural reforms affect growth and other macroeconomic variables. Section IV discusses the results of econometric analyses to identify reforms, packages, and sequencing options that can yield front-loaded growth gains and help support macroeconomic stability, given a country's structural gaps and underlying macroeconomic imbalances. Section V examines the impact of macrostructural and green reforms on accelerating the green transition and makes a first attempt to assess whether the effectiveness of green reforms can be enhanced through traditional macrostructural reforms. Section VI discusses granular policy prioritization and elaborates on addressing implementation challenges, and Section VII concludes.

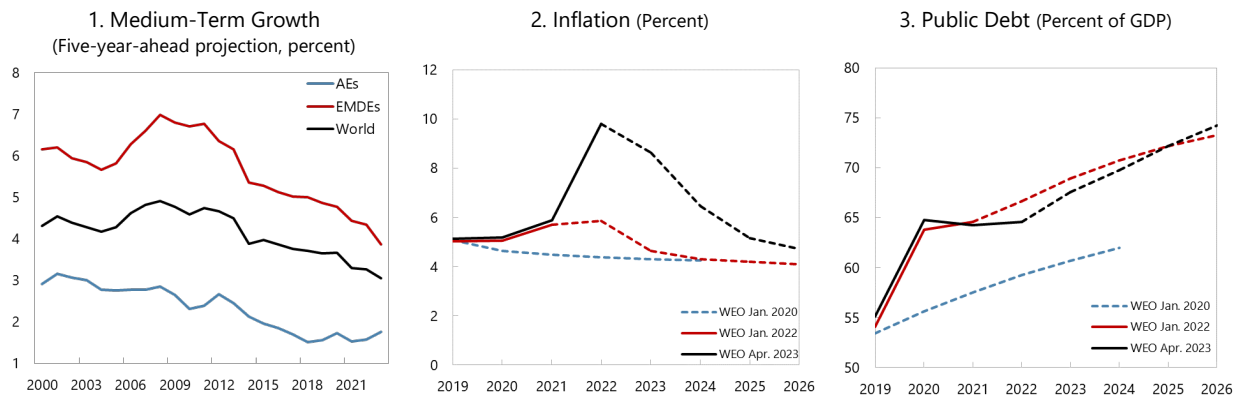
## II. Stylized Facts: Policy Trade-offs and Structural Gaps in Emerging Market and Developing Economies

**These economies face a very challenging economic outlook.** The real GDP growth projections five years ahead have been consistently revised down, particularly since the onset of the COVID-19 pandemic (from about 4.9 percent in 2019 to 3.9 percent in 2023) (Figure 2, panel 1). Some of the slowdown may reflect in part the economic scarring from the pandemic. This slowdown is compounded by heightened uncertainty driven by the rising risk of geoeconomic fragmentation, which weighs on trade and foreign direct investment (FDI) (IMF 2023a). These recent challenges add to persistent and large labor productivity gaps, which continue to constrain emerging market and developing economies' medium-term growth prospects, with their average labor productivity only about one-third that at the frontier (defined as the 75th percentile of labor productivity in advanced economies; see Annex Figure 1.1, panel I).

**The current macroeconomic pressures on emerging market and developing economies limit their policy space to support growth.** The weak growth coincides with stubbornly high inflation, complicating the use of macroeconomic policies to support economic development and to facilitate the green transition. Weaker economic activity, COVID-related fiscal packages, and higher borrowing costs—including as a result of monetary policy tightening—led to a surge in public-debt-to-GDP ratios, constraining fiscal space (Figure 2, panel 3). The monetary policy tightening in advanced economies has intensified exchange market pressures amid capital outflows. Russia's war in Ukraine has led to higher uncertainty and has increased the geoeconomic fragmentation risks.



**Figure 2. Macroeconomic Challenges in Emerging Market and Developing Economies**



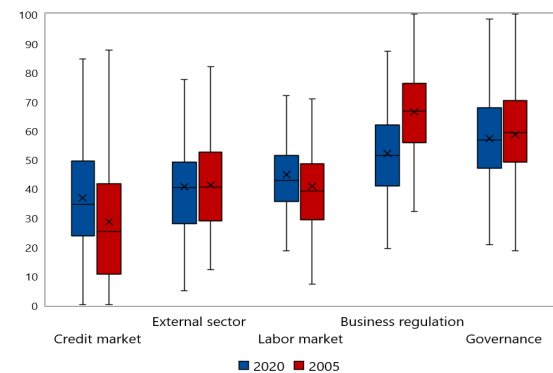
Sources: IMF, *World Economic Outlook*; and IMF staff calculations.

Note: In the first panel, we show five-year-ahead growth projections as forecast in the April WEOs. For example, the data point in 2020 shows the growth projection for year 2025 in the April 2020 WEO—simple averages. In the second and third panels, the dashed part of the line indicates projections; the solid part indicates actual data—simple averages. AEs = advanced economies; EMDEs = emerging market and developing economies; WEO = *World Economic Outlook*.

**Growth in emerging market and developing economies continues to be held back by significant structural impediments.** The structural reform gaps relative to the frontier (best global performer in each reform indicator in each year) are particularly large in the areas of governance, business regulation, and external sector reforms (*first-generation* structural reforms), as well as in labor market and credit market reforms (*second-generation* structural reforms). There is ample scope for governance reforms in many emerging market and developing economies, as indicated by the larger median gap relative to the frontier for the quality of governance (Figure 3). Areas such as the ease of setting up and operating a business (business

**Figure 3. Gaps in Macrostructural Reforms**

Structural Gaps in EMDEs (Relative to global frontier, percent)

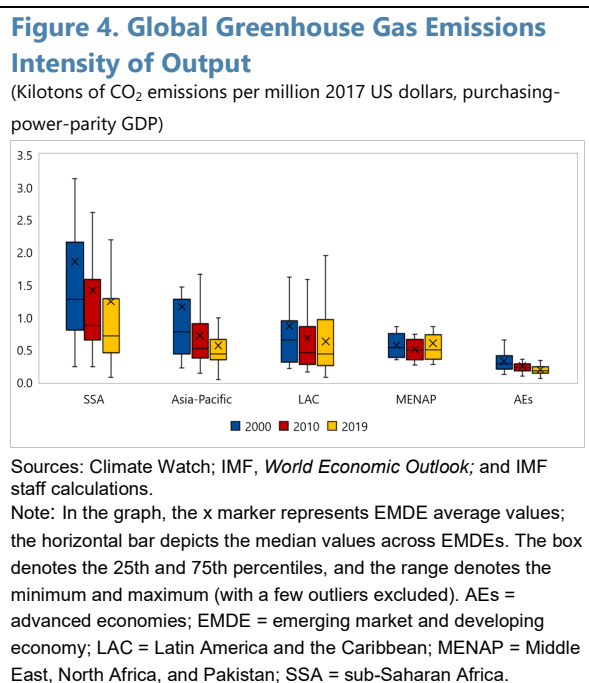


Sources: Fraser Institute; World Bank; and IMF staff calculations.

Note: Structural gaps are calculated as the deviation of each reform area from its global frontier (best performer in the same year). Each reform indicator is normalized between 0 and 1 based on the global sample. In the graph, the x marker represents the emerging market and developing economy (EMDE) average values; the horizontal bar depicts the median values across EMDEs. The box denotes the 25th and 75th percentiles; the range denotes the minimum and maximum (with a few outliers excluded).

regulation) have substantial room for improvement as well, particularly in low-income countries. Gaps in external sector reforms and in credit market regulation are somewhat smaller.

**In addition, emerging market and developing economies face a new challenge of facilitating a smooth green transition.** While all countries must step up the climate mitigation efforts, doing so is particularly challenging for emerging market and developing economies given their limited policy space and competing development needs. Despite some improvement over the past two decades, emissions intensity of output remains high across emerging market and developing economies. This, however, means cheap opportunities to reduce emissions and to move to cleaner growth (Figure 4). The need to invest in cleaner and more efficient energy sources has become even more urgent amid accelerating climate change.



### III. How Can Structural Reforms Work in Emerging Market and Developing Economies? Transmission Channels

**Macrostructural reforms operate through several transmission channels, depending on the size of the reform gap and the initial configuration of the economy.** Major macrostructural reforms have the potential to deliver strong impacts in emerging market and developing economies given their initial conditions and existing structural gaps (governance and resource allocation challenges, limited competition, financial constraints, human capital deficit, low productivity, and so forth). First, some macrostructural reforms help accelerate growth by promoting competition, investment, productivity, and more efficient resource allocations (output channel) (Figure 5). Reforms can further help lift output when they boost short-term aggregate demand. Second, macrostructural reforms have the potential to ease macroeconomic policy trade-offs when they directly affect macroeconomic variables such as prices, sovereign spreads, and FDI inflows (other-macro-effects channel). Third, the combination of macrostructural and green reforms can contribute to greening economic activity and reducing potential growth-climate trade-offs by facilitating more dynamic and less-carbon-intensive private sector investment, enhancing the efficiency of factor reallocations across sectors and improving access to low-carbon technology (green channel). These channels are explored individually in the empirical sections (Sections IV and V).

**The output channel operates through several sub-channels, including competition and factor reallocations.** Reform-led productivity gains stem from increased competition—especially in emerging market and developing economies where the room to increase competition among firms is very high—and a more efficient allocation of labor and capital from informal and less productive to formal and more productive firms

and activities (Lambert, Pescatori, and Toscani 2020). Private investment can increase sharply in response to an improvement in the business environment or if credit constraints are alleviated by credit market reforms that would disproportionately benefit small and medium-sized companies and make them more willing to compete in the formal economy. Potential output can also increase when supported by greater employment resulting from reduced distortions to workers' participation in the labor market or firms' hiring (Meghir, Narita, and Robin 2015). Finally, strong and credible reforms can boost aggregate demand in the near term, as prospects for higher productivity can stimulate consumption, firm entry, investment, and input demand (IMF 2016).

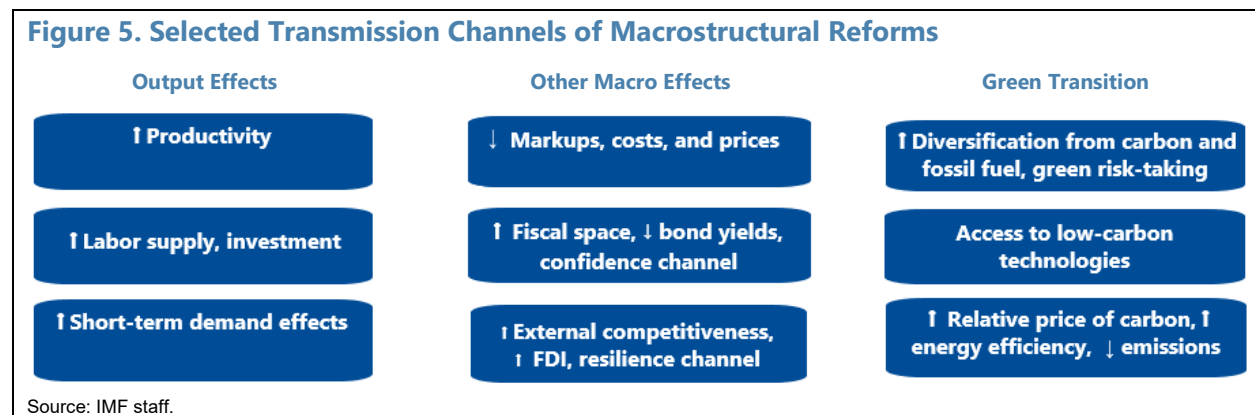
**Beyond output, some reforms may directly affect other macroeconomic variables such as prices and the cost and composition of external financing.** Starting with prices, consistent with previous studies, some reforms have the potential to lower the aggregate price level by reducing prices of imported inputs, as with trade liberalization (Helpman and Krugman 1985; Ahn and others 2019), promoting competition (for example, reducing corporate market power), improving monetary policy transmission when markups are lowered (Duval, Furceri, and Jalles 2022; OECD 2022), or increasing labor force participation and thus limiting wage pressures. Reforms may also initially boost inflation due to an increase in aggregate demand in the short run, but the empirical evidence suggests that the net effect of reforms on the price level is neutral in the context of advanced economies (IMF 2016). In the context of emerging market and developing economies, in contrast, macrostructural reforms may contribute to sharper reductions in inflation compared with advanced economies. Trade reforms, for example, help increase the supply of cheaper foreign goods, which constitute a sizable share of the consumer price index basket. Exchange rate or capital flow reforms that allow for more efficient resource allocations can also help reduce price pressures through higher productivity gains. Meanwhile, high demographic pressures and excessive unemployment tend to mute wage pressures that can emanate from higher input demand due to new firm entry.<sup>2</sup> Some macrostructural reforms can also help ease policy trade-offs related to growth, debt, and external sustainability by strengthening investor confidence, as reflected in lower sovereign risk premiums (Ebeke 2017; IMF 2023b) and stronger FDI inflows as governance and other structural factors play a key role in driving investors' decisions across emerging market and developing economies (Campos and Kinoshita 2010; Gliberman and Shapiro 2022).

**Macrostructural reforms can also support the green transition in emerging market and developing economies, including through lowering the emissions intensity of output over time.** Reforms in the areas of governance, business regulation, trade, and access to credit can lead to greater diversification of economic activity away from carbon-intensive sectors, including toward services and green sectors, thereby reducing the emissions intensity of output. Moreover, structural reforms such as governance and business regulations can help reduce implementation risks for climate (both mitigation and adaptation) projects and potentially attract more robust and larger private climate finance to support the green transition. Trade reforms can also increase access to low-carbon technology and facilitate green technology transfers (Pigato and others 2020) that are critical for the green transition. Macrostructural reforms can thus enhance economic resilience to spillovers from global decarbonization efforts and improve a country's comparative advantage in emerging green industries (Cevik and Jalles 2023; Qu 2022). At the same time, macrostructural reforms could initially lead to more emissions because of their positive impact on economic activity, which may, in some cases, offset the downward effect from the reduced emissions intensity of output in the early years. Finally, by improving the credibility of policies and the capacity to implement them and by removing rigidities and improving the business environment, the reforms can increase the responsiveness of the private sector to specific green reforms that

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<sup>2</sup> The benefits from reforms may accrue unevenly, particularly if the increased competition would depress wages of those at the lower end of the wage distribution relatively more. Similarly, while stimulating more productive (larger) firms, greater competition from external sector reforms can have adverse effects on less-productive (small) firms (Aghion and others 2009).

raise the relative price of carbon, accelerating the reallocation of resources toward green sectors and helping achieve growth while gradually reducing overall emissions.



