

Insight Report

The Global Competitiveness Report 2014–2015

Full Data Edition

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The Global Competitiveness Report 2014–2015: Full Data Edition is published by the World Economic Forum within the framework of The Global Competitiveness and Benchmarking Network.

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We thank Hope Steele for her superb editing work and Neil Weinberg for his excellent graphic design and layout. We are grateful to Mirza Taqi for his invaluable research assistance.

The terms *country* and *nation* as used in this report do not in all cases refer to a territorial entity that is a state as understood by international law and practice. The terms cover well-defined, geographically self-contained economic areas that may not be states but for which statistical data are maintained on a separate and independent basis.

World Economic Forum
Geneva

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ISBN-13: 978-92-95044-98-2

ISBN-10: 92-95044-98-3

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources.

Printed and bound in Switzerland.

The *Report* and an interactive data platform are available at www.weforum.org/gcr.

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Preface

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Managing Director and Member of the Managing Board, World Economic Forum

The Global Competitiveness Report 2014–2015 is being launched at a time when the global economy seems to be finally leaving behind the worst and longest-lasting financial and economic crisis of the last 80 years. However, this resurgence is moving at a less decisive pace than it has after previous downturns, and heightened risks looming on the horizon could derail the global recovery. Much of the growth in recent years has taken place because of the extraordinary and bold monetary policies in countries such as the United States, Japan, and the United Kingdom. As the economy improves in these countries, a normalization of monetary policy with tightening financial conditions could have an impact on both advanced and emerging economies. Moreover, the strained geopolitical scenarios with rising tensions in a number of regions can also have negative consequences for the global economic outlook. Finally, many countries are suffering from accelerating income inequalities; often these inequalities are lasting effects of the crisis that are creating domestic social tensions with potential global consequences.

Against this backdrop, policymakers as well as business and civil society leaders must work together in order to ensure robust economic growth that supports more-inclusive economies. Economic and social agendas must go hand in hand and focus on reforms that will render economies more productive and open up new and better job opportunities for all segments of the population. Better assigning available resources to productive activities is crucial and requires well-functioning markets. In addition, as indicated in previous editions of this *Report*, strong institutions, available talent, and a high capacity to innovate hold the key for the success of any economy. These elements will continue to be even more essential in the future.

For 35 years, this *Report* has shed light on the key factors and their mechanisms and interrelations that determine economic growth and the level of present and future prosperity in a country. In doing so, since its inception the *Report* has aimed to build a shared understanding of the main strengths and weaknesses of each of the economies covered, so that stakeholders can work together on shaping economic agendas that can address challenges and create enhanced opportunities.

In this context, policymakers, businesses, and citizens increasingly recognize the need for economic growth to be balanced by providing opportunities and benefits for all segments of the population and by being respectful of the environment. In sum, the social and environmental dimensions of an economy need to be fully considered in any growth or development agenda. Although the relationship between productivity, social development, and environmental stewardship is complex, the Forum has continued its research into how sustainability relates to competitiveness and economic performance. Chapter 1.2 of this *Report* presents the current thinking at the Forum on *sustainable competitiveness*, a concept introduced three years ago in our *Report* series, and one that aims to analyze how country competitiveness can be assessed once issues of social and environmental sustainability are taken into account.

This year's *Report* provides an overview of the competitiveness performance of 144 economies, and thus continues to be the most comprehensive assessment of its kind globally. It contains a detailed profile for each of the economies included in the study, as well as an extensive section of data tables with global rankings covering over 100 indicators. This *Report* is one of the flagship publications within the Forum's Global Competitiveness and Benchmarking Network, which produces a number of related research studies aimed at supporting countries in their transformation efforts and raising awareness about the need to adopt holistic and integrated frameworks for understanding complex phenomena such as competitiveness or global risks.

The Global Competitiveness Report 2014–2015 could not have been put together without the thought leadership of Professor Xavier Sala-i-Martin at Columbia University, who has provided ongoing intellectual support for our competitiveness research. Further, this *Report* would have not been possible without the collaboration and dedication of our network of over 160 Partner Institutes worldwide. The Partner Institutes are instrumental in carrying out the Executive Opinion Survey, which provides the foundation data of this *Report* as well as imparting the results of the *Report* at the national level. We would also like to convey our sincere gratitude to all the business executives

around the world who took the time to participate in our Executive Opinion Survey. We are grateful to the members of our Advisory Board on Competitiveness and Sustainability, who have provided their valuable time and knowledge to help us develop the framework on sustainability and competitiveness presented in this *Report*.

Appreciation also goes to colleagues at the World Economic Forum, namely Jennifer Blanke, Chief Economist; and Margareta Drzeniek Hanouz, Head of The Global Competitiveness and Benchmarking Network, as well as team members Beñat Bilbao-Osorio, Ciara Browne, Gemma Corrigan, Roberto Crotti, Attilio Di Batista, Gaëlle Dreyer, Caroline Galvan, Thierry Geiger, Tania Gutknecht, and Cecilia Serin.

Part 1

Measuring Competitiveness

The Global Competitiveness Index 2014–2015: Accelerating a Robust Recovery to Create Productive Jobs and Support Inclusive Growth

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This new edition of *The Global Competitiveness Report* is launched at a time when the world seems to be finally emerging from the worst financial and economic crisis of the past 80 years and returning to a pre-crisis situation: large interest rate spreads for public debt in hard-hit countries are falling; banking systems seem more robust, even if financial reform has not yet been completed; and access to credit, while still limited, is slowly recovering.

Overall, growth prospects in advanced economies are better than they have been in recent years, albeit very unevenly distributed. The recovery in the United States seems to be comfortably grounded with strong output and employment figures. Japan's economy, while still needing to translate Abenomics into stronger private demand, seems to be waking up after two decades of stagnation. In Europe the picture is more mixed, with many countries now recording stronger growth and returning to trend growth rates, while some others continue to suffer from weak growth driven by protracted internal demand, high unemployment, and financial fragmentation. Emerging economies are forecasted to grow more modestly than they did in the past. After several years of doing very well and leading global growth, their performance may be affected by a changing environment characterized by greater difficulty accessing capital as well as lower prices for the commodities that fueled past growth—a trend that is also likely to affect many developing economies.

To a large extent, the improvement of the global economic outlook has been the result of bold monetary policies carried out by the Federal Reserve and Central Banks in countries such as the United Kingdom and Japan to substantially expand the amount of money available in the economy. As the economic situation improves, a normalization of the monetary policy with a tightening of the financial conditions for both advanced and, most notably, emerging economies could jeopardize the rather positive forecast, especially if productivity-enhancing investment levels do not manage to pick up. Investment and the recovery more broadly will also be influenced by the fact that low inflation, or even deflation, in key advanced economies remains a tangible risk that could derail recovery because real interest rates may rise, increasing the burden of public debt and leading to a stagnation of consumption and investment rates.

In addition, in recent months, a strained geopolitical situation has emerged. Tensions in Ukraine with implications for the relationship between Russia and much of the Western world, as well as between China and Japan, have become more evident. Although the implications of these tensions have not yet fully materialized, they could cause a great deal of disruption in the highly interdependent, global macroeconomic outlook. Finally, one of the legacies of the economic crisis is the acceleration of income inequality in many

countries, which can cause important economic and social tensions if not properly addressed.

Against this backdrop, it is clear that this is no time to be complacent. The risks to the global economic outlook remain very real. Past measures, mainly based on expansionary monetary policies, have helped to temporarily avoid a deeper recession and set the foundations for the global recovery in the short term. However, ensuring sustained growth in the long run will depend not on monetary policies, but on boosting the level of productivity of economies. In order to achieve higher levels of productivity, new actions in terms of engaging in much-needed structural reform and productivity-enhancing investments are required. These measures are not only important, as they have always been, but they are also becoming urgent if we are to solidify and accelerate the recovery to create new opportunities and new jobs for larger segments of the population.

For more than three decades, the World Economic Forum's annual *Global Competitiveness Report* has studied and benchmarked the many factors underpinning national competitiveness. From the onset, the goal has been to provide insight and stimulate discussion among all stakeholders about the best strategies and policies to help countries to overcome the obstacles to improving competitiveness. In the current economic context, this work is a critical reminder of the importance of sound structural economic fundamentals for sustained growth.

Since 2005, the World Economic Forum has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness.¹ Recognizing that competitiveness may also be analyzed at other geographical levels, the Forum—through its Global Agenda Council on Competitiveness—has engaged in a parallel strand of work to analyze the drivers of competitiveness at the level of the city. Box 1 presents some of the main conclusions of this work.

In addition, in order to better place the discussion of competitiveness into a societal and environmental context, the Forum has begun exploring the complex relationship between competitiveness and sustainability as measured by its social and environmental dimension. The work carried out to date on these important aspects of human and economic development is described in Chapter 1.2 of this *Report*.

The final objective of the Forum's work in this area is to inform a series of structured multi-stakeholder dialogues that can raise awareness and rally support geared toward the transformation of countries, regions, or cities to assist them to become more competitive, offer enhanced opportunities, and raise prosperity.

THE 12 PILLARS OF COMPETITIVENESS

We define *competitiveness* as the *set of institutions, policies, and factors that determine the level of productivity of a country*. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.

The concept of competitiveness thus involves static and dynamic components. Although the productivity of a country determines its ability to sustain a high *level* of income, it is also one of the central determinants of its return on investment, which is one of the key factors explaining an economy's *growth potential*.

Many determinants drive productivity and competitiveness. Understanding the factors behind this process has occupied the minds of economists for hundreds of years, engendering theories ranging from Adam Smith's focus on specialization and the division of labor to neoclassical economists' emphasis on investment in physical capital and infrastructure,² and, more recently, to interest in other mechanisms such as education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency, among others. While all of these factors are likely to be important for competitiveness and growth, they are not mutually exclusive—two or more of them can be significant at the same time, and in fact that is what has been shown in the economic literature.³

This open-endedness is captured within the GCI by including a weighted average of many different components, each measuring a different aspect of competitiveness. In addition, Appendix A assesses statistically the robustness of the GCI as an appropriate estimate of the level of productivity and competitiveness of an economy.

The components are grouped into 12 pillars of competitiveness:

First pillar: Institutions

The institutional environment is determined by the legal and administrative framework within which individuals, firms, and governments interact to generate wealth. The importance of a sound and fair institutional environment has become all the more apparent during the recent economic and financial crisis and is especially crucial for further solidifying the fragile recovery, given the increasing role played by the state at the international level and for the economies of many countries.

The quality of institutions has a strong bearing on competitiveness and growth.⁴ It influences investment decisions and the organization of production and plays a key role in the ways in which societies distribute the

Box 1: The competitiveness of cities: A taxonomy of drivers and success factors

by the Global Agenda Council on Competitiveness

More than ever, cities are the lifeblood of the global economy. Increasingly they determine the wealth of nations, which is why the World Economic Forum's Global Agenda Council on Competitiveness has recently published a study on the competitiveness of cities.¹ "Competitiveness" hinges on the productivity of the city—that is, its ability to use available inputs efficiently to drive sustainable economic growth and prosperity.

Never before has the world urbanized at the speed and scale that it is doing today. As of 2010, for the first time in history, over half the world's population lives in cities. Urban dwellers already account for over 80 percent of global GDP. According to the United Nations,² globally, an additional 2.5 billion people will move to urban areas by 2050. For the foreseeable future, rapid urbanization will be an almost-exclusively non-Western affair: 94 percent of those who will move to cities in the next few decades will come from the developing world. McKinsey Global Institute estimates that, by 2025, the developing world's top 443 cities will account for close to half of global GDP growth and 18 percent of global GDP.³ These cities will contain the bulk of about 1 billion new middle-class consumers.

Through 33 case studies of cities around the world—including cities with different endowments, at different stages of development, and with different levels of success—the Forum's study extracts key lessons for city competitiveness and offers the following checklist of four items, which constitute a "what-to-reform, how-to-reform" agenda:

- First, think institutions—the decision-making framework of the city. Leadership and vision—a clear, far-sighted view of where cities should head, and a single-minded practical will to ensure they get there—show the power of city leaders as CEOs.
- Second, think of the regulatory framework for the city's business climate. "Getting the basics right"—which involves stable and prudent fiscal policies, including efficient and simple taxation; a flexible labor market; openness to trade and foreign investment; simple and transparent business regulation—is the primary lesson for good public policy, at both national and municipal levels. Cities should develop their own foreign economic policies on trade, foreign investment, tourism, and attracting foreign talent, and go global as far as they can.
- Third, think "hard connectivity"—the city's core physical infrastructure. Cities need a mix of planning and organic growth, which are complements of one another, not substitutes for each other. Manhattan is a great example, given both its street grid and the organic expansion it has experienced over the past two centuries.
- Fourth, think "soft connectivity"—the city's social capital. Education is the ultimate soft connectivity. US cities such as Boston, Pittsburgh, and St. Louis have escaped post-industrial decline and specialized in knowledge-intensive niches by capitalizing on their strengths in education. Next, cities need to facilitate digital infrastructure to support human-computing interfaces that empower individuals. And making cities more liveable—improving the quality of urban life—must become a higher priority for upper-middle-income and high-income cities.

The study also draws a set of concluding observations that need to be taken into account when engaging in reform process: First, successful cities are those that are flexible and adapt quickly to changing conditions. That observation is borne out by the case studies of successful cities in the study. The alternative is to get stuck in mono-industrial, mono-cultural decline. Second, the right mix of priorities requires tailoring to specific conditions and stages of city development. Most obviously, priorities for a Western city with a stable population, facing sluggish growth, unemployment, and an aging population will be quite different from those of an emerging-market city with lower income levels, high growth potential, a quickly expanding population, and big gaps in infrastructure. And finally, reforms at the municipal level are usually more feasible than at the national level, even when the same reforms seem impossible in national capitals. Urbanization trends enlarge these possibilities. Cities should grasp this opportunity, experiment with new rules, and put reforms on a fast track.

Notes

- 1 The World Economic Forum's Global Agenda Council on Competitiveness seeks to raise awareness of the importance of competitiveness for economic growth and to identify ways countries can systematically transform their economies. It monitors key trends, identifies global risks, charts relationships, addresses gaps in knowledge and recommends ways to address global challenges.

Members of the Global Agenda Council on Competitiveness (2012–2014) are: Razeen Sally, Visiting Associate Professor, Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore (Chair); Clément Gignac, Chief Economist and Senior Vice-President, Industrial Alliance Insurance and Financial Services, Canada (Vice Chair); Deborah L. Wince-Smith, President, Council on Competitiveness, USA (Vice Chair); Orlando Ayala, Chairman, Emerging Markets, Microsoft Corporation, USA; Jon Azua, President and Chief Executive Officer, Enovatinglab, Spain; Catalina Crane, High Presidential Adviser for Public and Private Affairs, Office of the President of Colombia, Colombia; Mohamed El Dahshan, Regional Economist, African Development Bank; Janamitra Devan, Independent Adviser, Strategy and Leadership, USA; Gao Changlin, Deputy Director-General, Exchange, Development and Service Center for Science and Technology (STTC), People's Republic of China; Amina Ghanem, Executive Director, Egyptian National Competitiveness Council, Egypt; Arancha Gonzalez Laya, Executive Director, International Trade Centre (ITC), Geneva; Ghassan Hasbani, Chief Executive Officer, Graycoats, Lebanon; Marie-Gabrielle Ineichen-Fleisch, State Secretary for Economic Affairs of Switzerland; Kevin X. Murphy, President and Chief Executive Officer, J.E. Austin Associates (JAA), USA; Arvind Panagariya, Jagdish Bhagwati Professor of Indian Political Economy, School of International and Public Affairs (SIPA), Columbia University, USA; Xavier Sala-i-Martin, Professor, Economics Department, Columbia University, USA; Tong Jiadong, Vice-President, Nankai University, People's Republic of China; and Jose Antonio Torre Medina, Director, Urbanism and Infrastructure, Monterrey Institute of Technology and Higher Education (ITESM), Mexico.

- 2 United Nations 2014.

- 3 Dobbs et al. 2012, p. 5.

benefits and bear the costs of development strategies and policies. For example, owners of land, corporate shares, or intellectual property are unwilling to invest in the improvement and upkeep of their property if their rights as owners are not protected.⁵

The role of institutions goes beyond the legal framework. Government attitudes toward markets and freedoms and the efficiency of its operations are also very important: excessive bureaucracy and red tape,⁶ overregulation, corruption, dishonesty in dealing with public contracts, lack of transparency and trustworthiness, inability to provide appropriate services for the business sector, and political dependence of the judicial system impose significant economic costs to businesses and slow the process of economic development.

In addition, the proper management of public finances is critical for ensuring trust in the national business environment. Indicators capturing the quality of government management of public finances are therefore included here to complement the measures of macroeconomic stability captured in pillar 3.

Although the economic literature has focused mainly on public institutions, private institutions are also an important element in the process of creating wealth. The global financial crisis, along with numerous corporate scandals, has highlighted the relevance of accounting and reporting standards and transparency for preventing fraud and mismanagement, ensuring good governance, and maintaining investor and consumer confidence. An economy is well served by businesses that are run honestly, where managers abide by strong ethical practices in their dealings with the government, other firms, and the public at large.⁷ Private-sector transparency is indispensable to business; it can be brought about through the use of standards as well as auditing and accounting practices that ensure access to information in a timely manner.⁸

Second pillar: Infrastructure

Extensive and efficient infrastructure is critical for ensuring the effective functioning of the economy, as it is an important factor in determining the location of economic activity and the kinds of activities or sectors that can develop within a country. Well-developed infrastructure reduces the effect of distance between regions, integrating the national market and connecting it at low cost to markets in other countries and regions. In addition, the quality and extensiveness of infrastructure networks significantly impact economic growth and reduce income inequalities and poverty in a variety of ways.⁹ A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services.

Effective modes of transport—including quality roads, railroads, ports, and air transport—enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of workers to the most suitable jobs. Economies also depend on electricity supplies that are free from interruptions and shortages so that businesses and factories can work unimpeded. Finally, a solid and extensive telecommunications network allows for a rapid and free flow of information, which increases overall economic efficiency by helping to ensure that businesses can communicate and decisions are made by economic actors taking into account all available relevant information.

Third pillar: Macroeconomic environment

The stability of the macroeconomic environment is important for business and, therefore, is significant for the overall competitiveness of a country.¹⁰ Although it is certainly true that macroeconomic stability alone cannot increase the productivity of a nation, it is also recognized that macroeconomic disarray harms the economy, as we have seen in recent years, conspicuously in the European context. The government cannot provide services efficiently if it has to make high-interest payments on its past debts. Running fiscal deficits limits the government's future ability to react to business cycles. Firms cannot operate efficiently when inflation rates are out of hand. In sum, the economy cannot grow in a sustainable manner unless the macro environment is stable. Macroeconomic stability captured the attention of the public most recently when some advanced economies, notably the United States and some European countries, needed to take urgent action to prevent macroeconomic instability when their public debt reached unsustainable levels in the wake of the global financial crisis.

It is important to note that this pillar evaluates the stability of the macroeconomic environment, so it does not directly take into account the way in which public accounts are managed by the government. This qualitative dimension is captured in the institutions pillar described above.

Fourth pillar: Health and primary education

A healthy workforce is vital to a country's competitiveness and productivity. Workers who are ill cannot function to their potential and will be less productive. Poor health leads to significant costs to business, as sick workers are often absent or operate at lower levels of efficiency. Investment in the provision of health services is thus critical for clear economic, as well as moral, considerations.¹¹

In addition to health, this pillar takes into account the quantity and quality of the basic education received by the population, which is increasingly important in today's

economy. Basic education increases the efficiency of each individual worker. Moreover, often workers who have received little formal education can carry out only simple manual tasks and find it much more difficult to adapt to more advanced production processes and techniques, and therefore they contribute less to devising or executing innovations. In other words, lack of basic education can become a constraint on business development, with firms finding it difficult to move up the value chain by producing more sophisticated or value-intensive products.

Fifth pillar: Higher education and training

Quality higher education and training is crucial for economies that want to move up the value chain beyond simple production processes and products.¹²

In particular, today's globalizing economy requires countries to nurture pools of well-educated workers who are able to perform complex tasks and adapt rapidly to their changing environment and the evolving needs of the production system. This pillar measures secondary and tertiary enrollment rates as well as the quality of education as evaluated by business leaders. The extent of staff training is also taken into consideration because of the importance of vocational and continuous on-the-job training—which is neglected in many economies—for ensuring a constant upgrading of workers' skills.

Sixth pillar: Goods market efficiency

Countries with efficient goods markets are well positioned to produce the right mix of products and services given their particular supply-and-demand conditions, as well as to ensure that these goods can be most effectively traded in the economy. Healthy market competition, both domestic and foreign, is important in driving market efficiency, and thus business productivity, by ensuring that the most efficient firms, producing goods demanded by the market, are those that thrive. The best possible environment for the exchange of goods requires a minimum of government intervention that impedes business activity. For example, competitiveness is hindered by distortionary or burdensome taxes and by restrictive and discriminatory rules on foreign direct investment (FDI)—which limit foreign ownership—as well as on international trade. The recent economic crisis has highlighted the high degree of interdependence of economies worldwide and the degree to which growth depends on open markets. Protectionist measures are counterproductive as they reduce aggregate economic activity.

Market efficiency also depends on demand conditions such as customer orientation and buyer sophistication. For cultural or historical reasons, customers may be more demanding in some countries than in others. This can create an important competitive advantage, as it forces companies to be more innovative

and customer-oriented and thus imposes the discipline necessary for efficiency to be achieved in the market.

Seventh pillar: Labor market efficiency

The efficiency and flexibility of the labor market are critical for ensuring that workers are allocated to their most effective use in the economy and provided with incentives to give their best effort in their jobs. Labor markets must therefore have the flexibility to shift workers from one economic activity to another rapidly and at low cost, and to allow for wage fluctuations without much social disruption.¹³ The importance of the latter has been dramatically highlighted by events in Arab countries, where rigid labor markets were an important cause of high youth unemployment. Youth unemployment continues to be high in a number of European countries as well, where important barriers to entry into the labor market remain in place.

Efficient labor markets must also ensure clear strong incentives for employees and efforts to promote meritocracy at the workplace, and they must provide equity in the business environment between women and men. Taken together these factors have a positive effect on worker performance and the attractiveness of the country for talent, two aspects that are growing more important as talent shortages loom on the horizon.

Eighth pillar: Financial market development

The financial and economic crisis has highlighted the central role of a sound and well-functioning financial sector for economic activities. An efficient financial sector allocates the resources saved by a nation's citizens, as well as those entering the economy from abroad, to their most productive uses. It channels resources to those entrepreneurial or investment projects with the highest expected rates of return rather than to the politically connected. A thorough and proper assessment of risk is therefore a key ingredient of a sound financial market.

Business investment is also critical to productivity. Therefore economies require sophisticated financial markets that can make capital available for private-sector investment from such sources as loans from a sound banking sector, well-regulated securities exchanges, venture capital, and other financial products. In order to fulfill all those functions, the banking sector needs to be trustworthy and transparent, and—as has been made so clear recently—financial markets need appropriate regulation to protect investors and other actors in the economy at large.

Ninth pillar: Technological readiness

In today's globalized world, technology is increasingly essential for firms to compete and prosper. The technological readiness pillar measures the agility with which an economy adopts existing technologies to

enhance the productivity of its industries, with specific emphasis on its capacity to fully leverage information and communication technologies (ICTs) in daily activities and production processes for increased efficiency and enabling innovation for competitiveness.¹⁴ ICTs have evolved into the “general purpose technology” of our time,¹⁵ given their critical spillovers to other economic sectors and their role as industry-wide enabling infrastructure. Therefore ICT access and usage are key enablers of countries’ overall technological readiness.

Whether the technology used has or has not been developed within national borders is irrelevant for its ability to enhance productivity. The central point is that the firms operating in the country need to have access to advanced products and blueprints and the ability to absorb and use them. Among the main sources of foreign technology, FDI often plays a key role, especially for countries at a less advanced stage of technological development. It is important to note that, in this context, the level of technology available to firms in a country needs to be distinguished from the country’s ability to conduct blue-sky research and develop new technologies for innovation that expand the frontiers of knowledge. That is why we separate technological readiness from innovation, captured in the 12th pillar, described below.

Tenth pillar: Market size

The size of the market affects productivity since large markets allow firms to exploit economies of scale. Traditionally, the markets available to firms have been constrained by national borders. In the era of globalization, international markets have become a substitute for domestic markets, especially for small countries. Vast empirical evidence shows that trade openness is positively associated with growth. Even if some recent research casts doubts on the robustness of this relationship, there is a general sense that trade has a positive effect on growth, especially for countries with small domestic markets.¹⁶

Thus exports can be thought of as a substitute for domestic demand in determining the size of the market for the firms of a country.¹⁷ By including both domestic and foreign markets in our measure of market size, we give credit to export-driven economies and geographic areas (such as the European Union) that are divided into many countries but have a single common market.

