September 2015 SDN/15/18

IMF STAFF DISCUSSION NOTE

From Ambition to Execution: Policies in Support of Sustainable Development Goals

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Catherine Pattillo, Adrian Peralta-Alva,
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I M F S T A F F D I S C U S S I O N N O T E

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Policies in Support of Selected Sustainable Development Goals[1]

Prepared by Stefania Fabrizio, Rodrigo Garcia-Verdu, Catherine Pattillo, Adrian Peralta-Alva, Andrea Presbitero, Baoping Shang, Geneviève Verdier, Marie-Therese Camilleri, Kazuaki Washimi, Lisa Kolovich, Monique Newiak, Martin Cihak, Inci Otker, Felipe Zanna, and Carol Baker

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EXECUTIVE SUMMARY

September 2015 marks the formal launch of the Sustainable Development Goals (SDGs) and the start of a new global development agenda. Broader in scope than the now-expiring Millennium Development Goals (MDGs), the SDGs embrace the notion that development needs to be economically, socially, and environmentally sustainable.

The IMF is uniquely positioned to support countries as they pursue the SDGs. With its focus on macroeconomic-criticality and its global membership, the IMF can work directly with its member countries and help to ensure a supportive, enabling global environment for sustainable development. Recognizing the need for a holistic view of growth, the IMF is increasingly emphasizing policies to promote sustainable growth, including through (1) economic diversification and structural transformation within a stable macroeconomic framework; (2) economic, gender, and financial inclusion; and (3) climate and environmental sustainability.

This paper examines three areas of key relevance for achieving the SDGs. It addresses economic transformation and inclusiveness priorities for developing countries, and environmental sustainability priorities for both developing and high-income countries. It emphasizes synergies between economic, social, and environmental objectives while also analyzing trade-offs and policies to minimize them. Although there is no one-size-fits-all strategy, some common threads can be identified, which can help countries—supported by the international community—to implement their development agenda:

- *Sustainable growth*. Macroeconomic and financial stability are necessary for sustainable growth, but they are not sufficient on their own. For developing countries, economic diversification and structural transformation are also critical. Of paramount importance are policies to strengthen infrastructure and its efficiency, enhance human capital, support financial deepening, and boost agricultural productivity.

- *Inclusive growth*. Widening economic and social disparities can pose a threat to durable growth, emphasizing the importance of economic and social inclusion. Addressing inequality across its various dimensions—income, gender, financial—is key. Such efforts can include fiscal policies that balance distribution and efficiency objectives, regulatory measures to increase access to finance while preserving financial stability, and structural reforms to promote economic participation.

- *Environmental sustainability.* Building resilience to climate-related events—and reforming energy and water prices—can go a long way toward addressing environmental sustainability. Mitigating the impact of price reforms on the most vulnerable is critical from an equity perspective and for gaining public support for reforms.

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I. INTRODUCTION

1. **The formal launch of the SDGs in September 2015 will shape the global development agenda for the next 15 years.**[2] The SDGs are to take the place of the MDGs, which were to be attained by 2015; they are broader in scope than the MDGs, reflecting the view that development needs to be economically, socially, and environmentally sustainable.[3] The 17 SDGs are intended to cover all countries and focus on five key elements: people, planet, peace, prosperity, and partnership (Table). The challenges of mobilizing the financing resources needed to help meet the SDGs were discussed at the Third United Nations (UN) Conference on Financing for Development in Ethiopia in July; this conference concluded with agreement among the UN membership on an *Addis Ababa Action Agenda* (UN 2015) to boost development financing. The global "year of development" will close with a UN Framework Convention on Climate Change (UNFCCC) conference in Paris in December, which aims to produce a global accord on reducing carbon emissions.[4]

2. **The IMF issued two papers on Financing for Development (FfD) in the run-up to the Addis conference** (IMF 2015a, 2015b). The first of these papers described the IMF's policy positions on the key topics that featured in the FfD debate and outlined the initiatives the IMF would be taking to strengthen its support for developing country members over the medium term. The second paper considered how the IMF could expand its direct financial support for its members, resulting in Board decisions to increase by 50 percent the amounts that countries could borrow under the IMF's concessional financing and emergency lending facilities and to set at zero the interest rate charged on lending to low-income countries hit by adverse shocks.

3. **This paper examines selected policy issues of importance for achieving individual SDGs, drawing on recent analytical work conducted at the IMF**.[5] The topics examined include (1) how to achieve sustained economic growth in developing countries; (2) how to ensure that economic growth is inclusive, reducing inequalities while benefiting all; and (3) how to use market-based policies to promote environmental sustainability over the medium term. These issues are of direct relevance for attainment of SDG 8 (promoting inclusive and sustainable economic growth), SDG 5 (achieving gender equality), SDG 1 (eradicating poverty), SDG 10 (reducing inequality), and SDG 13 (taking action to combat climate change).[6] Attention is focused on tackling these issues in developing countries (listed in the Appendix).

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[2] SDG agenda "Transforming Our World: The 2030 Agenda for Sustainable Development."

[3] See World Bank and IMF (2015) for a discussion of the results achieved in meeting the MDGs.

[4] The UNFCCC is the primary intergovernmental forum for developing the global response to climate change.

[5] The IMF has also recently introduced a data dissemination tool, the Enhanced General Data Dissemination System (e-GDDS), that can aid countries and the international community in monitoring progress toward these SDGs. The e-GDDS helps countries produce and disseminate key macroeconomic and financial data in standard format using modern technology.

[6] Effective policies in these areas will also facilitate the attainment of other SDGs, such as ensuring sustainability and access to water (SDG 6) and energy (SDG 7).

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4. The rest of the paper is organized as follows: Section II discusses policies to foster sustained growth in developing countries, focusing on the role of economic diversification and structural transformation. Section III reviews developments and policy challenges related to inequality in developing countries. Section IV examines the importance of environmental sustainability for growth and macroeconomic stability and discusses appropriate pricing policies for natural resources in both developing and high-income countries. Section V concludes.

Table. Sustainable Development Goals (SDGs)

SDG 1	End poverty in all its forms everywhere;
SDG 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
SDG 3	Ensure healthy lives and promote well-being for all at all ages;
SDG 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
SDG 5	Achieve gender equality and empower all women and girls;
SDG 6	Ensure availability and sustainable management of water and sanitation for all;
SDG 7	Ensure access to affordable, reliable, sustainable and modern energy for all;
SDG 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
SDG 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster
SDG 10	Reduce inequality within and among countries;
SDG 11	Make cities and human settlements inclusive, safe, resilient and sustainable;
SDG 12	Ensure sustainable consumption and production patterns;
SDG 13	Take urgent action to combat climate change and its impacts;
SDG 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
SDG 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
SDG 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
SDG 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Source: United Nations.

II. TRANSFORMATION FOR SUSTAINABLE GROWTH

A broadly stable macroeconomic environment is a prerequisite for achieving sustained economic growth, but does not by itself ensure such growth. For developing countries, economic diversification and structural transformation can play an important role in supporting growth as well as reducing volatility and vulnerability to external shocks so too can policy reforms to enhance infrastructure, human capital, financial deepening, and, in turn, productivity.

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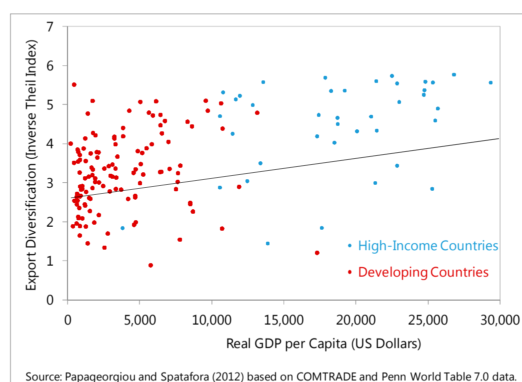
A. Diversification and Structural Transformation in Developing Countries

5. A stable macroeconomic and financial environment is critical for sustained growth, but does not, by itself, ensure that growth will occur.[7] Key factors of relevance include a predictable environment for private capital accumulation, adequate infrastructure to facilitate economic activity, an effective education system, strong institutions to deliver public goods—the list is long and it varies with country conditions and levels of development. As discussed in Section III, high levels of economic inequality can hinder growth, including by limiting the accumulation of skills and human capital among the less well-off. We consider here the importance of diversification and structural transformation for sustaining growth.

6. Increasing evidence shows that, for countries in the earlier stages of development, higher income per capita is closely related to greater diversification and structural transformation. As shown by recent IMF work, in the earlier stages of development, economic activity is usually concentrated in sectors characterized by low productivity, such as subsistence agriculture (Papageorgiou and Spatafora, 2012; IMF, 2014a). As the economy diversifies (for example, as output and exports include more sectors, higher-quality products, and new trading partners), greater opportunities for higher productivity activities and sectors and technology spillovers are created, accelerating growth and employment (Figure 1). Economic diversification is strongly related to structural transformation, which for many developing countries implies a shift of workers from low-productivity agriculture into higher productivity sectors, including manufacturing, trade, construction, and services. In turn, economic diversification and structural transformation can also play an important role in increasing the resilience of natural resources-based economies to shocks. Notwithstanding the rapid growth experienced by many commodity exporters over the past decade and a half, thanks in large part to the surge in commodity prices (Beny and Cook, 2008), these economies remain highly vulnerable to commodity price variability: diversification of production and exports can help increase the resilience of the economy, lower output volatility, and foster macroeconomic and financial stability (Figure 2).

Figure 1. Diversification and Income per Capita, 1962–2010

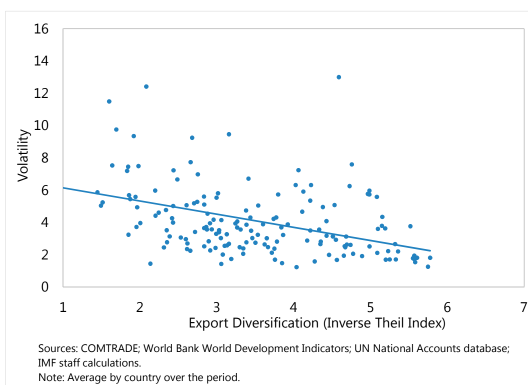
(A higher value of the Inverse Theil index indicates higher export diversification)



Source: Papageorgiou and Spatafora (2012) based on COMTRADE and Penn World Table 7.0 data.