## IV. Prioritization, Packaging, and Sequencing of Reforms to Accelerate Growth and Ease Policy Trade-offs

### A. Dynamic output effects of macrostructural reforms

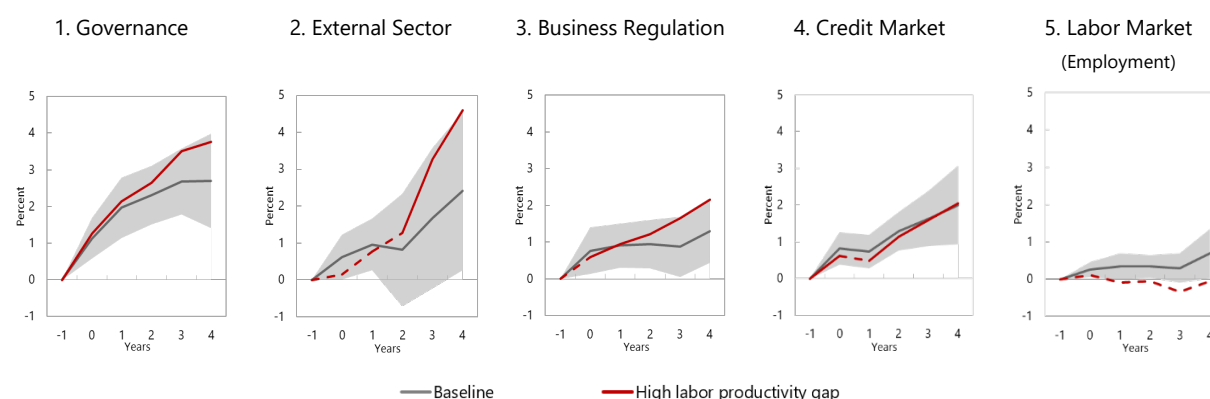
**We assess the impact of structural reforms on growth in emerging market and developing economies using the new data set and a standard econometric framework.** The sample consists of 51 low-income countries and 78 emerging market economies over the period 2000–20. Consistent with the previous literature on the economic impact of structural reforms in emerging market and developing economies (for example, Dabla-Norris, Ho, and Kyobe 2016; IMF 2019), we employ the local projection method by Jordà (2005) to estimate dynamic effects of reforms on outcome variables. To illustrate potential gains from reforms, we highlight the results for major historical reforms—defined as episodes for which an improvement in the relevant indicator is at least two standard deviations of the distribution (of annual changes in the relevant indicator across the whole sample).<sup>3</sup> The local projection method controls for a battery of factors that could influence the estimates, including the possibility that the estimated effects of reform(s) are confounded with the effects of other major policy decisions or other structural reforms undertaken concomitantly with the implementation of the structural reforms considered.<sup>4</sup> In addition to past growth, we also control for expected growth, since the decision to implement a reform may be influenced by the expected future path of economic activity (see Annex 2). Controlling for past growth outcomes and growth expectations also helps account (though indirectly) for the effects of other major shocks (including policy decisions) that occurred at the same time as the reform. Despite these controls, some endogeneity issues may persist.

<sup>3</sup> This definition is consistent with previous work (for example, IMF 2019). Examples of major structural reforms include Rwanda's 2006 governance reforms, which involved a complete overhaul of regulatory quality and government effectiveness; Mexico's liberalization of trade tariff and nontariff barriers in 2012; and Georgia's 2004 comprehensive streamlining of business regulations and compliance.

<sup>4</sup> The impact of each reform in the regression analysis is estimated controlling for the impact of all other reforms that may be implemented simultaneously.

**Empirical evidence suggests that structural reforms can accelerate growth in emerging market and developing economies, especially in countries with large initial productivity gaps.** Despite some differences in reform indicators and sample coverage, the baseline<sup>5</sup> reform multipliers point to sizable positive output effects from major reforms (gray lines in Figure 6), consistent with previous findings (IMF 2019). For example, major *governance* as well as *external sector reforms* are estimated to increase output, on average, by up to 2.7 percent and 2.4 percent, respectively, after four years, and up to 4 percent and 5 percent in countries where initial structural gaps are large (red lines in Figure 6). Similarly, major *business regulation reforms* and *domestic credit market reforms* can raise output by up to 1.3 percent and 2 percent, respectively, after four years. For countries with large initial structural gaps, the growth impact of business deregulation can be even larger (red lines in Figure 6). While positive, the baseline effect of *labor market reforms* (on employment) appears to be statistically insignificant, possibly muted by the high level of informality across emerging market and developing economies. While some degree of labor market flexibility can promote efficiency, the efficiency considerations need to be balanced against the need to protect workers and their earnings. Labor market deregulation, if not properly designed with a strong distributional lens, can have significant negative effects on the labor share of income (Ciminelli, Duval, and Furceri 2022).

**Figure 6. Output Effects of Structural Reforms in the Baseline (all emerging market and developing economies) and in Those with High Labor Productivity Gaps**



Sources: Fraser Institute; World Bank; and IMF staff calculations.

Note:  $t = 0$  is the year of the shock. The lines denote the response to a major historical reform (two standard deviations). The shaded areas denote 90 percent confidence bands. The gray lines show the baseline point estimates of the impact of structural reforms on output, without any interaction terms in the regressions. The red lines show the impact of structural reforms on output conditional on high labor productivity gaps. The dashed component of the red line indicates statistical insignificance. Labor productivity is defined as output per worker, and the gap for a given country is relative to the global frontier, defined as the average labor productivity of the top quartile for advanced economies. We classify countries as “high labor productivity gap” if the distance to frontier is above the sample median.

## B. Reform prioritization, packaging, and sequencing

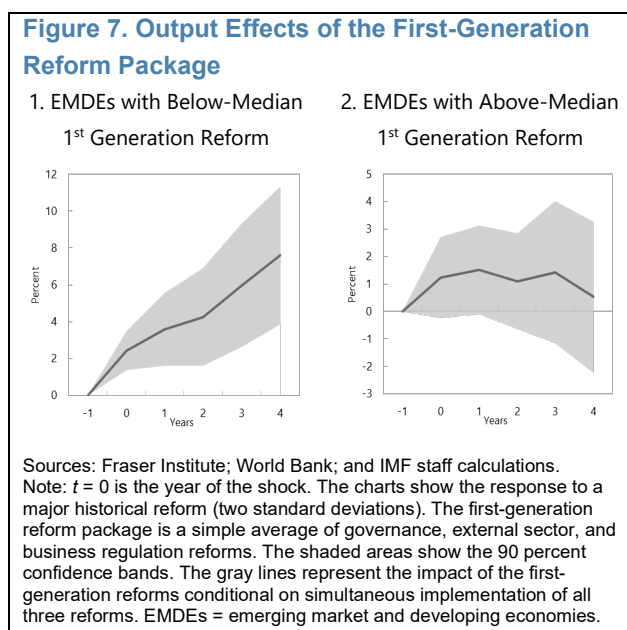
**The proper *prioritization, packaging, and sequencing* of reforms can strengthen their positive impact on economic activity.** The economic intuition and rationale are as follows. The bundling of complementary structural reforms can generate more front-loaded output gains that could broaden political support and pave the way for further reforms. Cacciatore and others (2016) show that reform packages are more politically

<sup>5</sup> In the baseline regressions (equation (1) in Annex II), the dependent variable is either the log of output or other relevant variables. The equations include country and year fixed effects, which help control for unobservable cross-country heterogeneities as well as common global factors (for example, oil prices, global business cycle), respectively. The vector of other control variables includes lags of the dependent variable, past economic growth, and past reforms. Two lags of the dependent variable and the shock series are included in each estimation to control for autocorrelation.

viable, as bundling complementary reforms can help mitigate the costs of individual reforms while amplifying the gains from reform interdependency. For example, *good governance*—which promotes trust and confidence in public institutions and improves the business climate—is foundational to other reforms, including business deregulation and external sector reforms (IMF 2019). A conducive *business environment* with flexible and efficient regulatory oversight can make it easier for firms to operate and expand. *Trade and external finance reforms* can increase domestic firms’ access to global input markets and make them more competitive.

**Our empirical analysis shows that emerging market and developing economies can achieve larger and more front-loaded output gains by implementing governance, business regulation, and external sector reforms together.** While individual reforms can promote growth (Figure 6), generating faster and greater output gains may require bundling reforms into packages, including to maximize potential synergies (Fabrizio and others 2017). To this end, we begin by asking which structural gaps are the largest and most binding impediments to growth (Hausmann, Rodrik, and Velasco 2005). We then examine the output effects of bundling reforms together to capture reform complementarities.

**We find that a reform package comprising governance, external sector, and business regulation reforms can help to substantially increase output, especially in countries with large initial structural gaps** (Figure 7). In below-median first-generation-reform emerging market and developing economies, this *first-generation reform package* could raise output by about 4 percent in the first two years following the implementation of the package, rising to 7.6 percent after four years.<sup>6</sup> But for above-median first-generation-reform economies, the gains from further first-generation reforms are smaller. This reflects largely their stronger initial position on structural reforms and, to a lesser extent, fewer complementarities between further first-generation reforms for these countries. The latter is consistent with the findings of Bassanini and Duval (2009), who show that for labor market reforms in Organisation for Economic Co-operation and Development countries (which have low structural gaps relative to emerging market and developing economies), the reform complementarities are moderate.



<sup>6</sup> There are several examples of such reform packages. Brazil’s “Plano Collor” in the early 1990s aimed to enhance governance, lower trade barriers, and deregulate the private sector. In 2003, Nigeria packaged governance, trade liberalization, and business deregulation reforms under its National Economic Empowerment and Development Strategy (NEEDS). In the early 1990s, India implemented far-reaching reforms aimed at strengthening public sector administration, streamlining private sector regulation, and liberalizing trade and exchange rate policies.

We also find that credit and labor market reforms tend to have larger effects on economic activity in emerging market and developing economies when preceded by first-generation reforms. An effective reform strategy involves structuring the reform agenda into first- and second-order priorities—with the first wave removing the most binding constraints to maximize the gains from the second wave. Blanchard and Giavazzi (2003) find that labor market reforms are more effective when preceded by product market reforms. Acemoglu and Johnson (2005) show that governance, in the form of strong legal institutions, can enhance the gains from financial sector reforms. Christiansen, Schindler, and Tressel (2013) show that strong property rights serve as a precondition for reaping the benefits of financial sector and other reforms. Our empirical analysis (Figure 8) suggests that *credit market deregulation*—especially where initial access to credit is weak—can

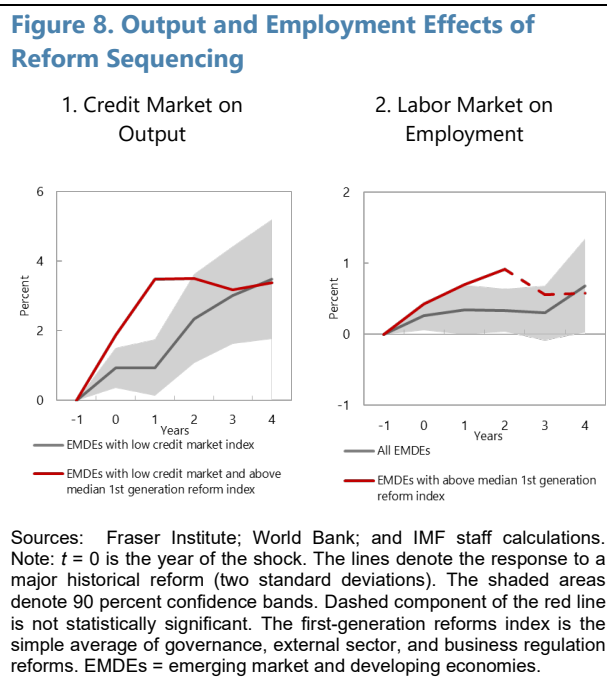
be more effective when preceded by major *first-generation reforms*, with additional output gains of up to 3 percent. When implementing credit and capital market reforms, robust regulatory and supervisory frameworks are essential to safeguard financial stability (Cuervo, Long, and Stobo 2022). In the *labor market*, a major *first-generation* reform campaign can also raise the employment impact of labor market reforms by up to 1 percent on average in the first two years, likely by reducing informality.<sup>7</sup> The effect, however, becomes insignificant after two years.

### C. Other benefits of structural reforms

**Emerging market and developing economies may find it harder to accelerate growth when macroeconomic policy space is limited.** Their policymakers typically face multiple objectives—stable growth and prices, sustainable public finances, financial stability, and external resilience. Achieving these objectives becomes more challenging when policy space is severely limited, resulting in difficult trade-offs. For example, raising interest rates to fight inflation may weigh on growth and fiscal sustainability, especially when public debt is already high, but not doing so could further exacerbate macroeconomic instability, with adverse effects on growth. To examine how effective structural reforms could be when policy space is limited, we aggregate various factors that constrain policy space (low growth, high inflation, high public and external debt, exchange market pressure) into a time-varying synthetic index capturing the multiplicity of these constraints that result in potentially severe policy trade-offs for a sample of 58 emerging markets (see Annex 3).<sup>8</sup> As shown in Annex Figure 3.1 policy trade-offs have become more acute following the COVID-19 pandemic, with many emerging

<sup>7</sup> This result is consistent with earlier findings (for example, IMF 2019) showing that good governance can reduce labor market informality, making subsequent labor market reforms more effective. While high informality implies that labor market policies tend to affect only a smaller (formal) segment of the economy initially, strong enforcement of these policies often leads to an economy-wide impact over time by incentivizing reallocation of workers from informal to formal sectors (Meghir, Narita, and Robin 2015; Lambert, Pescatori, and Toscani 2020).