Eleventh pillar: Business sophistication

There is no doubt that sophisticated business practices are conducive to higher efficiency in the production of goods and services. Business sophistication concerns two elements that are intricately linked: the quality of a country’s overall business networks and the quality of individual firms’ operations and strategies. These factors are especially important for countries at an advanced

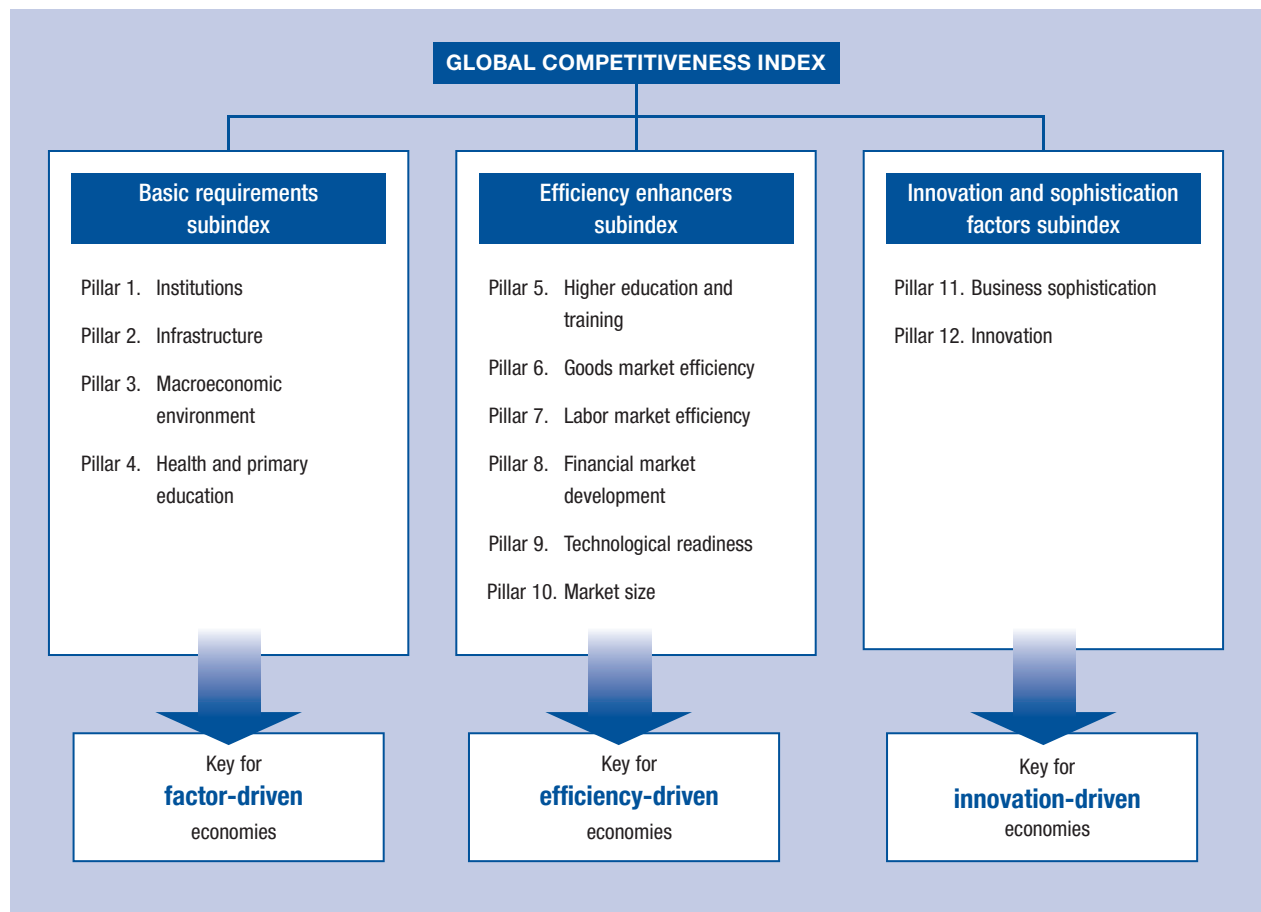
stage of development when, to a large extent, the more basic sources of productivity improvements have been exhausted. The quality of a country’s business networks and supporting industries, as measured by the quantity and quality of local suppliers and the extent of their interaction, is important for a variety of reasons. When companies and suppliers from a particular sector are interconnected in geographically proximate groups, called *clusters*, efficiency is heightened, greater opportunities for innovation in processes and products are created, and barriers to entry for new firms are reduced. Individual firms’ advanced operations and strategies (branding, marketing, distribution, advanced production processes, and the production of unique and sophisticated products) spill over into the economy and lead to sophisticated and modern business processes across the country’s business sectors.

Twelfth pillar: Innovation

Innovation can emerge from new technological and non-technological knowledge. Non-technological innovations are closely related to the know-how, skills, and working conditions that are embedded in organizations and are therefore largely covered by the eleventh pillar of the GCI. The final pillar of competitiveness focuses on technological innovation. Although substantial gains can be obtained by improving institutions, building infrastructure, reducing macroeconomic instability, or improving human capital, all these factors eventually run into diminishing returns. The same is true for the efficiency of the labor, financial, and goods markets. In the long run, standards of living can be largely enhanced by technological innovation. Technological breakthroughs have been at the basis of many of the productivity gains that our economies have historically experienced. These range from the industrial revolution in the 18th century and the invention of the steam engine and the generation of electricity to the more recent digital revolution. The latter is not only transforming the way things are being done, but also opening a wider range of new possibilities in terms of products and services. Innovation is particularly important for economies as they approach the frontiers of knowledge, and the possibility of generating more value by merely integrating and adapting exogenous technologies tends to disappear.¹⁸

Although less-advanced countries can still improve their productivity by adopting existing technologies or making incremental improvements in other areas, for those that have reached the innovation stage of development this is no longer sufficient for increasing productivity. Firms in these countries must design and develop cutting-edge products and processes to maintain a competitive edge and move toward even higher value-added activities. This progression requires an environment that is conducive to innovative activity and supported by both the public and the private

Figure 1: The Global Competitiveness Index framework



Note: See the appendix for the detailed structure of the GCI.

sectors. In particular, it means sufficient investment in research and development (R&D), especially by the private sector; the presence of high-quality scientific research institutions that can generate the basic knowledge needed to build the new technologies; extensive collaboration in research and technological developments between universities and industry; and the protection of intellectual property, in addition to high levels of competition and access to venture capital and financing that are analyzed in other pillars of the Index. In light of the recent sluggish recovery and rising fiscal pressures faced by advanced economies, it is important that public and private sectors resist pressures to cut back on the R&D spending that will be so critical for sustainable growth into the future.

The interrelation of the 12 pillars

Although we report the results of the 12 pillars of competitiveness separately, it is important to keep in mind that they are not independent: they tend to reinforce each other, and a weakness in one area often has a negative impact in others. For example, a strong innovation capacity (pillar 12) will be very difficult to achieve without a healthy, well-educated and trained workforce (pillars 4 and 5) that is adept at absorbing new

technologies (pillar 9), and without sufficient financing (pillar 8) for R&D or an efficient goods market that makes it possible to take new innovations to market (pillar 6). Although the pillars are aggregated into a single index, measures are reported for the 12 pillars separately because such details provide a sense of the specific areas in which a particular country needs to improve.

Appendix B describes the exact composition of the GCI and the technical details of its construction.

STAGES OF DEVELOPMENT AND THE WEIGHTED INDEX

While all of the pillars described above will matter to a certain extent for all economies, it is clear that they will affect different economies in different ways: the best way for Cambodia to improve its competitiveness is not the same as the best way for France to do so. This is because Cambodia and France are in different stages of development: as countries move along the development path, wages tend to increase and, in order to sustain this higher income, labor productivity must improve.

In line with well-known economic theory of stages of development, the GCI assumes that, in the first stage, the economy is *factor-driven* and countries compete based on their factor endowments—primarily

Table 1: Subindex weights and income thresholds for stages of development

	STAGE OF DEVELOPMENT				
	Stage 1: Factor-driven	Transition from stage 1 to stage 2	Stage 2: Efficiency-driven	Transition from stage 2 to stage 3	Stage 3: Innovation-driven
GDP per capita (US\$) thresholds*	<2,000	2,000–2,999	3,000–8,999	9,000–17,000	>17,000
Weight for basic requirements	60%	40–60%	40%	20–40%	20%
Weight for efficiency enhancers	35%	35–50%	50%	50%	50%
Weight for innovation and sophistication factors	5%	5–10%	10%	10–30%	30%

Note: See individual country/economy profiles for the exact applied weights.

* For economies with a high dependency on mineral resources, GDP per capita is not the sole criterion for the determination of the stage of development. See text for details.

unskilled labor and natural resources.¹⁹ Companies compete on the basis of price and sell basic products or commodities, with their low productivity reflected in low wages. Maintaining competitiveness at this stage of development hinges primarily on well-functioning public and private institutions (pillar 1), a well-developed infrastructure (pillar 2), a stable macroeconomic environment (pillar 3), and a healthy workforce that has received at least a basic education (pillar 4).

As a country becomes more competitive, productivity will increase and wages will rise with advancing development. Countries will then move into the *efficiency-driven* stage of development, when they must begin to develop more efficient production processes and increase product quality because wages have risen and they cannot increase prices. At this point, competitiveness is increasingly driven by higher education and training (pillar 5), efficient goods markets (pillar 6), well-functioning labor markets (pillar 7), developed financial markets (pillar 8), the ability to harness the benefits of existing technologies (pillar 9), and a large domestic or foreign market (pillar 10).

Finally, as countries move into the *innovation-driven* stage, wages will have risen by so much that they are able to sustain those higher wages and the associated standard of living only if their businesses are able to compete with new and unique products. At this stage, companies must compete by producing new and different goods using the most sophisticated production processes (pillar 11) and by innovating new ones (pillar 12).

The GCI takes the stages of development into account by attributing higher relative weights to those pillars that are more relevant for an economy given its particular stage of development. That is, although all 12 pillars matter to a certain extent for all countries, the relative importance of each one depends on a country's particular stage of development. To implement this concept, the pillars are organized into three subindexes, each critical to a particular stage of development.

The *basic requirements subindex* groups those pillars most critical for countries in the factor-driven stage. The *efficiency enhancers subindex* includes

those pillars critical for countries in the efficiency-driven stage. And the *innovation and sophistication factors subindex* includes the pillars critical to countries in the innovation-driven stage. The three subindexes are shown in Figure 1.

The weights attributed to each subindex in every stage of development are shown in Table 1. To obtain the weights shown in the table, a maximum likelihood regression of gross domestic product (GDP) per capita was run against each subindex for past years, allowing for different coefficients for each stage of development.²⁰ The rounding of these econometric estimates led to the choice of weights displayed in Table 1.

Implementation of stages of development

Two criteria are used to allocate countries into stages of development. The first is the level of GDP per capita at market exchange rates. This widely available measure is used as a proxy for wages because internationally comparable data on wages are not available for all countries covered. The thresholds used are also shown in Table 1. A second criterion is used to adjust for countries that, based on income, would have moved beyond stage 1, but where prosperity is based on the extraction of resources. This is measured by the share of exports of mineral goods in total exports (goods and services), and assumes that countries with more than 70 percent of their exports made up of mineral products (measured using a five-year average) are to a large extent factor driven.²¹ However, for some resource-based economies that have reached very high levels of income, the capacity to increase the productivity of any other sector beyond mineral production will be based on the country's capacity to boost innovation, because adopting technology from abroad is not sufficient to increase productivity enough to sustain their high wage levels. At the same time, these countries can afford to invest in innovation, given their high income. Consequently, countries that are resource driven and significantly wealthier than economies at the technological frontier are classified in the innovation-driven stage.²² Any countries falling between two of the three stages are considered to be "in transition." For these countries, the weights

Table 2: Countries/economies at each stage of development

Stage 1: Factor-driven (37 economies)	Transition from stage 1 to stage 2 (16 economies)	Stage 2: Efficiency-driven (30 economies)	Transition from stage 2 to stage 3 (24 economies)	Stage 3: Innovation-driven (37 economies)
Bangladesh	Algeria	Albania	Argentina	Australia
Burkina Faso	Angola	Armenia	Bahrain	Austria
Burundi	Azerbaijan	Bulgaria	Barbados	Belgium
Cambodia	Bhutan	Cape Verde	Brazil	Canada
Cameroon	Bolivia	China	Chile	Cyprus
Chad	Botswana	Colombia	Costa Rica	Czech Republic
Côte d'Ivoire	Gabon	Dominican Republic	Croatia	Denmark
Ethiopia	Honduras	Egypt	Hungary	Estonia
Gambia, The	Iran, Islamic Rep.	El Salvador	Kazakhstan	Finland
Ghana	Kuwait	Georgia	Latvia	France
Guinea	Libya	Guatemala	Lebanon	Germany
Haiti	Moldova	Guyana	Lithuania	Greece
India	Mongolia	Indonesia	Malaysia	Hong Kong SAR
Kenya	Philippines	Jamaica	Mauritius	Iceland
Kyrgyz Republic	Saudi Arabia	Jordan	Mexico	Ireland
Lao PDR	Venezuela	Macedonia, FYR	Oman	Israel
Lesotho		Montenegro	Panama	Italy
Madagascar		Morocco	Poland	Japan
Malawi		Namibia	Russian Federation	Korea, Rep.
Mali		Paraguay	Seychelles	Luxembourg
Mauritania		Peru	Suriname	Malta
Mozambique		Romania	Turkey	Netherlands
Myanmar		Serbia	United Arab Emirates	New Zealand
Nepal		South Africa	Uruguay	Norway
Nicaragua		Sri Lanka		Portugal
Nigeria		Swaziland		Puerto Rico
Pakistan		Thailand		Qatar
Rwanda		Timor-Leste		Singapore
Senegal		Tunisia		Slovak Republic
Sierra Leone		Ukraine		Slovenia
Tajikistan				Spain
Tanzania				Sweden
Uganda				Switzerland
Vietnam				Taiwan, China
Yemen				Trinidad and Tobago
Zambia				United Kingdom
Zimbabwe				United States

change smoothly as a country develops, reflecting the smooth transition from one stage of development to another. This allows us to place increasingly more weight on those areas that are becoming more important for the country's competitiveness as the country develops, ensuring that the GCI can gradually "penalize" those countries that are not preparing for the next stage. The classification of countries into stages of development is shown in Table 2.

DATA SOURCES

To measure these concepts, the GCI uses statistical data such as enrollment rates, government debt, budget deficit, and life expectancy. These data are obtained from internationally recognized agencies, notably the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Monetary Fund (IMF), and the World Health Organization (WHO). The descriptions and data sources of all these statistical

variables are summarized in the Technical Notes and Sources at the end of this *Report*. Furthermore, the GCI uses data from the World Economic Forum's annual Executive Opinion Survey (the Survey) to capture concepts that require a more qualitative assessment or for which internationally comparable statistical data are not available for the entire set of economies. The Survey process and the statistical treatment of data are described in detail in Chapter 1.3 of this *Report*.

COUNTRY COVERAGE

This year the *Report* covers 144 economies. In this edition, because of data availability issues, we could not include Benin, Bosnia and Herzegovina, Brunei Darussalam, Ecuador, or Liberia. On the other hand, Tajikistan, which could not be included in the last edition, is re-instated this year.

REVIEW OF THE GLOBAL COMPETITIVENESS INDEX

The Global Competitiveness Index has been used as an important tool by policymakers of many countries over the years. Since its first publication in 2005, the Index has become widely recognized as one of the key assessments of global competitiveness as defined by the World Economic Forum.

As we approach the 10th anniversary of its creation, and in order to keep the GCI at the cutting edge of thinking and research, the World Economic Forum has engaged in a review of the Index. This two-year process will gather insights from high-level experts in academia along with practitioners and business leaders to identify the improvements needed to capture the evolving nature of the drivers of competitiveness. Since the start of this process in September 2013, the Forum has made progress in evaluating the nature of the adjustments that should be made and identifying potential new measures to be included in the Index. This progress has been possible thanks to the insights gathered in a series of workshops and sessions that took place at the Forum's Annual Meeting in Davos in January 2014 and in an expert workshop that took place in Geneva in June 2014. Further events are planned to continue this review.

With this endeavor, the Forum aims to remain at the forefront of the effort to provide policymakers and business and civil society leaders with a relevant tool that can measure and benchmark the drivers of competitiveness and prosperity in an economy, and that can stimulate a constructive dialogue to catalyze the needed reforms and productive investments.

THE GLOBAL COMPETITIVENESS INDEX 2014–2015 RANKINGS

Tables 3 through 7 provide the detailed rankings of this year's GCI. The following sections discuss the findings of the GCI 2014–2015 for the top performers globally, as well as for a number of selected economies in each of the five following regions: Europe and Eurasia; Asia and the Pacific; Latin America and the Caribbean, the Middle East and North Africa, and sub-Saharan Africa.²³

Top 10

The top of the rankings continues to be dominated by highly advanced Western economies and several Asian tigers. For the sixth consecutive year Switzerland leads the top 10, and again this year Singapore ranks as the second-most competitive economy in the world. Overall, the rankings at the top have remained rather stable, although it is worth noting the significant progress made by the United States, which climbs to 3rd place this year, and Japan, which rises three ranks to 6th position.

Switzerland tops the Global Competitiveness Index again this year, keeping its 1st place for six years in a row. Its performance is stable since last year and

remarkably consistent across the board: the country ranks in the top 10 of eight pillars. Switzerland's top-notch academic institutions, high spending on R&D, and strong cooperation between the academic and business worlds contribute to making it a top innovator. Switzerland boasts the highest number of Patent Cooperation Treaty applications per capita in the world. The sophistication of companies that operate at the highest end of the value chain constitutes another notable strength (2nd). Productivity is further enhanced by an excellent education system and a business sector that offers excellent on-the-job-training opportunities. The labor market balances employee protection with flexibility and the country's business needs (1st). Public institutions are among the most effective and transparent in the world (7th), ensuring a level playing field and enhancing business confidence. Competitiveness is also buttressed by excellent infrastructure and connectivity (5th) and highly developed financial markets (11th). Finally, Switzerland's macroeconomic environment is among the most stable in the world (12th) at a time when many European countries continue to struggle in this area. A potential threat to Switzerland's competitive edge might be the increasing difficulties faced by businesses and research institutions in finding the talent they need to preserve their outstanding capacity to innovate. Since 2012, the country has dropped from 14th to 24th on the indicator measuring the availability of engineers and scientists. Respondents to the Executive Opinion Survey 2014 cited the difficulty of finding qualified workers as the single most problematic factor for doing business in the country. The recent acceptance by Swiss citizens of an initiative aimed at limiting the ability of European Union (EU) workers to immigrate by reintroducing quotas could exacerbate the problem and erode Switzerland's competitiveness advantage.

Singapore ranks 2nd overall for the fourth consecutive year, owing to an outstanding and stable performance across all the dimensions of the GCI. Again this year, Singapore is the only economy to feature in the top 3 in seven out of the 12 pillars; it also appears in the top 10 of two other pillars. Singapore tops the goods market efficiency pillar and places 2nd in the labor market efficiency and financial market development pillars. Furthermore, the city-state boasts one of the world's best institutional frameworks (3rd), even though it loses the top spot to New Zealand in that category of the Index. Singapore possesses world-class infrastructure (2nd), with excellent roads, ports, and air transport facilities. Its economy can also rely on a sound macroeconomic environment and fiscal management (15th)—its budget surplus amounted to 6.9 percent of GDP in 2013. Singapore's competitiveness is further enhanced by its strong focus on education, which has translated into a steady improvement of its ranking in the higher education and training pillar, where it comes in

Table 3: The Global Competitiveness Index 2014–2015 rankings and 2013–2014 comparisons

Country/Economy	GCI 2014–2015			GCI 2013–2014 rank (out of 148) [†]	Country/Economy	GCI 2014–2015			GCI 2013–2014 rank (out of 148) [†]
	Rank (out of 144)	Score (1–7)	Rank among 2013–2014 economies*			Rank (out of 144)	Score (1–7)	Rank among 2013–2014 economies*	
Switzerland	1	5.70	1	1	Sri Lanka	73	4.19	73	65
Singapore	2	5.65	2	2	Botswana	74	4.15	74	74
United States	3	5.54	3	5	Slovak Republic	75	4.15	75	78
Finland	4	5.50	4	3	Ukraine	76	4.14	76	84
Germany	5	5.49	5	4	Croatia	77	4.13	77	75
Japan	6	5.47	6	9	Guatemala	78	4.10	78	86
Hong Kong SAR	7	5.46	7	7	Algeria	79	4.08	79	100
Netherlands	8	5.45	8	8	Uruguay	80	4.04	80	85
United Kingdom	9	5.41	9	10	Greece	81	4.04	81	91
Sweden	10	5.41	10	6	Moldova	82	4.03	82	89
Norway	11	5.35	11	11	Iran, Islamic Rep.	83	4.03	83	82
United Arab Emirates	12	5.33	12	19	El Salvador	84	4.01	84	97
Denmark	13	5.29	13	15	Armenia	85	4.01	85	79
Taiwan, China	14	5.25	14	12	Jamaica	86	3.98	86	94
Canada	15	5.24	15	14	Tunisia	87	3.96	87	83
Qatar	16	5.24	16	13	Namibia	88	3.96	88	90
New Zealand	17	5.20	17	18	Trinidad and Tobago	89	3.95	89	92
Belgium	18	5.18	18	17	Kenya	90	3.93	90	96
Luxembourg	19	5.17	19	22	Tajikistan	91	3.93	n/a	n/a
Malaysia	20	5.16	20	24	Seychelles	92	3.91	91	80
Austria	21	5.16	21	16	Lao PDR	93	3.91	92	81
Australia	22	5.08	22	21	Serbia	94	3.90	93	101
France	23	5.08	23	23	Cambodia	95	3.89	94	88
Saudi Arabia	24	5.06	24	20	Zambia	96	3.86	95	93
Ireland	25	4.98	25	28	Albania	97	3.84	96	95
Korea, Rep.	26	4.96	26	25	Mongolia	98	3.83	97	107
Israel	27	4.95	27	27	Nicaragua	99	3.82	98	99
China	28	4.89	28	29	Honduras	100	3.82	99	111
Estonia	29	4.71	29	32	Dominican Republic	101	3.82	100	105
Iceland	30	4.71	30	31	Nepal	102	3.81	101	117
Thailand	31	4.66	31	37	Bhutan	103	3.80	102	109
Puerto Rico	32	4.64	32	30	Argentina	104	3.79	103	104
Chile	33	4.60	33	34	Bolivia	105	3.77	104	98
Indonesia	34	4.57	34	38	Gabon	106	3.74	105	112
Spain	35	4.55	35	35	Lesotho	107	3.73	106	123
Portugal	36	4.54	36	51	Kyrgyz Republic	108	3.73	107	121
Czech Republic	37	4.53	37	46	Bangladesh	109	3.72	108	110
Azerbaijan	38	4.53	38	39	Suriname	110	3.71	109	106
Mauritius	39	4.52	39	45	Ghana	111	3.71	110	114
Kuwait	40	4.51	40	36	Senegal	112	3.70	111	113
Lithuania	41	4.51	41	48	Lebanon	113	3.68	112	103
Latvia	42	4.50	42	52	Cape Verde	114	3.68	113	122
Poland	43	4.48	43	42	Côte d'Ivoire	115	3.67	114	126
Bahrain	44	4.48	44	43	Cameroon	116	3.66	115	115
Turkey	45	4.46	45	44	Guyana	117	3.65	116	102
Oman	46	4.46	46	33	Ethiopia	118	3.60	117	127
Malta	47	4.45	47	41	Egypt	119	3.60	118	118
Panama	48	4.43	48	40	Paraguay	120	3.59	119	119
Italy	49	4.42	49	49	Tanzania	121	3.57	120	125
Kazakhstan	50	4.42	50	50	Uganda	122	3.56	121	129
Costa Rica	51	4.42	51	54	Swaziland	123	3.55	122	124
Philippines	52	4.40	52	59	Zimbabwe	124	3.54	123	131
Russian Federation	53	4.37	53	64	Gambia, The	125	3.53	124	116
Bulgaria	54	4.37	54	57	Libya	126	3.48	125	108
Barbados	55	4.36	55	47	Nigeria	127	3.44	126	120
South Africa	56	4.35	56	53	Mali	128	3.43	127	135
Brazil	57	4.34	57	56	Pakistan	129	3.42	128	133
Cyprus	58	4.31	58	58	Madagascar	130	3.41	129	132
Romania	59	4.30	59	76	Venezuela	131	3.32	130	134
Hungary	60	4.28	60	63	Malawi	132	3.25	131	136
Mexico	61	4.27	61	55	Mozambique	133	3.24	132	137
Rwanda	62	4.27	62	66	Myanmar	134	3.24	133	139
Macedonia, FYR	63	4.26	63	73	Burkina Faso	135	3.21	134	140
Jordan	64	4.25	64	68	Timor-Leste	136	3.17	135	138
Peru	65	4.24	65	61	Haiti	137	3.14	136	143
Colombia	66	4.23	66	69	Sierra Leone	138	3.10	137	144
Montenegro	67	4.23	67	67	Burundi	139	3.09	138	146
Vietnam	68	4.23	68	70	Angola	140	3.04	139	142
Georgia	69	4.22	69	72	Mauritania	141	3.00	140	141
Slovenia	70	4.22	70	62	Yemen	142	2.96	141	145
India	71	4.21	71	60	Chad	143	2.85	142	148
Morocco	72	4.21	72	77	Guinea	144	2.79	143	147

* This column ranks all those economies for 2014–2015 that have been covered both in the 2013–2014 and 2014–2015 editions, hence a constant sample of 143 economies. Tajikistan was not included in the analysis last year, and therefore appears as n/a.