Figure 2. Diversification and Volatility

(A higher value of the Inverse Theil index indicates higher export diversification)



Sources: COMTRADE; World Bank World Development Indicators; UN National Accounts database; IMF staff calculations.

Note: Average by country over the period.

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[7] For further discussion, see IMF (2015a).

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7. Over the past two decades, developing countries' experiences with diversification and structural transformation have varied. South Asian, European and central Asian countries, for example, underwent a fast process of export diversification, coinciding with a rapid shift of workers out of agriculture and into manufacturing, and subsequently from manufacturing into services. East Asian countries have managed to transform their economies through an export-oriented growth strategy, particularly through integration into global value chains (IMF 2015c). Reduction in trade barriers, greater integration through participation in regional trade agreements, and better infrastructure and human capital formation are among the factors that helped achieve this transformation. By contrast, though growing strongly from a low base, the sub-Saharan Africa (SSA) region experienced much slower diversification and structural transformation, reflecting, among other factors, limited growth in agricultural productivity and heavy dependence on commodities.

8. For most commodity exporters, diversification has proved to be a difficult challenge. Diversification among oil producers in the Middle East and North Africa (MENA) and SSA regions has been very limited over the past two decades, despite declining oil reserves in many of these countries. However, several countries, including Indonesia, Malaysia, and Mexico, have been able to successfully diversify away from oil production by creating a favorable economic and business environment and supporting workers in acquiring the relevant skills and education needed to boost productivity (Callen and others 2014). These countries, though, had a relatively smaller oil sector than MENA and SSA oil producers and a sizable non-oil economy already at the onset of oil production.

B. Economic Diversification and Structural Transformation: Policies

9. Although there is no one-size-fits-all strategy for promoting diversification and structural transformation in developing countries, cross-country evidence points to a range of general policy and reform measures that have proven effective (IMF 2014a). Structural reforms help accelerate productivity growth, facilitating the shift of resources to their most productive uses, and increasing the diversification of production and export bases.

10. Increased public investment can play an important role in promoting structural transformation and sustainable growth. Infrastructure is inadequate in many developing countries. The public capital stock-to-output ratio has fallen from 115 percent of GDP in 1960 to 88 percent of GDP by 2012, largely due to a long-term decline in public investment rates since the mid-1980s (IMF 2015d). Recent IMF model-based studies clearly show that raising public investment has significant long-term benefits for growth.[8] However, the work also points out important challenges. First, even projects with high rates of return may create a fiscal transfer problem: taxes or fees may need to increase to capture the (private) benefits of the extra public capital spending in

[8] The DIG (Debt, Public Investment and Growth) and DIGNAR (Debt, Investment, Growth and Natural Resources) models, developed in Buffie and others 2012 and Melina, Yang, and Zanna 2014, and their extensions, analyze the investment-growth nexus and have been applied to 24 developing countries, including Afghanistan, Benin, Burkina Faso, Republic of Congo, Central African Economic and Monetary Community (CEMAC), Chad, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Kazakhstan, Liberia, Mozambique, Myanmar, Niger, Rwanda, Senegal, Sierra Leone, Togo, and Yemen.

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order to ensure sustainability. Second, challenges occur in the transition, as the positive effect of a surge in public investment can be constrained by limited absorptive capacity (Presbitero 2015) and by pressures on domestic resources that can "crowd out" private consumption and investment. Foreign borrowing can ease these pressures, although it can also create a risk for debt sustainability, depending, among other things, on the rate of return of projects and the flexibility of fiscal policy to react to adverse shocks (Buffie and others 2012; IMF 2014b; Melina, Yang, and Zanna 2014).[9]

11. The benefits of public investment crucially depend on improving its efficiency. Roughly 30 percent of the potential value of investment is lost due to inefficiencies in the investment process (that is, countries could increase infrastructure coverage and quality by 30 percent for the same level of inputs) (IMF 2015d). "Investing in investing" to increase efficiency can have substantial growth benefits and very high rates of return, even higher than the rates on raising the level of investment spending itself (Berg and others 2015).[10] Improvements in public investment management (PIM) could significantly enhance the efficiency and productivity of public investment. On average, strengthening PIM institutions could close up to two-thirds of the efficiency gap. Strengthening institutions related to investment implementation, such as the transparency of budget execution, openness of the procurement process, and efficiency of cash management, is critical for the stability and predictability of investment, and for reducing opportunities for rent seeking. Greater transparency and accountability regarding project management, monitoring, and evaluation are also needed to strengthen incentives to deliver projects on time and on budget.

12. Greater investment in human capital also facilitates structural transformation. Although many developing countries have managed to increase school enrollment over the past two decades, most are still far from achieving the universal coverage of quality education needed to provide the future workforce with the ability to shift to more productive and higher technology sectors.

13. Developing countries can also make significant gains from further integration into the international trade system. Policy reforms such as calibrated import liberalization measures are important. Development partners can provide important support through "aid for trade," trade-related capacity-building efforts, and project preparation assistance. Reforms are also needed at the international level, as high barriers to imports and domestic subsidies on agricultural products in advanced economies remain a significant obstacle to export expansion for many developing countries (IMF 2015a).

14. Policies that enhance gradual financial deepening and efficiency, and increase access, can improve an economy's resilience and boost growth. Access to financial services by firms and individuals (financial inclusion) remains very low in many developing countries, and financial systems in many of them continue to be repressed. Greater financial access and better information sharing

[9] See also http://www.imf.org/external/np/res/dfidimf/

[10] In assessing the growth impact of increases in investment, both the efficiency and rate of return of public capital need to be considered, since capital scarcity, which is pervasive in developing countries, can imply high rates of return.

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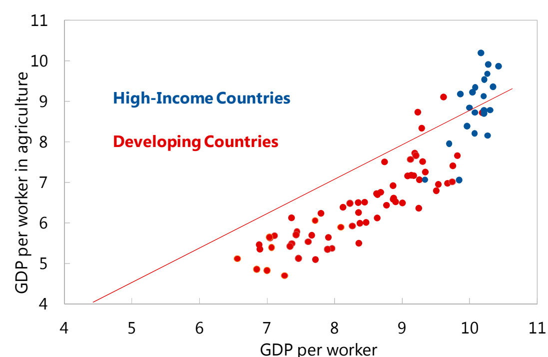
mobilize savings, improve resource allocation, and facilitate diversification and risk management. Deeper financial markets provide the public and private sectors with the means to expand operations beyond the constraints imposed by self-generated resources (Sahay and others 2015a). When financial deepening is accompanied by financial inclusion, it can contribute to reducing income inequality and fostering inclusive growth (see Section III).

15. Increasing agricultural productivity may hold the key to fostering structural transformation in many developing countries. While average labor productivity in agriculture is lower than in other sectors in almost every country, the productivity gap is greater for developing countries than for high-income countries (Figure 3). Low labor productivity often reflects poor irrigation, lack of fertilizer inputs, shrinking land use, and persistent infrastructure constraints. Empirical evidence suggests that increased productivity in agriculture promotes a shift of labor to the rest of the economy. Increasing agricultural productivity within a cost-effective strategy, including through investment in rural roads, electrification, irrigation, the provision of extension services, and R&D to develop and disseminate improved seed varieties, is essential for structural transformation.[11]

Figure 3. Average Labor Productivity, 1985–2009

(GDP per worker, PPP adjusted natural logarithm)



Source: Restuccia and others (2008) based on Penn World Table and FAO data.

16. Strategies to increase agricultural productivity must take into account spillover effects in other areas, including on the environment. This was evident in the Indian experience during the Green Revolution, which provided a major boost to agricultural productivity through the introduction of high-yield crop varieties and application of modern agricultural techniques. However, the heavy use of water and fuel subsidies led to widespread overuse of underground aquifers, increasing the salinity of soils and leading to a severe depletion of the water table in some regions. Strengthening the management of natural resources, including by correcting energy and water price distortions (see Section IV), is therefore crucial to underpin gains in agricultural productivity. Given their geography, small states can benefit even more from upgrading their agricultural products (see Box 1).

17. Policies for accelerating structural transformation can reinforce synergies with inclusion and environmental sustainability, but must be mindful of possible trade-offs. At the early stages of development, structural transformation can foster growth, reduce poverty, and help

[11] Gollin (2010) reviews theoretical arguments and empirical evidence for the hypothesis that agricultural productivity improvements lead to structural transformation and economic growth in developing countries. For countries with large populations in rural and remote areas and limited access to international markets, agricultural development is essential for economic growth. For other countries, the importance of agriculture-led growth will depend on the relative feasibility and cost of importing food.

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improve welfare. At the same time, as workers move out of agriculture into higher productivity sectors, such as manufacturing and services, the shift can induce increased inequality (Deaton 2013). Though overall poverty is reduced, the impact on inequality can be mitigated if transformation is accompanied by well-designed policies, as discussed in the rest of the paper. Synergies and trade-offs co-exist also between the transformation and preservation of the environment: population shifts to urban areas, with expanded employment in manufacturing and services, can reduce deforestation, soil degradation, and the pace of water depletion (Dasgupta 2003). At the same time, tensions between transformation objectives and environmental sustainability can also rise, as the experience of the Green Revolution in India discussed above shows.

Box 1. Diversification in Small States for Sustainable Development

Improved product quality in small states would help diversification efforts. Many small states (countries with a population less than 1.5 million) produce manufactured goods that are comparable in quality to larger emerging markets—though this may reflect participation in a supply chain, assembling goods produced elsewhere—with greater scope to strengthen product quality in the agricultural sector, which accounts for about half of small states' exports of goods (IMF 2015e).