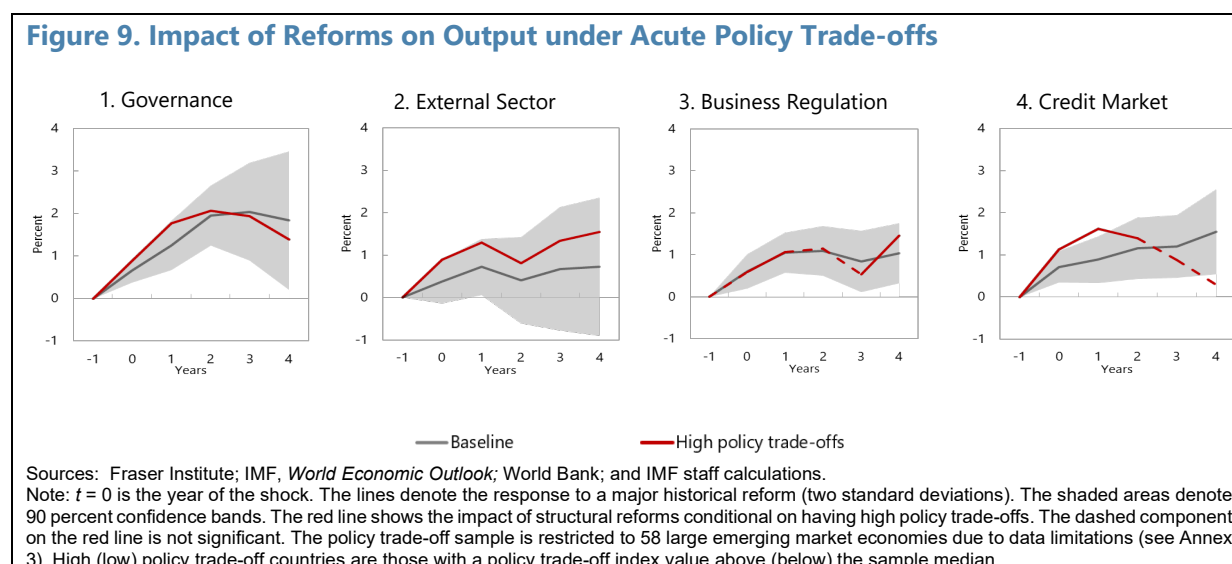
<sup>8</sup> The index can also be interpreted as a measure of supply shock under financing constraints (low growth, high inflation, debt, financial vulnerabilities) in the spirit of Ghassibe and Zanetti (2022). Despite the usefulness of the policy trade-off index in reducing the dimensionality from four indicators to a single index, some caveats are warranted (see Annex III).



market and developing economies facing the challenge of closing structural gaps while addressing macroeconomic pressures.

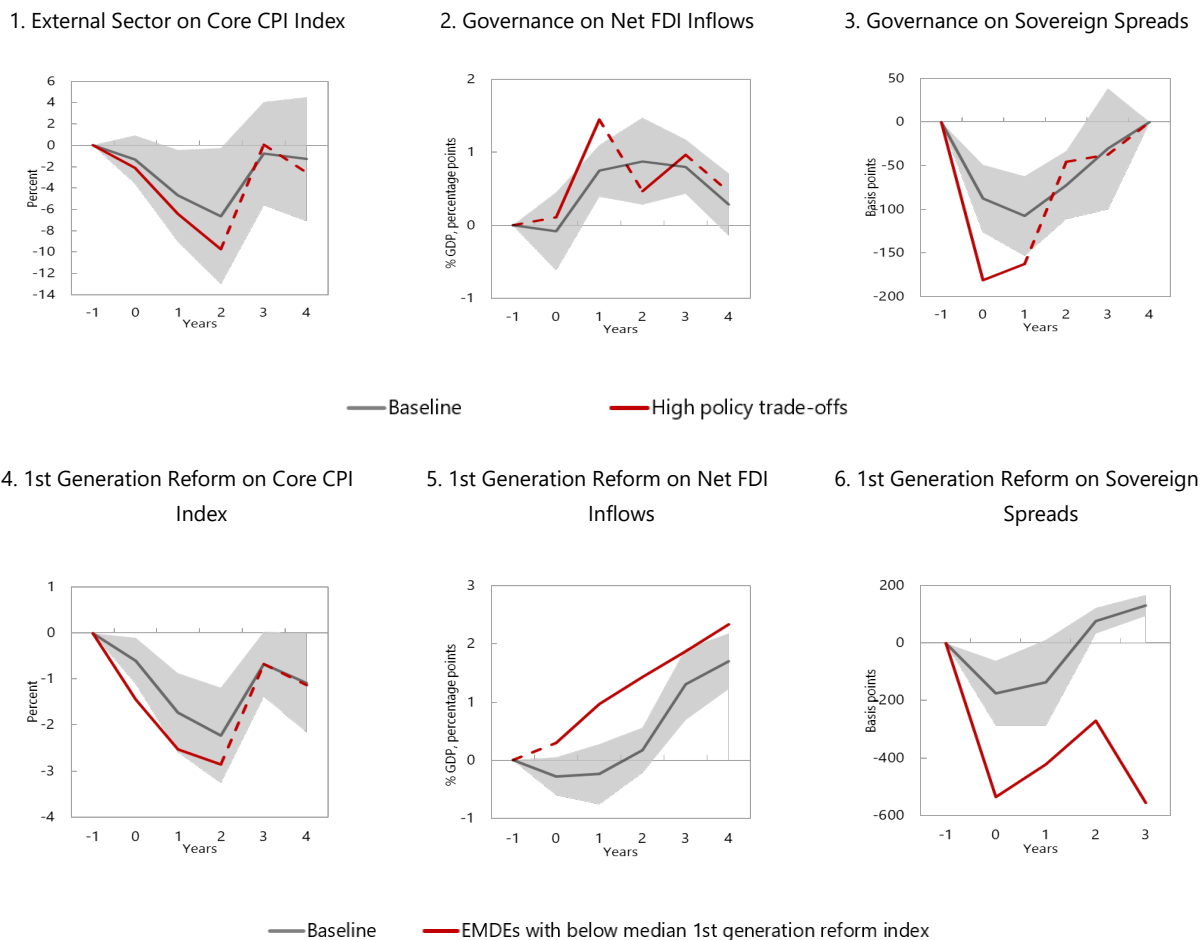
**Macrostructural reforms can help accelerate growth even when policy space is limited.** Figure 9 shows that in economies with acute policy trade-offs, major governance, external sector, and credit market reforms can strengthen growth in the near term, whereas reforming business regulation can help lift growth over the medium term. This could be because there is a premium on increasing confidence in the government and its adjustment policies in bad times. Improved access to credit in bad times can support private sector adjustment. External sector reforms implemented in a weak economic environment may help domestic firms tap foreign demand. Annex 4 provides additional evidence on the interaction of reforms with specific dimensions of the policy trade-off index by examining how structural reforms and reform packages affect the economy, depending on the type of shock (supply-led vs demand-led recessions), the fiscal stance, the public-debt-to-GDP ratio, and the degree of external market pressure.

**Some reforms can also help achieve broader policy objectives.** In line with the discussion in Section III, we investigate whether individual reforms and reform packages could help ease price and sovereign funding pressures as well as strengthen external resilience. The results in Figure 10 suggest that *external sector reforms* exert a downward impact on consumer prices of about 3.7 percent in the first two years following the reform, rising to 2 percent in four years. This result is consistent with the literature on advanced economies, which shows that liberalized trade flows can improve access to cheaper foreign inputs and enhance competition among local and foreign firms, pushing down price margins on goods and services (Ahn and others 2019). In the case of emerging market and developing economies facing acute policy trade-offs, our analysis also shows that good *governance* can bolster external sector resilience by helping attract FDI inflows, which appear to increase by about 1 percentage point of GDP in these economies on average in the near term. Governance reforms are also found to reduce sovereign spreads by more than 180 basis points on impact, consistent with recent evidence on the impact of broader market reforms (for example, domestic finance, external finance, product markets, labor market, trade) on sovereign spreads (IMF 2023b) in both emerging market and advanced economies (Ebeke 2017). The estimated cumulative effect, however, gradually decreases and becomes statistically insignificant. The impacts on these and other variables can be larger when reforms are implemented in packages in countries with large structural gaps (Figure 10).





**Figure 10. Reforms' Payoffs beyond Output**



Sources: Fraser Institute; IMF, Sovereign Spread Monitor (March 2023); IMF, *World Economic Outlook*; World Bank; and IMF staff calculations. Note:  $t = 0$  is the year of the shock. The lines denote the response to a major historical reform (two standard deviations). The shaded areas denote 90 percent confidence bands. Panels 1–3: The red line shows the impact of structural reforms conditional on having high policy trade-offs. The policy trade-off sample is restricted to 58 large emerging market economies due to data limitations (see details in Annex 3). High (low) policy trade-off countries are those with a policy trade-off index value above (below) the sample median. Analysis of sovereign spreads covers the period 2012–20. Panels 4–6: The gray line is based on the full sample of 125 EMDEs, and the red line is based on a sample restricted to EMDEs with a below-median first-generation reform index. The dashed component in the red line indicates statistical insignificance. Analysis of sovereign spreads covers the period 2012–20 and 73 EMDEs. CPI = consumer price index; EMDEs = emerging market and developing economies; FDI = foreign direct investment.

## V. Macrostructural and Green Reforms to Support the Green Transition in Emerging Market and Developing Economies

**An important challenge for these economies is to support decarbonization without sacrificing income convergence.** While emerging market and developing economies are not responsible for the bulk of historical emissions, they account for a growing share of global emissions. This means that climate change cannot be mitigated without decarbonization of large and fast-growing emerging market and developing economies.

However, the implementation of stringent climate policies may be constrained by the limited policy and political space, as well as by concerns about risks to near-term growth from climate policies that are not fully integrated with countries' growth and development strategies (IMF 2020, 2022a). A global climate mitigation agenda that takes the development needs of emerging market and developing economies into account—under the principle of common but differentiated responsibilities—would help these economies decarbonize gradually in a growth-friendly fashion. When implemented at a stringency consistent with their stage of development,<sup>9</sup> climate policies would strengthen the ability of these economies to leverage new opportunities, including to attract green investment while remaining competitive in a global trade environment characterized by possible border carbon adjustment constraints (Keen and others 2021). Early action to decarbonize and diversify toward greener sectors will also smooth the green adjustment, especially for fossil-fuel-producing emerging market and developing economies (Panton and others 2023). This would help reduce the risk of future stranded assets by orienting new investments toward cleaner energy production and would gradually make these economies more resilient to transition risks.

**Structural reforms can facilitate the clean energy transition in several ways.** First, the bundling of first-generation reforms can help accelerate growth and create fiscal and political space to credibly pursue the green transition. Governance reforms, for example, can foster trust among stakeholders, helping overcome potential social resistance to the green transition. Second, in addition to accelerating growth, some structural reforms could reduce the economy's carbon footprint by stimulating a reallocation of resources to less-carbon-intensive sectors. By creating a policy environment in which the private sector can thrive and respond more dynamically to opportunities, these reforms could lead to greater diversification of economic activity, facilitating growth of private businesses in services, other less-carbon-intensive sectors, and emerging green sectors. Third, the improved governance quality and domestic competition brought about by structural reforms could also improve the efficiency of state-owned enterprises, including in terms of their carbon intensity of output. Finally, some macrostructural reforms can reduce the implementation risks and increase the effectiveness of green reforms by strengthening policy certainty and credibility, creating conditions for a stronger response of the private sector to policy signals, and supporting reallocation of resources from carbon-intensive to low-carbon sectors, especially in fossil fuel exporters (Panton and others 2023). These enabling conditions can be critical in attracting green FDI inflows.

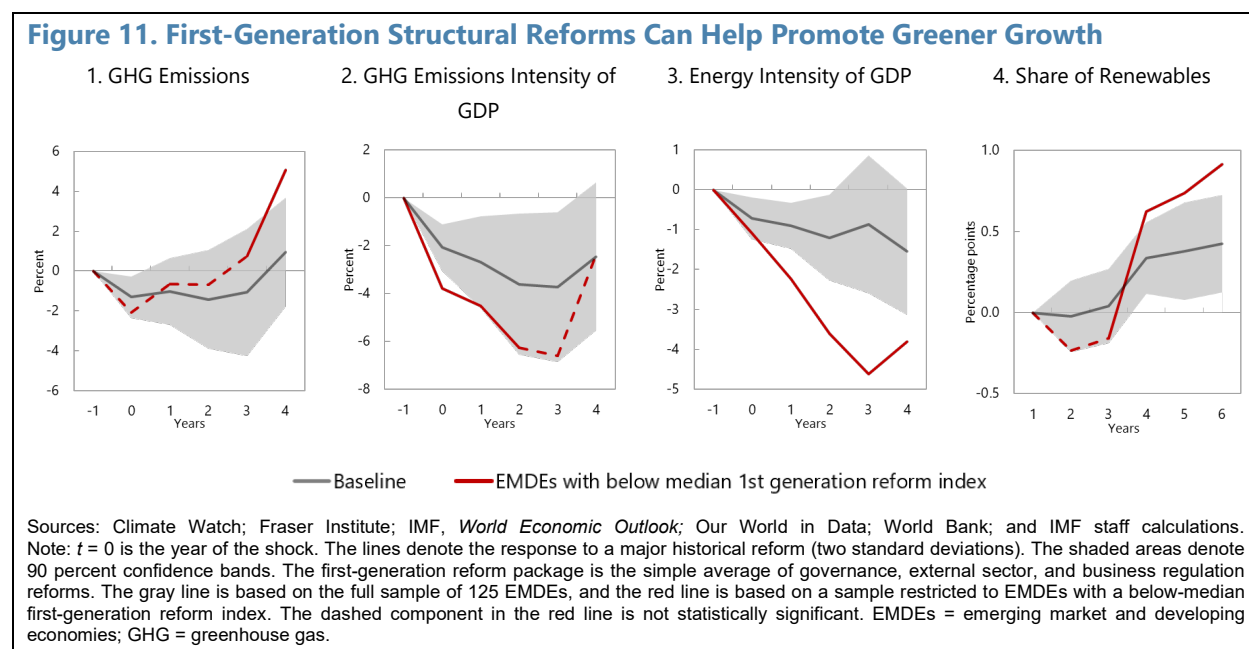
**The literature on the effects of structural reforms on green outcomes is mixed.** For example, Cevik and Jalles (2023), in the case of advanced economies, show that energy sector (electricity and gas) reforms—measured by major policy innovations in product market deregulation in these sectors—are effective in reducing greenhouse gas (GHG) emissions per unit of GDP (emissions intensity), although such reforms have so far not reduced CO<sub>2</sub> and GHG emissions per capita. Also, they find that while overall environmental policy stringency is associated with increased investment in the renewable energy supply, specific reforms in the electricity and gas sector do not seem to be effective in raising the share of renewables in the energy mix.