† The 2013–2014 edition of the *Global Competitiveness Report* covered 148 economies.

Table 4: The Global Competitiveness Index 2014–2015

Country/Economy	OVERALL INDEX		SUBINDEX					
	Rank	Score	Basic requirements		Efficiency enhancers		Innovation and sophistication factors	
			Rank	Score	Rank	Score	Rank	Score
Switzerland	1	5.70	4	6.17	5	5.49	1	5.74
Singapore	2	5.65	1	6.34	2	5.68	11	5.13
United States	3	5.54	33	5.15	1	5.71	5	5.54
Finland	4	5.50	8	5.97	10	5.27	3	5.57
Germany	5	5.49	11	5.91	9	5.28	4	5.56
Japan	6	5.47	25	5.47	7	5.35	2	5.68
Hong Kong SAR	7	5.46	3	6.19	3	5.58	23	4.75
Netherlands	8	5.45	10	5.95	8	5.28	6	5.41
United Kingdom	9	5.41	24	5.49	4	5.51	8	5.21
Sweden	10	5.41	12	5.86	12	5.25	7	5.38
Norway	11	5.35	6	6.05	13	5.24	16	5.08
United Arab Emirates	12	5.33	2	6.20	14	5.24	21	4.83
Denmark	13	5.29	13	5.85	17	5.11	9	5.19
Taiwan, China	14	5.25	14	5.75	16	5.14	13	5.11
Canada	15	5.24	18	5.70	6	5.37	24	4.72
Qatar	16	5.24	5	6.12	20	4.98	15	5.09
New Zealand	17	5.20	9	5.96	11	5.26	25	4.61
Belgium	18	5.18	22	5.53	18	5.07	12	5.11
Luxembourg	19	5.17	7	6.02	22	4.97	18	4.93
Malaysia	20	5.16	23	5.53	24	4.95	17	4.95
Austria	21	5.16	16	5.71	23	4.96	14	5.11
Australia	22	5.08	17	5.71	15	5.16	26	4.55
France	23	5.08	26	5.42	19	5.07	19	4.86
Saudi Arabia	24	5.06	15	5.72	33	4.64	32	4.19
Ireland	25	4.98	31	5.19	21	4.97	20	4.85
Korea, Rep.	26	4.96	20	5.55	25	4.83	22	4.78
Israel	27	4.95	36	5.12	26	4.75	10	5.16
China	28	4.89	28	5.34	30	4.68	33	4.14
Estonia	29	4.71	21	5.54	27	4.73	34	4.14
Iceland	30	4.71	27	5.39	35	4.60	28	4.43
Thailand	31	4.66	40	5.01	39	4.53	54	3.84
Puerto Rico	32	4.64	68	4.62	28	4.72	27	4.52
Chile	33	4.60	30	5.25	29	4.68	49	3.88
Indonesia	34	4.57	46	4.91	46	4.38	30	4.20
Spain	35	4.55	42	4.98	31	4.67	39	4.06
Portugal	36	4.54	41	5.00	37	4.57	31	4.19
Czech Republic	37	4.53	39	5.02	34	4.62	36	4.07
Azerbaijan	38	4.53	45	4.93	71	4.08	72	3.59
Mauritius	39	4.52	38	5.04	59	4.24	53	3.85
Kuwait	40	4.51	32	5.16	83	3.89	95	3.38
Lithuania	41	4.51	37	5.08	38	4.54	44	3.97
Latvia	42	4.50	34	5.14	36	4.60	61	3.68
Poland	43	4.48	55	4.80	32	4.64	63	3.66
Bahrain	44	4.48	29	5.31	40	4.51	55	3.83
Turkey	45	4.46	56	4.76	45	4.43	51	3.86
Oman	46	4.46	19	5.66	49	4.32	58	3.76
Malta	47	4.45	35	5.13	44	4.43	41	4.03
Panama	48	4.43	53	4.82	55	4.29	46	3.95
Italy	49	4.42	54	4.82	47	4.35	29	4.26
Kazakhstan	50	4.42	51	4.85	48	4.33	89	3.45
Costa Rica	51	4.42	62	4.70	56	4.28	35	4.13
Philippines	52	4.40	66	4.63	58	4.27	48	3.90
Russian Federation	53	4.37	44	4.94	41	4.49	75	3.54
Bulgaria	54	4.37	59	4.71	52	4.31	106	3.27
Barbados	55	4.36	43	4.96	54	4.30	47	3.92
South Africa	56	4.35	89	4.30	43	4.45	37	4.07
Brazil	57	4.34	83	4.40	42	4.46	56	3.82
Cyprus	58	4.31	58	4.73	57	4.28	38	4.06
Romania	59	4.30	77	4.48	50	4.32	78	3.53
Hungary	60	4.28	60	4.71	53	4.30	67	3.62
Mexico	61	4.27	69	4.59	60	4.20	59	3.73
Rwanda	62	4.27	67	4.62	91	3.77	66	3.64
Macedonia, FYR	63	4.26	64	4.64	69	4.09	76	3.53
Jordan	64	4.25	73	4.53	70	4.08	42	4.02
Peru	65	4.24	74	4.52	62	4.19	99	3.34
Colombia	66	4.23	78	4.45	63	4.17	64	3.65
Montenegro	67	4.23	61	4.71	73	3.99	77	3.53
Vietnam	68	4.23	79	4.44	74	3.99	98	3.35
Georgia	69	4.22	48	4.88	79	3.92	118	3.10
Slovenia	70	4.22	49	4.86	64	4.17	50	3.88
India	71	4.21	92	4.25	61	4.19	52	3.86
Morocco	72	4.21	57	4.74	78	3.92	82	3.50

(Cont'd.)

Table 4: The Global Competitiveness Index 2014–2015 (cont'd.)

Country/Economy	SUBINDEX							
	OVERALL INDEX		Basic requirements		Efficiency enhancers		Innovation and sophistication factors	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Sri Lanka	73	4.19	75	4.51	75	3.97	43	4.00
Botswana	74	4.15	72	4.53	84	3.87	110	3.22
Slovak Republic	75	4.15	70	4.58	51	4.31	73	3.59
Ukraine	76	4.14	87	4.36	67	4.11	92	3.41
Croatia	77	4.13	63	4.66	68	4.11	87	3.47
Guatemala	78	4.10	84	4.39	76	3.95	62	3.68
Algeria	79	4.08	65	4.64	125	3.34	133	2.91
Uruguay	80	4.04	47	4.90	72	4.01	85	3.47
Greece	81	4.04	76	4.50	65	4.15	74	3.55
Moldova	82	4.03	90	4.30	88	3.82	129	2.94
Iran, Islamic Rep.	83	4.03	71	4.57	98	3.70	102	3.33
El Salvador	84	4.01	80	4.41	96	3.71	45	3.96
Armenia	85	4.01	82	4.40	87	3.82	100	3.34
Jamaica	86	3.98	99	4.11	77	3.95	71	3.60
Tunisia	87	3.96	85	4.38	94	3.74	93	3.40
Namibia	88	3.96	81	4.40	97	3.71	91	3.41
Trinidad and Tobago	89	3.95	52	4.83	81	3.90	88	3.47
Kenya	90	3.93	115	3.82	66	4.12	40	4.03
Tajikistan	91	3.93	94	4.20	111	3.53	81	3.50
Seychelles	92	3.91	50	4.85	105	3.58	69	3.62
Lao PDR	93	3.91	98	4.13	107	3.58	80	3.51
Serbia	94	3.90	101	4.10	80	3.90	121	3.05
Cambodia	95	3.89	103	4.09	100	3.65	116	3.15
Zambia	96	3.86	109	3.88	86	3.85	57	3.76
Albania	97	3.84	97	4.14	95	3.72	114	3.17
Mongolia	98	3.83	105	3.99	92	3.76	112	3.20
Nicaragua	99	3.82	96	4.15	118	3.38	125	2.98
Honduras	100	3.82	107	3.97	99	3.65	70	3.61
Dominican Republic	101	3.82	106	3.98	90	3.77	90	3.44
Nepal	102	3.81	100	4.11	115	3.43	124	2.98
Bhutan	103	3.80	88	4.33	123	3.35	111	3.22
Argentina	104	3.79	104	4.08	93	3.75	96	3.37
Bolivia	105	3.77	93	4.21	116	3.40	94	3.38
Gabon	106	3.74	95	4.15	119	3.37	131	2.93
Lesotho	107	3.73	102	4.09	130	3.21	117	3.12
Kyrgyz Republic	108	3.73	110	3.87	104	3.59	126	2.96
Bangladesh	109	3.72	113	3.84	103	3.60	122	3.02
Suriname	110	3.71	86	4.36	121	3.35	123	3.00
Ghana	111	3.71	123	3.68	89	3.78	68	3.62
Senegal	112	3.70	120	3.75	102	3.62	65	3.65
Lebanon	113	3.68	127	3.55	85	3.86	101	3.33
Cape Verde	114	3.68	91	4.27	127	3.29	109	3.23
Côte d'Ivoire	115	3.67	119	3.75	108	3.58	86	3.47
Cameroon	116	3.66	116	3.79	113	3.48	84	3.47
Guyana	117	3.65	118	3.76	109	3.55	60	3.69
Ethiopia	118	3.60	117	3.78	120	3.37	119	3.09
Egypt	119	3.60	121	3.73	106	3.58	113	3.18
Paraguay	120	3.59	112	3.85	112	3.53	132	2.92
Tanzania	121	3.57	124	3.67	114	3.43	107	3.26
Uganda	122	3.56	126	3.59	110	3.53	104	3.30
Swaziland	123	3.55	108	3.92	126	3.32	108	3.25
Zimbabwe	124	3.54	114	3.83	133	3.12	127	2.95
Gambia, The	125	3.53	125	3.60	117	3.40	79	3.52
Libya	126	3.48	111	3.86	137	3.03	143	2.49
Nigeria	127	3.44	140	3.18	82	3.89	103	3.30
Mali	128	3.43	128	3.54	129	3.25	97	3.36
Pakistan	129	3.42	134	3.28	101	3.64	83	3.48
Madagascar	130	3.41	129	3.52	128	3.25	105	3.27
Venezuela	131	3.32	131	3.36	124	3.35	135	2.71
Malawi	132	3.25	139	3.20	122	3.35	115	3.17
Mozambique	133	3.24	133	3.29	131	3.19	120	3.05
Myanmar	134	3.24	132	3.36	134	3.11	139	2.62
Burkina Faso	135	3.21	135	3.25	132	3.16	128	2.95
Timor-Leste	136	3.17	122	3.71	141	2.84	136	2.69
Haiti	137	3.14	136	3.23	135	3.08	140	2.61
Sierra Leone	138	3.10	141	3.14	136	3.06	130	2.93
Burundi	139	3.09	130	3.40	144	2.62	137	2.68
Angola	140	3.04	137	3.21	140	2.84	144	2.36
Mauritania	141	3.00	138	3.21	143	2.69	138	2.63
Yemen	142	2.96	142	3.03	139	2.86	134	2.77
Chad	143	2.85	143	2.93	142	2.74	141	2.55
Guinea	144	2.79	144	2.76	138	2.88	142	2.55

Note: Ranks out of 144 economies and scores measured on a 1-to-7 scale.

Table 5: The Global Competitiveness Index 2014–2015: Basic requirements

Country/Economy	PILLAR									
	BASIC REQUIREMENTS		1. Institutions		2. Infrastructure		3. Macroeconomic environment		4. Health and primary education	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Albania	97	4.14	103	3.38	90	3.52	122	3.82	62	5.85
Algeria	65	4.64	101	3.41	106	3.12	11	6.41	81	5.61
Angola	137	3.21	143	2.61	139	2.01	71	4.70	136	3.54
Argentina	104	4.08	137	2.79	89	3.54	102	4.22	67	5.78
Armenia	82	4.40	72	3.82	78	3.83	77	4.62	99	5.33
Australia	17	5.71	19	5.14	20	5.60	30	5.61	17	6.46
Austria	16	5.71	22	5.09	13	5.80	33	5.51	19	6.44
Azerbaijan	45	4.93	60	3.96	70	4.12	9	6.41	104	5.24
Bahrain	29	5.31	29	4.70	31	5.19	47	5.19	40	6.16
Bangladesh	113	3.84	131	2.96	127	2.45	72	4.69	102	5.29
Barbados	43	4.96	33	4.64	28	5.32	132	3.42	16	6.47
Belgium	22	5.53	23	5.08	18	5.61	70	4.70	2	6.75
Bhutan	88	4.33	38	4.47	92	3.49	119	3.90	89	5.47
Bolivia	93	4.21	90	3.53	109	3.00	35	5.47	109	4.85
Botswana	72	4.53	39	4.47	101	3.19	13	6.30	127	4.14
Brazil	83	4.40	94	3.47	76	3.98	85	4.49	77	5.65
Bulgaria	59	4.71	112	3.32	74	4.06	36	5.45	51	6.03
Burkina Faso	135	3.25	117	3.28	141	2.01	83	4.55	141	3.18
Burundi	130	3.40	132	2.92	140	2.01	112	4.02	114	4.64
Cambodia	103	4.09	119	3.25	107	3.05	80	4.60	91	5.44
Cameroon	116	3.79	91	3.53	126	2.47	90	4.45	112	4.70
Canada	18	5.70	14	5.43	15	5.74	51	5.06	7	6.58
Cape Verde	91	4.27	66	3.89	104	3.14	106	4.11	57	5.96
Chad	143	2.93	140	2.66	144	1.67	73	4.68	144	2.72
Chile	30	5.25	28	4.82	49	4.56	22	5.88	70	5.75
China	28	5.34	47	4.22	46	4.66	10	6.41	46	6.08
Colombia	78	4.45	111	3.32	84	3.66	29	5.65	105	5.19
Costa Rica	62	4.70	46	4.26	73	4.08	93	4.40	48	6.06
Côte d'Ivoire	119	3.75	86	3.64	93	3.41	68	4.70	140	3.25
Croatia	63	4.66	87	3.59	44	4.72	91	4.44	60	5.91
Cyprus	58	4.73	42	4.39	45	4.70	134	3.32	9	6.53
Czech Republic	39	5.02	76	3.77	41	4.75	40	5.37	37	6.20
Denmark	13	5.85	16	5.35	21	5.59	16	6.11	25	6.37
Dominican Republic	106	3.98	116	3.29	98	3.26	94	4.39	107	4.98
Egypt	121	3.73	100	3.41	100	3.20	141	2.96	97	5.37
El Salvador	80	4.41	99	3.44	57	4.34	100	4.23	80	5.61
Estonia	21	5.54	26	4.96	38	4.85	20	6.00	26	6.33
Ethiopia	117	3.78	96	3.46	125	2.49	95	4.36	110	4.82
Finland	8	5.97	2	6.08	19	5.60	43	5.32	1	6.89
France	26	5.42	32	4.68	8	6.03	82	4.55	18	6.44
Gabon	95	4.15	79	3.72	114	2.86	18	6.03	130	4.01
Gambia, The	125	3.60	44	4.29	95	3.27	142	2.96	133	3.88
Georgia	48	4.88	48	4.21	59	4.31	48	5.14	63	5.84
Germany	11	5.91	17	5.23	7	6.09	24	5.83	14	6.48
Ghana	123	3.68	69	3.85	108	3.03	133	3.38	121	4.46
Greece	76	4.50	85	3.64	36	4.88	135	3.31	41	6.15
Guatemala	84	4.39	109	3.34	67	4.17	64	4.74	100	5.30
Guinea	144	2.76	134	2.81	143	1.78	138	3.20	139	3.25
Guyana	118	3.76	89	3.54	110	2.94	118	3.91	113	4.66
Haiti	136	3.23	135	2.81	138	2.03	120	3.87	126	4.20
Honduras	107	3.97	105	3.37	102	3.18	123	3.82	85	5.52
Hong Kong SAR	3	6.19	8	5.63	1	6.69	14	6.17	32	6.28
Hungary	60	4.71	83	3.67	50	4.56	61	4.78	64	5.84
Iceland	27	5.39	21	5.11	23	5.54	92	4.41	10	6.52
India	92	4.25	70	3.84	87	3.58	101	4.22	98	5.35
Indonesia	46	4.91	53	4.11	56	4.37	34	5.48	74	5.67
Iran, Islamic Rep.	71	4.57	108	3.36	69	4.15	62	4.77	52	6.00
Ireland	31	5.19	15	5.40	27	5.32	130	3.49	8	6.54
Israel	36	5.12	43	4.32	34	4.99	50	5.07	44	6.10
Italy	54	4.82	106	3.37	26	5.43	108	4.09	22	6.40
Jamaica	99	4.11	80	3.71	80	3.75	136	3.29	72	5.69
Japan	25	5.47	11	5.47	6	6.13	127	3.64	6	6.62
Jordan	73	4.53	37	4.48	71	4.11	131	3.45	47	6.07
Kazakhstan	51	4.85	57	4.02	62	4.25	27	5.74	96	5.37
Kenya	115	3.82	78	3.73	96	3.27	126	3.73	120	4.55
Korea, Rep.	20	5.55	82	3.70	14	5.74	7	6.44	27	6.31
Kuwait	32	5.16	55	4.02	61	4.28	3	6.73	82	5.59
Kyrgyz Republic	110	3.87	124	3.21	115	2.80	104	4.16	101	5.29
Lao PDR	98	4.13	63	3.92	94	3.38	124	3.78	90	5.44
Latvia	34	5.14	51	4.13	47	4.61	32	5.52	31	6.28
Lebanon	127	3.55	139	2.71	122	2.62	143	2.56	30	6.29
Lesotho	102	4.09	68	3.86	116	2.77	28	5.69	128	4.03

(Cont'd.)

Table 5: The Global Competitiveness Index 2014–2015: Basic requirements (cont'd.)

Country/Economy	PILLAR									
	BASIC REQUIREMENTS		1. Institutions		2. Infrastructure		3. Macroeconomic environment		4. Health and primary education	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Libya	111	3.86	142	2.62	113	2.88	41	5.36	119	4.55
Lithuania	37	5.08	58	4.01	43	4.73	42	5.35	35	6.24
Luxembourg	7	6.02	6	5.69	16	5.73	8	6.43	36	6.21
Macedonia, FYR	64	4.64	45	4.26	82	3.73	55	4.93	78	5.64
Madagascar	129	3.52	128	3.13	135	2.10	81	4.60	125	4.26
Malawi	139	3.20	77	3.74	131	2.21	144	2.42	123	4.42
Malaysia	23	5.53	20	5.11	25	5.46	44	5.26	33	6.28
Mali	128	3.54	126	3.18	103	3.15	86	4.48	138	3.33
Malta	35	5.13	40	4.46	37	4.88	65	4.73	20	6.43
Mauritania	138	3.21	138	2.76	123	2.59	115	4.00	137	3.48
Mauritius	38	5.04	35	4.60	42	4.74	74	4.66	42	6.14
Mexico	69	4.59	102	3.40	65	4.19	53	5.04	71	5.73
Moldova	90	4.30	121	3.22	83	3.68	56	4.91	93	5.40
Mongolia	105	3.99	98	3.44	112	2.92	125	3.77	65	5.81
Montenegro	61	4.71	59	3.96	72	4.10	88	4.46	29	6.31
Morocco	57	4.74	49	4.21	55	4.38	66	4.72	76	5.66
Mozambique	133	3.29	127	3.16	128	2.36	110	4.06	135	3.58
Myanmar	132	3.36	136	2.80	137	2.05	116	4.00	117	4.59
Namibia	81	4.40	50	4.19	66	4.17	78	4.62	115	4.63
Nepal	100	4.11	120	3.22	132	2.15	37	5.40	75	5.66
Netherlands	10	5.95	10	5.53	4	6.25	39	5.38	5	6.64
New Zealand	9	5.96	1	6.09	29	5.30	25	5.79	4	6.66
Nicaragua	96	4.15	114	3.31	99	3.20	67	4.71	95	5.37
Nigeria	140	3.18	129	3.01	134	2.13	76	4.62	143	2.97
Norway	6	6.05	5	5.74	32	5.16	1	6.83	15	6.47
Oman	19	5.66	24	5.06	33	5.01	6	6.56	54	5.99
Pakistan	134	3.28	123	3.21	119	2.66	137	3.24	129	4.02
Panama	53	4.82	71	3.83	40	4.77	52	5.05	79	5.63
Paraguay	112	3.85	133	2.90	117	2.70	54	5.01	111	4.76
Peru	74	4.52	118	3.26	88	3.54	21	5.89	94	5.39
Philippines	66	4.63	67	3.86	91	3.49	26	5.76	92	5.41
Poland	55	4.80	56	4.02	63	4.24	63	4.77	39	6.17
Portugal	41	5.00	41	4.43	17	5.66	128	3.52	24	6.39
Puerto Rico	68	4.62	34	4.62	58	4.34	99	4.24	103	5.27
Qatar	5	6.12	4	5.90	24	5.51	2	6.74	28	6.31
Romania	77	4.48	88	3.56	85	3.65	46	5.20	88	5.51
Russian Federation	44	4.94	97	3.45	39	4.82	31	5.54	56	5.97
Rwanda	67	4.62	18	5.21	105	3.14	79	4.62	86	5.52
Saudi Arabia	15	5.72	25	4.97	30	5.19	4	6.67	50	6.03
Seychelles	50	4.85	54	4.04	53	4.50	57	4.89	55	5.98
Senegal	120	3.75	74	3.81	111	2.93	97	4.29	131	3.96
Serbia	101	4.10	122	3.21	77	3.93	129	3.51	68	5.76
Sierra Leone	141	3.14	107	3.37	136	2.07	117	3.94	142	3.18
Singapore	1	6.34	3	5.98	2	6.54	15	6.13	3	6.73
Slovak Republic	70	4.58	110	3.33	64	4.21	45	5.23	84	5.55
Slovenia	49	4.86	75	3.81	35	4.88	98	4.27	12	6.50
South Africa	89	4.30	36	4.50	60	4.29	89	4.45	132	3.96
Spain	42	4.98	73	3.82	9	6.01	121	3.83	34	6.25
Sri Lanka	75	4.51	62	3.93	75	4.02	114	4.01	45	6.09
Suriname	86	4.36	104	3.37	86	3.61	59	4.80	73	5.67
Swaziland	108	3.92	61	3.94	97	3.26	60	4.79	134	3.69
Sweden	12	5.86	13	5.43	22	5.55	17	6.06	23	6.39
Switzerland	4	6.17	9	5.60	5	6.18	12	6.40	11	6.52
Taiwan, China	14	5.75	27	4.84	11	5.82	23	5.83	13	6.49
Tajikistan	94	4.20	65	3.90	120	2.65	69	4.70	83	5.56
Tanzania	124	3.67	93	3.49	130	2.26	109	4.06	108	4.86
Thailand	40	5.01	84	3.66	48	4.58	19	6.01	66	5.80
Timor-Leste	122	3.71	125	3.21	133	2.14	49	5.12	124	4.38
Trinidad and Tobago	52	4.83	95	3.46	52	4.51	38	5.39	59	5.94
Tunisia	85	4.38	81	3.70	79	3.80	111	4.03	53	6.00
Turkey	56	4.76	64	3.90	51	4.55	58	4.83	69	5.75
Uganda	126	3.59	115	3.29	129	2.28	96	4.36	122	4.45
Ukraine	87	4.36	130	2.98	68	4.16	105	4.14	43	6.14
United Arab Emirates	2	6.20	7	5.69	3	6.30	5	6.63	38	6.17
United Kingdom	24	5.49	12	5.44	10	6.01	107	4.10	21	6.43
United States	33	5.15	30	4.69	12	5.82	113	4.01	49	6.06
Uruguay	47	4.90	31	4.68	54	4.47	84	4.52	58	5.94
Venezuela	131	3.36	144	2.15	121	2.65	139	3.13	87	5.51
Vietnam	79	4.44	92	3.51	81	3.74	75	4.66	61	5.86
Yemen	142	3.03	141	2.65	142	1.90	140	2.98	116	4.59
Zambia	109	3.88	52	4.12	118	2.67	103	4.16	118	4.56
Zimbabwe	114	3.83	113	3.31	124	2.54	87	4.48	106	4.99

Note: Ranks out of 144 economies and scores measured on a 1-to-7 scale.