Diversification within and outside the tourism sector could also help reduce growth volatility and vulnerability to external shocks. Promoting diversification *within* the tourism industry could reduce the volatility of tourist arrivals and increase tourism revenue. For example, diversifying tourist attractions could encourage tourists to stay longer and spend more. Diversifying *outside* the tourism industry could entail developing agriculture to supply the tourism industry with domestic products. The synergies between agriculture and tourism are particularly important for small states, as domestic producers would be able to save a large portion of domestic transport costs if they were located near tourism sites (Chen and others 2014). Developing domestic supply chains and expanding the domestic share of tourism-related operations would help enhance growth potential and limit growth volatility.

Diversification should be underpinned by structural reforms that increase public capital spending, address infrastructure bottlenecks, and reduce the cost of doing business. These reforms include (1) alleviating pressing infrastructure bottlenecks, including water and sanitation, transport and communication, and energy; (2) tilting the public spending mix toward capital investment, helping to attract foreign investment, and stimulate more tourism, thereby promoting more broad-based growth; and (3) improving the business environment by reducing market entry barriers, particularly for local small- and medium-sized enterprises, and by scrapping restrictive foreign investment regimes.

III. MAKING GROWTH MORE INCLUSIVE

Growth needs to be more inclusive as growing economic and social disparities can pose a threat to social and economic stability. Promoting economic and social inclusion by addressing inequality in income, gender, and financial opportunities is vital. Macroeconomic policies and structural reforms can be supportive of outcomes that combine redistribution, efficiency, and financial stability objectives.

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A. Inclusion and Growth

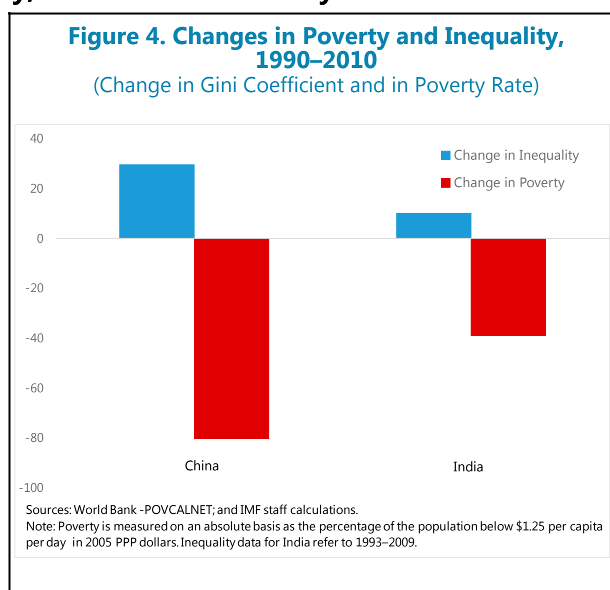
18. Promoting economic and social inclusion involves addressing inequality of outcomes and of opportunities. In particular, this paper focuses on: (1) inequality of income that focuses on the inter-personal distribution of income; (2) gender inequality, with a focus on inequality of opportunities for women to participate actively in remunerated economic activities; and (3) inequality in access to, and use of, financial services by individuals and firms.

19. Evidence suggests that high levels of income inequality can be detrimental to sustainable growth. As analyzed by recent IMF work, in addition to the standard determinants of sustained growth, distributional outcomes also play a crucial role for the level and sustainability of economic growth (Ostry, Berg, and Tsangarides 2014; Dabla-Norris and others 2015a).

20. Relatively low levels of inequality may actually be protective of both the level and the sustainability of economic growth, for several reasons. The likelihood that the poor have access to (and can afford) health and education services is lower in countries with higher levels of inequality. Social conflict and political instability can be expected to discourage investment and entrepreneurship. Highly divided societies may not be able to manage adjustment to difficult times, causing what could be temporary shocks to turn into extended stagnation. Evidence suggests that high levels of inequality can be detrimental for sustainable growth and that redistribution through the fiscal system, as long as it is not excessive, can on net be conducive to sustainable growth (Ostry Berg, and Tsangarides 2014; IMF 2014c).

21. While high growth reduces overall poverty, it does not necessarily lead to lower levels of inequality. Where robust growth is linked to structural transformation, involving the movement of labor to higher productivity sectors, inequality can rise even as large numbers of people are being pulled out of poverty—as the recent experiences of China and India illustrate (Figure 4). In China, the rapid pace of growth since 1990 has yielded a dramatic decline in poverty rates—but the structural changes associated with this growth produced increasingly large disparities across regions, exacerbating inequality.[1] In India, the process of liberalization helped foster growth and reduce poverty over two decades, but did not reduce inequality (Aghion and others 2006; Topalova 2004). These examples involve large structural transformations: more generally, cross-country

Figure 4. Changes in Poverty and Inequality, 1990–2010
(Change in Gini Coefficient and in Poverty Rate)



Sources: World Bank -POVCALNET; and IMF staff calculations.
Note: Poverty is measured on an absolute basis as the percentage of the population below $1.25 per capita per day in 2005 PPP dollars. Inequality data for India refer to 1993–2009.

[1] Fan, Kanbur, and Zhang (2009) present a comprehensive survey on the forces that accounts for increased inequality in China.

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studies find that, on average, increases in growth are not correlated with increases in inequality (Dollar and others 2013; Brueckner and others 2014). And the historical experience of the advanced countries indicates that, over time, sustained growth can produce a narrowing of inequality (for example, as surplus labor in agriculture is eventually absorbed in the high productivity sectors).

22. The level of inequality can significantly affect the pace at which economic growth translates into poverty reduction. Studies indicate that growth is less effective in lowering poverty levels in countries where the level of inequality is high (Ravallion 1997 and 2004).

23. Gender equity can contribute significantly to sustainable growth. Gender gaps in labor force participation (LFP), entrepreneurship, and education pose impediments to growth (Cuberes and Teignier 2014; Elborgh-Woytek and others 2013; Esteve-Volart 2004; Klasen and Lamanna 2009). Closing gender gaps can also yield a more efficient allocation of resources and total factor productivity gains (Loko and Diouf 2009).

24. Women's opportunity to earn and control income can boost development outcomes (Heintz 2006). There is a positive correlation between gender equality and per capita GDP, the level of competitiveness, and human development indicators (WEF 2014). Women are more likely than men to invest a large proportion of their income in the education of their children, implying that higher female LFP and earnings by women could translate into higher expenditure on school enrollment for children (Aguirre and others 2012; Miller 2008).

25. Financial inclusion also fosters growth and helps reduce inequality, though financial stability risks increase when access to credit growth expands without proper regulation and supervision (Sahay and others 2015b). At the initial stages of financial development, few people (the better-off and the highly productive but previously financially constrained) can successfully enter profitable businesses. As the financial system matures, greater business activity and competition induce a general increase of wages and a decrease in profits, with positive distributional effects (Townsend 2011; Dabla-Norris and others 2015b). Despite possible negative short-term run effects, in the longer term financial development eases financing constraints and facilitates investment in human capital, fostering growth (Galor and Zeira 1993). Empirical evidence shows that financial deepening accelerates economic growth, intensifies competition, and boosts the demand for labor, benefiting especially the lower end of the income distribution (Beck, Demirguc-Kunt, and Levine 2007). New research shows that financial sectors that are deep and provide broader access to financial services (to firms, households, and women) are more conducive to economic growth (Sahay and others 2015b). Other evidence suggests that access to credit markets increases parental investment in education and reduces the number of children taken out of school and sent to work when adverse shocks hit, creating greater opportunities for later generations. Increasing financial opportunities for women can help reduce the gender productivity gap (Kabeer 2005).

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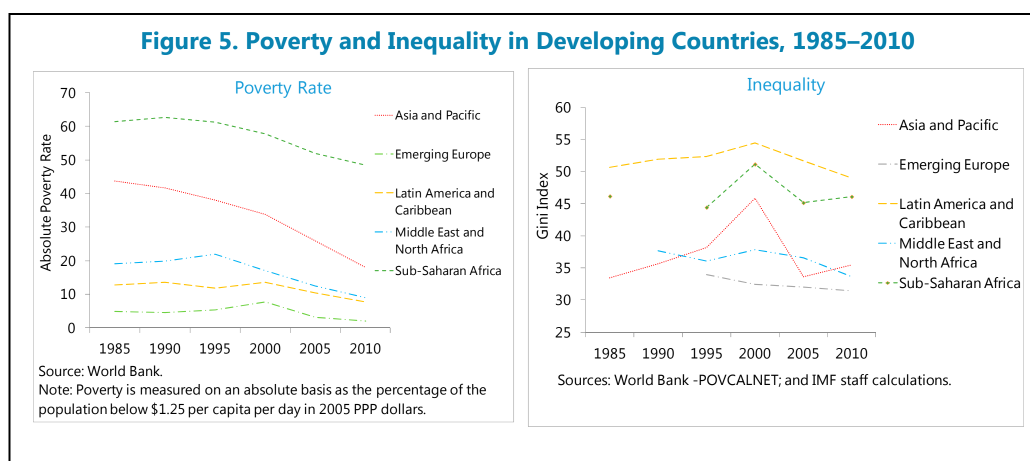
B. Trends in Inequality

Income Inequality

26. Despite the decline in poverty in most developing countries during the past 20 years, the average level of inequality has changed only modestly and large differences in inequality levels across regions remain. While rapid growth has helped significantly in reducing poverty across regions (Dollar and Kraay 2002), inequality levels (represented by the Gini index for disposable income) have remained broadly stable and in several countries increased. The inequality gap between regions remains large, with the Gini index in SSA and Latin America at about 12 percentage points higher than in emerging Europe (Figure 5).

Figure 5. Poverty and Inequality in Developing Countries, 1985–2010



Source: World Bank.
Note: Poverty is measured on an absolute basis as the percentage of the population below $1.25 per capita per day in 2005 PPP dollars.

Sources: World Bank -POVCALNET; and IMF staff calculations.