**Our results show that macrostructural reforms help reduce the emissions (and energy) intensity of output, but they are also associated with higher initial emissions levels through output growth.** Figure 11 shows that while structural reforms tend to raise total emissions along with output (in line with the literature on advanced economies; for example, Cevik and Jalles 2023), they can also lead to notable declines in the

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<sup>9</sup> See for example the IMF's International Carbon Price Floor proposal, in which the minimum carbon price floor rises with countries' income levels (see Parry, Black, and Roaf 2021) and recent research (Black and others 2022) discussing various ways to scale up the global mitigation effort in a just manner.

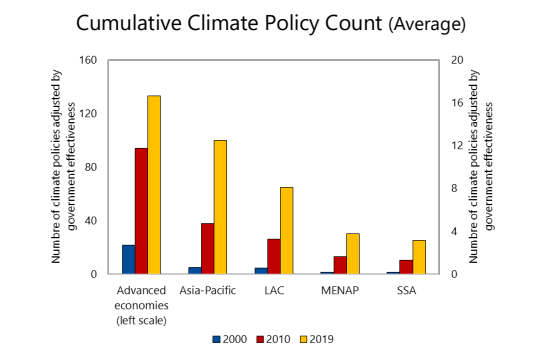
emissions and energy intensity of GDP as well as a higher share of renewables in the energy mix.<sup>10</sup> Importantly, these effects are stronger in countries with higher initial structural impediments (red impulse responses in Figure 11), possibly indicating that macrostructural reforms can alleviate constraints on growth in “green” sectors more than in “brown” sectors. Indeed, one can expect the marginal cost of switching to greener technology to be higher for companies operating in a more constrained environment. The green sector in emerging market and developing economies faces significant obstacles given the difficulty for lenders to adequately assess risks and returns, reliance on scarce foreign inputs and technologies (now also subject to protectionist measures), and heavy regulatory constraints (such as lease approvals and permits). Thus, by removing critical impediments to private sector investment and growth, structural reforms can facilitate a shift toward less-carbon-intensive sectors, including green sectors where growth bottlenecks (such as financing or access to technology) may be particularly acute (Pigato and others 2020; BIS 2023). By raising output while reducing its emissions footprint over time, these reforms can allow emerging market and developing economies, especially low-income countries, to balance their short-term development needs with their climate mitigation commitments.



<sup>10</sup> Our local projection results, which are available upon request, show that the first-generation reform package—mainly on the back of business regulation and external sector reforms—can gradually facilitate economic diversification over time away from the emissions-intensive sectors (for example, manufacturing and mining) toward services, thereby reducing the emissions intensity of activity. However, considering the short-term focus of our analysis, these results should be interpreted with caution, as true economic transformation can be gauged only over an extended period.

**Commitment to more stringent green policies is key to accelerating the energy transition.** Emerging market and developing economies have made progress on green policies—both in terms of the number of green policy instruments and their overall stringency (Figure 12 and Annex Figure 1.1). Climate policy stringency in each country is proxied by the number of de jure climate mitigation policies in place in each year adjusted for their effective enforcement by national governments.<sup>11</sup> Alongside this broad measure of climate policies, we also focus on what is considered a key policy lever for the green transition—namely, energy taxes (that is, taxes on energy products for transportation and heating and GHG emissions taxes).<sup>12</sup> Consistent with the findings from the literature on advanced economies (for example, IMF 2020; Bourcet 2020; Cevik and Jalles 2023), the results in Figure 13 show that broad green policies and energy taxes appear to reduce GHG emissions intensity of GDP by decreasing energy consumption and by facilitating the transition to cleaner energy sources. In addition, our analysis shows that green policies can help attract investment in renewables and increase the share of renewables in the energy mix, helping reduce the emissions intensity of energy.<sup>13</sup> Interestingly, output effects at the current level of green reform are modest and statistically insignificant, in line with the evidence for advanced economies.<sup>14</sup> The estimated output effects appear to be moderately positive (although mostly insignificant) over the medium term when energy taxes are used. This could be due to the growth-supporting impact of recycling the tax revenues toward productive public investments or targeted transfers to vulnerable segments. More ambitious green reforms may weigh moderately on growth (for example, IMF 2020, 2022a) but are needed to avoid much larger damages from climate change. Beyond output, climate mitigation tools such as energy taxes can also generate strong co-benefits in the form of reduced air pollution amid declining emissions (Black, Vernon, and Parry 2021). It should be noted that confidence bands around the estimated effects are large (see Figure 13), pointing to uncertainty stemming from variation of experiences across countries.

**Figure 12. Green Reforms across Regions**



Source: Climate Policy Database.  
 Note: Sample comprises 36 advanced economies and 127 emerging market and developing economies. LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, and Pakistan; SSA = sub-Saharan Africa.

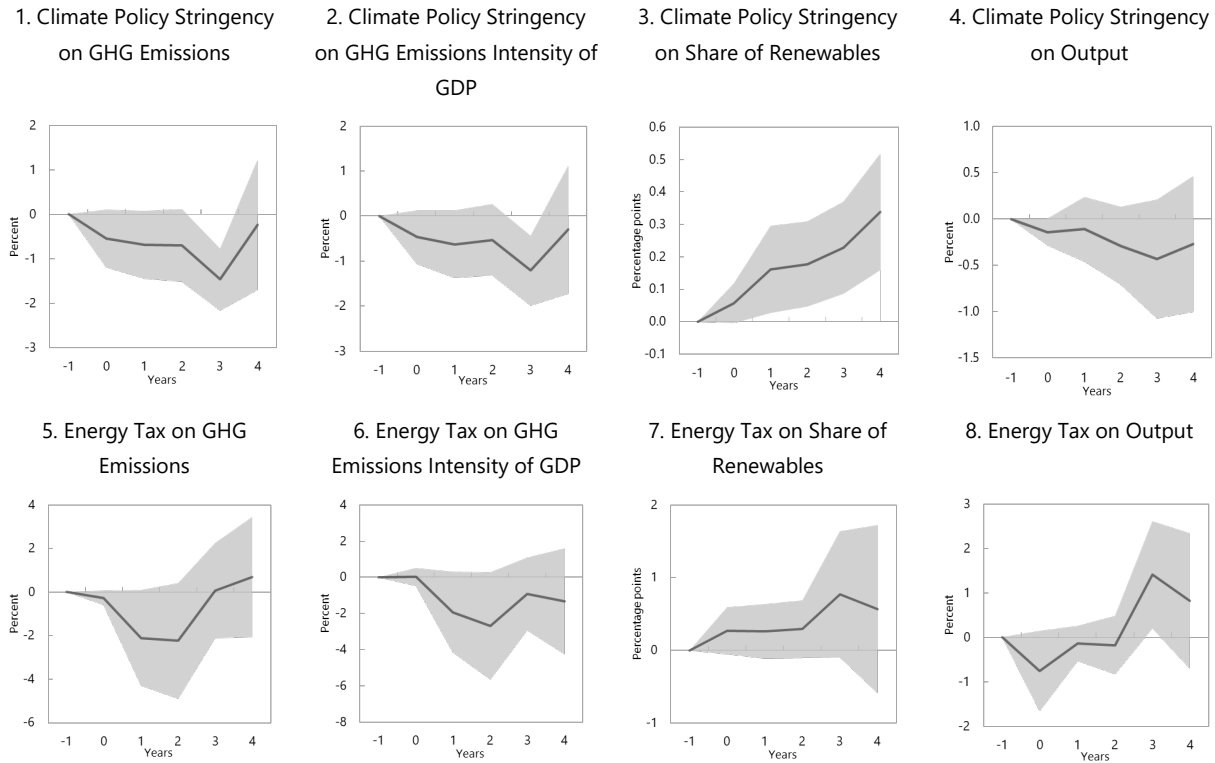
<sup>11</sup> Green measures are a combination of policies with an explicit climate change mitigation objective. A policy can be a law, strategic document, a target, or any other policy document that results in a lasting reduction of the country’s emissions intensity (see Nascimento and others 2021). In this note, climate policy stringency is proxied by the number of climate mitigation instruments in place in each year. Given the de jure nature of this measure and to account for the extent to which these policies are effectively enforced by national governments, we interact the raw policy count with a measure of government effectiveness in each country—proxied by the “government effectiveness” component of the Worldwide Governance Indicators.

<sup>12</sup> Even absent explicit carbon taxes, environmental taxation can increase the prices of carbon-intensive activities, thus reducing their consumption, incentivizing energy efficiency improvements, and resulting in greater demand for and investment in cleaner energy sources consistent with the literature (Black and Heine 2018).

<sup>13</sup> Energy efficiency standards and renewable policy frameworks can also be very effective, particularly in reducing the energy footprint of activity while incentivizing private investments in renewable energy (that is, solar and wind) and strengthening environmental trade performance in emerging market and developing economies. Results are available upon request.

<sup>14</sup> Metcalf and Stock (2020) find that carbon pricing—in the context of advanced economies—may have a positive, albeit moderate, impact on output, although model-based evidence in the literature (for example, IMF 2020, 2022a) suggests that carbon pricing may weigh slightly on growth, depending on how the tax revenues are used and how credible climate policies are.

**Figure 13. Baseline Effects of Climate Policy Stringency and Energy Taxation on Green Transition**

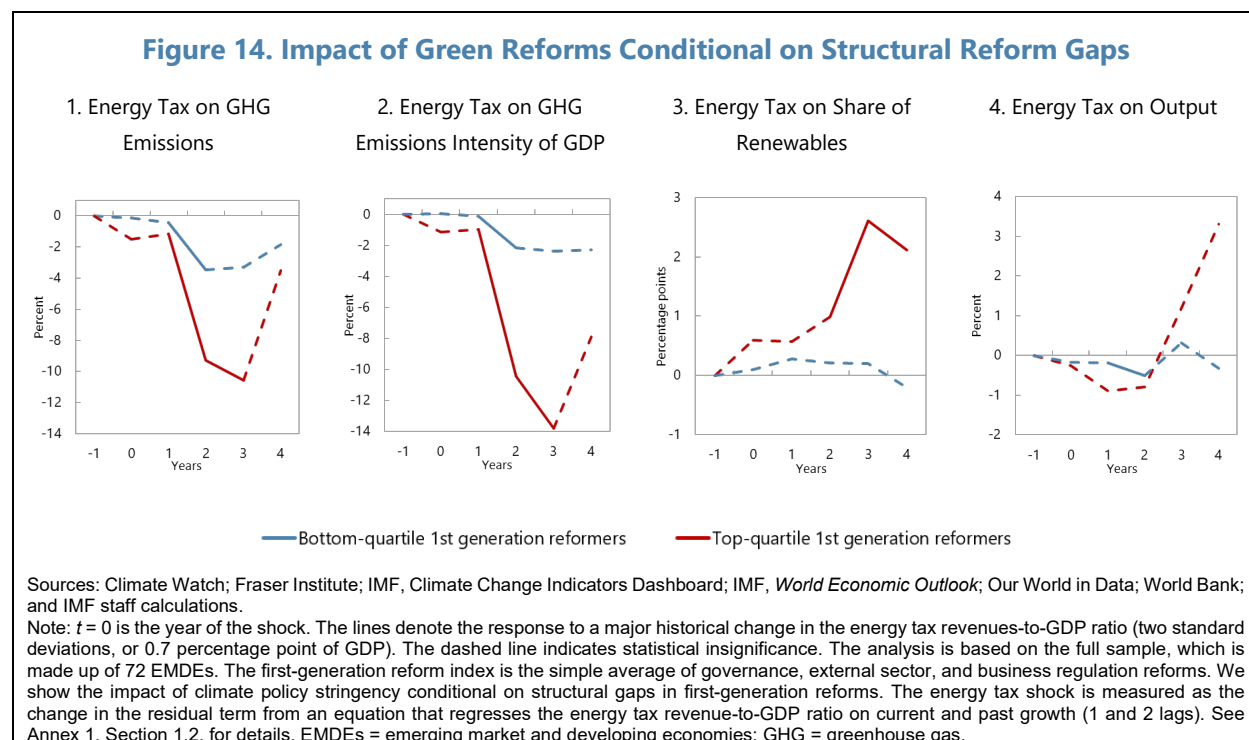


Sources: Climate Watch; Fraser Institute; IMF Climate Change Dashboard; IMF, *World Economic Outlook*; Our World in Data; World Bank; and IMF staff calculations.

Note:  $t = 0$  is the year of the shock. The lines denote the response to a major historical reform (two standard deviations). The shaded areas denote 90 percent confidence bands. Results for Energy Tax are based on a sample of 72 EMDEs, while results related to overall climate policy stringency are based on a sample of 125 EMDEs. The energy tax shock is measured as the change in the residual term from an equation that regresses the energy tax revenue-to-GDP ratio on current and past growth (1 and 2 lags). See Annex 1, Section 1.2, for more detailed information. EMDEs = emerging market and developing economies; GHG = greenhouse gas.

**Turning to the interaction between green and macrostructural reforms, our results show that green policies such as energy taxes are more effective at decarbonizing the economy when preceded by macrostructural reforms.** Such an interaction would be expected to be particularly important in the case of green policies that operate through price signals, such as energy taxation. To investigate this interaction, we examine how a country's change in energy taxes might affect its decarbonization trajectory, conditional on initial structural gaps. We sort emerging market and developing economies into two groups based on their initial levels of first-generation reform indicators: those with the largest structural gaps (bottom-quartile reformers) and those with the lowest structural gaps (top-quartile reformers). Figure 14 shows that major changes in energy taxes can have substantial and rapid emissions and emissions intensity reduction effects in countries characterized by strong structural reform progress—in the top-quartile reformers. In addition, the prior removal of various structural impediments substantially enhances the effectiveness of green reforms by

attracting investment in renewable energy sectors.<sup>15</sup> The point estimates for output effects are insignificant for both top- and bottom-quartile reformers; however, they point to potentially larger positive effects in the medium term for top-quartile reformers. Overall, these results suggest that macrostructural reforms that improve the business environment and the credibility and implementation of policies are complementary to green reforms and can amplify the economy's positive response to green policy price signals.