Table 6: The Global Competitiveness Index 2014–2015: Efficiency enhancers

Country/Economy	PILLAR													
	EFFICIENCY ENHANCERS		5. Higher education and training		6. Goods market efficiency		7. Labor market efficiency		8. Financial market development		9. Technological readiness		10. Market size	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Albania	95	3.72	60	4.53	93	4.15	93	4.02	114	3.39	91	3.30	105	2.94
Algeria	125	3.34	98	3.69	136	3.48	139	3.15	137	2.72	129	2.59	47	4.39
Angola	140	2.84	144	1.94	143	2.92	128	3.52	140	2.50	140	2.34	65	3.84
Argentina	93	3.75	45	4.83	141	3.14	143	2.97	129	3.04	82	3.54	24	4.97
Armenia	87	3.82	75	4.20	64	4.37	74	4.20	97	3.71	71	3.72	118	2.75
Australia	15	5.16	11	5.67	29	4.76	56	4.30	6	5.41	19	5.64	18	5.14
Austria	23	4.96	15	5.56	22	4.96	43	4.45	43	4.45	18	5.74	37	4.61
Azerbaijan	71	4.08	90	3.90	72	4.31	33	4.59	89	3.77	56	4.26	72	3.66
Bahrain	40	4.51	55	4.66	21	4.98	26	4.67	31	4.65	34	5.01	99	3.08
Bangladesh	103	3.60	125	2.86	84	4.20	124	3.67	88	3.77	126	2.66	44	4.46
Barbados	54	4.30	30	5.22	74	4.28	31	4.60	32	4.63	35	4.98	138	2.07
Belgium	18	5.07	5	5.93	14	5.14	60	4.27	38	4.53	14	5.78	28	4.80
Bhutan	123	3.35	108	3.45	115	3.99	24	4.69	111	3.45	124	2.69	140	1.83
Bolivia	116	3.40	97	3.73	132	3.60	127	3.58	121	3.33	118	2.79	84	3.38
Botswana	84	3.87	101	3.59	97	4.12	36	4.56	57	4.22	76	3.58	97	3.12
Brazil	42	4.46	41	4.92	123	3.85	109	3.83	53	4.30	58	4.21	9	5.66
Bulgaria	52	4.31	63	4.49	63	4.37	67	4.24	60	4.17	41	4.73	63	3.87
Burkina Faso	132	3.16	136	2.42	127	3.81	70	4.22	127	3.14	132	2.49	111	2.87
Burundi	144	2.62	142	2.14	135	3.49	103	3.89	142	2.37	142	2.10	141	1.74
Cambodia	100	3.65	123	2.92	90	4.17	29	4.63	84	3.80	102	3.02	87	3.31
Cameroon	113	3.48	117	3.22	113	3.99	81	4.11	108	3.51	120	2.76	91	3.30
Canada	6	5.37	18	5.50	15	5.13	7	5.20	8	5.35	22	5.57	13	5.48
Cape Verde	127	3.29	89	3.91	110	4.01	126	3.59	115	3.36	80	3.54	144	1.30
Chad	142	2.74	143	2.05	142	2.94	120	3.72	136	2.74	143	2.09	106	2.92
Chile	29	4.68	32	5.09	34	4.68	50	4.36	19	4.88	42	4.59	41	4.50
China	30	4.68	65	4.42	56	4.42	37	4.55	54	4.30	83	3.53	2	6.86
Colombia	63	4.17	69	4.37	109	4.03	84	4.08	70	4.01	68	3.84	32	4.71
Costa Rica	56	4.28	37	5.00	52	4.47	57	4.29	92	3.74	40	4.77	82	3.43
Côte d'Ivoire	108	3.58	121	3.12	82	4.23	73	4.21	78	3.86	117	2.81	94	3.23
Croatia	68	4.11	53	4.67	105	4.05	106	3.86	74	3.91	44	4.56	79	3.58
Cyprus	57	4.28	33	5.06	27	4.86	30	4.61	83	3.81	43	4.56	115	2.77
Czech Republic	34	4.62	35	5.02	50	4.53	62	4.26	44	4.45	36	4.96	42	4.49
Denmark	17	5.11	10	5.68	23	4.96	12	4.99	27	4.72	6	6.10	54	4.23
Dominican Republic	90	3.77	99	3.69	94	4.15	107	3.85	99	3.70	84	3.51	68	3.72
Egypt	106	3.58	111	3.27	118	3.95	140	3.08	125	3.19	95	3.21	29	4.78
El Salvador	96	3.71	94	3.85	55	4.45	125	3.64	86	3.78	93	3.24	90	3.30
Estonia	27	4.73	20	5.49	26	4.89	11	5.02	29	4.67	29	5.26	100	3.07
Ethiopia	120	3.37	131	2.63	124	3.84	78	4.15	120	3.33	133	2.46	66	3.81
Finland	10	5.27	1	6.22	18	5.03	23	4.69	5	5.55	11	5.97	55	4.18
France	19	5.07	28	5.26	46	4.57	61	4.27	23	4.79	17	5.77	8	5.74
Gabon	119	3.37	126	2.78	126	3.81	69	4.23	105	3.57	108	2.95	109	2.89
Gambia, The	117	3.40	107	3.45	111	4.00	38	4.54	94	3.74	103	3.02	142	1.65
Georgia	79	3.92	92	3.89	60	4.40	41	4.49	76	3.90	67	3.85	103	2.98
Germany	9	5.28	16	5.55	19	4.99	35	4.57	25	4.76	13	5.81	5	5.99
Ghana	89	3.78	106	3.46	67	4.34	98	3.94	62	4.15	100	3.11	69	3.71
Greece	65	4.15	44	4.84	85	4.20	118	3.74	130	2.97	39	4.79	49	4.34
Guatemala	76	3.95	103	3.56	45	4.58	85	4.07	45	4.44	88	3.47	78	3.59
Guinea	138	2.88	140	2.19	137	3.40	89	4.05	134	2.85	139	2.35	127	2.44
Guyana	109	3.55	82	4.12	83	4.21	101	3.90	82	3.81	101	3.10	135	2.15
Haiti	135	3.08	109	3.43	140	3.21	77	4.15	135	2.81	134	2.41	129	2.43
Honduras	99	3.65	100	3.63	91	4.17	130	3.51	59	4.17	97	3.18	93	3.24
Hong Kong SAR	3	5.58	22	5.44	2	5.59	3	5.57	1	5.91	5	6.10	27	4.89
Hungary	53	4.30	52	4.68	65	4.36	75	4.17	73	3.93	50	4.43	53	4.26
Iceland	35	4.60	13	5.62	49	4.54	14	4.94	68	4.03	8	6.02	128	2.44
India	61	4.19	93	3.86	95	4.13	112	3.81	51	4.34	121	2.75	3	6.26
Indonesia	46	4.38	61	4.53	48	4.54	110	3.81	42	4.45	77	3.58	15	5.34
Iran, Islamic Rep.	98	3.70	78	4.17	120	3.93	142	3.01	128	3.05	107	2.95	21	5.09
Ireland	21	4.97	17	5.54	10	5.29	18	4.82	61	4.15	12	5.89	57	4.15
Israel	26	4.75	36	5.00	79	4.24	59	4.27	20	4.87	15	5.78	48	4.36
Italy	47	4.35	47	4.78	73	4.30	136	3.29	119	3.35	38	4.82	12	5.57
Jamaica	77	3.95	76	4.19	76	4.28	58	4.28	48	4.40	75	3.61	107	2.92
Japan	7	5.35	21	5.44	12	5.20	22	4.73	16	4.98	20	5.61	4	6.14
Jordan	70	4.08	48	4.78	40	4.63	94	4.02	66	4.06	73	3.71	88	3.30
Kazakhstan	48	4.33	62	4.51	54	4.46	15	4.90	98	3.70	61	4.16	52	4.26
Kenya	66	4.12	95	3.77	62	4.40	25	4.68	24	4.77	87	3.48	74	3.62
Korea, Rep.	25	4.83	23	5.38	33	4.70	86	4.07	80	3.81	25	5.42	11	5.60
Kuwait	83	3.89	81	4.15	106	4.04	116	3.78	77	3.88	74	3.69	67	3.80
Kyrgyz Republic	104	3.59	91	3.89	77	4.25	92	4.02	95	3.73	111	2.90	117	2.76
Lao PDR	107	3.58	110	3.28	59	4.41	34	4.59	101	3.69	115	2.83	121	2.67
Latvia	36	4.60	31	5.13	36	4.67	17	4.82	33	4.63	32	5.12	95	3.20
Lebanon	85	3.86	67	4.39	71	4.31	123	3.68	102	3.65	86	3.50	76	3.61
Lesotho	130	3.21	116	3.23	80	4.24	76	4.16	123	3.27	137	2.37	139	2.01

(Cont'd.)

Table 6: The Global Competitiveness Index 2014–2015: Efficiency enhancers (cont'd.)

Country/Economy	PILLAR													
	EFFICIENCY ENHANCERS		5. Higher education and training		6. Goods market efficiency		7. Labor market efficiency		8. Financial market development		9. Technological readiness		10. Market size	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Libya	137	3.03	102	3.59	139	3.32	133	3.41	144	1.95	130	2.56	85	3.33
Lithuania	38	4.54	26	5.30	47	4.57	53	4.33	65	4.09	28	5.37	77	3.60
Luxembourg	22	4.97	43	4.88	5	5.48	16	4.87	14	5.10	1	6.36	96	3.13
Macedonia, FYR	69	4.09	71	4.32	38	4.64	71	4.21	41	4.49	62	3.99	108	2.91
Madagascar	128	3.25	130	2.64	102	4.08	39	4.53	132	2.85	127	2.63	114	2.77
Malawi	122	3.35	132	2.57	108	4.03	28	4.63	79	3.82	135	2.41	123	2.63
Malaysia	24	4.95	46	4.80	7	5.42	19	4.80	4	5.60	60	4.18	26	4.90
Mali	129	3.25	128	2.70	104	4.07	102	3.89	122	3.32	112	2.86	122	2.68
Malta	44	4.43	42	4.92	31	4.72	54	4.32	36	4.56	21	5.58	126	2.48
Mauritania	143	2.69	141	2.16	138	3.35	141	3.07	141	2.50	123	2.71	131	2.33
Mauritius	59	4.24	54	4.66	25	4.92	52	4.33	26	4.74	63	3.97	113	2.83
Mexico	60	4.20	87	3.99	86	4.19	121	3.71	63	4.14	79	3.55	10	5.61
Moldova	88	3.82	84	4.08	103	4.07	82	4.11	100	3.70	51	4.38	124	2.60
Mongolia	92	3.76	68	4.37	81	4.23	42	4.48	124	3.22	81	3.54	120	2.73
Montenegro	73	3.99	51	4.68	69	4.34	65	4.24	56	4.26	54	4.28	134	2.16
Morocco	78	3.92	104	3.56	58	4.41	111	3.81	69	4.02	78	3.57	56	4.17
Mozambique	131	3.19	138	2.39	116	3.99	104	3.88	126	3.14	122	2.71	101	3.07
Myanmar	134	3.11	135	2.44	130	3.68	72	4.21	139	2.58	144	2.07	70	3.70
Namibia	97	3.71	115	3.23	96	4.13	55	4.31	46	4.43	89	3.42	119	2.74
Nepal	115	3.43	113	3.25	121	3.91	114	3.80	75	3.90	128	2.61	98	3.10
Netherlands	8	5.28	3	5.99	9	5.34	21	4.73	37	4.55	9	6.00	23	5.07
New Zealand	11	5.26	9	5.72	6	5.43	6	5.24	3	5.73	23	5.55	62	3.89
Nicaragua	118	3.38	114	3.23	125	3.81	108	3.84	106	3.56	113	2.84	102	2.98
Nigeria	82	3.89	124	2.88	87	4.19	40	4.53	67	4.06	104	3.02	33	4.70
Norway	13	5.24	8	5.75	24	4.93	13	4.97	10	5.34	4	6.12	50	4.34
Oman	49	4.32	79	4.17	28	4.81	48	4.39	28	4.69	57	4.24	73	3.65
Pakistan	101	3.64	127	2.76	100	4.08	132	3.43	72	3.99	114	2.83	30	4.75
Panama	55	4.29	66	4.40	41	4.62	87	4.06	22	4.83	53	4.34	80	3.50
Paraguay	112	3.53	112	3.27	92	4.16	115	3.79	93	3.74	110	2.93	92	3.29
Peru	62	4.19	83	4.08	53	4.47	51	4.33	40	4.49	92	3.30	43	4.47
Philippines	58	4.27	64	4.45	70	4.32	91	4.03	49	4.37	69	3.78	35	4.68
Poland	32	4.64	34	5.04	51	4.49	79	4.14	35	4.60	48	4.47	19	5.12
Portugal	37	4.57	24	5.37	44	4.58	83	4.09	104	3.65	26	5.42	51	4.32
Puerto Rico	28	4.72	27	5.27	20	4.99	46	4.40	21	4.85	37	4.87	60	3.95
Qatar	20	4.98	38	4.99	4	5.51	10	5.05	13	5.18	31	5.17	59	3.99
Romania	50	4.32	58	4.63	89	4.18	90	4.04	64	4.12	47	4.49	45	4.44
Russian Federation	41	4.49	39	4.96	99	4.09	45	4.42	110	3.50	59	4.19	7	5.77
Rwanda	91	3.77	122	2.98	42	4.62	9	5.08	55	4.26	98	3.14	125	2.52
Saudi Arabia	33	4.64	57	4.64	35	4.68	64	4.25	30	4.66	45	4.54	20	5.10
Seychelles	105	3.58	85	4.04	88	4.18	44	4.44	103	3.65	70	3.73	143	1.46
Senegal	102	3.62	119	3.18	68	4.34	68	4.23	85	3.80	96	3.21	104	2.96
Serbia	80	3.90	74	4.25	128	3.78	119	3.73	109	3.50	49	4.45	71	3.68
Sierra Leone	136	3.06	137	2.39	117	3.98	95	4.01	116	3.36	138	2.36	133	2.27
Singapore	2	5.68	2	6.09	1	5.64	2	5.69	2	5.84	7	6.09	31	4.71
Slovak Republic	51	4.31	56	4.65	66	4.36	97	3.95	39	4.50	52	4.37	58	4.03
Slovenia	64	4.17	25	5.33	61	4.40	99	3.93	133	2.85	33	5.05	81	3.45
South Africa	43	4.45	86	4.04	32	4.71	113	3.80	7	5.37	66	3.86	25	4.91
Spain	31	4.67	29	5.23	75	4.28	100	3.92	91	3.76	27	5.40	14	5.42
Sri Lanka	75	3.97	72	4.30	39	4.63	135	3.29	47	4.41	94	3.24	61	3.94
Suriname	121	3.35	105	3.50	129	3.74	117	3.74	118	3.35	72	3.71	137	2.08
Swaziland	126	3.32	120	3.18	98	4.09	105	3.86	71	4.00	125	2.66	136	2.09
Sweden	12	5.25	14	5.59	17	5.04	20	4.79	12	5.25	3	6.19	36	4.62
Switzerland	5	5.49	4	5.98	8	5.39	1	5.75	11	5.29	10	5.97	39	4.57
Taiwan, China	16	5.14	12	5.63	11	5.23	32	4.59	18	4.91	30	5.24	17	5.23
Tajikistan	111	3.53	88	3.97	114	3.99	63	4.25	113	3.40	116	2.83	116	2.76
Tanzania	114	3.43	134	2.45	122	3.90	47	4.39	96	3.72	131	2.51	75	3.61
Thailand	39	4.53	59	4.58	30	4.74	66	4.24	34	4.61	65	3.94	22	5.09
Timor-Leste	141	2.84	133	2.52	134	3.56	122	3.68	138	2.69	141	2.17	130	2.40
Trinidad and Tobago	81	3.90	77	4.19	101	4.08	96	3.97	52	4.33	64	3.96	112	2.87
Tunisia	94	3.74	73	4.28	107	4.03	129	3.51	117	3.35	90	3.38	64	3.87
Turkey	45	4.43	50	4.69	43	4.60	131	3.48	58	4.21	55	4.27	16	5.31
Uganda	110	3.53	129	2.68	119	3.95	27	4.66	81	3.81	119	2.78	86	3.32
Ukraine	67	4.11	40	4.93	112	3.99	80	4.12	107	3.54	85	3.50	38	4.58
United Arab Emirates	14	5.24	6	5.90	3	5.58	8	5.14	17	4.94	24	5.48	46	4.41
United Kingdom	4	5.51	19	5.50	13	5.16	5	5.26	15	5.07	2	6.28	6	5.78
United States	1	5.71	7	5.82	16	5.05	4	5.30	9	5.35	16	5.78	1	6.94
Uruguay	72	4.01	49	4.71	57	4.41	134	3.37	87	3.78	46	4.50	89	3.30
Venezuela	124	3.35	70	4.34	144	2.78	144	2.55	131	2.91	106	2.96	40	4.55
Vietnam	74	3.99	96	3.74	78	4.24	49	4.37	90	3.77	99	3.12	34	4.69
Yemen	139	2.86	139	2.29	131	3.64	138	3.23	143	2.17	136	2.40	83	3.42
Zambia	86	3.85	80	4.16	37	4.65	88	4.06	50	4.37	105	2.99	110	2.88
Zimbabwe	133	3.12	118	3.18	133	3.58	137	3.25	112	3.44	109	2.95	132	2.31

Note: Ranks out of 144 economies and scores measured on a 1-to-7 scale.

Table 7: The Global Competitiveness Index 2014–2015: Innovation and sophistication factors

Country/Economy	PILLAR					
	INNOVATION AND SOPHISTICATION FACTORS		11. Business sophistication		12. Innovation	
	Rank	Score	Rank	Score	Rank	Score
Albania	114	3.17	104	3.61	120	2.73
Algeria	133	2.91	131	3.22	128	2.60
Angola	144	2.36	144	2.61	142	2.12
Argentina	96	3.37	96	3.69	97	3.04
Armenia	100	3.34	93	3.73	104	2.95
Australia	26	4.55	28	4.70	25	4.41
Austria	14	5.11	7	5.41	18	4.82
Azerbaijan	72	3.59	80	3.86	59	3.33
Bahrain	55	3.83	45	4.35	60	3.32
Bangladesh	122	3.02	118	3.45	129	2.58
Barbados	47	3.92	53	4.28	47	3.56
Belgium	12	5.11	10	5.34	13	4.89
Bhutan	111	3.22	107	3.58	113	2.85
Bolivia	94	3.38	103	3.61	83	3.15
Botswana	110	3.22	116	3.47	102	2.97
Brazil	56	3.82	47	4.32	62	3.31
Bulgaria	106	3.27	105	3.61	105	2.94
Burkina Faso	128	2.95	136	3.00	107	2.89
Burundi	137	2.68	139	2.91	133	2.46
Cambodia	116	3.15	111	3.52	116	2.79
Cameroon	84	3.47	98	3.68	71	3.27
Canada	24	4.72	23	4.90	22	4.54
Cape Verde	109	3.23	114	3.48	101	2.98
Chad	141	2.55	143	2.77	139	2.34
Chile	49	3.88	55	4.23	48	3.54
China	33	4.14	43	4.38	32	3.91
Colombia	64	3.65	62	4.08	77	3.21
Costa Rica	35	4.13	32	4.49	34	3.78
Côte d'Ivoire	86	3.47	100	3.66	69	3.28
Croatia	87	3.47	83	3.83	93	3.10
Cyprus	38	4.06	40	4.41	36	3.72
Czech Republic	36	4.07	35	4.46	39	3.67
Denmark	9	5.19	11	5.33	11	5.06
Dominican Republic	90	3.44	73	3.92	103	2.96
Egypt	113	3.18	95	3.70	124	2.65
El Salvador	45	3.96	37	4.43	51	3.50
Estonia	34	4.14	48	4.32	30	3.95
Ethiopia	119	3.09	127	3.32	109	2.87
Finland	3	5.57	9	5.36	1	5.78
France	19	4.86	22	4.98	19	4.74
Gabon	131	2.93	133	3.18	122	2.68
Gambia, The	79	3.52	71	3.93	89	3.11
Georgia	118	3.10	113	3.49	121	2.71
Germany	4	5.56	3	5.65	6	5.47
Ghana	68	3.62	70	3.94	63	3.31
Greece	74	3.55	74	3.91	79	3.18
Guatemala	62	3.68	52	4.29	95	3.07
Guinea	142	2.55	141	2.85	141	2.25
Guyana	60	3.69	68	3.97	55	3.42
Haiti	140	2.61	138	2.94	140	2.28
Honduras	70	3.61	64	4.00	74	3.23
Hong Kong SAR	23	4.75	16	5.13	26	4.38
Hungary	67	3.62	92	3.75	50	3.50
Iceland	28	4.43	29	4.67	27	4.19
India	52	3.86	57	4.18	49	3.53
Indonesia	30	4.20	34	4.47	31	3.93
Iran, Islamic Rep.	102	3.33	110	3.52	86	3.13
Ireland	20	4.85	20	5.02	20	4.68
Israel	10	5.16	26	4.76	3	5.56
Italy	29	4.26	25	4.79	35	3.73
Jamaica	71	3.60	67	3.98	75	3.22
Japan	2	5.68	1	5.82	4	5.54
Jordan	42	4.02	42	4.40	41	3.64
Kazakhstan	89	3.45	91	3.77	85	3.14
Kenya	40	4.03	44	4.38	38	3.69
Korea, Rep.	22	4.78	27	4.73	17	4.83
Kuwait	95	3.38	76	3.90	111	2.86
Kyrgyz Republic	126	2.96	119	3.44	132	2.48
Lao PDR	80	3.51	79	3.87	84	3.14
Latvia	61	3.68	61	4.09	70	3.27
Lebanon	101	3.33	75	3.91	119	2.75
Lesotho	117	3.12	123	3.37	110	2.87

Country/Economy	PILLAR					
	INNOVATION AND SOPHISTICATION FACTORS		11. Business sophistication		12. Innovation	
	Rank	Score	Rank	Score	Rank	Score
Libya	143	2.49	135	3.01	144	1.98
Lithuania	44	3.97	49	4.31	44	3.62
Luxembourg	18	4.93	21	5.00	16	4.85
Macedonia, FYR	76	3.53	89	3.78	68	3.28
Madagascar	105	3.27	117	3.46	94	3.09
Malawi	115	3.17	108	3.54	115	2.80
Malaysia	17	4.95	15	5.24	21	4.67
Mali	97	3.36	102	3.62	92	3.10
Malta	41	4.03	36	4.45	45	3.60
Mauritania	138	2.63	142	2.85	136	2.41
Mauritius	53	3.85	33	4.48	76	3.22
Mexico	59	3.73	58	4.14	61	3.31
Moldova	129	2.94	124	3.35	131	2.53
Mongolia	112	3.20	115	3.47	106	2.94
Montenegro	77	3.53	97	3.69	58	3.37
Morocco	82	3.50	78	3.88	90	3.11
Mozambique	120	3.05	125	3.34	118	2.76
Myanmar	139	2.62	140	2.90	138	2.34
Namibia	91	3.41	94	3.72	91	3.10
Nepal	124	2.98	126	3.34	126	2.62
Netherlands	6	5.41	5	5.57	8	5.25
New Zealand	25	4.61	24	4.80	23	4.42
Nicaragua	125	2.98	129	3.28	123	2.68
Nigeria	103	3.30	87	3.78	114	2.82
Norway	16	5.08	13	5.30	15	4.85
Oman	58	3.76	56	4.23	64	3.29
Pakistan	83	3.48	81	3.85	88	3.12
Panama	46	3.95	54	4.24	40	3.65
Paraguay	132	2.92	121	3.39	134	2.44
Peru	99	3.34	72	3.93	117	2.76
Philippines	48	3.90	46	4.33	52	3.48
Poland	63	3.66	63	4.06	72	3.26
Portugal	31	4.19	51	4.29	28	4.08
Puerto Rico	27	4.52	18	5.08	29	3.96
Qatar	15	5.09	12	5.31	14	4.88
Romania	78	3.53	90	3.77	66	3.28
Russian Federation	75	3.54	86	3.79	65	3.29
Rwanda	66	3.64	84	3.83	53	3.46
Saudi Arabia	32	4.19	30	4.57	33	3.80
Seychelles	69	3.62	66	3.99	73	3.25
Senegal	65	3.65	77	3.90	57	3.39
Serbia	121	3.05	132	3.21	108	2.89
Sierra Leone	130	2.93	128	3.28	130	2.58
Singapore	11	5.13	19	5.07	9	5.18
Slovak Republic	73	3.59	65	4.00	78	3.18
Slovenia	50	3.88	59	4.11	42	3.64
South Africa	37	4.07	31	4.49	43	3.64
Spain	39	4.06	38	4.42	37	3.69
Sri Lanka	43	4.00	39	4.42	46	3.57
Suriname	123	3.00	122	3.39	127	2.60
Swaziland	108	3.25	101	3.63	112	2.86
Sweden	7	5.38	8	5.38	7	5.37
Switzerland	1	5.74	2	5.79	2	5.70
Taiwan, China	13	5.11	17	5.12	10	5.10
Tajikistan	81	3.50	82	3.83	80	3.17
Tanzania	107	3.26	112	3.49	98	3.03
Thailand	54	3.84	41	4.40	67	3.28
Timor-Leste	136	2.69	137	2.97	135	2.41
Trinidad and Tobago	88	3.47	69	3.94	100	2.99
Tunisia	93	3.40	88	3.78	99	3.01
Turkey	51	3.86	50	4.31	56	3.42
Uganda	104	3.30	109	3.53	96	3.06
Ukraine	92	3.41	99	3.66	81	3.16
United Arab Emirates	21	4.83	14	5.25	24	4.41
United Kingdom	8	5.21	6	5.45	12	4.96
United States	5	5.54	4	5.58	5	5.49
Uruguay	85	3.47	85	3.79	82	3.15
Venezuela	135	2.71	134	3.04	137	2.39
Vietnam	98	3.35	106	3.58	87	3.12
Yemen	134	2.77	120	3.43	143	2.11
Zambia	57	3.76	60	4.10	54	3.42
Zimbabwe	127	2.95	130	3.28	125	2.63

Note: Ranks out of 144 economies and scores measured on a 1-to-7 scale.