27. In developing countries, low levels of both taxes and social spending limit the redistributive role of fiscal policy. Fiscal policy is the primary tool for governments to affect income distribution (IMF 2014c; Clements and others 2015). However, in developing countries, tax-to-GDP ratios—at 15 to 20 percent of GDP, partly reflecting the large informal sector—are much lower than in advanced economies, where the ratio typically exceeds 30 percent of GDP (Figure 6). As a result, social spending (on social protection, education, and health) is also lower in developing countries, to the detriment of fiscal policy's redistributive impact. For instance, differences in the redistributive impact of tax and spending can explain two-thirds of the difference in the disposable income Gini coefficient between Latin America and advanced economies (Bastagli, Coady, and Gupta 2012). Furthermore, social protection in developing economies is often not well targeted, resulting in most of the benefits going to higher-income groups.[12] Developing economies also tend to rely relatively more on indirect taxes, which, in general, are regressive (IMF 2014c). It is, however, important to assess the distributional impact of tax and expenditure policies jointly because, for instance, an increase in regressive taxes can still be the best approach for supporting redistribution if these taxes finance highly progressive spending.

[12] Energy subsidies, for example, are considered by many countries a way to protect the poor. However, energy subsidies are highly inequitable because they mostly benefit upper-income groups (see Section IV).

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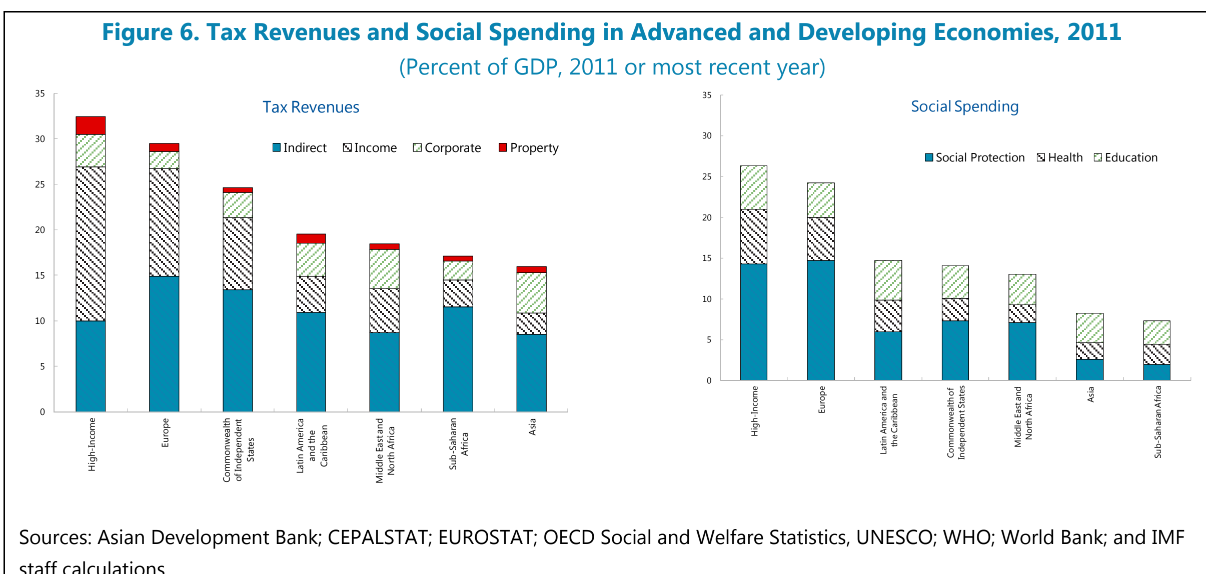
Figure 6. Tax Revenues and Social Spending in Advanced and Developing Economies, 2011

(Percent of GDP, 2011 or most recent year)



Sources: Asian Development Bank; CEPALSTAT; EUROSTAT; OECD Social and Welfare Statistics, UNESCO; WHO; World Bank; and IMF staff calculations.

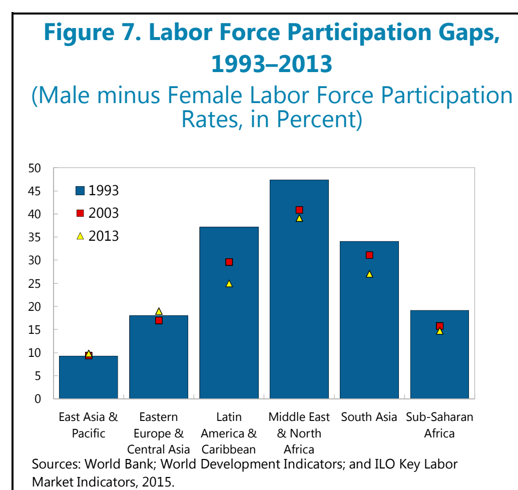
28. **Public provision of education and health services is often biased in favor of the better-off rather than the poor.** Primary health care spending, for example, is generally progressive, but spending on hospital-level care tends to be regressive. In education, primary education spending is generally progressive, while secondary and tertiary education spending is often regressive. This suggests that public resources geared toward increasing access to basic education and health services are likely to be much more progressive. Expansion of access to education and health services can lower income inequality over the medium term by reducing inequality of education and health outcomes and thus future earnings (De Gregorio and Lee 2002).

Gender Inequality

29. **Gender gaps in economic participation have been declining in many countries over the past decades but still persist** (IMF 2013; World Bank 2015). Female LFP rates vary widely across regions and income groups, with participation rates above 60 percent in sub-Saharan Africa and 22 percent in the Middle East and North Africa. The gap between male and female LFP rates has been declining since 1990 but remains high in many regions, in particular the Middle East and North Africa (39 percentage points), South Asia (27 percentage points) and Latin America and the Caribbean (25 percentage points) (Figure 7). Almost 90 percent of countries have at least one gender-based legal restriction that may impede economic participation by women (World Bank 2013a).

Figure 7. Labor Force Participation Gaps, 1993–2013

(Male minus Female Labor Force Participation Rates, in Percent)



Sources: World Bank; World Development Indicators; and ILO Key Labor Market Indicators, 2015.

30. **Gender inequality also remains significant in a range of other areas, undermining the participation of women in remunerated economic activities.**

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- *Education.* Access to education is more constrained for women than for men in many countries, with the result that literacy rates are lower for women than men, especially in South Asia, the Middle East and North Africa, and SSA.

- *Wages, unpaid work, and informality*. In the formal sector, women's wages are in general significantly below those for men. Also, women account for more unpaid work than men, and when women are employed in paid work, they are overrepresented in the informal sector and among the poor. The informal sector is characterized by unskilled labor positions, vulnerable employment status, and unstable and low earnings.

- *Positions of power*. Women are underrepresented in top levels of business and politics in many countries. In developing countries, women held less than 19 percent of parliamentary seats in 2014.

- *Financial access*. Women are less likely to have access to financial services than men. The gaps in financial access are particularly large in South Asia, where only 37 percent of women have an account at a financial institution versus 54 percent of men, and in the Middle East and North Africa, where men are twice as likely to have an account as women (Demirguc-Kunt and others 2015). Women-led businesses are more likely to be financially constrained than other comparable firms, despite the higher repayment rates by women than men (Presbitero, Rabellotti, and Piras 2014).

Financial Inclusion

31. Despite progress, large gaps in financial inclusion remain. Worldwide, although the number fell 20 percent since 2011, 2 billion "unbanked" adults remained in 2014 (Demirguc-Kunt and others 2015). Forty-six percent of the population in developing countries is unbanked, compared with 6 percent in higher-income countries. More than half of the poorest 40 percent of the population in developing countries are without accounts, with persistent gaps in access between men and women, between those in urban and rural areas, and across income groups.

32. Access to finance remains a key constraint for businesses, particularly for small businesses. More than a third of small firms and a quarter of large firms in developing countries cited access to finance as a major constraint. Even in advanced economies, 16 percent of small firms had problems accessing credit (Sahay and others 2015b). According to the Word Bank's Enterprise Survey data, while 93 percent of firms in developing countries have a checking or savings account, only 34 percent have a bank loan or a line of credit.[13] Regional disparities are large. In SSA, where the share of firms with a bank loan or line of credit is the lowest (23 percent), access to finance is perceived as an obstacle by 41 percent of firms. Across the board, financial inclusion is a bigger problem for smaller firms: bank credit is used to finance investment by only 11 percent of small firms, while it is more common (24 percent) among firms with at least 100 employees.

[13] http://www.enterprisesurveys.org/data

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33. Barriers to financial inclusion include limited bank penetration, high transaction costs, and burdensome paperwork requirements. Barriers to financial inclusion are typically related to physical barriers in reaching the unbanked (for example, in geographically challenged or hard-to-reach rural areas) and large information asymmetries due to a lack of financial history for the under-served population (lack of proof of formal employment or of asset ownership documentation). Notwithstanding progress in mobile banking, bank penetration remains limited and a significant rural-urban divide still exists in access to finance. High costs, usually related to lack of competition, poor infrastructure, and burdensome documentation requirements are also often cited as reasons that the unbanked do not have a bank account (World Bank 2014). Higher transaction costs per customer and small volumes of transactions also make the poor a less attractive market for banks.

C. Toward Greater Inclusion

34. The assessment of policies to promote growth and address inequality requires an in-depth understanding of the structural composition of the economy, the channels of policy transmission, and the possible synergies and trade-offs between objectives. Relevant factors include (1) the distribution of income and consumption at a micro-level; (2) the depth, access, and efficiency of the financial sector; and (3) the impact that specific policies and structural reforms may have on different sectors and households, including possible trade-offs with other objectives. Drawing also on the expertise of other institutions such as the World Bank, the IMF has recently started a pilot initiative on inequality, gender, and climate, with the purpose of gaining greater insights on the issues to strengthen its surveillance engagement with member countries. The study for Ethiopia conducted in the context of the 2015 Article IV consultation is an example of this initiative, which also highlights some of the synergies and trade-offs involved in policy design (IMF 2015f; Box 2).