## VI. Granular Reform Prioritization: Strategies for Improving Impact and Public Buy-in

**For each country, the structural reform strategy should be designed taking into account the country's unique circumstances, policy priorities, and constraints.** In addition to the broad recommendations outlined in the previous sections, this section presents an illustrative framework for granular reform prioritization when a country faces multiple objectives (for example, stable growth and prices, external resilience). The proposed framework assumes that the policymaker will select individual reform areas according to a prioritization based on the known (or anticipated) effects of reforms across policy objectives.

<sup>15</sup> A similar exercise interacting the climate policy stringency indicator with macrostructural reform variables could not yield robust results, reflecting the strong correlation between this indicator and traditional macrostructural reforms in our data. Countries that have so far implemented many climate policies are those that have made advances in other reform areas, making it difficult to estimate the impact of structural gaps on the effectiveness of green reforms. The lack of robustness could also reflect the fact that the amplification effect of structural reforms on the responsiveness of the economy to green reforms is likely to be stronger for policies that operate through price signals, such as energy taxation, than for regulatory policies.

**The illustrative framework draws on refinements to the econometric results estimated in this note and numerically scores reforms according to their impacts on several outcome variables.** This relates to the estimates of the dynamic impact of disaggregated individual reforms on output, prices, and FDI inflows, and conditions on whether or not the policymaker faces acute policy trade-offs (proxied by the level of the policy trade-off index discussed in Section IV and Annex 3). More specifically, the framework posits that the policymaker facing acute policy trade-offs and thinking about which reforms to implement will weigh equally the impacts of these reforms on short- and medium-term growth, consumer prices (proxied by deviation of core inflation from its target), and external resilience (proxied by short-term FDI inflows). In contrast, a policymaker facing less acute policy trade-offs is assumed to prioritize only the reforms' impact on medium- and long-term growth. Finally, a policymaker who is also committed to the green transition considers the estimated impact of reforms on GHG emissions, in addition to the medium- and long-term growth considerations. The prioritization exercise results are shown in Table 1. Reforms in this table are shown according to their impact: the dark color indicates reforms in the top 20th percentile of reform total impact, while the lighter colors indicate lower impact, and blanks are reforms that did not have a significant effect. Each aggregate reform is an average of its subcomponents. To the extent that some or all individual subcomponents are implemented simultaneously, the estimated output multipliers would also reflect complementarities among the components. Hence, this should typically result in a bigger macroeconomic impact than the implementation of any single granular reform individually.

**While greater granularity is a clear advantage, this approach has some limitations.** The framework identifies the reform priorities individually by focusing on a granular disaggregation of reform indices (subcomponents of reform indicators). This granular focus helps pin down which precise reform dimension would matter most, depending on the policy objectives and operating environment. However, as we get granular, the number of reform sub-indicators increases rapidly, which makes the task of examining econometrically all possible reform combinations (packages and sequencing) infeasible.

**Turning to the results of the prioritization exercise, we first discuss reform prioritization options for countries facing acute policy trade-offs across growth, price stability, and external resilience.** The results from the granular prioritization framework discussed above suggest that governance reforms that improve political stability and reduce corruption and bureaucratic costs, together with reforms that lead to greater exchange rate and interest rate flexibility, and that ease the movement of people are the reforms with the highest estimated score in terms of impacts across economic objectives in a challenging environment. The intuition behind these results is discussed below:

- *Political stability* is a critical precondition for short- and medium-term growth as it establishes a safe and predictable environment in which investors can make decisions and businesses can operate productively.
- *Exchange rate flexibility* can help correct existing imbalances (for example, an overvalued exchange rate) and can potentially increase the competitiveness of the private sector. After the initial volatility triggered by the adjustment, it would also allow monetary policy to focus on fighting inflation. The decision to allow greater exchange rate flexibility under macroeconomic stress would also have to consider the presence of frictions, potential adverse effects on balance sheets, inflation, and inflation expectations. Strong monetary policy credibility is critical on these fronts.
- *The removal of interest rate controls* can help enhance the transmission of monetary policy and a reallocation of resources toward more productive sectors. After a period of volatility, these reforms can help

increase the effectiveness of macroeconomic policies, enable a productive allocation of resources, and allow the economy to absorb shocks better.

- *The removal of trade barriers* can help curtail price pressures by giving access to cheaper imports and enhancing competition; it can also boost output by expanding domestic firms' access to foreign demand when domestic demand is severely constrained.
- *Improving credit market regulations* in countries grappling with several macroeconomic challenges can help alleviate financing constraints on the private sector, helping to cope with risks; enable productive resource reallocation in bad times; and strengthen the effectiveness of monetary policy.
- Last but not least, the *control of corruption and reduction of bureaucracy costs* are especially important to increase medium-term growth and FDI inflows, as they improve the ease of doing business and the productivity of existing businesses.

**For countries with less acute policy trade-offs, improvements to governance and business regulations appear critical to achievement of their medium- to longer-term economic objectives.** In countries where the primary focus rests on medium- and long-term growth, the biggest gains come from refining governance and business regulations, particularly by improving administrative requirements. Our detailed analysis reveals that enhancing business regulations, streamlining administrative requirements, and reducing bureaucratic costs can help boost medium- and long-term growth by stimulating private investment and productivity. Furthermore, governance improvements through political stability, reduction of corruption, and strengthening of the rule of law and, to a lesser extent, changes in credit market regulations can support medium- and long-term growth, by increasing confidence and lowering the cost of credit.

**For countries focusing on the green transition, energy tax and climate policies should be considered in conjunction with macrostructural reforms.** Climate policies may include greenhouse gas emissions reduction strategies, energy policies to decarbonize the energy supply and/or curb energy demand, and measures introducing low-emissions practices and technologies to nonenergy sectors like agriculture and land use. Concurrently, structural reforms, particularly in governance and business regulation, can potentially amplify the impact of climate policies, especially those that rely on price signals such as energy taxation. Other granular measures (not studied here) that can further increase the effectiveness of energy taxation or carbon pricing include electricity market liberalization, removal of fossil fuel subsidies, and access to low-carbon alternatives, such as public transportation. Finally, credit market regulations play a distinct role in supporting the green transition, creating a favorable climate for green investment. For example, the removal of barriers to credit access could facilitate green start-ups and incentivize investment in energy-efficient appliances and production technologies.



**Table 1. Granular Policy Prioritization**

	High PT	Medium- and Long-term Growth	Medium- and Long-term Growth and Green Transition	Percentile
<b>Governance</b>				
<i>Voice and accountability</i>				
<i>Political stability and absence of violence</i>				
<i>Government effectiveness</i>				
<i>Regulatory quality</i>				
<i>Rule of law</i>				
<i>Control of corruption</i>				
<b>External Sector</b>				
<i>Tax revenue</i>				
<i>Mean tariff rate</i>				
<i>Nontariff trade barriers</i>				
<i>Exchange rate controls</i>				
<i>Capital controls</i>				
<i>Freedom of foreigners to visit</i>				
<b>Business regulation</b>				
<i>Bureaucracy costs</i>				
<i>Impartial public administration</i>				
<i>Administrative requirements</i>				
<b>Credit market regulation</b>				
<i>Private sector credit</i>				
<i>Interest rate controls</i>				
<b>Labor market regulation</b>				
<i>Hiring and firing regulation</i>				
<i>Centralized collective bargaining</i>				
<b>Climate Policy Stringency</b>				
<i>Energy Tax</i>				

Source: Fraser Institute; IMF, *World Economic Outlook*; IMF, Climate Change Indicators Dashboard; Climate Watch; Climate Policy Database; World Bank; Worldwide Governance Indicators; and IMF staff calculations.

Note: The high policy trade-off (PT) scenario considers the impact of reforms on short-, medium-, and long-term growth and the effects on external resilience and inflation. The medium- and long-term growth scenario considers only the impact on long- and medium-term growth. The medium- and long-term growth and green transition scenario considers the impact of each reform on medium- and long-term growth and on the reduction of greenhouse gas emissions. This analysis was conducted using data from 58 emerging markets. Only reforms that yielded an impact at a 10 percent significance level are included in the table. If reforms did not exhibit a statistically significant impact, the entry is blank. The impacts of the reforms are ranked by quintiles; the color gradient represents the degree of impact, with darker colors signifying reforms that have a larger impact. Each aggregate reform is an average of its subcomponents. To the extent that some or all individual subcomponents are implemented simultaneously, the estimated output multipliers would also reflect complementarities among the components.

**Other reforms can also support growth and help ease policy trade-offs.** These include revenue mobilization, public finance management, or spending efficiency reforms used by countries to enhance fiscal space and reduce fiscal risks over time. Enhancing central bank credibility and independence and addressing financial stability risks are also key to improving monetary policy transmission and supporting macroeconomic stability. In addition, structural reform packages with gender in mind, such as removing barriers to women’s participation in the economy, can deliver meaningful growth benefits over the medium to long term (Box 1).

**Last but not least, there are other policy goals, such as inclusion and gender equality, that are not explicitly considered in this framework but that are very important for social cohesion and public buy-in of reforms.** Although well-prioritized reforms can accelerate growth and alleviate policy trade-offs, the benefits of reforms may accrue unevenly across households, firms, and demographic groups. Some of these distributional effects may have to be addressed through complementary policies, such as transfers to vulnerable households and workers or stronger social safety nets.

## VII. Conclusion

**Emerging market and developing economies’ economic challenges have increased, but the policy space to address them has become more limited.** In the aftermath of the COVID-19 pandemic, these economies are facing a challenging environment characterized by a high risk of economic scarring, low potential growth, social tensions, and climate change. While urgent policy actions are needed to jump-start growth and support the green transition, this task is complicated by the high public debt, persistent inflation, and balance of payments pressures that constrain policy space and lead to difficult policy trade-offs.

**Well-designed and sequenced structural reform packages can help accelerate growth, alleviate policy trade-offs, and support the green transition.** Greater up-front gains in terms of output, policy space, and green growth can be achieved by prioritizing *governance*, *external sector*, and *business regulation* reforms—known as first-generation reforms—before deploying domestic finance and labor market reforms. In emerging market and developing economies with large initial structural gaps, the implementation of a package of *major* first-generation reforms is estimated to have increased the level of output by about 4 percent in two years and by 8 percent in four years. These reforms can have positive output effects even amid acute policy trade-offs (for example, in the context of adverse supply shocks, high debt levels, exchange market pressure). First-generation structural reforms can also help facilitate the green transition by reducing the emissions intensity of output—though they tend to increase overall emissions initially through higher output growth. These reforms can operate directly by incentivizing less-carbon-intensive investments and, indirectly, by creating an enabling business environment that amplifies the impact of green reforms, especially through price signals such as energy taxation. Only a package of structural reforms and green reforms is found to deliver a combination of higher output and lower overall emissions.

**Front-loading the gains from reforms is critical to generate social and political buy-in and pave the way for deeper transformations such as the green transition.** The common concerns are that reform gains may take time to materialize and that reforms can have adverse distributional effects that might threaten social stability. That is why implementing reforms that yield early benefits and complementing them with measures to mitigate potential adverse distributional effects and with clear communication on the benefits of reforms can help overcome resistance to reforms, including from vested interests. A four-pronged approach to strengthen reform implementation could be as follows:

- **Prioritize reforms** that can yield up-front benefits, as these will help ease policy trade-offs and create momentum and policy space to embark on deeper reforms, including on the green transition.
- **Address distributional impacts of reforms to increase public buy-in.** Where fiscal space is available, targeted support should be provided to those adversely affected by reforms, including through reskilling. For countries with limited fiscal space and administrative capacity, external assistance is critical in supporting continued reform efforts, including in the green area.
- **Strengthen communication.** Clarity on the timing and pace of reforms enables firms and society to prepare. Early engagement with stakeholders, effective and credible communication of the reform benefits, and leveraging independent institutions and other stakeholders can help garner support for reforms and enhance their credibility.

- **Build capacity.** In several low-income countries, low administrative capacity and fragility hinder effective reform implementation. Capacity building is paramount to effective reform design and to reduce implementation risks.

**Maintaining an open global trade system is important to support successful structural reforms by emerging market and developing economies, including green reforms.** The benefits from external sector reforms—which are part of the first-generation package of reforms—can only fully accrue to emerging market and developing economies if trade openness across the world is preserved. Avoiding a rise in protectionism is also key to ensure these economies’ access to the foreign inputs and technologies needed for the development of the green sector and, more broadly, their green transition.

## Box 1. A Gender Lens to Amplify the Impact of Structural Reforms

*An intentional gender angle in the design of structural reforms amplifies their impact on sustainable and green growth. Policy reform packages that are tailored to also address barriers to women's economic empowerment can yield substantial macroeconomic gains, help close large and persistent job gaps faced by women in the developing world, and reduce gender inequality, including in the disproportionate impact of climate change on women.*

**Gender gaps remain sizable in most emerging market and developing economies.** The ongoing rapid demographic transition in these economies is happening at a time growth remains weak and employment rates not large enough to absorb the fast-growing young population. This poses tremendous challenges to policymakers, with a risk that the ongoing demographic transition disproportionately hurts women. Global female labor force participation stood at 47 percent in 2021, compared with 72 percent for men. At the same time, there are persistently large gender job gap rates in these economies, especially in low-income countries. Women remain overrepresented in the informal economy, carry a disproportionate care burden, and are underrepresented in [leadership](#) roles and as entrepreneurs (Christiansen and others 2016). [They are also disproportionately affected by climate change](#) (UNDP 2017) and hence stand to benefit from climate-change-resilient policies. While gender gaps have closed in primary education in most countries, they persist at secondary and higher levels, particularly in low-income countries. [Financial access](#) gaps remain, driven in part by women's more limited access to collateral, unequal [legal](#) rights, and a substantial digital divide (Christopherson Puh and others 2022; Loko and Yang 2022).

**Gender equality goes hand-in-hand with better economic and green outcomes, with large potential gains in the short to medium term.** A vast literature links narrower gender gaps to substantial growth and productivity gains, less income inequality, more resilient financial sectors, more diversified export bases, and better development ([IMF 2022b](#)). Some countries' gender indicators have improved greatly, even in relatively short periods; for example, Saudi Arabia's female labor participation rate rose more than 38 percent (7.7 percentage points) between 2017 and 2022. An illustrative scenario for 128 emerging market and developing economies shows that measures that narrow gender participation gaps in each country by 5.9 percentage points—the average reduction in the top 5 percent of performers during 2014–19—could raise GDP by 7.7 percent on average across countries. And participation of women in the labor market tends to improve the [matching efficiency](#) between occupation and talent, hence boosting aggregate productivity as well (Hsieh and others 2019). Economically empowering women is also correlated with greater climate action; for example, following the Paris Agreement, companies with more gender-balanced leadership [reduced CO2 emissions 5 percent more](#) than others (Altunbas and others 2021).