2nd, behind Finland. Singapore's private sector is also fairly sophisticated (19th) and becoming more innovative (9th), although room for improvement exists in both areas, especially as these are the keys to Singapore's future prosperity.

The **United States** goes up in the rankings for a second year in a row and regains the 3rd position on the back of improvements in a number of areas, including some aspects of the institutional framework (up from 35th to 30th), and more positive perceptions regarding business sophistication (from 6th to 4th) and innovation (from 7th to 5th). As it recovers from the crisis, the United States can build on the many structural features that make its economy extremely productive. US companies are highly sophisticated and innovative, and they are supported by an excellent university system that collaborates admirably with the business sector in R&D. Combined with flexible labor markets and the scale opportunities afforded by the sheer size of its domestic economy—the largest in the world by far—these qualities make the United States very competitive. On the other hand, some weaknesses in particular areas remain to be addressed. The business community continues to be rather critical, with trust in politicians still somewhat weak (48th), concerns about favoritism of government officials (47th), and a general perception that the government spends its resources relatively wastefully (73rd). The macroeconomic environment remains the country's greatest area of weakness (113th), although the fiscal deficit continues to narrow and public debt is slightly lower for the first time since the crisis.

Finland continues to exhibit a strong performance across all the analyzed dimensions, despite its drop of one place to 4th position. This decline is mainly driven by a slight deterioration of its macroeconomic conditions (43rd), which has led some rating agencies to downgrade the outlook of this Nordic economy. More precisely, Finland suffers from higher, though still manageable, deficit and public debt level, and its savings rate has slightly decreased. Nevertheless, the country continues to boast well-functioning and highly transparent public institutions (1st), at the very top in many of the indicators included in this category, and high-quality infrastructure (19th). The functioning of its products market is also good (18th), financial development is very high (5th), and the country manages to use its existing talent efficiently (7th) despite some persistent rigidities in its labor market, most notably in terms of wage determination (143rd), which is regarded as one of the most problematic factors for doing business. Its biggest competitiveness strength lies in its capacity to innovate, where the country leads the world rankings (1st). Very high public and private investments in R&D (3rd), with very strong linkages between universities and industry (1st) coupled with an excellent education and training system (1st) and one of the highest levels

of technological readiness (11th) drive this outstanding result.

Germany drops one place to 5th position this year. The small drop is the result of some concerns about institutions and infrastructure and is only partially balanced out by improvements in the country's macroeconomic environment and financial development. Moreover, Germany's education system is assessed less positively than it was in previous years (16th, down from 3rd) because the indicator measuring the country's tertiary enrollment rate became available. Overall, Germany weathered the global economic crisis of recent years quite well thanks at least partly to its main competitiveness strengths, which include highly sophisticated businesses (3rd) and an innovation ecosystem that is conducive to high levels of R&D innovation (6th). Companies spend heavily on R&D (5th) and can rely on an institutional framework, including collaboration with universities (10th) and research labs (8th), to support their innovation efforts. Innovation is also supported because companies, which are predominantly medium-sized, often operate in niche markets and are located in close geographical proximity to each other (3rd on cluster development). This fosters the exchange of learning among businesses and facilitates the development of new goods and services. High-quality infrastructure (7th) and excellent on-the-job training (6th) complement these strengths. The top-notch German on-the-job training system ensures that technical skills for companies are widely available and that skills match the needs of businesses. Germany's economy could be more competitive if its labor markets were made even more efficient. In recent years, labor market efficiency has improved markedly, rising from the 53rd position in 2012 to 35th this year. However, some recent decisions, such as the introduction of a minimum wage, could reverse this positive trend. In the context of declining population growth, a more holistic approach to immigration and more incentives for women to remain in the labor market are going to be crucial for the country to ensure a supply of talent. Last but not least, continued efforts toward strengthening its fiscal situation will be key to reducing the country's high public debt (118th).

Up three places to reach 6th position overall, **Japan** posts the largest improvement of the top 10 economies, thanks to small improvements across the board. Japan continues to enjoy a major competitive edge in business sophistication (1st for the sixth consecutive year) and in innovation (4th, up one position). High R&D spending (2nd), excellent availability of talent (3rd), world-class research institutions (7th), and a high capacity to innovate (7th) are among Japan's strengths. Indeed, in terms of innovation output, these strengths pay off: the country has the second-highest number of patent applications per capita in the world. Further, companies operate at the highest end of the value chain, producing

high-value-added goods and services. However, the country's overall competitive performance continues to be dragged down by severe macroeconomic challenges (127th). For the past five years, its budget deficit has been hovering around 10 percent of GDP, one of the highest ratios in the world, while public debt now represents more than 240 percent of the country's GDP. At least the country's battle against deflation has started bearing fruit: prices in 2013 increased for the first time in five years—by a low 0.4 percent. Another area of concern is the situation in the labor market (22nd). Japan ranks 133rd in the indicator capturing the ease of hiring and firing workers. In addition, the participation of women in the labor force (88th) is one of the lowest among OECD members.

Featured in the top 10 since 2012, **Hong Kong SAR** retains its 7th position. It tops the infrastructure pillar, reflecting the outstanding quality of its facilities across all modes of transportation. The economy also continues to dominate the financial market development pillar, owing to the high level of efficiency, trustworthiness, and stability of its system. As in the case of Singapore, the dynamism and efficiency of Hong Kong's goods market (2nd) and labor market (3rd) further contribute to its excellent overall positioning. Hong Kong is also one of the most open economies in the world. In order to enhance its competitiveness, Hong Kong must improve on higher education (22nd) and innovation (26th, down three places this year). In the latter category, the quality of its research institutions (32nd, down one) and the limited availability of scientists and engineers (36th, down four) remain the two key issues to be addressed. In building a truly innovation-driven economy, Hong Kong can rely on its high degree of technological readiness (5th).

As in the last edition, the **Netherlands** retains its 8th place this year and depicts a stable competitiveness profile. Overall, the country continues to depict a set of important competitiveness strengths that allow its economy to remain highly productive. An excellent education and training system (3rd), coupled with a strong adoption of technology (9th), including ICTs (8th), and an excellent innovation capacity (8th) result in highly sophisticated businesses (5th) that manage to compete at the very high end of international value chains. In addition, efficient institutions (10th), world-class infrastructure (4th), and highly competitive (5th) and open products markets (6th) complete the impressive list of the country's assets. Notwithstanding these strengths, the otherwise excellent Dutch performance is somewhat hindered by some persistent rigidities in its labor market, especially in terms of hiring and firing practices (123rd) and wage determination (135th)—these rigidities are regarded as the most problematic factor for doing business in the country. Furthermore, the current weaknesses of its financial system (80th), which are a

consequence of the housing bubble, have made access to credit (48th) more difficult.

The **United Kingdom** climbs one spot to the 9th place. Overall, the country improves its performance thanks to gains derived from lower levels of fiscal deficit and public debt. In addition to these more favorable macroeconomic conditions, the United Kingdom continues to benefit from an efficient labor market (5th) and a high level of financial development (15th), despite the recent difficulties in parts of its banking system (89th) and the fact that the difficult access to loans (82nd) remains the most problematic factor for doing business in the country. In addition, the country benefits from an ICT uptake that is one of the highest in the world (2nd) and that, coupled with a highly competitive (5th) and large market (6th), allows for highly sophisticated (6th) and innovative (12th) businesses to spring up and develop. In addition to continuing to improve its macroeconomic conditions (107th), the country should look into effective ways to raise the overall quality of its education system (23rd), most notably in the areas of mathematics and science (63rd), which will be crucial to continue fostering innovation in the country.

Sweden, despite a rather stable competitiveness profile across all areas, falls four places this year to round up the top 10 rankings. Overall the country boasts important strengths across the board, with strong institutions (13th) that are regarded as transparent and efficient, excellent infrastructure (22nd), and healthy macroeconomic conditions (17th) that include low levels of fiscal deficit and public debt, allowing the country to maintain its triple-A rating throughout the recent financial and economic crisis. Moreover, and perhaps more importantly, Sweden has managed to create the right set of conditions for innovation and unsurprisingly scores very high in many of the dimensions that are key to creating a knowledge-based society. More precisely, the Swedish education and training system (14th) is of high quality and seems to deliver the right set of skills for an innovation-based economy; ICT adoption (3rd) is among the highest in the world; and, in terms of innovation capacity (6th), firms are among the best performing. In addition, the country has also formed highly competitive markets (21st), which produce the right set of incentives to quickly transform those knowledge assets into new products and services with higher value-added. Going forward, the country should address its labor market regulations (59th) and the potential distortions that a high tax rate system (119th) may create, as these two elements are considered the two most problematic factors for doing business in the country.

Europe and Eurasia

Six European countries are ranked among the top 10 most competitive economies, while at the same time, many countries in Southern and Central and

Eastern Europe—such as Portugal, Italy, Bulgaria, Romania, and Greece—score relatively low, ranking 36th, 49th, 54th, 59th, and 81st, respectively. This wide-ranging performance highlights the persistence of a competitiveness divide in Europe between a highly competitive Northern Europe and a less competitive Southern and Eastern Europe. A more nuanced analysis of the results also reveals that a new divide seems to be emerging among those countries whose competitiveness is currently lagging. This new divide appears to be between those economies that are adopting and implementing the reforms necessary to become more competitive—these include countries such as Greece and Portugal that are now improving in the overall rankings—and some other economies, such as France and Italy, which are not recording much progress.

Denmark improves by two positions to reach 13th place on the back of a slight rebound in the assessment of its institutions and financial markets as well as more favorable macroeconomic conditions, which together have allowed the country to close the European Commission's formal procedure that assesses excessive deficits. Similar to its Nordic neighbors, Denmark continues to benefit a well-functioning and highly transparent institutional framework (16th). The country also continues to receive a first-rate assessment for its higher education and training system (10th), which has provided the Danish workforce with the skills needed to adapt rapidly to a changing environment and has laid the ground for high levels of technological adoption and innovation. A continued strong focus on education would allow the workforce to maintain the skill levels needed to provide the basis for sustained innovation-led growth. A marked difference from the other Nordic countries relates to labor market flexibility, where Denmark (12th) continues to distinguish itself as having one of the most efficient labor markets internationally, with flexible regulations; strong labor-employer relations; and a very high percentage of women in the labor force.

Despite the drop of one position that leads to **Belgium's** 18th place in the rankings, the country has slightly improved its competitiveness score thanks to a better macroeconomic performance with a lower public deficit, which remains below 3 percent of its GDP. Furthermore, in addition to boasting an outstanding education and training system (5th)—with excellent math and science education (3rd), top-notch management schools (2nd), and a strong propensity for on-the-job training (4th)—the country benefits from a high level of technological adoption (15th) and highly sophisticated (10th) and innovative (13th) businesses that carry out their activities in a market characterized by high competition (6th) and an environment that facilitates new business creation. Notwithstanding these strengths, some concerns remain about the efficiency of Belgium's government (64th); its regulatory burden (130th); its

highly distortionary tax system (126th), which reduces incentives to work (141st); and the cost of the country's public debt—which is close to 100 percent of GDP.

Following the completion of its EU-IMF-supported program, this year **Ireland** experiences a slight rebound and climbs by three places to reach the 25th position, which reflects its financial market recovery. Yet its macroeconomic situation remains difficult at a low 130th place, characterized by a high budget deficit (although down from the historic highs of four years ago) and high government debt. Despite these economic woes, the country features strong foundations for its long-run competitiveness: the functioning of its goods and labor markets, ranked 10th and 18th respectively, is solid, and its business culture is highly sophisticated and innovative (ranked 20th for both); this is buttressed by excellent technological adoption (12th). In addition, equipped with its excellent health and primary education system (8th) and strong higher education and training (17th), the country can draw on a well-educated workforce, although the high levels of emigration in recent years—particularly of its young population—suggests that fewer young people will be available in the future.

France retains its 23rd position after dropping for four consecutive years. The government has promised a “competitiveness shock” and is considering a number of business-friendly measures, including a simplification of administrative procedures, in order to revive growth and reduce the country's stubbornly high level of unemployment. Traditionally a black spot, the situation of France's labor market has improved markedly over the year (61st, up 10), thanks to increased flexibility, although it still remains a challenge (107th, up nine). By contrast, the fiscal situation—the second area of major concern—continues to deteriorate (82nd, down nine). The small reduction in the budget deficit is accompanied by an increase in public debt and a downgrading of France's creditworthiness. The country retains a number of clear competitive advantages, however. Its infrastructure is still among the best in the world. France also obtains good marks for the quality and quantity of education at all levels, and it boasts a high degree of technological adoption (17th). In addition, the country's business culture is highly professional and sophisticated (22nd). These three strengths contribute to creating a relatively conducive ecosystem for innovation (19th). However, on this dimension, France trails Germany, the United Kingdom, and the Scandinavian countries by a significant margin.

Estonia remains the best performing country in Eastern Europe and improves by three places to reach 29th overall. The country boasts a solid competitiveness profile with strong, transparent, and efficient institutions (26th); a solid macroeconomic environment (20th); and high levels of education and training (20th). Its labor market is also more efficient than in most countries in the

region (11th). To further strengthen its competitiveness, Estonia should focus on strengthening innovation (30th) and business sophistication (48th) in order to ensure that product and process innovation continues to enhance the country's productivity. Further investment in infrastructure (38th) would also be warranted, as transport infrastructure in particular is not yet up to Western European standards (58th).

Iceland moves up one place to 30th position this year, the result of an improving macroeconomic situation and an easing of financial concerns. Despite its significant difficulties in these areas in recent years, Iceland continues to benefit from a number of clear competitiveness strengths in moving toward a more sustainable economic situation. These include the country's top-notch education system at all levels, its 10th and 13th ranks in the health and primary education and higher education and training pillars, respectively, coupled with a relatively innovative business sector (27th) that is highly adept at adopting new technologies for productivity enhancements (8th). Business activity is further supported by an efficient labor market (14th) and well-developed infrastructure (23rd).

Spain remains stable at 35th place. The important reform program the country has embarked on has resulted in curbing the high budget deficit of past years, although it remains high (128th); improving the robustness of the financial sector (85th); cutting red tape to foster entrepreneurship (99th); and enhancing flexibility (120th) in the labor market, although much remains to be addressed. However, a weakening in the perceived functioning of institutions, notably with worse scores in terms of corruption (80th) and government efficiency (105th), offsets these improvements in the GCI. Overall, as in past years, Spain continues to benefit from excellent transport infrastructure (6th), high levels of connectivity (18th), and a large share of the population that pursues higher education (8th) who—should the quality of the education system improve (88th)—could provide a skillful labor force able to contribute to the structural change the country requires. Notwithstanding these strengths and improvements in certain areas, Spain continues to suffer from poor access to loans (132nd), a rigid labor market (120th), difficulty in attracting (103rd) and retaining talent (107th), and an insufficient capacity to innovate (60th)—the result of low R&D investments (52nd) and weak university-industry collaborations (57th).

After falling in the rankings for several years, **Portugal** decisively inverts this trend and climbs 15 positions to reach 36th place. The ambitious reform program the country has adopted seems to have started paying off as gains appear across the board, most notably in areas related to the functioning of the goods market: Portugal now has less red tape to start a business (5th), and its labor market shows

increased flexibility, although more remains to be done (119th). In addition to these improvements, the country can continue to leverage its world-class transport infrastructure (18th) and highly educated labor force (29th). At the same time, Portugal should not be complacent and should continue with a full implementation of its reform program in order to keep addressing some of its persistent macroeconomic concerns (128th) caused by high levels of deficit (107th) and public debt (138th); strengthening its financial sector (104th) so that credit can start flowing (108th); further increasing the flexibility of its labor market; and raising the quality of education (40th) and innovation capacity (37th) to support the economic transformation of the country.

The **Czech Republic** advances by nine places this year to attain 37th position, improving in half of the pillars and thus reversing a five-year downward trend. Institutions (76th) improve by 10 places, although from very low levels for some indicators, and major concerns remain about corruption and undue influence (with public trust in politicians ranked an extremely low 138th). The country's economic recovery is also reflected in a sounder macroeconomic environment—the budget deficit fell below the 3 percent mark, leading to a closing of the European Commission's excessive government procedure—and an improvement in borrowing conditions in the financial market (up to 40th in financial market efficiency). Our data also point to improvements in health and primary education, thanks to a higher primary enrollment rate, as well as gradual improvements in the labor market (62nd), albeit from low levels. More specifically, although cooperation in labor-employer relations and the flexibility of wage determination are perceived more favorably (52nd and 43rd, respectively) than in last year's edition, regulations are rigid (121st) and the country's capacity to attract and retain talent remains limited. Likewise, the share of women in the labor force remains comparatively low. Going forward, the Czech Republic needs to explore ways to transition to a knowledge economy in view of its stage of development: compared with other economies at the same stage, technological readiness remains low (36th) and Czech businesses—although doing comparatively well in a regional context—are less sophisticated and innovative than other economies in the European Union. The country's competitiveness would be further enhanced by improvements to its higher education system, where the Czech Republic, at rank 35, features among the 10 lowest ranked EU economies.

Poland maintains its positioning overall and comes in at 43rd place. The improvements Poland has made in institutions, infrastructure, and education and its increased flexibility in labor market efficiency are steps in the right direction to boost the country's competitiveness. Continued structural reforms geared

toward strengthening its innovation and knowledge-driven economy will be necessary for Poland to sustain its growth going forward. The country can build on a fairly well educated population, well-developed financial markets, and a market that is by far the largest in the region. Transport infrastructure, however, despite notable improvements, remains weak (78th) by European standards. Some aspects of institutions, such as the burden of its regulations (117th), its rather inefficient legal framework for settling business disputes (118th), and difficulties in obtaining information on government decisions for business (110th) also need to be addressed on a priority basis. And as the country slowly emerges from the economic slowdown of 2012 and 2013, Poland should focus on further improving labor market efficiency and strengthening business sophistication (63rd) as well as on its business sector's capacity for innovation (72nd). To bolster its innovative capacity, the next set of reforms should focus on reinforcing its innovation ecosystem in close collaboration with the private sector to enable a sustainable growth path for the country.

With a stable score, **Italy** retains 49th position, despite a deterioration in the functioning of its institutions (106th) and with a poor assessment on government efficiency (143rd), continued macroeconomic concerns that result from the large public debt, and a very rigid labor market (136th) that hinders employment creation. Overall, Italian companies—most notably small and medium-sized enterprises (SMEs)—continue to suffer from weak access to financing (139th) that, coupled with a high tax rate (134th), affects their investment capacity. In addition, as already mentioned, the labor market remains very rigid (136th) and unable to make an efficient use of the country's talent (130th). The reform program currently being designed, if implemented properly, should help in addressing some of these weaknesses and allow Italy to leverage its competitiveness strengths, which lie in its sophisticated business community (25th) with a good potential to innovate (39th) and its large and diversified market (12th) that should allow for important economies of scale and scope.

The **Russian Federation** is placed at 53rd position this year with some improvements related to the efficiency of goods markets (in particular domestic competition), ICT use, and business sophistication—although this arguably reflects some positive developments that took place before the Ukraine conflict started. At the time of writing, the Russian economy continues to face many deeply rooted challenges that will have to be addressed for the country to strengthen its competitiveness. Russia's weak and inefficient institutional framework (97th) remains its Achilles heel and will require a major overhaul in order to eradicate corruption and favoritism (92nd) and re-establish trust in the independence of the judiciary (109th). Diversification of the economy will need reinforcing the very small

SME sector as well as continued progress toward a stronger and more stable financial system (110th). These challenges prevent Russia from taking advantage of its competitiveness strengths, which are based on a well-educated population, fairly high levels of ICT use (47th), and its solid potential for innovation (65th). Going forward, the reverberations of the Ukraine conflict—such as sanctions and potential disruptions to the gas trade—could affect the country's competitiveness. These implications could be especially serious given the reliance of the education and innovation sectors on public funding, which will become more scarce than it has been in previous years and for accessing technology developed abroad.

Ukraine moves up from 84th to 76th position, arguably reflecting expectations associated with its transition to a new government following the Euromaidan protests. The conflict in the eastern part of the country and in Crimea did not affect the results of the exercise in a substantial way, because it was still localized at the time when the Survey was conducted, yet it will most likely affect the country's competitiveness going forward. The improvements in the GCI reflect more positive perceptions of institutions and the efficiency of markets. Other improvements reflect better educational outcomes, seen in a higher primary enrollment rate and more ICT use by individuals and business. At the time of writing, restoring peace in Eastern Ukraine is undoubtedly the country's highest priority. However, far-reaching reforms will be necessary in order to put economic growth on a sustainable footing. These include an overhaul of the institutional framework (130th), along with measures to reduce the dominance of large companies in domestic markets (129th) and to make markets more competitive (125th) and hence more efficient (112th). A strengthening of financial markets would further help stabilize the economy and enable Ukraine to better take advantage of its numerous competitiveness strengths, such as its well-educated population and its market size, which is fairly large in the European context.

The most recent addition to the EU family, **Croatia**, is the second best performing country in Southeastern Europe at 77th place overall. The country boasts solid infrastructure (44th), especially in roads and electricity, and benefits from relatively high levels of education and training (53rd), although the quality of its education needs to be improved (55th). Companies and individuals use ICTs fairly widely in regional comparison (40th), and the country is open to foreign trade, with low tariffs and well-functioning customs procedures. Going forward, Croatia will need to continue strengthening its institutional framework (87th) and foster the efficiency of its market for goods and services. According to business executives, domestic markets are dominated by few firms and taxation is burdensome, even if low by international comparison. The country will also need to

focus on strengthening its macroeconomic environment, which remains burdened by a fairly high budget deficit. As Croatia will move into the innovation-driven stage of development in the coming years, it will need to start putting measures into place that incentivize and enable companies to innovate more. Currently, its businesses' capacity for innovation is low according to business executives, although research institutes are assessed more favorably (53rd) and the country's patenting rate is moderately strong (36th).