35. Enhancing the redistributive impact of fiscal policy can help address inequality while promoting economic efficiency. Redistributive fiscal policies, such as policies that minimize disincentives to work and save and that support human capital development in low-income households, can increase economic efficiency. Recent IMF work discusses key considerations for the design of efficient redistributive fiscal policy measures, including during fiscal consolidation (IMF 2014c; Clements and others 2015). The appropriate mix of tax and spending instruments will depend on a country's preferences for redistribution and administrative capacity, the envisaged role for the state, and political economy considerations. However, increasing domestic revenues, as discussed in the recent IMF paper on financing for development, is needed for creating the fiscal space to increase social and pro-growth spending (IMF 2015a). Space can also be created through cutting poorly targeted or wasteful spending and improving the efficiency of public service delivery.

36. Social spending needs to be carefully designed in order to address inequality in an efficient manner. Useful steps that are feasible for many developing economies include (IMF 2014c; Clements and others 2015):

- *Consolidating social assistance programs and improving targeting*. Consolidation of fragmented and overlapping programs helps reduce the cost of these programs. Together with improved

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targeting and scaling-down of general subsidies, consolidation can enhance the distributional impact of existing spending and create the fiscal space to finance more effective safety net programs.

- *Introducing and expanding conditional cash transfer (CCT) programs as administrative capacity allows*. CCT programs have the potential to reduce poverty and inequality while improving education and health outcomes. This, in turn, can help reduce future income inequality by increasing the earnings potential for children from low-income households (Garcia and Moore 2012). Means-testing helps keep the fiscal cost low, but needs to be carefully designed to limit labor market disincentives. The largest such programs are located in Brazil (Bolsa Familia) and Mexico (Oportunidades), which in 2012 cost 0.5 percent of GDP and 0.8 percent of GDP and covered one-quarter and one-fifth of the population, respectively. These programs have had substantial impacts on poverty and inequality, as well as education and health outcomes (Fiszbein and Shady 2009). The direct impact of such transfers in Brazil and Mexico accounts for one-fifth of the decrease in the Gini between 1995 and 2004 (Soares and others 2007). Other important CCT schemes, which also aim at facilitating youth labor participation, are Chile Joven in Chile and Jóvenes en Acción in Colombia.

37. The design of the tax system can also contribute to increasing the redistributive role of fiscal policy. Developing a better-functioning personal income tax (PIT)—generally a weak point in lower-income countries' tax systems—not only helps increase tax revenue, but also can increase the tax contribution from high-income and high-wealth individuals. Efficiency and costs of administration and compliance typically point to making broad-based consumption taxes uniform and avoiding differential rates across goods and services (IMF 2015a). Increased revenues can be used to finance highly progressive social spending. Also, greater use of real property taxes—generally both an equitable and efficient source of revenue—can be made in many developing economies, with modern technology for valuation and identification of properties making this much more feasible than in the past.

38. Fiscal policy can also play a significant role in increasing labor force participation, particularly for women.[14] A reduction in the tax burden for (predominantly female) secondary earners by replacing family taxation with individual taxation can potentially generate large efficiency gains and improve aggregate labor market outcomes (Elborgh-Woytek and others 2013). Similarly, tax credits or benefits for low-wage earners can be used to stimulate labor force participation. Indeed, many gender-neutral fiscal measures can also have disproportionally large positive effects on women (Elborgh-Woytek and others 2013; World Bank 2012; Duflo 2012). For example, public investment in infrastructure and transportation can help reduce the costs of working outside the home. Access to electricity and water sources closer to home frees up women's time for work outside the house and allows them to integrate into the formal economy.

[14] As a general point, policies are necessary conditions but may not be sufficient to address gender inequality, as cultural, societal, and religious norms are not easily influenced by economic or social policies. This paper does not take a normative stance on these issues.

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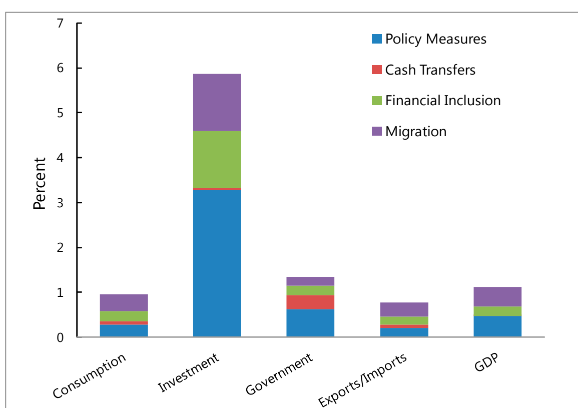
Box 2. Ethiopia: Economic Reforms for Equitable Growth

Ethiopia is enjoying strong economic growth, reflecting its significant economic potential and ongoing productivity-enhancing investments. Looking forward, to sustain rapid and inclusive growth, Ethiopia will need to enhance resource mobilization and foster private investment. In the context of the 2015 Article IV consultation with Ethiopia, IMF staff discussed with the authorities two reforms that have the potential to support resource mobilization and private investment: streamlining tax incentives, and reforming the funding of the Development Bank of Ethiopia (DBE), which is currently funded by an implicit tax on private investment.

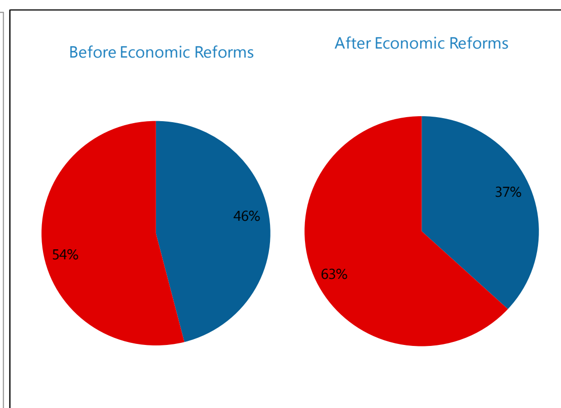
Using a dynamic general equilibrium model that takes into consideration key economic and social features of Ethiopia, simulations suggest that reforming DBE funding and streamlining tax incentives would free up resources for private investment, fostering manufacturing and services (IMF 2015f). This would accelerate GDP growth by about 1 percent annually and promote structural transformation. Private consumption would also grow faster. However, the analysis also suggests that in isolation this reform would have the potential to aggravate inequality since investment is mostly concentrated in the industrial sector, where people are in general better off. Increases in investment shift resources to industry but may also push down the demand for cash crops, their prices, and therefore farmers' income. However, when the reform is accompanied by an expansion of the existing social cash transfer program, rural to urban migration, and policies to increase financial inclusion, then the net effect on the reform package would be progressive, with the largest gains accruing to the bottom three deciles of the consumption distribution.[1]

Ethiopia. Macroeconomic and Distributional Impact of Policies and Reforms

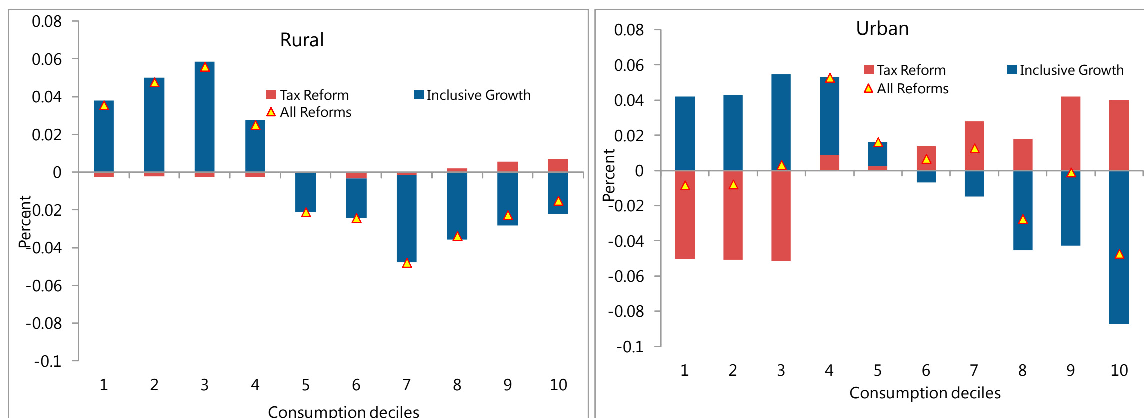
Macroeconomic Impact
(additional growth from the current trend)



Structural Transformation



Distributional Impact Rural and Urban
(change in consumption shares by deciles)



Source: IMF (2015f).

[1] Although consumption increases for every decile of both the rural and the urban population, the overall distributional effect of the reform on the latter is slightly regressive, reflecting the design of the cash transfer program, which targets only the rural population.

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39. Maintaining a low and stable inflation environment can benefit the most vulnerable sectors of the population. Cross-country evidence suggests a strong positive correlation between average inflation and income inequality in the post-war period. Since low-income households use cash for a greater fraction of their total purchases, and are less likely to hold interest-bearing assets that protect against inflation, they are more vulnerable to inflation and inflation volatility and pay a disproportionate fraction of the inflation tax (Albanesi 2007).

40. Large exchange rate movements have distributional implications and may call for compensating measures to protect the most vulnerable. The distributional impact depends on country-specific characteristics, including the economic structure, the degree of openness, and the magnitude of the pass-through from the exchange rate to domestic prices (Simone 2008). Exchange rate depreciations make imported goods more costly, potentially harming the poor if a high share of their income is used for imported food. At the same time, depreciations tend to foster exports, which, in many developing countries, are agricultural goods, benefiting rural households (Agenor 2002).

41. Improving access to education and health services can also help contain inequality (Gonzales and others 2015a). In developing countries, the provision of education services can exacerbate inequality because of lower access by low-income groups to higher levels of education (including upper-secondary and tertiary education) relative to better-off groups. While higher education is essential for accelerating the transformation process of the economy, it is also important to increase access to lower levels of education (and equalize enrollment rates for boys and girls) to significantly boost overall education levels. Improving access to health services by expanding health coverage to low-income households can address inequality and reduce women's obligations to time-consuming informal health care.