**Well-designed structural reforms and macroeconomic policies can help narrow gender gaps.** Gender gaps result from barriers, frictions, and social norms, with a significant role for policies to address them. For instance, Annex 5 highlights that (1) first-generation macrostructural reforms boost girls' and boys' secondary education enrollment in low-income countries and boost girls' enrollment in tertiary education, particularly in emerging market economies; and (2) labor market reforms can boost female labor force participation, particularly after strong first-generation reforms. Pro-competition product market policies can raise the share of female employment and reduce inefficiencies due to discrimination (Cooke, Fernandes, and Ferreira 2019). The increase in competition can potentially foster female entrepreneurship, which contributes to aggregate GDP.

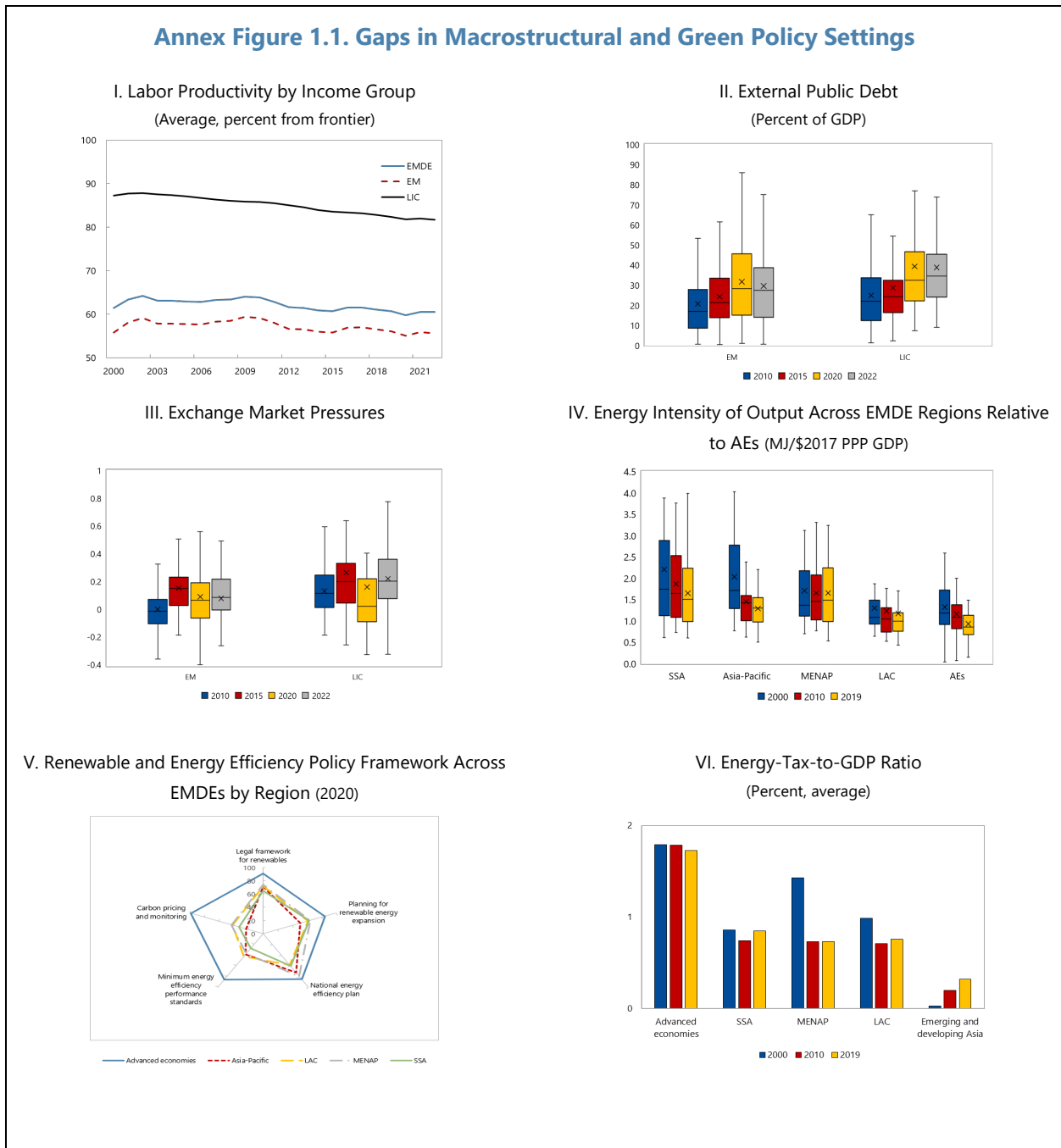
**This calls for designing pro-growth structural reform packages with gender in mind to amplify macroeconomic gains and facilitate the green transition.** Such an approach entails identifying key gaps and barriers to women's labor market participation—such as limited access to education, health care, assets, finance, [land](#), [legal rights](#), and care services—and anticipating the gendered impact when designing sound macroeconomic, structural, and financial [policy packages, taking into consideration household composition and social norms](#). Increasing women's representation in national parliaments is associated with more [stringent climate change policies and lower emissions](#) (Mavisakalyan and Tarverdi 2019). Gender equality also increases the [variety of goods](#) produced in a country, making it more resilient to shocks (Kazandjian and others 2016). Moreover, the extra tax collected due to women's increased participation creates more fiscal room, including for green financing.

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# Annex 1. Data Sources, Sample Coverage, and Structural Reforms Definitions

## 1.1 Descriptive Charts and Sample Coverage

Additional descriptive charts are provided in Annex 1, Figure 1.1.



Sources: IMF, Climate Change Indicators Dashboard; IMF, *World Economic Outlook*; Our World in Data; World Bank, Regulatory Indicators for Sustainable Energy (RISE); and IMF staff calculations.

Note: Labor productivity gap is the deviation of labor productivity from the frontier (the 75th percentile of labor productivity in advanced economies). Labor productivity is calculated as the ratio of real purchasing-power-parity-adjusted GDP and labor employment. Exchange Market Pressure (EMP) index measures the sum of nominal exchange rate depreciation and reserve outflows (scaled by base money). See Tanner (1999). AE = advanced economy; EM = emerging market; EMDE = emerging market and developing economy; LAC = Latin America and the Caribbean; LIC = low-income country; MENAP = Middle East, North Africa, and Pakistan; SSA = sub-Saharan Africa.

Data sources for the descriptive charts in Sections II and V and Annex 1 are listed in Annex 1, Table 1.1.

**Annex Table 1.1. Data Sources for Stylized Facts**

<b>Figures</b>	<b>Sources</b>	<b>Economies</b>
Figure 2: 1. Medium-Term Growth	IMF <i>World Economic Outlook</i> (downloaded July 2023).	196 countries: 41 AEs, 155 EMDEs (sample may vary each year depending on IMF WEO data availability).
Figure 2: 2. Inflation; 3. Public Debt	IMF <i>World Economic Outlook</i> (downloaded July 2023).	155 EMDEs (sample may vary each year depending on IMF WEO data availability).
Figure 3: Gaps in Macrostructural Reforms	Worldwide Governance Indicators and Fraser Institute.	125 countries: 75 EMs, 50 LICs.
Figure 4: GHG Emission Intensity of Output Across EMDEs	Climate Watch.	144 countries: 35 AEs, 60 EMs, 49 LICs.
Figure 12: Climate Policies Across Regions	Climate Policy Database.	163 countries: 36 AEs, 76 EMs, 51 LICs.
Annex Figure 1.1: I. Labor Productivity Gap by Income Group	IMF <i>World Economic Outlook</i> (downloaded July 2023).	155 EMDEs (sample may vary each year depending on IMF WEO data availability).
Annex Figure 1.1: II. External Public Debt	IMF <i>World Economic Outlook</i> (downloaded July 2023).	137 countries: 82 EMs, 55 LICs.
Annex Figure 1.1: III. Exchange Market Pressures	IMF <i>World Economic Outlook</i> (downloaded July 2023).	140 countries: 84 EMs, 56 LICs.
Annex Figure 1.1: IV. Energy Intensity of Output Across EMDE Regions Relative to AEs	Our World in Data.	148 countries: 38 AEs, 60 EMs, 50 LICs.
Annex Figure 1.1: V. Renewable and Energy Efficiency Framework Across EMDEs by Region	World Bank Regulatory Indicators for Sustainable Energy.	117 countries: 27 AEs, 90 EMDEs.
Annex Figure 1.1: VI. Energy-Tax-to-GDP Ratio	IMF Climate Change Indicators Dashboard	95 countries: 34 AEs, 61 EMDEs.

Note: AEs = advanced economies; EM = emerging market; EMDEs = emerging market and developing economies; GHG = greenhouse gas; LIC = low-income country; WEO = *World Economic Outlook*.

Annex 1 Table 1.2 presents the full set of the EMDE sample covered in this SDN.

**Annex Table 1.2. Country Sample Coverage**

<b>Country</b>	<b>Income Group</b>	<b>Country</b>	<b>Income Group</b>	<b>Country</b>	<b>Income Group</b>
Albania	EM	Costa Rica	EM	Kyrgyz Republic	LIC
Algeria	EM	Croatia	Former EM	Lao P.D.R.	LIC
Angola	EM	Côte d'Ivoire	LIC	Lebanon	EM
Argentina	EM	Djibouti	LIC	Lesotho	LIC
Armenia	EM	Dominican Republic	EM	Liberia	LIC
Azerbaijan	EM	Ecuador	EM	Libya	EM
Bahamas, The	EM	Egypt	EM	Madagascar	LIC
Bahrain	EM	El Salvador	EM	Malawi	LIC
Bangladesh	LIC	Eswatini	EM	Malaysia	EM
Barbados	EM	Ethiopia	LIC	Mali	LIC
Belarus	EM	Fiji	EM	Mauritania	LIC
Belize	EM	Gabon	EM	Mauritius	EM
Benin	LIC	Gambia, The	LIC	Mexico	EM
Bhutan	LIC	Georgia	EM	Moldova	LIC
Bolivia	EM	Ghana	LIC	Mongolia	EM
Bosnia and Herzegovina	EM	Guatemala	EM	Morocco	EM
Botswana	EM	Guinea	LIC	Mozambique	LIC
Brazil	EM	Guinea-Bissau	LIC	Myanmar	LIC
Brunei Darussalam	EM	Guyana	EM	Namibia	EM
Bulgaria	EM	Haiti	LIC	Nepal	LIC
Burkina Faso	LIC	Honduras	LIC	Nicaragua	LIC
Burundi	LIC	Hungary	EM	Niger	LIC
Cambodia	LIC	India	EM	Nigeria	LIC
Cameroon	LIC	Indonesia	EM	North Macedonia	EM
Central African Republic	LIC	Iran	EM	Oman	EM
Chad	LIC	Iraq	EM	Pakistan	EM
Chile	EM	Jamaica	EM	Panama	EM
China	EM	Jordan	EM	Papua New Guinea	LIC
Colombia	EM	Kazakhstan	EM	Paraguay	EM
Comoros	LIC	Kenya	LIC	Peru	EM
Congo, Republic of	LIC	Kuwait	EM	Philippines	EM
Papua New Guinea	LIC	Seychelles	EM	Trinidad and Tobago	EM
Paraguay	EM	Sierra Leone	LIC	Tunisia	EM
Peru	EM	Somalia	LIC	Türkiye	EM
Philippines	EM	South Africa	EM	Uganda	LIC
Poland	EM	Sri Lanka	EM	Ukraine	EM
Qatar	EM	Sudan	LIC	United Arab Emirates	EM
Romania	EM	Suriname	EM	Uruguay	EM
Russia	EM	Syria	EM	Venezuela	EM
Rwanda	LIC	Tajikistan	LIC	Vietnam	LIC
Saudi Arabia	EM	Tanzania	LIC	Yemen	LIC
Senegal	LIC	Thailand	EM	Zambia	LIC
Serbia	EM	Togo	LIC	Zimbabwe	LIC

## 1.2 Overview of Structural Reform Indicators

This section provides a summary of structural reform data used for the empirical analysis.

### Governance

Consistent with the literature (e.g., IMF 2019), the governance index employed in this SDN is computed as the simple average of the six components of the widely used Worldwide Governance Indicators (WGIs): (1) voice and accountability, which aims at measuring the citizens' perception of government transparency in each country (i.e., elections, freedom of speech); (2) political stability and absence of violence/terrorism, which measures the likelihood of politically induced violence; (3) government effectiveness, which measures the quality of public services, policy formulation and implementation, as well as the degree of independence from political pressures; (4) regulatory quality, which captures the ability of governments to formulate and implement regulations that can promote private sector development; (5) rule of law, which captures the extent to which market participants feel confidence in the protection of property rights, the quality of contract enforcements, and the police force; and (6) control of corruption, which aims at capturing perceptions of the level of corruption in a given country.

These indicators were drawn from the WGI database, which reports aggregate and individual governance indicators for more than 200 countries over the period 1996–2021. These indicators summarize the views of various counterparts, from citizens to enterprises and expert survey respondents. The WGIs are based on a variety of individual sources, including survey institutes, think tanks, nongovernmental organizations, international organizations, and private sector firms.

### External Sector

External sector reforms—a composite indicator capturing the degree of economic freedom in trade and external finance reforms—describe the extent to which countries can freely exchange goods and services, as well as ideas. Excluding indicators derived from the discontinued World Bank Doing Business Database, the external sector reforms index is computed as the simple average of four sub-indicators: (1) tariffs, which aim to measure to what extent tariffs can be a barrier to trade freely internationally (tariff revenues, tariff rate and volatility of tariffs); (2) nontariff trade barriers; (3) black-market exchange rate, which aims at capturing the disparity between the official and the parallel (black-market) exchange rates; and (4) control of the movement of capital and people, which encompasses a country's degree of financial openness, restrictions to visitors, and whether capital controls are in place.