Following the recovery that started last year, **Greece** advances 10 spots to reach 81st place. Improvements in the functioning of its goods market (85th) with enhanced levels of competition (71st) and more flexible labor markets (although they remain rather rigid, 117th), along with a better macroeconomic performance with a sharp reduction in the budget deficit, have resulted in this more positive outlook despite its very high levels of government debt. All this suggests that the implemented reforms are starting to pay off. Notwithstanding this better performance, Greece continues to face important challenges that need to be addressed in order to continue improving its competitiveness. More precisely, the functioning of its institutions remains weak and it achieves a poor evaluation for government efficiency (129th), its financial market (130th) has not yet recovered from the recent financial crisis, there are concerns about the soundness of its banks (141st), and access to financing (136th) remains the most problematic factor for doing business in the country. Moreover, in order to support a structural change of the Greek economy so that it can move toward more productive, knowledge-based activities, it will need to boost its innovation capacity (109th). That will require improvements in the quality of its education system (111th) as well as higher investments in knowledge-generating activities, such as R&D (114th).

Asia and the Pacific

The competitiveness landscape in the Asia and the Pacific region remains one of stark contrasts. The region is home to three of the 10 most competitive economies in the world: Singapore, Japan, and Hong Kong SAR. A further three economies are featured in the top 20: Taiwan (China), New Zealand, and Malaysia (20th), which is the best ranked of Emerging and Developing Asian nations. At 28th, China stands some 40 places ahead of India, the other regional economic giant. At the other end of the regional spectrum, five countries rank below the 100th mark, although encouragingly they are all progressing to different degrees: Nepal (102nd, up 15 places), Bhutan (103rd, up six), Bangladesh (109th, up one), Myanmar (134th, up five), and Timor-Leste (136th, up two). The competitiveness gap between South Asian and Southeast Asian nations runs deeper than before. The five largest Southeast Asian economies (ASEAN-5)

all feature in the top half of the rankings, and all of them have made strides in this edition: Malaysia gains four places, Thailand is up six, Indonesia four, the Philippines seven, and Vietnam advances two places. Since 2009, they have improved their group performance in every edition. In South Asia, among the region's six countries covered by the GCI, only India features in the top half of the rankings. Since 2009, the average GCI score of the South Asian Association for Regional Cooperation (SAARC) countries has stagnated.

Because of the region's diversity, the challenges vary enormously, but a few common priorities can be identified. For the most advanced economies, such as Japan, the Republic of Korea, and Taiwan (China), one common challenge is the rigidity of their labor markets. They must also set up an ecosystem that is better at creating truly disruptive innovations. For countries such as Malaysia, the goal is to transform the economy to become more knowledge-driven in order to avoid the middle-income trap. In China, more reforms and liberalization are needed to improve market efficiency, increase competition, and encourage a more optimal allocation of financial resources. In most emerging Asian economies, common challenges include addressing the huge infrastructure deficit and improving regional connectivity; reducing red tape, which will promote economic formality and entrepreneurship and reduce pervasive and deep-rooted corruption; and improving market efficiency by phasing out distortionary measures. As the region's poorest economies—such as India and Myanmar—are transitioning away from agriculture and developing a manufacturing base, they will need to create a sound and stable institutional framework for local and foreign investors and improve connectivity.

Taiwan (China) ranks 14th, dropping two places despite maintaining its score. The third of the Asian Tigers, behind Singapore and Hong Kong SAR, its performance has been very stable over the past six years. Notable strengths include its capacity to innovate (10th, down two), its highly efficient goods markets (11th), its world-class infrastructure (11th), and strong higher education (12th). In order to enhance its competitiveness, Taiwan will need to further strengthen its institutional framework (27th), whose quality is undermined by some inefficiency within the government (29th) and various forms of corruption (31st), and will also need to address some inefficiencies and rigidities in its labor market (32nd). As elsewhere in Asia, encouraging and facilitating the participation of women in the workforce (89th) would contribute to enhancing competitiveness.

New Zealand advances one rank to 17th place—its best rank since the introduction of the current GCI methodology. Among the highlights, the country is ranked 1st in the institutions pillar and features in the top 10 of five more pillars. In particular, New Zealand ranks third in the financial market development pillar. It boasts

an excellent education system (9th), while the efficiency of its goods (6th) and labor (6th) markets is among the highest in the world.

Australia (22nd) follows an opposite trend. Since reaching its best rank—15th—in 2009, Australia has been dropping continuously in the rankings. However, although not outstanding, the country's performance is remarkably consistent across the board. It ranks no lower than 30th in 11 of the 12 pillars of the GCI. It achieves its best rank in the financial market development pillar, advancing one position to 6th place. In particular, the soundness of its banking sector is especially strong (3rd, behind Canada and New Zealand). The country also posts gains in higher education and training, climbing to 11th position. Australia's macroeconomic situation has deteriorated slightly (30th, down five places), owing mainly to the small increase of the budget deficit. Australia's public debt-to-GDP ratio, though rising, is the fourth lowest among OECD countries. Overall, the quality of Australia's public institutions is excellent (22nd) but tarnished by the 124th position it obtains for the extent of red tape. The main area of concern remains the labor market. Australia ranks 136th for the rigidity of its hiring and firing practices and 132nd for the rigidity of its wage setting. Indeed, as part of our Executive Opinion Survey, Australian businesses, year after year, have named the restrictive labor regulations the most problematic factor for doing business in their country by a wide margin.

Continuing its upward trend, **Malaysia** makes its way into the top 20 for the first time since the current GCI methodology was introduced in 2006. The country remains the highest ranked among the developing Asian economies. Malaysia advances nine positions in the institutions pillar, which largely drives this year's progress. It ranks no lower than 60th in any of the 12 pillars of the GCI. It ranks an outstanding 4th in the financial market development pillar, which reflects its efforts to position itself as the leading center of global Islamic finance. And it ranks 7th in the efficiency of its goods and services markets and a business-friendly institutional framework (29th). In a region plagued by corruption and red tape, Malaysia stands out as one of the very few countries that have been relatively successful at tackling these two issues, as part of its economic and government transformation programs. The country, for instance, ranks an impressive 4th for the burden of government regulation, although its score differential with the leader in this area, Singapore, remains large. Malaysia ranks a satisfactory 26th in the ethics and corruption component of the Index, but room for improvement remains. Furthermore, Malaysia ranks 11th for the quality of its transport infrastructure, a remarkable feat in this part of the world, where insufficient infrastructure and poor connectivity are major obstacles to development for many countries.

Finally, Malaysia's private sector is highly sophisticated (15th) and already innovative (21st). All this bodes well for a country that aims to become a high-income, knowledge-based economy by the end of the decade. Amid this largely positive assessment, the government budget deficit, which represented 4.6 percent of GDP in 2013 (102nd); the low level of female participation in the workforce (119th); and the still comparatively low technological readiness (60th) stand out as some of Malaysia's major competitive challenges.

After exiting the top 20 last year, the **Republic of Korea** (26th) drops one more position. Its performance remains uneven across the different dimensions of the Index. The country loses further ground in two of the three areas in which historically it has performed poorly. It now ranks 82nd (down eight places) in the institutions pillar and 86th (also down eight) in the labor market efficiency category. Although stable, the financial market development pillar remains a sore point (80th, up one), preventing Korea from closing the competitiveness gap with the three other Asian Tigers. On a brighter note, Korea possesses a remarkably sound macroeconomic environment (7th, second only to Norway among OECD countries). The country also boasts excellent infrastructure (14th), and enrollment rates at all levels of education are among the highest in the world. These factors, combined with the country's high degree of technological adoption (25th) and relatively strong business sophistication (27th), contribute to explaining its remarkable capacity for innovation (17th).

Up one position, **China** ranks 28th. The country continues to lead the BRICS economies by a wide margin—well ahead of Russia (53rd), South Africa (56th), Brazil (57th), and India (71st). Small gains in most pillars of the GCI contribute to creating a more conducive ecosystem for entrepreneurship and innovation: higher education and training (65th, up five); business sophistication (43rd, up two); and the technological readiness pillar, which constitutes China's weakest showing in the GCI, (83rd, up two). Problems endure in the critically important financial sector (54th), the assessment of which is weakened by the relative fragility of the banking industry. Access to loans remains very difficult for a large number of SMEs. The functioning of the market (56th, up five) is also improving, but various limiting measures and barriers to entry, along with investment rules, greatly limit competition. China is becoming more innovative (32nd), but it is not yet an innovation powerhouse. There is very little change in the assessment of the country's governance structures (47th). Government efficiency is improving (now 31st), but corruption (66th), security concerns (68th, up seven), and low levels of accountability (80th, up two) and lack of transparency (43rd) continue to weaken the institutional framework. The macroeconomic situation remains favorable (10th): inflation is below 3 percent; budget

deficit has been reduced; and public debt-to-GDP ratio, at 22.4 percent, is among the lowest in the world. Gross savings rate amounts to a staggering 50 percent of GDP. This rate is probably too high in light of the need for China to rebalance its economy away from investment and toward more consumption. Despite the persistence of bottlenecks, the country also boasts good transport infrastructure and connectivity (21st), thanks to decades of massive investments. Trends are largely positive, but now is not the time for China to be complacent. The country is no longer an inexpensive location for labor-intensive activities and is losing manufacturing jobs to less-developed countries and even to some more advanced economies. China must now create the high-value jobs that will sustain the increasing standards of living.

Despite its prolonged political crisis, **Thailand** advances six places to 31st position. The country moves up 12 places in the macroeconomic environment pillar and now ranks 19th, its best showing among the 12 pillars. In 2013, Thailand almost balanced its budget and reduced inflation to 2 percent. Public debt remained stable and the savings rate was high. Thailand continues to do well in the financial development (34th) and improves its already strong showing in the market efficiency pillar (30th, up four). However, market competition remains limited by a number of barriers to entry, especially those affecting foreign investments. Considerable challenges remain in other areas: first and foremost these relate to governance. Political and policy instability, excessive red tape, pervasive corruption, security concerns, and high uncertainty around property rights protection seriously undermine the institutional framework (93rd in the public institutions subpillar, down eight). In most of these areas, Thailand ranks below the 100th mark. In particular, the level of trust in politicians is among the lowest in the world (129th). Another concern is the mediocre quality of education at all levels (87th, down nine) and the still low level of technological readiness pillar (65th), although Thailand shows marked improvement in this area (up 13). It must be noted that all the data used in our assessment were collected before the most recent developments—including the military coup of May 2014—took place.

Up four notches to 34th place, **Indonesia**, Southeast Asia's largest country, continues its progression in the overall rankings. This improvement in competitiveness will probably contribute to sustaining the country's impressive momentum—its GDP grew by 5.8 percent annually since 2004—under the new leadership. That said, Indonesia's overall performance remains uneven. Infrastructure and connectivity continue to improve: up five places from last year and 20 places since 2011, Indonesia now ranks 56th in the related GCI pillar. The quality of public and private governance is strengthening: Indonesia is up 14 places to 53rd

as a result of improvement in 18 of the 21 indicators composing this pillar. In particular, Indonesia ranks a remarkable 36th place for government efficiency. Corruption remains prevalent (87th) but has been receding for several years. The macroeconomic situation deteriorated between 2012 and 2013 on the back of a higher deficit, but remains satisfactory (34th, down eight). The situation of its labor market (110th, down seven) remains by far the weakest aspect, owing to rigidities in terms of wage setting and hiring and firing procedures—for instance, the World Bank estimates that, on average, the cost associated with making a worker redundant is equivalent to 58 weeks of salary (139th). Furthermore, the participation of women in the workforce remains low (112th). Another area of concern is public health (99th). The incidence of communicable diseases and the infant mortality rate are among the highest outside sub-Saharan Africa. Turning to the more sophisticated drivers of competitiveness, Indonesia's technological readiness is lagging (77th). In particular, the use of ICTs by the population at large remains comparatively low (94th, down 10).

Up seven places, the **Philippines** (52nd) continues its upward trend. The country's gain of 33 places since 2010 is the largest over that period among all countries studied. The results suggest that the reforms of the past four years have bolstered the country's economic fundamentals. The trends across most of the 12 pillars are positive, and in some cases truly remarkable. In the institutions pillar (67th), the Philippines has leapfrogged some 50 places since 2010. In particular, there are signs that the efforts made against corruption have started bearing fruit: in terms of ethics and corruption, the country has moved from 135th in 2010 to 81st this year. The recent success of the government in tackling some of the most pressing structural issues provides evidence that bold reforms can yield positive results relatively quickly. A similar pattern is observed in terms of government efficiency (69th) and the protection of property rights (63rd). Finally, the Philippines has made significant strides in terms of technological adoption (69th, up eight). The country is one of the best digitally connected developing Asian nations, close behind Malaysia (60th) and Thailand (65th). The same cannot be said of infrastructure, however, which remains poor (91st), especially with respect to airport (108th) and seaport (101st) infrastructure. The situation is just as worrisome in the labor market, which suffers from rigidities and inefficiencies: the Philippines ranks a mediocre 91st in this dimension and almost no progress has been made since 2010. Finally, security remains an issue (89th), in particular in terms of costs that the threat of terrorism imposes on businesses (110th).

Continuing on its downward trend and losing 11 places, **India** ranks 71st. The country's new government faces the challenge of improving competitiveness and

Box 2: India's competitiveness crisis

Despite its immense potential and promise, by many accounts India continues to suffer from poverty. A third of its population still lives in extreme poverty—possibly the highest incidence outside sub-Saharan Africa—and many people still lack access to basic services and opportunities, such as sanitation, healthcare, and quality schooling. Improving the standards of living of the Indian population will require the country to accelerate its growth. Yet, since 2011, India has experienced a slowdown. In 2013, its economy grew by a modest 4.4 percent (see Figure 1). Improving competitiveness in order to put growth on a more stable footing should therefore be a priority for the new government.

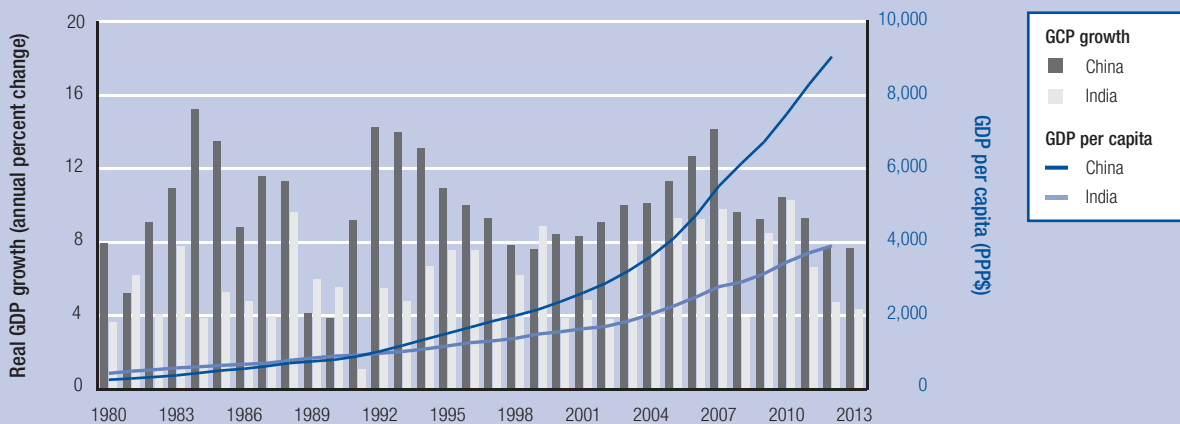
Dropping for the sixth consecutive edition, India ranks 71st (down 11) out of 144 economies in the Global Competitiveness Index (GCI) 2014-2015 (see Figure 2). It is the lowest ranked among the BRICS economies. The rank differential with China (28th) has grown from 14 places in 2007 to 43 today; while India's GDP per capita was higher than China's in 1991,¹ today China is four times richer (see Figure 1). This competitiveness divide helps to explain the different trajectories of these two economies.

India's slide in the competitiveness rankings began in 2009, when its economy was still growing at 8.5 percent (it even grew by 10.3 percent in 2010). Back then, however, India's showing in the GCI was already casting doubt about

the sustainability of this growth.² Since then, the country has been struggling to achieve growth of 5 percent. The country has declined in most areas assessed by the GCI since 2007, most strikingly in institutions, business sophistication, financial market development, and goods market efficiency.

Figure 3 sheds light on the main strengths and weaknesses of India's competitiveness and presents the country's performance along the 12 dimensions of the GCI. Overall, India does best in the more complex areas of the GCI: innovation (49th) and business sophistication (57th). In contrast, it obtains low marks in the more basic and more fundamental drivers of competitiveness. For instance, India ranks 98th on the health and primary education pillar. The health situation is indeed alarming: infant mortality and malnutrition incidence are among the highest in the world; only 36 percent of the population have access to improved sanitation; and life expectancy is Asia's second shortest, after Myanmar. On a more positive note, India is on track to achieve universal primary education, although the *quality* of primary education remains poor (88th) and it ranks a low 93rd in the higher education and training pillar of the GCI. Transport and electricity infrastructure are in need of upgrading (87th). In 2012, a working group appointed by the Planning Commission of India had recommended that a trillion US dollars—or almost 10 percent of India's GDP—be

Figure 1: GDP growth and GDP per capita of India and China since 1980



Source: IMF 2014c.

(Cont'd.)

reviving the economy, which is growing at half the rate of 2010. Box 2 details India's performance.

Up two positions, **Vietnam** ranks 68th, with a performance almost unchanged from last year. Following an episode of double-digit inflation in 2011, its macroeconomic situation continues to improve (75th, up 12 positions), as inflation declined to 6.6 percent. Public

institutions also receive a better assessment (85th, up five), on the basis of better property rights protection (104th, up nine), improved efficiency (91st, up 13), and a lower level of perceived corruption (109th, up seven). Progress in this area occurs from a low base, however. The quality of transport and energy infrastructures also improves slightly (81st). In a region where many

Box 2: India's competitiveness crisis (cont'd.)

spent on infrastructure by 2017.³ Given the country's strained public finances, addressing the infrastructure gap will require very strong participation on the part of private and foreign investors through public-private partnerships.

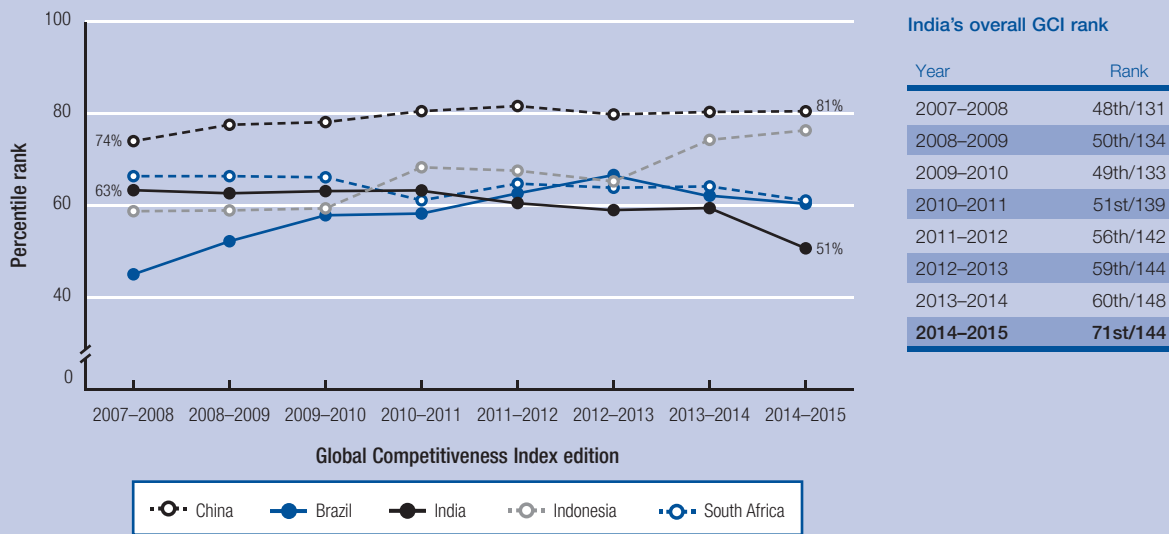
But for these types of investments to materialize, the institutional framework needs to improve. There are encouraging signs. India has achieved spectacular progress in various measures of corruption and now ranks 65th. Red tape seems to be less of an issue than it had been, and government efficiency is equally improving. However, the overall business environment and market efficiency (95th, down 10 places) are undermined by protectionism, monopolies, and various distortionary measures, including subsidies and administrative barriers to entry and operation. The World Bank estimated that it takes 12 procedures (130th) and almost a month to register a business (106th). In addition, it calculated that taxes for a typical registered firm amount, on average, to 63 percent of its profits (130th). Furthermore, the labor market is inefficient and rigid (112th). These factors contribute to the high cost of integrating more businesses into the formal economy. Some estimates find that the informal sector accounts for half of India's economic output and 90 percent of its employment.⁴ It is therefore urgent that the government create the right incentives for businesses

to register and contribute their fair share to the provision of public services.

India achieves its lowest rank among the 12 pillars in technological readiness (121st). Despite mobile telephony being almost ubiquitous, India is one of the world's least digitally connected countries. Only 15 percent of Indians access the Internet on a regular basis. Broadband Internet, if available at all, remains the privilege of a very few. India's knack for frugal innovation should contribute to providing cheap solutions for bridging this digital divide.

The financial resources required for delivering basic services, including sanitation and healthcare, and for improving India's physical and digital connectivity are considerable. But India's fiscal situation remains in disarray, as evidenced by the country's 101st rank in the macroeconomic environment pillar of the GCI. With the exception of 2007, the central government has consistently run deficits since 2000. Because of the high degree of informality, its tax base is relatively narrow, representing less than 10 percent of GDP. In addition, over the past several years India has experienced persistently high, in some years near double-digit, inflation, which reached 9.5 percent in 2013. The Reserve Bank of India is torn between keeping

Figure 2: Historical performance of selected countries in the Global Competitiveness Index



Note: Higher value means better rank

(Cont'd.)

countries have poorly functioning labor markets, Vietnam ranks a satisfactory 49th, its best showing among the 12 pillars with the exception of the market size pillar (34th). Vietnam's financial sector and its banks remain vulnerable. Technological readiness remains low (99th, up three). The country's businesses are especially slow

in adopting the latest technologies (118th), thus forfeiting significant productivity gains through technological transfer. The degree of business sophistication is low (106th, down eight), with companies typically operating toward the bottom of the value chain.

Box 2: India's competitiveness crisis (cont'd.)

Figure 3: India in the 12 pillars of the GCI 2014–2015



Note: India's rank (out of 144 economies) in the pillar is indicated in parentheses.

interest rates low to stimulate the faltering economy and tightening monetary policy to stem inflation.

Improving competitiveness will yield India huge benefits. In particular, it will help rebalance the economy and move the country up the value chain so as to ensure more solid and stable growth; this in turn could result in more employment opportunities for the country's rapidly growing population. Despite the abundance of low-cost labor, India has a very narrow manufacturing base. Manufacturing accounts for less than 15 percent of India's GDP.⁵ Agriculture represents 18 percent of output and employs 47 percent of the workforce. Low productivity in the sector means very low wages and a life of mere subsistence for many. The services sector accounts for just 28 percent of employment but for 56 percent of the economy. Most services jobs are low-skilled and poorly paid ones, though. White collar jobs remain rare. For example, the vibrant business-process outsourcing sector employs 3.1 million workers, or 0.6 percent of India's 482 million strong labor force (but accounts for 6 percent of GDP).⁶ India needs to create jobs in the "missing middle" for the 610 million youths under 25—half of India's population—who have recently entered or will soon enter the workforce.

In a parliamentary address in June 2014, President Mukherjee outlined the government's economic agenda. It envisages building smart cities, establishing world-class

industrial zones, and transforming the country into a manufacturing hub. It remains to be seen whether the new administration will succeed in convincing the public opinion, mobilizing the resources, and passing the reforms necessary to achieve this vision.

Notes

- 1 When measured at purchasing power parity. GDP figures are from IMF 2014c.
- 2 See World Economic Forum 2009.
- 3 In the Plan, "infrastructure" covers all modes of transportation, as well as telecommunication, sanitation, and irrigation infrastructures. See Planning Commission of India 2012.
- 4 Credit Suisse 2013.
- 5 World Bank, *World Development Indicators* database (accessed May 12, 2014).
- 6 Estimates are for fiscal year 2014. NASSCOM, "India IT-BPM Overview," available at <http://www.nasscom.in/impact-indias-growth> (accessed August 3, 2014). Labor force size estimates for 2012 are from the World Bank, *World Development Indicators* database (accessed August 3, 2014). The GDP estimate is for 2013 and sourced from IMF 2014c.