42. Gender responsive budgeting is a valuable tool in designing policies to tackle gender inequities. It examines the gender impact of government expenditures, policies, and programs and can contribute to reducing gender inequalities in education, employment, and health outcomes, among others. For example, to promote a more inclusive society, Bangladesh began incorporating gender issues into the national budget in 2005; 20 ministries now compile gender budgeting reports (World Bank 2012a). Morocco has published a gender budget report since 2006, with involvement of more than 25 ministries and departments.

43. Providing women with equal economic opportunities requires an integrated set of policies (Elborgh-Woytek and others 2013; Gonzales and others, 2015). Non-discriminatory laws boost female LFP (Gonzales and others 2015). For example, in 1996 Namibia equalized property rights for married women and granted women the right to sign a contract, head a household, pursue a profession, open a bank account, and initiate legal proceedings without the husband's permission—the female LFP rate increased by 10 percentage points in the following decade. Peru and Malawi invalidated customary law in 1993 and 1994, respectively, and both experienced subsequent significant increases in their female LFP rates.

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Financial Policies for Inclusion

44. Greater financial sector competition and innovation help foster financial inclusion. Banking competition expands the economic opportunities of the disadvantaged (Becker 1957). It can also promote financial innovation, even though some degree of market power is needed to bear the costs and risks of innovation in lending technologies. A study of five African countries (Kenya, Nigeria, Rwanda, South Africa, and Tanzania) shows that banking competition, especially through innovators, is a strong determinant of banks' involvement with SMEs (Berg and Fuchs 2013). Technological innovations, such as mobile banking, mobile payments, improved borrower identification, and the design of innovative new lending products, can lower the costs of financial services and promote inclusion (Mbiti and Weil 2015). In the past two years the numbers of mobile transaction service users in Uganda more than doubled, and the value of transactions increased by 75 percent (IMF 2015g). Regulators play a fundamental role in allowing competing financial service providers and consumers to take advantage of technological innovations.

45. Governments can play an important role in expanding financial access by promoting improvements in the regulatory, legal and institutional framework (Dabla Norris and others 2015b). To address the underlying impediments to financial inclusion, governments can strive to establish a sound legal and regulatory framework (for example, protecting creditor rights, regulating business conduct, and overseeing recourse mechanisms to protect consumers). They can support improvements in the quality of banking supervision (Sahay and others 2015b), the provision and exchange of information (for instance, setting standards for disclosure and transparency and promoting credit-information-sharing systems and collateral registries), and invest in consumer education and protection. Robust evidence shows that creditor protection through the legal system and information-sharing institutions promotes credit availability in developing countries (Djankov, McLiesh, and Shleifer 2007).

46. Different country characteristics call for different interventions. The effects of financial inclusion policies vary across countries. For instance, in a country where firms are severely constrained by high borrowing and collateral requirements, GDP is most responsive to a relaxation of the latter, while reducing intermediation costs tend to benefit only a small number of highly-leveraged firms (Dabla-Norris and others 2015b). Packaging reforms together leads to scale effects—positive and negative—and to sequencing issues. For example, in a country with weakly enforced creditor rights due to a poorly functioning judiciary, a policy centered solely on the computerization and unification of credit registries for movable collateral would have a limited impact on the availability of credit if not combined with other supportive reforms that may take longer to implement.

47. Boosting financial inclusion can be challenging. The expansion of banking system access points is often uneven, with the bank network concentrated in urban areas. This accounts for the potential of technological innovations such as mobile banking to facilitate inclusion in rural areas (Allen and others 2014). Creating new bank accounts, however, does not always translate into regular use and into the use of other financial services. For example, 85 percent of firms in Uganda have a bank account, yet just 10 percent have a bank loan or use financial services to finance

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investment (IMF 2015g). Using accounts to receive wages and transfers from the government and to pay utility bills could boost their usage and enable better targeting of social assistance at the same time.

48. While things can go badly if credit grows too rapidly, financial inclusion can go hand in hand with financial stability. Promotion of credit growth without sufficient regard for financial stability is likely to result in a crisis, as illustrated in many advanced economies during the global financial crisis. Examples of overextension of credit include the 2008–09 crises in the microfinance sector in Bosnia, Morocco, and Nicaragua (Chen and others 2010), and the 2010 microfinance crisis in India. In the last case, microfinance institutions were able to report high profitability for years because of rapid growth in loans, but this depended on high and rising indebtedness among clients. Distinguishing between financial deepening versus booms, however, is not always an easy task, especially at low levels of depth. Constant monitoring and continued data improvements are therefore crucial. Efforts to promote financial inclusion by subsidizing credit or limiting interest rates could be counterproductive, leading to overindebtedness and financial instability. As Sahay and others (2015b) show, countries with strong supervision could see gains in financial stability from greater credit access. However, countries with weak supervision could find their capital buffers eroding quickly with greater credit access.

IV. ENVIRONMENTAL SUSTAINABILITY FOR MACROECONOMIC STABILITY AND GROWTH

Environmental sustainability is at the core of the 2030 development agenda, directly as part of a number of SDGs and indirectly as climate change and other environmental challenges can negatively affect growth and inclusion. Addressing energy and water pricing and improving resilience to climate-related events are key for ensuring environmental sustainability. Mitigating the impact of price reforms on the most vulnerable is important from an equity perspective.

A. Environmental Sustainability for Macroeconomic Stability and Growth

49. Environmental sustainability is crucial for macroeconomic stability and long-term growth. Environmental risks from climate change, poor air quality, increasing congestion of transportation infrastructure, and rising water scarcity can lower economic welfare and retard growth over time. Climate-related events constrain production in environmentally-sensitive sectors such as agriculture, forestry, fisheries, and tourism; create health risks through exposure to air and water pollution and water stress; and disturb ecosystems and human settlements (IMF 2008; Parry and others 2014). At the same time, vulnerabilities to environmental risks are rising due to the concentration of population and assets in risky areas and the rising frequency of climate-related natural disasters (World Bank 2014; Cummins and Mahul 2009). These risks—and policies to mitigate their impact—affect economic growth, saving and investment levels, capital flows and exchange rates. No country is immune, although some are particularly vulnerable (see Box 3).

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Box 3. Macroeconomic Resilience to Natural Disasters and Climate Change in the Small States

The Pacific and Caribbean island countries are among those most vulnerable to natural disasters and climate change. The combination of location and small size heightens their susceptibility to earthquakes and weather-related extreme events. These countries are highly exposed to natural disasters—for example, annual damage and losses have averaged 20 percent of GDP in the Pacific islands since 2012, much higher than in peer groups and non-small states.

A strategic approach is needed to help countries deal with the increasing frequency and magnitude of these events. Explicit recognition of the costs of natural disasters and climate change in baseline macro-frameworks and debt sustainability analyses is important, particularly given the risks that these events become increasingly severe over time. While building policy buffers to enhance resilience is especially relevant in small states, these countries will also need continued support through access to external assistance and insurance schemes (Cabezón and others 2015).

Enhancing resilience to natural disasters demands a multi-pillar strategy for risk management at the national, regional, and global levels. The key pillars of disaster risk management include:

- identifying and undertaking risk assessment—including explicitly integrating risks into the fiscal frameworks and budget planning;
- self-insuring by building buffers to enhance resilience to shocks;
- reducing risks by enhancing preparedness, including by investing in infrastructure that can better cope with environmental events and by enhancing debt-management capacity; and
- transferring risk through private or sovereign insurance and through multilateral risk-sharing mechanisms, such as the Caribbean Catastrophe Risk Insurance Facility or the Pacific Catastrophe Risk Assessment and Financing Initiative (World Bank 2013b).

50. Fossil-fuel energy use causes both global and national environmental problems. Fossil fuel combustion accounts for about three-quarters of global greenhouse gas emissions, which left unchecked, are expected to raise global temperatures by about 3–4°C by the end of the century (IPCC 2014). Combustion is a leading source of air pollution, which contributed to 3.7 million premature deaths worldwide in 2012 (World Health Organization 2014). Use of road fuels is also associated with severe urban traffic congestion and 1.2 million people a year are killed in road-traffic accidents (World Health Organization 2013).

51. Water challenges are also a growing global concern that could hinder countries' economic prospects.[15] Rising water stress, large supply variability, lack of access to safe drinking water and sanitation, and water pollution are already afflicting many parts of the world. Developing countries generally face greater challenges because of their larger populations, lower income levels, inadequate infrastructure, and less developed policy and institutional capacity. While technology

[15] The World Economic Forum's *Global Risks 2015 Report* (WEF 2015) lists water crises as the top global risk in terms of impact and eighth in terms of likelihood.

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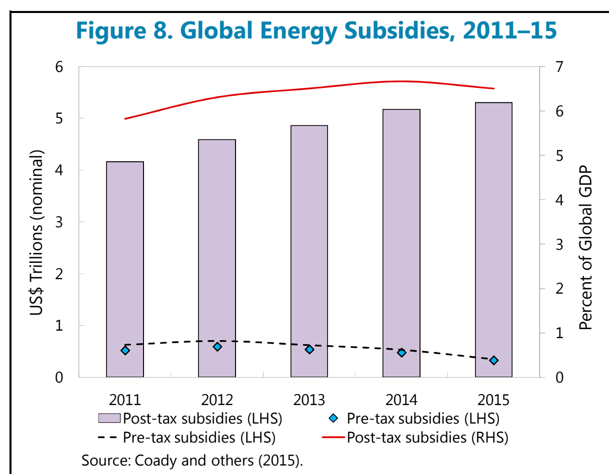
advances have been used in some high-income countries to help ease freshwater supply constraints, they can be prohibitively expensive for developing economies. Looking ahead, water use is expected to continue to rise with population and income growth, but freshwater resources cannot easily be increased. Climate change is likely to exacerbate water demand-supply imbalances.