### Credit Market Regulation

The credit market regulation index comprises three individual components: (1) ownership of banks, which captures the extent to which bank deposits are held in privately owned financial institutions; (2) private sector credit, which measures the extent of government borrowing relative to private sector borrowing (higher score for more private sector borrowing); and (3) interest rate controls, where countries with market-determined interest rates, stable monetary policy, and low real-deposit and lending-rate spreads received higher ratings.



## Labor Market Regulation

Excluding indicators derived from the discontinued World Bank Doing Business Database, the labor market index used in this SDN is the simple average of two components of the Fraser Institute's aggregate regulator index: (1) hiring and firing regulation—with a higher degree of labor market flexibility associated with hiring and firing decisions being flexibly determined by the employer, rather than constrained by employment protection legislation; and (2) centralized collective bargaining—a higher degree of labor market flexibility is associated with wages being set by individual companies, rather than by a centralized bargaining process.

## Business Regulation

This indicator measures the extent to which regulations and bureaucratic processes in each country might hamper private sector activity by restricting entry and decreasing competition. Excluding indicators derived from the discontinued World Bank Doing Business Database, the business regulation index is the simple average of three main components: (1) bureaucracy costs, which measure the risk of normal business operations becoming more costly due to the regulatory environment; (2) administrative requirements, which measure the extent to which reporting, or the issuance of permits and licenses, can be burdensome; and (3) impartial public administration, which accounts for the degree of nepotism and discrimination in public administration.

Apart from the governance index, the rest of the structural reform indicators summarized above (i.e., external sector, credit market, labor market, and business regulation indices) were sourced from the Fraser Institute's Economic Freedom of the World Database, which gathers data from third-party sources, including the *International Country Risk Guide* and the *Global Competitiveness Report*. Overall, it includes over 40 variables, and each component of the index is originally placed on a scale of 0 to 10 that reflects the distribution of the underlying data. For this SDN, we focus on 125 EMDEs covering the period 2000–20. We rescale the aggregate and individual indicators on a scale of 0 to 1, where a higher value implies a higher degree of economic freedom.

## Climate Policy Stringency

Climate policy counts, from the Climate Policy Database, include policies with an explicit climate change mitigation objective, such as greenhouse gas emissions reduction strategies; energy policies that help to decarbonize the energy supply and/or reduce energy demand; and policies that aim to introduce low-emissions practices and technologies to nonenergy sectors, such as agriculture and land use. A policy can be a law, a strategic document, a target, or any other policy document that results in a lasting reduction of the country's emissions intensity (see Nascimento and others 2021). The main advantage of this measure, which has been used widely in scientific publications, is its comprehensive coverage of policy actions, both from an instrument and sectoral perspective. This is particularly important in a context where countries have resorted to sectoral policies and regulations and subsidies instead of economy-wide carbon pricing. One drawback of this measure is that it does not capture the intensity of each policy. For example, an economy-wide carbon price has the same weight as a regulation in a specific sector. While few EMDEs have a carbon tax, we complement the climate policy stringency measure with a measure of energy taxation, given its prominence in the literature.

In this note, climate policy stringency in each country is proxied by the number of climate mitigation instruments in place in each year. In practice, the raw policy count does not account for the enforcement of these

instruments. To account for the extent to which these policies are effectively enforced by national governments, we interact the raw policy count with a measure of government effectiveness in each country—proxied by the “Government Effectiveness” component of the Worldwide Governance Indicators. In this note, we focus on 125 EMDEs over the period 2000–20.

## Energy Tax

As a component of environmental taxes, energy tax is a tax whose base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment. Energy tax, as used in this SDN, comprises three components: (1) taxes on energy products for transport purposes (e.g., petrol, diesel, natural gas, kerosene), (2) taxes on energy products for stationary purposes (e.g., biofuels, fuel oil, district heat and electricity consumption and production), and (3) greenhouse gas emissions taxes. Consistent with the literature (see Dogan and others 2022), the environmental-tax-revenues-to-GDP ratio—purged of growth effects—is used as the proxy for the effective environmental tax rate. To purge output fluctuation effects from the energy tax revenue to GDP, we follow two steps. First, we estimate the following equation:  $y_{i,t} = \alpha_i + \beta_k X_{i,t} + \varepsilon_{i,t}$ , where  $y_{i,t}$  is the energy-tax-revenue-to-GDP ratio,  $X_{i,t}$  is a vector of independent variables including current and past growth (up to 2 lags). Second, we take the change in the residual,  $\varepsilon_{i,t}$ , which represents the non-growth-related component of the ratio, to serve as a proxy for the energy tax rate. The dataset is obtained from the IMF Climate Change Indicators Dashboard for a sample of 72 EMDEs covering the period 2000–20.

## Energy Efficiency and Renewable Energy Policy Frameworks

Data sets on energy efficiency standards (e.g., scores on national energy efficiency planning) and renewable energy frameworks (e.g., scores on legal frameworks for renewables) were obtained from the World Bank’s Regulatory Indicators for Sustainable Energy (RISE) Database. RISE is a set of indicators aimed at gaining a better understanding of existing policy and regulation in sustainable energy across countries. Each indicator encompasses an element of the policy that is important to mobilizing investment, such as planning processes and institutions, incentives, and ensuring financially sound utilities.

For this SDN, we use the original scores in renewable energy and energy efficiency, which range from 0 to 100, where the higher value would translate to higher commitment to sustainable energy. We focus on the time period 2010–20.

# Annex 2. Empirical Framework

## 2.1 Baseline Empirical Framework

### Regression specification

We employ the local projection (LP) method proposed by Jordà (2005) to estimate the macroeconomic effects of structural reforms in a sample of 75 emerging markets and 50 developing economies over the period 2000–20. This same method has been used extensively in the literature to estimate the impact of macro structural reforms on various macroeconomic outcomes (see Duval, Furceri, and Jalles 2022; Romer and Romer 2017). The use of the LP approach is motivated by its strong empirical properties, which include the generation of

accurate impulse responses (Auerbach and Gorodnichenko 2012, 2013) without requiring economic priors or dynamic restrictions (Plagborg-Møller and Wolf 2021), as well as by the flexibility to estimate nonlinear effects.

Specifically, our baseline panel LP model takes the following form:

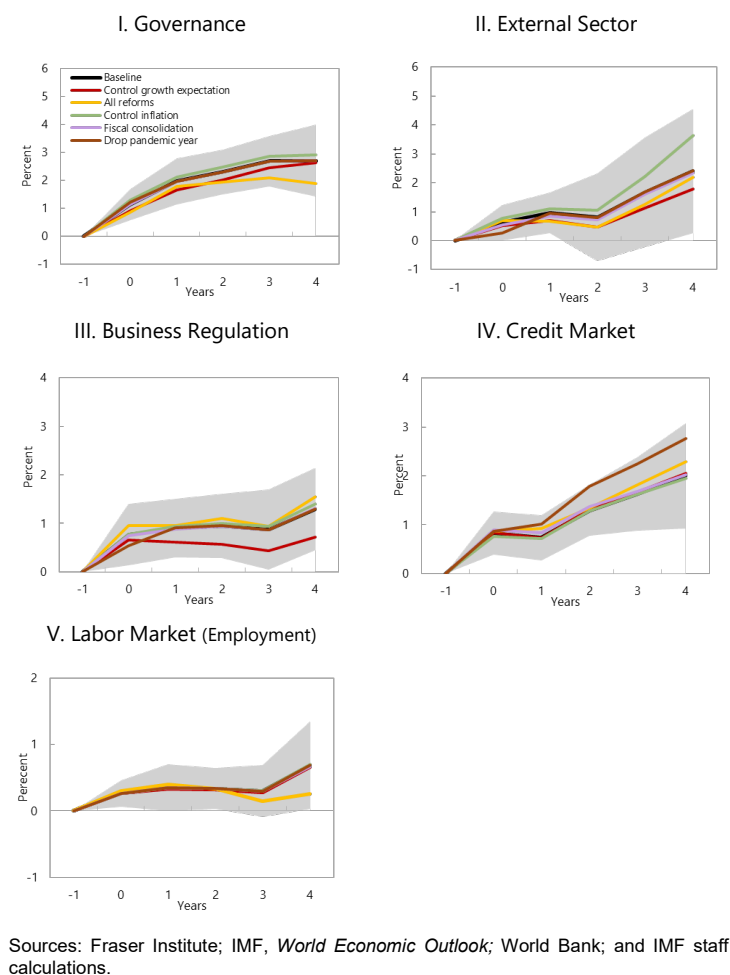
$$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta_k SR_{i,t} + \theta X_{i,t} + \epsilon_{i,t}, \quad (1)$$

where  $y_{i,t}$  is the log of our variable of interest (e.g., output, investment, employment, labor productivity),  $\alpha_i$  and  $\gamma_t$  denote country and year fixed effects, which help control for unobservable cross-country heterogeneities as well as common global factors (e.g., oil prices, global business cycle), respectively.  $\beta_k$  is our coefficient of interest and captures the (cumulative) impact on  $y_{i,t}$  following the introduction of a given structural reform,  $SR_{i,t}$ .  $X_{i,t}$  is a vector of control variables, including lags of the dependent variable, past economic growth, and past reforms. Two lags of the dependent variable and the shock series are included in each estimation to control for autocorrelation, following Montiel Olea and Plagborg-Møller (2021). Time and country dimensions are indicated by  $t$  and  $i$ , respectively, while  $k = 0, 1, 2, \dots, 6$ . We estimate equation (1) via OLS and generate impulse responses for the estimated coefficients of interest,  $\beta_k$ , using the associated Driscoll-Kraay (1998) robust standard errors.

### Robustness Checks

Apart from country and time fixed effects, the baseline results are subjected to a battery of robustness tests, largely to address potential reverse causality concerns such as the endogeneity of the decision to reform. Foremost, for each reform, we control for the impact of all other reforms that may be implemented simultaneously. Reform shocks may be strongly correlated with past economic growth for which we control. In addition to past growth, we also control for expected growth since the decision to reform may be driven by expected future developments. Structural reforms may form part of a broader policy package aimed at addressing policy challenges, including fiscal consolidation. To this end, we also control for episodes of fiscal consolidation—which is said to be underway when the cyclically adjusted primary fiscal balance improves by at least 1.5 percentage points of GDP relative to the previous year (Alesina and Ardagna 2010). Finally, we examine how sensitive the baseline results are across countries with different income levels (LICs vs EMs) or economic structure (fossil fuel exporters vs non-

**Annex Figure 2.1. Average Effects of Reforms on Output: Baseline and Robustness Checks**



exporters). Annex Figure 2.1 shows that the results from alternative specifications and country groups are broadly consistent with and not statistically different from those obtained in the baseline. Annex Table 2.1 presents baseline results for selected macroeconomic variables.

**Annex Table 2.1. Baseline Local Projection Estimates for Selected Macroeconomic Variables 1/**

	Governance	Business Regulation	External Sector	1 <sup>st</sup> Gen. Reform Package	Credit Market Reforms	Labor Market Regulation
Employment	Up (ST-MT)	Up (ST-MT)	None	None	Up (ST-MT)	Up (ST-MT)
Labor Productivity	Up* (ST-MT)	Up (ST-MT)	Up* (MT)	Up* (ST-MT)	Up* (MT)	Down (ST-MT)
Investment	Up* (ST-MT)	Up* (ST-MT)	Up* (ST)	Up* (ST-MT)	Up* (ST)	Down* (MT)
Net FDI Inflows	Up* (ST-MT)	Up (MT)	Up (MT)	Up* (MT)	Up* (ST)	None
Core CPI Index	None	None	Down* (ST-MT)	Down* (ST)	Down* (ST-MT)	Up (ST-MT)

Source: IMF staff calculations.  
Note: CPI = consumer price index; FDI = foreign direct investment.  
1/ "Up," "Down," or "None" indicates whether the estimated effect is positive, negative, or not clear; Star (\*) denotes statistical significance at the 10% level or greater (i.e., the p-value less than 10 percent); ST and MT denote whether the effect is over the short (1–2 years) or medium term (3–4 years), respectively. All dependent variables are percent change, except net FDI Inflows (share of GDP, percentage point change).

## 2.2 Empirical Framework: Addressing Nonlinearities

The initial macroeconomic and policy conditions under which reforms are initiated can affect their effectiveness (e.g., Bordon, Ebeke, and Shirono 2016). To this end, we extend our baseline framework to account for several initial nonlinearities in two steps.

- First, we account for how structural reforms interact with specific initial conditions, including the size of initial structural and green reform gaps (i.e., distance to reform frontier countries) as well as the size of policy trade-offs. To do so, we augment equation (1) with an interaction term for the initial condition ( $I_{i,t}$ ) being examined, with all other terms in equation (2) defined as before. Our new estimation follows:

$$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta_k SR_{i,t} + \gamma(SR_{i,t} * I_{i,t}) + \theta X_{i,t} + \epsilon_{i,t} \quad (2)$$

- Second, the impact of reforms may differ depending on the broad state of the business cycle or policy stance—economic (fiscal) expansions or contractions—under which they are initiated. More important, the nature of the shocks (i.e., demand vs supply) underpinning the state of the business cycle matters. In this context, we modify equation (1) to account for such broad nonlinearities in line with Auerbach and Gorodnichenko (2012) as follows:

$$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta_k^L F(Z_{i,t}) SR_{i,t} + \beta_k^H [1 - F(Z_{i,t})] SR_{i,t} + \theta X_{i,t} + \epsilon_{i,t} \quad (3)$$

with

$$F(Z_{i,t}) = \frac{\exp(-\gamma Z_{i,t})}{1 + \exp(-\gamma Z_{i,t})}, \quad \gamma > 0,$$

where  $F(Z_{i,t})$  captures a particular state (e.g., state of the economy—recession or boom) and normalized to have zero mean and unit variance, with the probability of being in one of two states varying between 0 and 1. Other states, including fiscal expansion and contraction, are controlled for, using  $\gamma = 1.5$ , consistent with the literature (see IMF 2019). Equation (3) presents several advantages

over alternative techniques—including the smooth transition autoregressive model (see Granger and Terasvirta 1993)—two of which are uniquely important for our analyses. First, we can directly test the differences in reform multipliers across several states (e.g., during recession or boom; when structural gaps are low or high; when policy tensions are low or high, etc.). This obviates the need to interact each dependent variable with a measure of a broad-state variable. Second and more important, the generated impulse responses are more stable and precise since reform multipliers are allowed to change smoothly between a continuum of states, rather than being estimated state by state. Equations (2) and (3) are estimated as equation (1) using Driscoll-Kraay (1998) standard errors to control for cross-country correlation in the error term.