After two consecutive years of steep decline, **Pakistan** (129th) remains essentially stable since last year. The country obtains low marks in the most critical and basic areas of competitiveness. Its public institutions (125th) are constrained by red tape, corruption, patronage, and lack of property rights

protection. Its security situation remains alarming (142nd). Pakistan is the third least safe of all countries covered, behind only Yemen and Libya. Thanks to a lower inflation rate and a smaller budget deficit, the country's macroeconomic situation improves slightly but nevertheless remains dismal (137th). Pakistan's

infrastructure (119th)—particularly for electricity (133rd)—is underdeveloped. Moreover, the country's performance in terms of health and education is among the worst of all the countries covered. Infant mortality (137th) is the highest outside sub-Saharan Africa, and, with one of the lowest enrollment rates in the world (132nd), it is estimated that almost a quarter of children do not go to primary school. Pakistan's competitiveness is further penalized by the many rigidities and inefficiencies of its labor market (132nd, up six). Female participation in the labor force is the world's fifth lowest (140th). Finally, the potential of ICTs is not sufficiently leveraged, and access to ICTs remains low (114th). On a slightly more positive note, Pakistan does comparatively better in the more advanced areas captured by the GCI, ranking 72nd in the financial development pillar and 81st on the business sophistication pillar.

Covered for the first time last year, **Myanmar** advances five places and ranks 134th. After decades of political and economic isolation, the country is going through profound changes. Its government has embarked on an ambitious process of reforms to improve the country's economic landscape and prospects, notably by leveraging Myanmar's extraordinary assets. These include an abundance of natural resources, very favorable demographics, and a strategic location in the heart of Asia. Competitiveness is at the core of this strategy. However, Myanmar's challenges are many and the road to prosperity will be a challenging one. The country ranks beyond the 100th rank in 10 out of the 12 pillars of the GCI, but has improved in 11 of them over the past year.

Latin America and the Caribbean

The economic deceleration that started in 2012 continued in 2013, with an estimated growth rate for the region below 3 percent. For 2014, growth forecasts are not more optimistic and, according to the IMF,²⁴ the region is poised to grow at only 2.5 percent, below the trend of recent years. Overall, the region continues to suffer from strong headwinds related to weak investments, a fall in exports and commodity prices, and tighter access to finance that, to a large extent, fueled growth in recent years.

Building the economic resilience of the region will depend on its capacity to strengthen the fundamentals of its economy by boosting its level of competitiveness. However, regional productivity continues to be low and trailing other emerging or advanced economies. A lack of sufficient investments in growth-enhancing areas, such as infrastructure, skills development, and innovation, coupled with insufficient and delayed reforms needed to improve business conditions and the allocation of resources, result in a certain inability of the local economies of the region to move toward

more productive sectors and thus, higher levels of competitiveness.

The need to boost competitiveness by undertaking the necessary investments and by fully and efficiently implementing structural reforms has become not only important but also urgent if the region is to be able to consolidate the economic and social gains that many countries have experienced in past years. Becoming more resilient and less affected by external fluctuations will depend on this.

Chile, at 33rd, regains the position it lost last year and remains the most competitive economy in Latin America, with a very stable profile. The country continues to build up its traditional assets, which are related to a strong institutional setup (28th) with low levels of corruption (25th) and an efficient government (21st); solid macroeconomic stability (22nd) with low levels of both public deficit and public debt; and efficient markets, despite some rigidities in its labor market that result from its persistent high redundancy costs (120th). Notwithstanding these strengths, the current economic context—with its potentially strong headwinds that result from the decline in the price of minerals—highlights the need for Chile to diversify its economy by moving toward more knowledge-based activities. In this context, the country still needs to make major efforts to address some of its traditional weaknesses. Important flaws in the country's education system, notably in terms of its quality (71st)—especially in math and science (99th)—do not provide companies with a workforce that has the necessary skills to upgrade their production or embark on innovative projects; this is regarded as one of the country's most problematic factors for doing business. This difficulty—together with low innovation investment, especially in the private sector (77th)—results in a poor innovation capacity overall (76th), which could jeopardize Chile's necessary transition toward a knowledge-based economy.

Panama continues to follow Chile in the regional rankings and once again scores as the most competitive economy in Central America; it is among the top 50 in the world, despite a fall of eight places to 48th position. This drop is driven by a slight deterioration in the perceived functioning of institutions (74th), most notably in terms of their inability to fight corruption (94th) and raise government efficiency (55th); and the poor quality of the education system (83rd) with its inability to provide the right set of skills for an economy that increasingly needs a skilled labor force to sustain the sharp economic growth of past years. This skills shortage is perceived as one of the most problematic factors for doing business in the country, and is likely to remain a severe obstacle to business in the coming years, representing a bottleneck for Panama's transition toward more knowledge-intensive activities. Notwithstanding these challenges to the economic agenda of the country going forward, Panama

continues to benefit from important competitiveness strengths. As it did last year, Panama boasts impressive infrastructure (40th), with some of the best port (7th) and airport (7th) facilities not only in Latin America but in the world, positioning it as a strong transport hub for the region. Its financial market (22nd) and an assessment of its technological adoption (23rd), especially via foreign multinational corporations setting up in the country, remain strong, and its mobile broadband subscriptions (73rd) are increasing.

As in recent editions, **Costa Rica** continues to rise in the rankings, improving three positions to take 51st place. Overall, the country depicts a very stable profile, building on its traditional assets, although it does suffer from some persistent weaknesses. In terms of strengths, Costa Rica is fairly well poised to engage in a rapid transition toward more knowledge-based activities. The country boasts one of the best education systems in the region (21st); a fairly high ICT uptake (45th) with a high international Internet bandwidth capacity (36th) and many mobile broadband subscriptions (20th); and a fairly well developed capacity to innovate (36th) and solid access to technology (39th), thanks to the crucial role that FDI and technology transfer (5th) plays in the country. In addition, Costa Rica benefits from fairly strong institutions (46th), despite a strong sense that government spending may not always be directed toward the most productive activities (120th). Notwithstanding these important strengths, the country's persistent weaknesses hold back its competitiveness. More precisely, its poor transport infrastructure (108th), difficulty in accessing finance either through equity (117th) or loans (118th), and some concerns about its macroeconomic performance and high budget deficit (116th) are all areas the country should address.

Still suffering some of the consequences of the global financial crisis, **Barbados** falls eight positions in the rankings to 55th place. As in the past, this drop is driven by the persistence of the credit crunch that is regarded as the most problematic factor for doing business in the country and that is severely hindering the capacity of local businesses to finance their activities by raising new equity (91st), loans (101st), or venture capital (101st) to support innovative projects. In addition, concerns about macroeconomic conditions (132nd) persist, as Barbados boasts one of the highest public deficits (140th) in the world, one of the lowest savings rates (136th), and public debt (128th) that is quickly approaching 100 percent of the national GDP. The need to stabilize its macroeconomic outlook and ease the flow of financing toward productive investments will be crucial to allow the country to recover the ground lost since the beginning of the crisis. On a more positive note, Barbados continues to benefit from a fairly skilled labor force thanks to a high-quality education system (15th) and high enrollment rates in secondary (19th) and

tertiary education (42nd); well-functioning institutions (33rd), despite some concern about the government efficiency in managing public spending (57th); and solid infrastructure (28th).

Brazil drops one position and ranks 57th this year. This decline is driven by insufficient progress in addressing its persistent transport infrastructure weaknesses (77th) and a perceived deterioration in the functioning of its institutions (104th), with increased concerns about government efficiency (131st) and corruption (130th). Brazil also exhibits a weaker macroeconomic performance this year (85th), a further tightening of access to financing, and a poor education system (126th) that fails to provide workers with the necessary set of skills for an economy in transition toward more knowledge-based activities. Addressing these weaknesses, for Brazil as for other BRICS economies, will require implementing reforms and engaging in productive investments (see Box 3). This approach is not only important but has become urgent for reinforcing Brazil's resilience. The country is poised to face strong headwinds related to recent shifts in the global economy, with a drop in the international price of commodities and potential outflows of capital that had come into the country from some advanced economies during the height of the financial crisis. Notwithstanding these challenges, Brazil still benefits from important strengths, especially its large market size and its fairly sophisticated business community (47th), with pockets of innovation excellence (44th) in many research-driven, high-value-added activities.

In spite of the drop of six places, **Mexico** (61st) has adopted important structural reforms in the past year. This fall in the rankings is driven by a deterioration in the perceived functioning of institutions (102nd); the quality of an education system that does not seem to deliver on the skill set that a changing Mexican economy requires; and its low level of ICT uptake (88th), which is crucial for this transformation. In addition, the results show that the benefits of the many adopted reforms intended to increase the level of competition and efficiency in the functioning of Mexico's markets have not yet materialized, highlighting the need for effective implementation that should not be delayed. Recently some changes have been observed, notably in the telecommunications market. As more of these results start to become evident, the country will increase its competitiveness edge. In this process of improvement, Mexico can continue counting on its traditional strengths: its relatively stable macroeconomic environment (53rd), its large and deep internal market that allows for important economies of scale (10th), reasonably good transport infrastructure (41st), and a number of sophisticated businesses (58th), which is uncommon for a country at its stage of development.

Box 3: Competitiveness and the need for structural reform in large emerging economies

In recent decades, many emerging economies benefited from rapid economic growth, which allowed them to gain a more prominent role in the global economy.¹ Emerging economies drove growth throughout the economic crisis. In 2009—the worst year of the crisis—the combined GDP of advanced economies contracted by 3 percent while emerging economies grew by 3 percent. Overall, between 2007 and 2013, emerging economies grew by 5.9 percent annually, five percentage points more than advanced economies. These radically different trajectories accelerated the shift of economic power from advanced economies toward the emerging world, which in 2012 accounted for more than half of global output for the first time in recent history. High commodity prices and better access to financing thanks to the inflow of capital, often from advanced economies, go a long way toward explaining these positive developments in recent years.

However, since 2010, economic growth has been slowing down in emerging economies, which grew by 4.7 percent in 2013, the second lowest rate since 2002, and the International Monetary Fund has recently revised its forecast for 2014 down to 4.6 percent.²

The slowdown can be attributed to several factors. Overall, commodity prices, with the exception of oil prices, have stagnated or started to fall. At the same time, the outflow of capital and the phasing out of accommodating monetary policy in the United States have created further instability and worsened credit access conditions for emerging economies.

In addition, emerging economies for the most part did not use the recent spell of high growth to implement the structural reforms needed to boost productivity and build competitiveness. The necessary reforms are particularly critical in three areas: (1) boosting competition, especially in strategic sectors of the economy, by removing bottlenecks and barriers to entry; (2) making the labor markets more flexible and more

effective at using all existing talent; and (3) improving the efficiency of public institutions, which is also crucial to ensure an effective implementation of structural reforms.

The Global Competitiveness Index (GCI) reveals the poor performance among many of the 20 largest emerging economies—which together account for 27 percent of global GDP—in terms of the functioning of their institutions, as well as in establishing efficient product and labor markets (see Table 1). In particular, six of those countries rank below the 100th mark: Argentina, Brazil, Egypt, Mexico, Pakistan, and Venezuela. A further eight countries rank lower than the 100th mark in at least one of these three categories.

Furthermore, the GCI results also point to a lack of progress over time. Only three countries have recorded higher values in all areas since 2010: Malaysia, the Philippines, and the Russian Federation. The latter, however, still ranks a low 119th in market competition and 102nd in public institutions. Among the BRICs, China has lost 22 places in terms of market competition since 2010, and both India and Brazil have lost considerable ground in all three areas.

These results highlight how important it will be for emerging economies to promptly and efficiently implement structural reforms. Those reforms are necessary to increase their competitiveness, build their resilience against future external shocks, allow a more efficient allocation of resources, and facilitate the transition toward more productive activities.

Notes

- 1 For the sake of readability, we use the shorter formulation, “Emerging Economies,” to refer to the group of “Developing and Emerging Market Economies” as defined by the International Monetary Fund in its publications, such as the *World Economic Outlook* series.
- 2 IMF 2014d.

Table 1: Rankings of the 20 largest emerging economies on selected components of the GCI

GCI 2014–2015 rank	Country	Public institutions		Market competition		Labor market efficiency	
		2014–2015 rank	Since 2010*	2014–2015 rank	Since 2010*	2014–2015 rank	Since 2010*
20	Malaysia	23	+21	9	+20	19	+16
24	Saudi Arabia	26	–5	33	–24	64	+2
28	China	43	+3	86	–22	37	+1
32	Thailand	93	–23	47	+6	66	–42
34	Indonesia	53	+4	57	+3	110	–26
43	Poland	56	–2	46	+3	79	–26
45	Turkey	67	+23	44	+18	131	–4
52	Philippines	75	+49	109	+12	91	+20
53	Russian Federation	102	+16	119	+10	45	+12
56	South Africa	45	+8	35	+8	113	–16
57	Brazil	104	–8	135	–3	109	–13
61	Mexico	109	+1	110	+6	121	–1
66	Colombia	123	–6	127	+3	84	–15
70	India	69	–10	111	–23	112	–20
83	Iran, Islamic Rep.	98	–24	121	–18	142	–7
104	Argentina	138	–5	143	–5	143	–15
118	Egypt	101	–40	126	–42	140	–7
127	Nigeria	132	–10	78	+11	40	+34
129	Pakistan	125	–11	108	–10	132	–1
131	Venezuela	144	–5	144	–5	144	–6

Note: Countries are listed according to their overall GCI rank. Ranks are out of 144 economies.
* Change in ranking between the 2010–2011 and the 2014–2015 editions of the GCI.

Despite **Peru's** drop of four positions to 65th place, the country continues to be positioned within the top half of the rankings. Concerns about the functioning of its institutions (118th), along with insufficient progress in improving the quality of its education (134th) and technological adoption (92nd), explain this decline, supporting the idea, highlighted last year, of a certain exhaustion of the sources of the country's competitiveness gains of the past years. Among these gains are a very strong macroeconomic performance (21st) and high levels of efficiency in its goods (53rd), financial (40th), and labor (51st) markets, despite rigidity in hiring and firing practices (130th). Although Peru has recently benefited from strong growth thanks to the rise in the price of minerals, the country should build its resilience by addressing its most long-lasting challenges: it needs to strengthen its public institutions (127th) by increasing government efficiency (116th), fighting corruption (103th), and improving infrastructure (88th). In addition, building up Peru's capacity to generate and use knowledge and thus diversify its economy toward more productive activities will require raising the quality of education (134th), which is now not capable of providing the skills needed for a changing economy; to boost technology adoption (92nd), including a broader uptake and use of ICTs (101st); and to raise its innovation capacity (117th), which remains low. These actions will require time to develop and bear fruit.

Colombia climbs three positions to reach 66th place. It continues to depict a fairly stable competitiveness profile with results similar to those of previous editions across most dimensions, with two notable exceptions that account for this year's improved performance. The first is the country's level of technological adoption (68th), most notably of ICTs (66th). The second is the development of its infrastructure (84th), which remains, nevertheless, the second most problematic factor for doing business in Colombia, after the high level of corruption (123rd). Overall, the country benefits from stable macroeconomic conditions (29th) with a manageable fiscal deficit, low levels of public debt, and inflation that is under control at around 2 percent; financial services that are relatively sophisticated by regional standards (53rd); a large market (32nd); and fairly high levels of education enrollment both at secondary (62nd) and tertiary level (61st), especially when compared with those of other countries in the region. On a less positive note, Colombia continues to suffer from weak institutions (111th) and, as already mentioned, significant levels of corruption (123rd). Despite its improvement, the quality of transport infrastructure is still low (108th). Finally, as is the case for many other countries in the region, Colombia will have to diversify its economy and become less dependent on revenue from mineral resources. In this transformation, the country will need to improve the quality of its

education system (90th), which continues to drop, especially in areas such as mathematics and science (109th); it will also need to build a more robust innovation ecosystem (77th), which will require not only more and better public investment but also a decisive recognition on the part of Colombian firms of the need to innovate by undertaking the right set of investments in areas such as R&D (84th) as well as on-the-job training schemes (73rd) and ICT adoption.

Climbing eight places and establishing itself in the middle range of the rankings this year, **Guatemala** is positioned at 78th place, following Panama and Costa Rica in the Central American rankings. The country's rise is led by improvements in its level of competition in the goods market (54th) thanks to the reduction of red tape for new businesses and better infrastructure (67th), although these remain a challenge. Within Central America, **El Salvador** (84th) continues its ascent, climbing 13 ranks; as does **Honduras** (100th), which rises 11 positions, while **Nicaragua** remains stable at 99th position.

In South America, besides Chile and Brazil, the situation remains relatively stable and in need of important changes to improve competitiveness. **Uruguay** (80th) manages to improve its performance, while **Bolivia** (105th) loses seven places, unable to consolidate last year's gain. **Paraguay** falls one place to 120th position; **Argentina** (104th) remains stable; and **Venezuela** (131st) closes the regional rankings, ahead of only Haiti (137th).

Argentina (104th), after several years of falling in the rankings, this year remains stable, albeit at a very low position. One of Argentina's major concerns is to build its economic resilience in a rapidly changing global economic context characterized by lower commodity prices that can drastically affect the Argentine economy. Overall, the country continues to face adverse macroeconomic conditions (102nd) that affect its access to credit (134th). It also suffers from a weak institutional set up (137th), scoring poorly in terms of corruption (139th), government inefficiency (142nd), and government favoritism (143rd). In addition, inefficiently functioning goods (141st), labor (143rd), and financial (129th) markets continue to hinder the country's potential, which is enormous thanks to a relatively large market size (24th) with the potential for important economies of scale and scope, its digital readiness (61st), and its high university enrollment (15th) of more than 78 percent. These assets are not being fully utilized amid the negative framework conditions that hamper the potential of the Argentine economy.

Venezuela (131st) continues to be immersed in a deep macroeconomic (139th) and institutional (144th) crisis. A very unstable macroeconomic environment with high levels of inflation, public debt, and deficit coupled with a weak institutional set up, high levels of corruption,

and an inefficient government as well as malfunctioning markets that do not allocate resources effectively result in this poor performance. These deficiencies hinder the country's capacity to leverage some important assets, such as its relatively well educated population, with a high percentage of the population enrolled in tertiary education (16th), and relatively good ICT penetration with more than half of the population using the Internet (60th).

The Middle East and North Africa

Large parts of the Middle East and North African region continue to be affected by geopolitical conflict and turbulence. Yet the emphasis has shifted. Some North African economies, such as Egypt and Tunisia, are slowly stabilizing and are starting to focus on economic reform. Structural reforms and improvements to business environments will help restore the still-shaken investor confidence in countries in transition in the region. Other economies, such as Libya and Lebanon, remain affected by conflict or unrest within their own borders or in neighboring countries. At the same time, some small, energy-rich economies continue to perform well in the rankings, building on their resource-driven wealth to undertake structural reforms and invest in competitiveness-enhancing measures. These endeavors will help drive private-sector employment that, in turn, is necessary to provide sufficient numbers of gainful and sustainable jobs for the countries' populations.

The **United Arab Emirates** takes the lead in the region, moving up to 12th position this year. To some extent this overall ranking improvement is technical and due to the fact that data on tertiary enrollment are no longer available. At the same time, the country's successful bid for Expo 2020 and its strong drive toward reforms have anchored many initiatives to enhance competitiveness. These efforts are paying off: its institutional framework, infrastructure, macroeconomic stability, and ICT use have all improved. Overall, the country's competitiveness reflects the high quality of its infrastructure, where it ranks an excellent 3rd, as well as its highly efficient goods markets (3rd). A strong macroeconomic environment (5th) and some positive aspects of the country's institutions—such as strong public trust in politicians (3rd) and high government efficiency (5th)—round out the list of competitive advantages. Going forward, putting the country on a more stable development path will require further investment to boost health and educational outcomes (38th on the health and primary education pillar). Raising the bar with respect to education will require not only measures to improve the quality of teaching and the relevance of curricula, but also measures to provide stronger incentives for the population to attend schools at the primary and secondary levels. Last but not least, further promoting the use of ICTs and a stronger focus on R&D and business innovation will be necessary to

diversify the economy and ensure that economic growth is sustainable going into the future.

Qatar falls three places to 16th position. Although the country benefits from high levels of macroeconomic stability and efficient goods and financial markets, as well as high levels of physical security, it will have to step up its efforts to improve a number of areas in order to achieve a more diversified economy. Improving educational outcomes, especially participation in primary and tertiary education; fostering the use of ICTs; and further opening the country up to foreign trade will be necessary to increase productivity in non-hydrocarbon sectors. At a more fundamental level, Qatari businesses would benefit from reduced administrative barriers to set up businesses and from upgrading the transport infrastructure.

Saudi Arabia (24th) loses four positions in this year's edition, based on a less positive assessment of its quality of education and level of domestic competition. The country will need to enhance competitiveness to further diversify its economy and create sufficient number of jobs for the growing workforce. Overall, its competitiveness benefits from high levels of macroeconomic stability (4th) with low debt and a budget that is consistently in comfortable surplus. The country also benefits from the largest market size among the Gulf Cooperation Council (GCC) economies (20th). Yet Saudi Arabia also faces important challenges going forward. For example, health and education do not meet the standards of other countries at similar income levels (50th). In light of the need to create jobs, further emphasis should be placed on education and labor market reforms. Room for improvement remains in particular with respect to higher education and training (57th), where Saudi Arabia's assessment has weakened in recent years. Business leaders consider that the quality of education could be improved especially with respect to training in management (78th) and math and science (73rd). Labor market efficiency (64th) could also be improved, and reform in this area will be critical for Saudi Arabia, given the growing number of young people who will enter its labor market over the next several years. More efficient use of talent—in particular, enabling a growing share of educated women to work—and better education outcomes will increase in importance as the country attempts to diversify its economy, which will require a more skilled and educated workforce. Last but not least, although some progress has been recorded recently, the use of the latest technologies such as ICTs can be enhanced further (45th), especially as this is an area where Saudi Arabia continues to trail other GCC economies.

Israel retains the 27th position in this year's GCI. The country's main strengths remain its world-class capacity for innovation (3rd), which rests on innovative businesses that benefit from the presence of some of

the world's best research institutions (3rd), support by the government through public procurement policies (9th), and a favorable financial environment for start-ups (availability of venture capital is assessed at 9th place). Yet for the country's innovation-driven competitiveness strategy to be successful and viable going into the future, Israel will have to address some basic competitiveness challenges. Israel's institutions are in need of continued upgrading (43rd) and a stronger focus on raising the bar in education is needed. If not addressed, poor educational outcomes—particularly in math and science (79th) and in primary schools (86th)—could undermine the country's innovative capacity over the longer term. Room for improvement also remains with respect to the macroeconomic environment (50th), although improvements have taken place between 2012 and 2013 as the fiscal deficit and public debt were reduced. At the time of writing, the security situation in the country is once again fragile, which could potentially affect the country's economy, although this has not been the case in the recent past.

Jordan moves back up to 64th place, a rank it held two years ago. The improvement mainly reflects a lower budget deficit and some progress made in education and financial market development. The country is faced with a number of social challenges that require the government's attention: for example, it must address both unemployment among young people (31.3 percent in 2012) and the consequence of the conflict in neighboring Syria, which has brought high numbers of refugees to Jordan. Nevertheless, Jordan has the potential to benefit more from its geographical proximity to GCC economies and Europe, and recent fiscal reforms have created space for shifting spending toward productivity-enhancing measures. The country has a relatively well educated population (48th), vibrant domestic markets (36th), and its stable and rather efficient institutions (37th) are a strong asset in regional comparison. Boosting economic growth over the longer term will require Jordan's policymakers to address a number of challenges. According to the GCI, there is significant room for improvement in boosting labor market efficiency (94th), and the full potential of ICTs for improving productivity has not yet been fully exploited (90th). Jordan could also benefit from more openness to international trade and investment, which would trigger further efficiency gains in its domestic economy and facilitate the transfer of knowledge and technology. Tariff barriers remain high in international comparison (107th) and regulatory barriers to FDI remain in place (73rd). And although bank financing appears to be more easily available than in many other countries (Jordan comes in at 25th on ease of access to loans), efforts to further stabilize its banking sector should be continued (103rd).