52. Reforming energy prices, strengthening water management, and improving resilience to climate-related events are critical for addressing environmental sustainability. Excessive use of coal and other polluting fuels, the main driver of climate risks and local air pollution, can be addressed by getting energy prices right. This means reducing inefficient and poorly-targeted subsidies but more important imposing taxes to correct for environmental costs—which have the additional benefit of creating fiscal space for growth-oriented fiscal reform and public investment. More efficient management of water resources can help improve both economic prospects and the welfare of populations that lack water access. Finally, financial sector policies can contribute to reducing the risk, mitigating the impact, and adapting to the consequences of adverse climate-related events. The IMF promotes these policies and reforms through its analytical and policy work, surveillance, and technical assistance.

B. Managing Energy Pricing

53. Despite falling energy prices, energy subsidies remain substantial. Recent IMF work shows estimates that "pre-tax" subsidies (mainly reflecting undercharging for supply costs) were 0.7 percent of global GDP in 2011 and 2013, and are projected to decline to 0.4 percent in 2015 (Coady and others, 2015) (Figure 8). Pre-tax subsidies are more prevalent in developing countries. However, "post-tax" subsidies (which also account for undercharging for environmental costs) are much larger and are projected to rise from 5.8 percent of global GDP in 2011 to 6.5 percent in 2015.[16]

Figure 8. Global Energy Subsidies, 2011–15



Source: Coady and others (2015).

54. Undercharging for fossil-fuel energy has large environmental costs as well as perverse fiscal, macroeconomic, and social consequences (Clements and others 2013; Coady and others 2015). The biggest source of post-tax subsidies is for coal, amounting to 3.9 percent of global GDP in 2015. Carbon emissions and local air pollution can justify substantial charges for coal use in

[16] "Pre-tax subsidies" arise when energy prices paid by users are less than the supply cost, inclusive of transportation and distribution costs. "Post-tax subsidies" is a wider measure that includes both: (a) any pre-tax subsidies, and (b) the implicit subsidies provided by failing to charge for the costs of the environmental damage caused by energy use; these environmental costs include the impact on global warming, air pollution, and (for road fuels) externalities from traffic congestion, accidents, and road damage. (For further discussion, see Coady and others, 2015 and Parry and others 2014).

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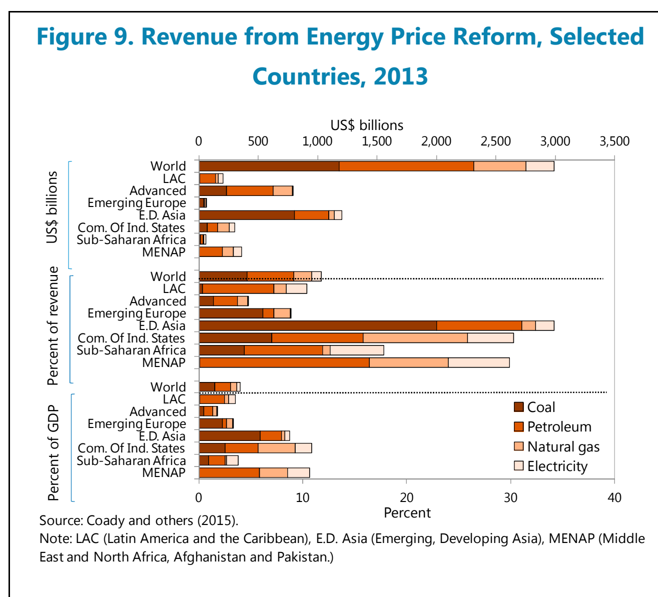
different countries, yet no country imposes meaningful taxes on coal use from an environmental perspective. Environmental and health costs from motor vehicle emissions are also substantial across advanced and developing countries (Parry and others, 2014). Energy subsidies impose large fiscal costs, which can hamper economic growth. They discourage needed investments in energy efficiency, renewables, and energy infrastructure, and increase the vulnerability of countries to volatile international energy prices. Also, they are an inefficient way to support the poor, since the bulk of the benefits are typically captured by higher-income households.

55. Energy price reform is key. The case for reform is particularly strong in developing countries, for both fiscal reasons (large informal sectors constrain the revenue potential from broader instruments) and environmental reasons (environmental risks can be more severe and weak administrative capacity can constrain the effectiveness of environmental regulations). Countries with pre-tax subsidies should let energy prices adjust to reflect supply costs. Beyond that, the price of energy should incorporate environmental costs by applying, for example, environmental taxes to: (1) effectively exploit all opportunities for mitigating the damage of energy consumption to climate change, local pollution, and congestion—if they are targeted at the right base (for example, emissions); (2) achieve environmental protection at the lowest economic cost—if revenues are used productively (for example, to cut taxes on labor and capital that harm growth); and (3) strike the efficient balance between environmental benefits and economic costs—if taxes are aligned with environmental damages. Charging for pollution reduces the need for renewables subsidies, which totaled $121 billion globally in 2013 (IEA 2014).

56. Energy price reform can generate substantial benefits (Coady and others 2015). Getting energy prices right, for example, raising energy prices to levels that reflect supply costs, environmental costs, and general consumption taxes would cut global CO_2 emissions by a quarter and air pollution deaths by nearly three-fifths. Furthermore, raising energy prices would yield on average per country revenues of 4 percent of GDP. Revenue gains are especially large (over 8 percent of GDP) in emerging and developing Asia, Commonwealth of Independent States, and the Middle East, North Africa and Pakistan, reflecting either high coal use (and environmental costs) relative to GDP or currently heavy subsidies for petroleum and natural gas (Figure 9). Such savings could be used to alleviate the burden of other taxes or for socially productive investments (for example, in education, health, and infrastructure).

Figure 9. Revenue from Energy Price Reform, Selected Countries, 2013



Source: Coady and others (2015).
Note: LAC (Latin America and the Caribbean), E.D. Asia (Emerging, Developing Asia), MENAP (Middle East and North Africa, Afghanistan and Pakistan.)

57. Despite the potential gains, many countries have had difficulty reforming subsidies. Increasing energy prices to reduce subsidies has often led to widespread public protests. The

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absence of public support for subsidy reform is in part due to a lack of confidence in the ability of governments to use savings to socially beneficial ends, including protecting the poor from the impact of higher energy prices. While energy subsidies mostly benefit higher-income groups, energy price increases can still have a substantial adverse impact on the real incomes of the poor, aggravating inequality. Governments also have concerns that higher energy prices will contribute to higher inflation and adversely affect competitiveness. Subsidy reform can also be complex when it aims to reduce inefficiencies and production costs, as is often the case for the electricity sector. These barriers to reform are relevant for both advanced and developing economies.

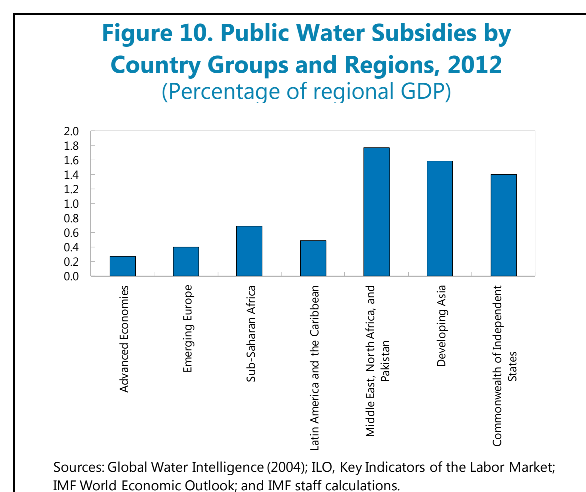
58. While there is no single strategy for successful strategy reform, country experiences suggest that some key ingredients are needed (Clements and others 2013). Countries should develop a comprehensive energy sector reform plan in consultation with key stakeholders, with clear long-term objectives and analysis of the impact of reforms. Such a plan may differ in emphasis between developing and high-income countries. Clear communication regarding the objectives of the reform is crucial in both. In high-income countries, communication could focus on making an explicit link between higher fuel taxes and the reduction in other harmful taxes or the health benefits of lower emissions. In developing economies, where safety nets are less established, policymakers could focus on communicating plans that expand existing programs to protect the most vulnerable and commit fiscal savings to growth-enhancing expenditures, including on basic education and health. A commitment to institutional reforms that depoliticize energy pricing—such as the introduction of automatic pricing mechanisms—is also a higher priority for developing countries. Finally, it may be important to plan for phased-in price changes to allow firms and households time to adjust in higher-income and developing countries alike.

C. Managing Water Resources

59. Millions still lack access to safe drinking water and sanitation, particularly in developing countries. It is estimated than 547 million people still lack access to a safe drinking water supply and 2.4 billion people do not have access to an adequate sanitation facility (World Health Organization and UNICEF 2014).

60. Getting incentives right, notably by reforming water pricing, can help rationalize water use and promote needed investment. Recent IMF work estimates that water subsidies provided through public utilities totaled about $456 billion or 0.6 percent of global GDP in 2012 (Figure 10). Although on average water prices for household and industry use tend to be close to supply cost levels in advanced economies, some countries continue to provide subsidized water for agriculture and electricity generation. Underpricing of water creates incentives for overuse and underinvestment. Water subsidies are also

Figure 10. Public Water Subsidies by Country Groups and Regions, 2012
(Percentage of regional GDP)



Sources: Global Water Intelligence (2004); ILO, Key Indicators of the Labor Market; IMF World Economic Outlook; and IMF staff calculations.

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inequitable, disproportionately benefiting upper-income groups, and crowd out other priority spending such as public investment (Kochhar and others 2015).

61. The most desirable approach to water pricing reform will vary by country. Effective and autonomous institutions in charge of water management can also provide credibility and synergize popular support for reforms. In developing countries, reforms should strengthen the finances of public water utilities to support investment and expand access to water and sanitation for the poor. Ensuring adequate maintenance spending is a priority for all countries. In advanced economies, reforms should be geared toward reflecting environmental costs in prices. Under the right circumstances and where institutional and policy frameworks are strong, establishing markets for water rights can help allocate limited water to the highest-valued uses.