## Annex 3. The Policy Trade-off (PT) Index

A new synthetic index of policy trade-offs (PT) aims to capture the multiplicity of macroeconomic constraints—including low growth, persistently high inflation, and exchange market pressures—that many EMDEs are currently facing amid high debt and interest rates and that can result in difficult policy trade-offs. Using principal component analysis, we construct the PT index—for 58 large EMs, given data limitations for the full sample of EMDEs—with the highest weight assigned to inflationary pressures, followed by growth slowdown (growth deviation from its long-term average, entering with a negative sign, so a positive value implies a growth slowdown), debt vulnerabilities (level of debt and debt deviation from its long-term average), and external vulnerabilities (external debt deviation from its long-term average and exchange market pressure index). The index has been steadily increasing since the early 2000s, with notable surges during the 2008–09 global financial crisis and the COVID-19 pandemic in 2022 (Annex Figure 3.1, panel II). Although some leveling off is expected in the coming years, the index is projected to remain at historically high levels over the medium term. It is noteworthy that the factor loadings of inflationary pressures and growth concerns make up a substantial proportion (about half) of the index, indicating the presence of supply-side shocks under constraints related to external and public sector financing.

Despite the usefulness of the PT index in reducing the dimensionality of inflation, growth, debt, and exchange market pressure indicators into a single index, some caveats are warranted. Foremost, the index does not incorporate information about level of policy variables (e.g., trade-offs are likely to be higher when policy rates are already very high or when substantial fiscal consolidation has already been deployed). Also, the index combines stock variables (debt ratios)—which are likely affected by other structural factors—with conjunctural variables that likely reflect the impact of shocks (e.g., growth, inflation, exchange market pressures). Furthermore, although the index is constructed in a data-driven manner, it is not straightforward to precisely pin down which of the indicators may drive the evolution of the index.

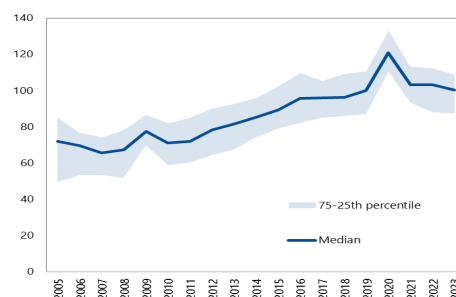
In several countries, acute policy trade-offs, as measured by the PT index, coexist with deep structural gaps. This is particularly evident in countries where the PT index and certain structural gaps are large, for example, above the median values (Annex Figure 3.1, panels III and IV).

## Annex Figure 3.1. PTs Are Stronger Where Structural Gaps Are Larger, Suggesting Synergies

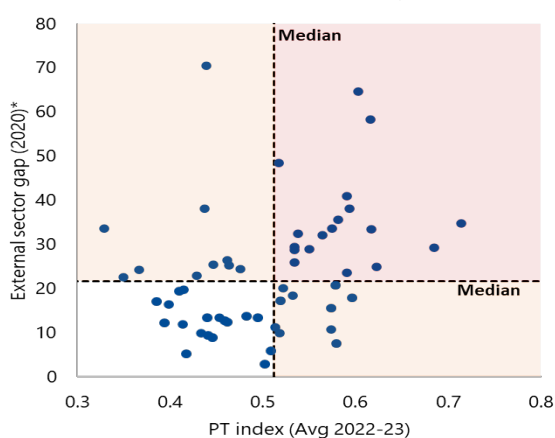
I. Components of the PT Index

Components (Percent of GDP unless otherwise indicated)	Factor Loading (Percent)
Inflation deviation from 10-year average (percent)	34.2
Growth deviation from 10-year average (percent)	18.9
Public debt ratio	16.7
Public debt ratio deviation from 10-year average	14.0
Public external debt ratio deviation from 10-year average	12.2
Exchange market pressure*	4.3

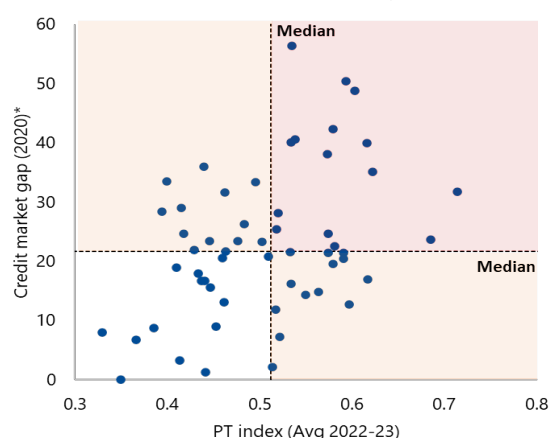
II. PT Index Evolution: EM Countries (2019=100)



III. PT Index and External Sector Gap (percent)



IV. PT Index and Credit Market Gap (percent)



Source: Fraser Institute; IMF, *World Economic Outlook*; and IMF staff calculations.

Note: PT = policy trade-off.

## Annex 4. Reforms under Duress

**The output gains from certain reforms may accrue even during adverse macroeconomic shocks.**

Policymakers often face the dilemma of which reforms to implement during bad times as they worry about likely public backlash and political instability. This annex proposes to test the effects of macrostructural reforms on output conditional on specific macroeconomic challenges at the time these reforms take place. We extract each dimension of the PT index or related measures (adverse supply or demand shocks, public-debt-to-GDP ratio, fiscal stance, exchange market pressure) and run separate regressions to assess the differential effect of reforms.

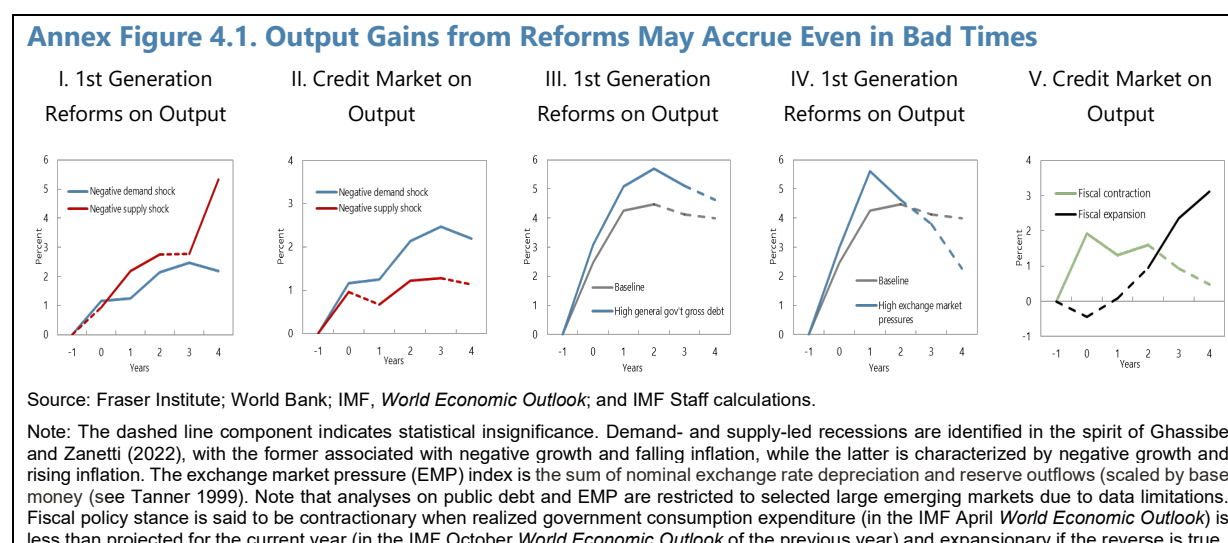
**We first examine the reforms' impacts during supply- and demand-led recessions.** We find that a package comprising the first-generation reforms has the potential to raise output by up to 2 percent in four years during demand-led recessions (instances when growth and inflation are low compared with averages), but with much larger effects of 5 percent during supply-constrained downturns—when growth is low and inflation is high—(Annex Figure 4.1, panel I), suggesting that these reforms are more effective in stimulating output and alleviating price pressures when supply constraints drive the downturn. The results show that major

domestic credit reforms, on the other hand, seem to be output-enhancing when initiated during demand-led recessions, and more so than in supply-led recessions. For example, major credit market reforms could raise output by 1 percent on impact and up to 2 percent in four years during demand-led recessions (negative growth and falling inflation), largely amid easing of lending constraints and lowering of borrowing costs (panel II).

**We then assess the reforms' impacts when public debt is high.** The result shows that the first-generation reform package can raise output—above the baseline effect—by up to 3 percent on impact and 4.6 percent after four years when public debt is high. This could reflect a premium on increasing confidence in the government and its policies in periods where debt sustainability may be in question (panel III).

**We further investigate whether the reforms' impact differs according to the level of exchange market pressure.** The first-generation reform package appears to have strong output effects in the near term—up to 5.6 percent one year after the reform package's implementation—even under high exchange market pressures (panel IV). Improving confidence in the government's policies and alleviating external imbalances by reforming external sector policies can help raise output more substantially when a country is facing exchange market pressures.

**We finally examine whether the fiscal stance affects reform impact on output.** For example, fiscal contractions may amplify—by up to 2 percent on impact—the growth effect of domestic credit market reforms, possibly amid less crowding out of the private sector as the public sector's credit demand declines (panel V). During fiscal expansion on the other hand, the growth effect of credit market reforms appears significant only over time, as higher interest rates may temporarily weigh on private investment in the near term.



## Annex 5. Structural Reforms and Inclusive Growth

Structural reforms may also influence economic growth by fostering conducive environments for other vital reform areas, such as health care, education, and diversity and inclusion policies. This annex analyzes the impact of structural reforms on two crucial areas: (1) education and (2) labor force participation. While we find a positive effect of these reforms on human capital formation and participation, it is important to caution against a causal interpretation and the specific channels through which structural reforms work due to possible omitted variable bias, endogeneity, and multicollinearity.

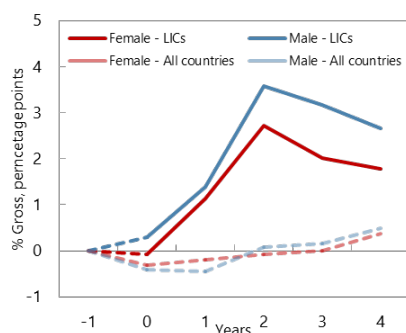
The analysis shows that the first-generation reforms can support long-term growth by accelerating human capital formation. In LICs, the first generation of reforms boosts girls' and boys' secondary education enrollment; they boost girls' enrollment in tertiary education, particularly in EMs. Although the exact pathways through which the first-generation reforms impact education were not examined, several plausible explanations may shed light on the possible channels. For instance, better governance practices help channel public resources more efficiently to education and create a more stable environment conducive to higher education. Complementing governance reforms are trade reforms, which benefit human capital development by increasing workers' exposure to more productive foreign firms, fostering competition and encouraging technological advancement, which can lead to higher returns on education. Regulatory reforms in the business sector form the third pillar of the first generation of reforms. By encouraging entrepreneurship and fostering the adoption of advanced technologies, these reforms can also create an environment that motivates higher-skilled labor. After the first-generation reforms, labor market reforms can enhance labor force participation, particularly among women. Labor market reforms can facilitate the formalization of labor markets, improve working conditions, promote fair practices, and reduce discrimination. As a result, labor market reforms, after the first-generation reforms, promote labor force participation in the short and medium term.

The accumulated evidence suggests that structural reforms' long-term impact is significant and transformative. By supporting human capital formation and bridging gender gaps in education and labor markets, these reforms catalyze sustainable change rather than short-term fixes. In the context of EMDEs, these reforms promise a more productive labor force in the long run. This increased productivity directly boosts aggregate productivity and, consequently, the long-term growth of these economies.

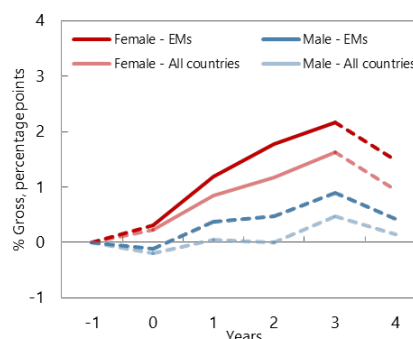


## Annex Figure 5.1. The Impact of Structural Reforms on Education and Labor Supply

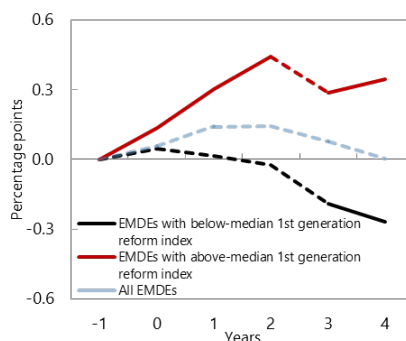
I. 1st Generation Reform on Secondary Enrollment



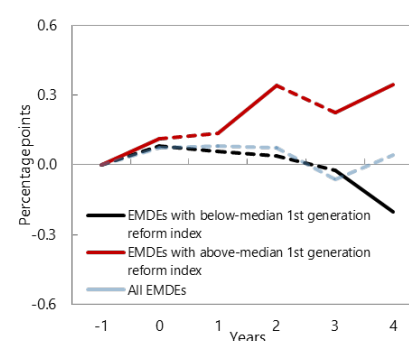
II. 1st Generation Reform on Tertiary Enrollment



III. Labor Market on Female LFP



IV. Labor Market on Male LFP



Sources: Fraser Institute; World Bank; and IMF staff calculations.

Note:  $t = 0$  is the year of the shock. The lines denote the response to a major historical reform (two standard deviations). The solid component indicates statistical significance at the 90 percent level. Panel 1 is based on a sample of 116 countries (68 EMs and 48 LICs); panel 2 is based on a sample of 64 countries (39 EMs and 25 LICs); panels 3 and 4 are based on a sample of 124 EMDEs. The first-generation reforms index is the simple average of governance, external sector, and business regulation reforms. EMs = emerging markets; EMDEs = emerging market and developing economies; LFP = labor force participation; LICs = low-income countries.

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## PUBLICATIONS

**Structural Reforms to Accelerate Growth, Ease Policy Trade-offs, and Support the Green Transition in Emerging Market and Developing Economies**

Staff Discussion Note No. SDN/2023/007