62. Achieving sound water management requires an integrated and holistic approach that goes beyond the water sector itself. Water pricing reforms should be complemented by policies that rationalize water use in areas such as agriculture, trade, and energy, while redirecting achieved gains toward protecting the poor. For example, subsidized energy prices create disincentives for efficient water use in agriculture, which accounts for 70 percent of all water withdrawn. Excessive groundwater pumping can be discouraged by improving regulations and replacing energy subsidies with targeted social assistance.

D. Mitigating the Effects of Adverse Environmental Events—The Role of the Financial Sector

63. Financial markets have an important role in supporting environmental sustainability:

- *Well-designed financial instruments can help shift investment from industries with a heavy carbon footprint to sectors developing "green" technologies*. The development of green investment vehicles—such as stock indices that include only green technology companies or bonds financing "green" projects—helped channel savings into climate-friendly sectors. De-carbonization initiatives have also created greener portfolios in some countries.

- *Well-developed financial markets and hedging instruments can strengthen countries' ability to insure against risks associated with natural disasters*. Access to credit and market insurance, self-insurance through bank deposits, and self-protection through safe and efficient payments systems, can help businesses and households mitigate and reduce the cost of some climate change-related risks.[17] Similarly, availability of disaster risk insurance, and related hedging instruments help protect countries and individuals from the economic costs of natural disasters. A number of instruments have been developed, such as catastrophe bonds that mitigate natural disaster risks by sharing the risk of a disaster with financial market participants.[18] In 2012, the

[17] In 2013, less than 20 percent of total disaster losses in developing countries were insured in developing countries, compared with 60 percent in North America (World Bank 2013b).

[18] Financial market participants share the risk of a disaster by allowing the issuer to forgo repayment of the bond principal if a catastrophe occurs (Cummins and Mahul 2009).

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Government of Mexico issued a $315 million catastrophe bond that provides coverage against earthquakes and hurricanes. More recently, in September 2014, to leverage available capital for climate change adaptation, African states announced the African Risk Capacity Extreme Climate Facility, a multi-year funding mechanism that will issue climate change catastrophe bonds in 2016 to provide additional financing to participating countries to enhance adaptation investments in case extreme climate shocks increase in frequency and intensity in Africa.[19]

64. Priorities for climate-friendly initiatives in the financial sector require a country-specific approach. In advanced economies, the promotion of climate-friendly initiatives undertaken by the public and private sector can be helpful. Examples of such initiatives include the decarbonization of the Fourth Swedish National Pension Fund based on available green stock indices that track carbon footprints of polluting industries; the measurement and disclosure of carbon footprints, as well as the drastic reduction of holdings in coal mining companies, in Norway's Sovereign Wealth Fund portfolio; and the recent decision of six Danish pension funds to divest from fossil fuels, based on indices reporting carbon footprints. In developing countries, policies to support financial inclusion could help individuals self-insure against natural disasters through savings or insurance and also use hedging instruments against weather risks.

V. CONCLUDING REMARKS

65. The IMF is well positioned to support its members' pursuit of the SDGs, that focus on sustainable growth across its economic, social, and environmental dimensions. This paper focused on three areas: (1) economic diversification and transformation for high and sustainable growth; (2) economic, gender, and financial inclusion; and (3) environmental sustainability. The IMF is increasingly accumulating knowledge in these areas, where it can help to support countries' efforts. Once a stable macroeconomic environment is in place, economic diversification and structural transformation can help to promote sustainable growth. Policies that support inclusion make growth more durable, while measures to increase the sustainability of natural resources can protect the wider environment. In collaboration with other international organizations, the IMF helps countries achieve these objectives—through analytical and policy work, surveillance, IMF-supported programs, and technical assistance.

66. Policies that foster economic transformation, economic and social inclusion, and environmental protection are of paramount importance for sustainable development. While policy design can reinforce synergies between economic, social, and environmental objectives, it should also be mindful of possible trade-offs. And while the policy challenges that countries face in pursuing their specific goals in these areas depend on each country's economic structure, level of economic and human capital development, and institutional capacity, some common threads can be identified:

[19] http://www.africanriskcapacity.org/

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- *Policies and reforms that promote high and sustainable growth in developing countries*. In a stable macroeconomic environment, structural reforms can play a crucial role in facilitating the shift of resources to their most productive uses and help to diversify production and exports. For many developing countries, reforms include: (1) increasing agricultural productivity, which fosters structural transformation and helps improve living standards; (2) creating the fiscal space for increasing public infrastructure spending that can connect citizens and firms to economic opportunities, and catalyze for private investment; (3) investing in education to equip the future workforce, including girls, with the basic skills required by more productive and higher technology sectors; (4) strengthening institutions and their governance to help enhance the business climate; (5) improving tax systems, which, beyond boosting public finances, can help improve the investment climate and foster inclusive growth; (6) reducing barriers to entry for new products and enlarged trade networks; and (7) increasing banking competition and innovation to deepen financial markets and financial inclusion while preserving financial stability through a sound legal and regulatory framework.

- *Supporting economic, gender, and financial inclusion*. Developing countries should aim to enhance the distributive role of fiscal policy by increasing tax revenues, cutting wasteful and poorly targeted spending—including energy subsidies—and strengthening the efficiency of public service delivery. These measures would create the fiscal space for greater development and social spending, one of the main tools to achieve redistributive goals, including from a gender perspective. While the primary contribution of taxation to pursue equity goals is financing social spending, a fair tax system also plays an important role in improving equity. Financial inclusion is another key ingredient for development, for reducing income inequality, and for providing women with greater economic opportunities.

- *Enhancing climate and environmental sustainability*. Reducing inefficient and poorly-targeted energy subsidies—and getting energy prices right—can go a long way in addressing environmental sustainability, with the added benefit of creating fiscal space for more growth-oriented spending. Pricing policies accompanied by regulations can also play an important role in the more efficient management of water resources, improving both economic prospects and the welfare of populations vulnerable to chronic and crisis-related lack of water access. Finally, financial sector policies can contribute to mitigating the impact and adapting to the consequences of adverse climate-related events.

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Appendix

Developing Countries and Country Groups[1,2,3,4]

Emerging and Developing Europe (10 countries)	
Albania	FYR Macedonia
Bosnia and Herzegovina*	Montenegro
Bulgaria	Romania
Hungary	Serbia
Kosovo*	Turkey

Emerging and Developing Asia (26 countries)	
Bangladesh	**Nepal**
Bhutan	Palau
Cambodia	**Papua New Guinea**
Fiji	Philippines
Indonesia	Samoa
Kiribati*	**Solomon Islands***
Lao People's Democratic Republic	Sri Lanka
Malaysia	Thailand
Maldives	Timor-Leste*
Marshall Islands*	Tonga
Micronesia*	Tuvalu*
Mongolia	Vanuatu
Myanmar*	**Vietnam**

Sub-Sahara Africa (44 countries)	
Angola*	**Liberia*,****
Benin**	**Madagascar*,****
Botswana	**Malawi*,****
Burkina Faso**	**Mali*,****
Burundi*,**	Mauritius
Cameroon**	**Mozambique****
Cabo Verde	Namibia
Central African Republic*,**	**Niger****
Chad*,**	**Nigeria**
Comoros*,**	**Rwanda****
Congo, Democratic Rep.*,**	**São Tomé and Príncipe*,****
Congo, Republic *,**	**Senegal****
Côte d'Ivoire*,**	Seychelles
Eritrea*,**	**Sierra Leone*,****
Ethiopia**	South Africa
Gabon	**South Sudan***
Gambia**	Swaziland
Ghana**	**Tanzania****
Guinea*,**	**Togo*,****
Guinea-Bissau*,**	**Uganda****
Kenya	**Zambia****
Lesotho	**Zimbabwe***

Middle East (16 Countries)	Commonwealth of Independent States (11 countries)	Latin America and the Caribbean (25 countries)	
Afghanistan*,**	Armenia	Argentina	Mexico
Algeria	Azerbaijan	Belize	Nicaragua**
Djibouti*	Belarus	**Bolivia****	Panama
Egypt	Georgia[4]	Brazil	Paraguay
Iran	Kazakhstan	Colombia	Peru
Iraq*	**Kyrgyz Republic**	Costa Rica	St. Lucia
Jordan	**Moldova**	Dominica	St. Vincent and the Grenadines
Lebanon	**Tajikistan**	Dominican Republic	Suriname
Libya*	Turkmenistan	Ecuador	Venezuela
Mauritania**	Ukraine	El Salvador	
Morocco	**Uzbekistan**	Grenada	
Pakistan		Guatemala	
Sudan*,**		Guyana**	
Syrian Arab Republic*		**Haiti*,****	
Tunisia		**Honduras****	
Yemen*		Jamaica	

[1]Developing countries here refers to all countries that are not "higher income countries" in the World Bank classification system, a usage adopted here because it is aligned with the meaning of the term in the external debate. Given their systemic size, China and India are excluded from the sample of developing countries.

[2]59 countries in bold typeface are low-income developing countries (LIDC) and 73 countries in regular typeface are other developing countries (Other). The LIDC are countries eligible for IMF's concessional financial assistance with a per capita Gross National Income (measured according to the World Bank's *Atlas* method) in 2011 of below twice the IDA's effective operational cut-off level, and Zimbabwe. 'Other Developing' are the non-LIDC emerging market and developing countries. 37 countries, with an asterisk,'*', included in the list of countries in a post-conflict and fragile situation, are referred to as 'Fragile States', as of May 2015 (IMF Board Paper). Somalia (LIDC & fragile state) is excluded due to insufficient macro data.

[3]38 countries, with two asterisk,'**', signs are in the list of countries that have qualified for, are eligible or potentially eligible and may wish to receive HIPC Initiative Assistance (as of April 2015).

[4]Georgia, which is not a member of the Commonwealth of Independent States, is included in this group for reasons of geography and similarities in economic structure.

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