Morocco moves up to 72nd position this year, partially recovering from last year's drop. A

reduced budget deficit (between 2012 and 2013) and improvements in primary education and innovation support the country's rise in the rankings. Some aspects of its institutions have improved as well, reflecting Morocco's relative social and political stability and efforts made over recent years to modernize its business environment, particularly its administrative aspects. Continuing the process of economic diversification, which has already boosted exports and FDI in higher-value-added industries, will be important for the country's future growth. Building on its competitiveness strengths, such as physical security (39th), some positive aspects of goods markets efficiency (e.g., 32nd on number of procedures to start a business), and a rather solid and efficient banking sector (42nd on soundness of banks), Morocco should continue its successful efforts to address key competitiveness challenges. Necessary measures include boosting education (104th) in terms of both quality and access, and reforming its labor market (111th). With respect to education, making schooling at the secondary and tertiary levels more accessible and attractive to increase enrollment rates in these two segments would ensure that a qualified labor force is available to support economic diversification. In their responses to the Survey, business executives also point out that revising curricula so that skills taught better match the needs of businesses should be a priority. With respect to labor markets, raising the share of women in the labor force would greatly strengthen the talent base available in the country. Last but not least, boosting the use of ICTs among businesses and individuals (84th) would also greatly benefit the country's competitiveness.

Algeria moves up to 79th position this year. This rise is driven mainly by a sounder macroeconomic environment, which remains the country's most important competitiveness strength (11th). Yet improvements are also seen in other areas, such as institutions and physical security, albeit from a low level. Some aspects of education also show a positive trend: for example, the quality of education seems to be improving. A major overhaul of the institutional framework and increased focus on the efficiency of the goods, labor, and in particular financial markets will be necessary to put Algeria's growth on a more sustainable trajectory.

Iran comes in at 83rd, losing one place in comparison to last year's assessment. The economy is expected to stabilize after two difficult years, mainly driven by external developments. This steadier economic context provides an important opportunity for the country to enhance its competitiveness potential. Iran has to build on its solid macroeconomic positioning, its large market size, and its fairly well educated population. Improvements to its institutional framework and measures to heighten the efficiency of its goods, labor, and financial markets would benefit the country's

competitiveness and provide an important boost to the country's economic growth in the shorter as well as longer terms.

After dropping for several years in a row, **Egypt** moves down one place to 119th position in this edition. This assessment points to a certain stabilization in the country following the recent elections. The fragile security situation is improving slightly, although tenacious political and policy instability are undermining the country's competitiveness and its growth potential going forward. While regaining political stability and investor confidence needs to remain the priority as this *Report* goes to print, many of the underlying factors that will be decisive for the stability of the country and the cohesion of the society over the medium to longer term are economic in nature. Establishing confidence through a credible and far-reaching reform program is vital to Egypt's future and to realizing the considerable potential of its large market size and proximity to key global markets. According to the GCI, three areas are of particular importance. First, the macroeconomic environment has deteriorated over recent years to reach 141st position mainly because of a widening fiscal deficit, rising public indebtedness, and persisting inflationary pressures. A credible fiscal consolidation plan, accompanied by structural reforms, will be needed in Egypt. This may prove difficult because of energy subsidies that account for a considerable share of public expenditure. Removing these subsidies may be difficult politically, but there is space for targeting subsidies better in a way that allows for fiscal consolidation while still protecting the most vulnerable. Second, measures to intensify domestic competition (118th) would result in efficiency gains and contribute to energizing the economy by providing access to new entrants. This, in turn, would make the country's private sector more dynamic, thus fostering the creation of new jobs. And third, making labor markets more flexible (130th) and efficient (139th) would allow the country to increase employment in the medium term and provide new entrants to the labor market with enhanced opportunities.

Sub-Saharan Africa

Amid the economic turmoil that affected advanced economies in recent years, the sub-Saharan African region provided something of a silver lining in an otherwise broadly felt economic downturn. As growth is now modestly returning in advanced economies, sub-Saharan economies carry on registering impressive growth rates of close to 5 percent in 2013—with rising projections for the next two years—below only emerging and developing Asia. Yet important downside risks remain: although inflation has been coming down from the high rates of the past two years thanks to prudent monetary policy and moderating food prices, rising

fiscal deficits—which are most exacerbated in Zambia, Ghana, and Gambia—and a slowdown in emerging markets could dampen growth prospects, particularly in resource-rich economies.

More importantly, more than a decade of consistent high growth has not yet trickled down to all segments of the population. Most economic activity takes place in the informal sector, accounting for more than half of GDP and employing more than 80 percent of the population; only one in two young Africans participates in wage-earning jobs.²⁵ Going forward, the main challenge will therefore be to turn high growth into inclusive growth, touching more of the population. This will require focusing on efforts to transition from still largely agriculture-based economies to higher-value-added activities in order to move the workforce out of agriculture into more productive sectors.²⁶ The urgency of this transition is highlighted by the region's high population growth. By 2020 more than half of the continent's population will be below the age of 25.²⁷

Against this backdrop, much remains to be done to lay the foundations for sustainable long-term growth, requiring efforts across many areas. Indeed, more than half of the 20 lowest ranked countries in the GCI are sub-Saharan, and overall the region continues to underperform in many areas of the basic requirements of competitiveness: the infrastructure deficit remains profound, and despite gradual improvements in recent years, health and basic education remains low. Only a handful of sub-Saharan economies—the island states of Mauritius and Seychelles, in addition to Cape Verde—have noteworthy health and education systems. Higher education and training also need to be further developed to provide the skills required for higher-value-added growth. The region's poor performance across all basic requirements for competitiveness stands in contrast to its comparatively stronger performance in market efficiency, where several of the region's middle-income economies fare relatively well. Although large regional variations remain in terms of competitiveness—ranging from Mauritius, now a solid 17 places ahead of the second-ranked South Africa, to the lowest ranked Guinea at 144th—efforts to strengthen the very basic requirements for long-term growth will be crucial for sustaining economic growth and making it more inclusive. These efforts will need to emphasize closing the infrastructure deficit and providing the region's (young) population with the necessary skills to carry out higher-value-added employment.

Mauritius continues its steady upward trend this year, moving up six positions to 39th place and consolidating its lead in the region. Progress is driven by gradual improvements across seven out of the 12 pillars. Overall, the country benefits from relatively strong and transparent public institutions (36th), with clear property rights, strong judicial independence, and an efficient

government (26th). Private institutions are rated as highly accountable (14th), with effective auditing and accounting standards and strong investor protection (12th). The country's transport infrastructure is well developed by regional standards (42nd), especially in terms of ports, air transport, and roads. In addition, the country this year also records improvements in its electricity and telephony infrastructure (44th). Furthermore, the country's wide-ranging structural reforms that have taken place since 2006 are bearing fruit, as evidenced by its continuous improvements in the areas of market efficiency: financial markets are comparatively deep (26th), its efficient goods market (25th) is characterized by enabling conditions for both domestic and foreign competition, and its labor market efficiency (52nd) has been improving thanks to increased flexibility (18th). Going forward, as income per capita rises and Mauritius moves up the value chain, more effort will be needed to develop its human capital. Although rising enrollment rates, particularly tertiary enrollment, are laudable (40.32 percent in 2012) and its overall score in the quality of education has been improving, other countries are moving even faster. Improving competitiveness will require additional efforts not only to improve higher education and training (54th) but also to mobilize the country's talent more efficiently (101st), as evidenced by the low share of women in the labor force (115th).

South Africa continues its downward trend and falls to 56th place this year, third among the BRICS economies. South Africa does well on measures of the quality of its institutions (36th), including intellectual property protection (22nd), property rights (20th), the efficiency of its legal framework in challenging and settling disputes (9th and 15th, respectively), and its top-notch accountability of private institutions (2nd). Furthermore, South Africa's financial market development remains impressive at 7th place,²⁸ although our data point to more difficulties in all channels of obtaining finance this year. The country also has an efficient market for goods and services (32nd), and it does reasonably well in more complex areas such as business sophistication (31st) and innovation (43rd), benefitting from good scientific research institutions (34th) and strong collaboration between universities and the business sector in innovation (31st). South Africa's transport infrastructure (32nd) is good by regional standards, although its electricity supply does suffer disruptions (99th). But the country's strong ties to advanced economies, notably the euro area, has made it more vulnerable to the economic slowdown of those economies. These ties are likely to have contributed to the deterioration of fiscal indicators: its performance in the macroeconomic environment—having dropped sharply in the previous year—remains at 89th. Low scores for the diversion of public funds (96th), the perceived wastefulness of government spending (89th),

and a more general lack of public trust in politicians (90th) remain worrisome, and security (95th) continues to be a major area of concern for doing business. Building a skilled labor force and creating sufficient employment also present considerable challenges. The health of the workforce is ranked 132nd out of 144 economies—as a result of high rates of communicable diseases and poor health indicators more generally. Higher education and training remains insufficient (86th) and labor market efficiency (113th) is affected by extremely rigid hiring and firing practices (143rd), wage inflexibility (139th), and continuing significant tensions in labor-employer relations (144th). Raising education standards and making its labor market more efficient will thus be critical in view of the country's high unemployment rate of over 20 percent, with its youth unemployment rate estimated at over 50 percent.

Botswana remains stable this year at 74th place, the fourth spot in the region. Among the country's strengths are its relatively reliable and transparent institutions (39th), with efficient government spending and low levels of corruption, as well as its sound macroeconomic environment (13th), based on balanced fiscal budgets. However, the country's heavy reliance on diamond mining (which accounts for one-third of GDP and government revenues) renders it vulnerable to fluctuations in demand, as seen during the global crisis. Botswana's education system presents another area of concern, particularly for a middle-income country in transition to becoming an efficiency-driven economy. Education enrollment rates at all levels remain low by international standards, and the quality of the education system receives mediocre marks. Yet it is clear that by far the biggest obstacle facing Botswana in its efforts to improve its competitiveness remains its health situation: the country registers one of the highest rates of HIV and one of the lowest life expectancies in the world. Furthermore, its goods market must become more efficient (97th) and its infrastructure must be upgraded (101st), as evidenced by the recent electricity shortages. Going forward, combined efforts across all areas will be needed if the country is to reduce its heavy dependence on the mining sector and to set its economy on a more diversified growth path.

Namibia moves up by two places to 88th position. The country continues to benefit from a relatively well functioning institutional environment (50th), with well-protected property rights, an independent judiciary, and a fairly efficient government. The country's transport infrastructure is also good by regional standards (52nd) and financial markets continue to be reasonably developed (46th). In order to improve its competitiveness, as in much of the region, Namibia must improve its health and education systems. The country ranks a low 118th on the health subpillar, with high infant mortality and low life expectancy—the result, in large part, of its

high rates of communicable diseases, although the data point to an improvement this year. However, to move up the value chain and diversify its economy, efforts to build its human resource base will be critical: school enrollment rates remain low compared with other sub-Saharan upper-middle-income countries, and the quality of its education system remains poor (119th). In addition, Namibia could do more to harness new technologies to improve its productivity levels (89th).

Kenya continues its upward trend from last year and moves up by six places to reach 90th place, registering improvements in 11 out of 12 pillars, most notably in the areas of market efficiency. Its economy is supported by financial markets that are well developed (up by seven places to 24th position), an efficient labor market (25th), and an increasingly more efficient goods market (62nd). Reducing the number of days (32 days) and procedures (10, or rank 118) to start a business could further improve the enabling environment for businesses. Following the adoption of the country's new constitution in 2010, which introduced additional checks and balances on executive power, Kenya has also registered improvements in the institutions pillar (now at 78th, up from 123rd five years ago). These advances are largely driven by more efficient government and reduced corruption. Furthermore, the country's education system gets relatively good marks for quality (30th) as well as for on-the-job training (31st). On the other hand, Kenya's overall competitiveness is held back by a number of factors that hinder its long-term economic growth, particularly in view of its transition toward middle-income status: secondary and tertiary enrollment rates are low; infrastructure—particularly telephony and electricity (114th)—does not meet the needs of Kenya as the largest East African economy; weakening fiscal finances are affecting the macroeconomic environment (126th); and health remains an area of serious concern (117th). Finally, the security situation in Kenya also remains worrisome (128th).

Ghana reverses last year's downward trend and climbs up to 111th this year, largely as the result of slight improvements in its macroeconomic indicators (reversing last year's trend), although fiscal vulnerabilities persist: the government deficit stood at 10.8 percent of GDP in 2013, more than twice that of two years ago; government debt remains over 60 percent; and inflation is over 11 percent. With regard to strengths, public institutions are characterized by relatively high government efficiency (59th) and strong property rights (54th). In addition, the country's financial and goods markets are also relatively well developed (62nd and 67th, respectively). On the other hand, Ghana must do much more to develop and deploy talent in the country. Education levels continue to trail international standards at all levels, labor markets are characterized by inefficiencies, and the country is not sufficiently harnessing new technologies for productivity enhancements (ICT adoption rates continue to be very

low). The security situation, at 111th, also remains a concern.

Senegal comes in at 112th this year. Although the country's institutions (74th) rank still relatively low, our data suggest a steady improvement across a range of indicators, albeit from low levels. Senegal also benefits from relatively efficient goods and labor markets (both at 68th place), red tape to start a business is low even by international comparison (six days and four procedures), and labor-employer relations are reasonably good (57th). Moreover, Senegal hosts relatively good ports (58th), although all other modes of transport require significant upgrading (93rd overall). The country's competitiveness is further pulled down by the poor health and basic education of its population (131st). Indeed, only three out of four children receive primary education, which is low compared with its middle-income peers, and communicable diseases continue to erode the health of the general population. Higher education and training (119th) are also in need of improvement. These challenges—among others—are prioritized in the country's new growth strategy, the Plan Sénégal Emergent (PSE).²⁹ In addition, the country's macroeconomic environment remains challenging and is characterized by a high government deficit of 5.4 percent of GDP.

Côte d'Ivoire reverses its five-year downward trend and climbs to 115th place this year. The quality of its public institutions (86th) has continued to improve since the end of the 2010–11 post-election conflict, although from very low levels and in spite of being dragged down largely by the country's security situation (107th). Improvements this year also take place on the back of continuing fiscal consolidation and efforts to reduce red tape for the private sector; for example, it now takes eight days to start a business compared with over a month last year. Like many of its sub-Saharan peers, the country has a labor market that is fairly efficient (73rd), a ranking that is primarily driven by its high flexibility (40th). Going forward, however, critical challenges remain. Infrastructure (93rd)—although improving—remains underdeveloped. Moreover, Côte d'Ivoire does not meet basic needs in terms of health and primary education (140th), ranking among the lowest 10 countries worldwide on the related pillar. Only 60 percent of its children are enrolled in primary education, and the burden of communicable diseases—particularly the high incidence of malaria and HIV—weighs heavily on its limited workforce, which also does not fully integrate women (107th). Furthermore, technological adoption is low across private users and the business sector, with only 3 percent of the population using the Internet.

Ethiopia moves up to 118th this year, facing challenges across all pillars despite its recent record growth rates. The functioning of its institutions (96th) receives a weaker assessment across almost all

indicators, including property rights, ethics and corruption, and government efficiency. Furthermore, the country's goods market (124th) remains inefficient. Ethiopia also requires significant improvements in the areas of infrastructure (125th), higher education and training (131st), and technological readiness (133rd). On a more positive note, this year points to a slight improvement in the country's labor market, although concerns about the quality of labor-employer relations (97th), hiring and firing practices (78th), and the alignment between pay and productivity (99th) remain. Primary education, with a net enrollment rate of 86 percent, is comparatively good (although the quality of primary education requires improvement), and women account for a high percentage of the country's labor force.

Tanzania is ranked 121st in this edition. Inflation—although still high at close to 8 percent—returned to single digits this year, although fiscal indicators remain relatively high. In addition, some aspects of its labor market—such as the country's strong female participation in the labor force (6th) and reasonable redundancy costs—lend themselves to efficiency. On the other hand, the country's institutions have been deteriorating over the last several years—although government regulation is not seen as overly burdensome (61st), corruption remains high (98th) and policymaking continues to be opaque (111th). Infrastructure in Tanzania is underdeveloped (130th), with poor roads and ports and an unreliable electricity supply (125th). And although primary education enrollment is commendably high, providing universal access, enrollment rates at the secondary and university levels are among the lowest in the world (at 132nd and 134th place, respectively), while the quality of the education system needs upgrading. A related area of concern is the country's low level of technological readiness (131st), with low uptake of ICTs such as the Internet and mobile telephony. The basic health of its workforce is also a serious concern: the country is ranked 119th in this area, with poor health indicators and high levels of communicable diseases. In regional comparison, the country's goods market also remains inefficient, characterized by low domestic and foreign competition. In the near-term future, it will be important not to lose sight of these challenges for the country's long-term competitiveness, as the country is in the final stages of preparing its new constitution as well as holding elections next year.

Zimbabwe ranks 124th this year. Public institutions continue to receive a weak assessment, particularly related to corruption, government favoritism, and the protection of property rights (138th), reducing the incentive for businesses to invest. Despite efforts to improve its macroeconomic environment—including the dollarization of its economy in early 2009, which brought down inflation and interest rates—Zimbabwe still receives a low rank in this pillar (87th), which is characterized by

high government debt, a negative savings rate, and low inflation. Weaknesses in other areas include health (129th in the health subpillar); low education enrollment rates, with only every second child participating in secondary education; and formal markets that continue to function with difficulty, particularly goods and labor markets, which rank 133rd and 137th, respectively.

Nigeria—now Africa's largest economy—continues its downward trend and falls by seven places to 127th this year, largely on the back of weakened public finances as a result of lower oil exports. Institutions remain weak (129th) with insufficiently protected property rights, high corruption, and undue influence. In addition, the security situation remains dire (139th). Nigeria must continue to upgrade its infrastructure (134th) as well as improve its health and primary education (143rd). Furthermore, the country is not harnessing the latest technologies for productivity enhancements, as demonstrated by its low rates of ICT penetration. On the upside, Nigeria benefits from its relatively large market size (33rd), which bears the potential for significant economies of scale; a relatively efficient labor market (40th) driven by its flexibility (20th); and a solid financial market (67th) following its gradual recovery from the 2009 crisis. However, poor availability and affordability of finance in general and the difficulties in obtaining loans in particular (137th) remain an important bottleneck to economic growth. Ahead of the 2015 election cycle, it will, thus, be critical to keep the ongoing reform momentum to diversify the economy and increase the country's long-term competitiveness.

Mozambique ranks 133rd this year, with efforts required across many areas to lift its economy onto a sustainable growth and development path, particularly in view of its natural resource potential. The country's public institutions receive poor marks on the basis of low public trust in politicians, significant red tape faced by companies in their business dealings, and the perceived wastefulness of government spending. Macroeconomic stability is weak (110th) on the back of increased inflation and a high government deficit. Looking ahead, significant reform will be needed to advance the country's long-term competitiveness, including making critical investments across all modes of infrastructure (128th), establishing a regulatory framework that encourages competition to foster economic diversification, and developing a sound financial market (126th). Also critical, in view of the country's rapidly growing population and high unemployment, are investing in the healthcare system and primary education (135th) as well as higher education and training (138th).

Angola—the continent's second biggest oil exporter—ranks 140th overall. As with its oil-exporting peers, its strengths are in its macroeconomic environment and market size, but much remains to be done across the board to build up the country's

Box 4: Building strategic public-private collaborations to boost competitiveness

Raising productivity and competitiveness is crucial to sustaining economic growth and enhancing prosperity in a country. The process requires long-lasting commitment from relevant stakeholders to mobilize resources and provide the effort that can lead to the necessary reforms and productive investments across a vast array of areas.

However, stakeholders' actions—most notably those originating from the public and private sectors—are not always well coordinated and aligned, so that synergies are often not fully realized and the results of the combined efforts are not maximized. Governments frequently develop policies in areas that are important for competitiveness, such as administrative reform, education, and basic research, yet they do so without considering the specific needs of companies. The impact of these policies is thus reduced. At the same time, the business community does not always sufficiently engage in long-term and often risky investments in areas such as research and development, information and communication technologies, or employees' skills development strategies. If businesses could be engaged in this way, the positive spill-over effects of their investments could result in higher societal gains.

Fortunately, stakeholders are increasingly acknowledging the need to address this disconnect between public- and private-sector actions. The last few years have seen a growing recognition of the vital importance of supporting the definition and implementation of strategic public-private collaborations that go beyond the individual policies and strategies of governments and businesses.

Public-private collaborations have been common in areas such as infrastructure development because the potential gains that these specific governance structures could bring are significant for both the public and private sectors in terms of both the speed and scope of implementing projects and the particular strengths that each party can bring to bear. The private sector can contribute

its management expertise and resources, and the public sector can contribute its understanding of public needs and resources. Besides the traditional public-private partnerships found in infrastructure, public-private collaborations are becoming more common in initiatives related to other drivers of competitiveness, such as in innovation and education. In addition to speed, potentially better management, and shared resource commitments, these partnerships allow for a better alignment of government-led measures with the needs of private companies. The development of the European Innovation Partnerships, the European Technology Platforms, the Advanced Manufacturing Program in the United States, and the Leading Technology Institutes in the Netherlands are just a few examples of ongoing public-private collaborations in the field of innovation.

Against this backdrop, the World Economic Forum has embarked on an ambitious project to document, analyze, and disseminate some of the most promising examples of effective and efficient public-private collaboration in competitiveness-related areas. From this analysis, a number of key lessons are starting to emerge with regard to the main barriers and success factors that need to be taken into account when designing and implementing these collaborative approaches. More precisely, in order to broker effective collaborations, stakeholders must be able to count on clear targets and evaluation frameworks, the parties must share objectives and build strong and capable institutions to design and implement the projects, and enabling regulatory environments must be in place.

However, and perhaps even more importantly, strong leadership in both the public and private sectors is essential. Clear vision and effective communication is needed to overcome the main obstacle: lack of trust between the parties. Establishing mechanisms and dialogue fora that support a better understanding and can generate enhanced trust between the parties is thus crucial.

competitiveness. Given its favorable fiscal stance, Angola has a unique opportunity to invest revenues in competitiveness-enhancing measures. In this context, its poor performance across all governance indicators is worrisome: both public and private institutions are characterized by widespread corruption, and inefficient government spending casts doubt on the country's ability to spend resource receipts in the most important areas. Furthermore, Angola's infrastructure is one of the least developed globally (139th), and its population would be well served by improvements in its education and health systems (136th).

CONCLUSIONS

This chapter has presented and analyzed the results of the Global Competitiveness Index 2014–2015, a tool that assesses the competitiveness of 144 economies across all geographies and stages of development. The GCI aims at capturing the complexity of the phenomenon of

national competitiveness, which can be improved only through an array of efforts in different areas that affect the long-term productivity of a country, which is the key driver of economic growth.

In the current economic context of uneven recovery across advanced economies and renewed risks for emerging economies, the current edition of the *Report* has highlighted the need for more structural reforms and enhanced smart investments in both advanced and emerging economies in order to accelerate robust economic growth, create productive jobs, and boost inclusive growth with more and better opportunities for all segments of the population. At present, the pace of change remains uneven, and more determination and shared commitment among all stakeholders is urgently needed in order to build strategic public-private collaborations. Building this type of collaboration, as the ongoing World Economic Forum's project on the Competitiveness Lab and the Competitiveness Practices

Collection shows,³⁰ can yield significant results if properly designed and implemented. See Box 4 for more detail.

Since its introduction in 2005, the GCI has been used by a growing number of countries and institutions to benchmark national competitiveness. The clear and intuitive structure of the GCI framework is useful for prioritizing policy reforms because it allows each country to identify strengths and weaknesses of its national competitiveness environment and pinpoint those factors most constraining its economic development. More specifically, the GCI provides a platform for dialogue among government, business, and civil society that can serve as a catalyst for productivity-enhancing actions. Over the years, the GCI has proved to be a very useful tool for advancing competitiveness across countries and for brokering strategic public-private collaborations aimed at boosting national competitiveness.

NOTES

- 1 The Global Competitiveness Index is based on the result of the work of Sala-i-Martin and Artadi 2004.
- 2 Schumpeter 1942; Solow 1956; and Swan 1956.
- 3 See, for example, Sala-i-Martin et al. 2004 for an extensive list of potential robust determinants of economic growth.
- 4 See Easterly and Levine 1997; Acemoglu et al. 2001, 2002; Rodrik et al. 2002; and Sala-i-Martin and Subramanian 2003.
- 5 See de Soto 2000.
- 6 See de Soto and Abbot 1990.
- 7 See Shleifer and Vishny 1997; Zingales 1998.
- 8 See Kaufmann and Vishwanath 2001.
- 9 See Aschauer 1989; Canning et al. 1994; Gramlich 1994; and Easterly 2002.
- 10 See Fischer 1993.
- 11 See Sachs 2001.
- 12 See Schultz 1961; Lucas 1988; Becker 1993; and Kremer 1993.
- 13 See Almeida and Carneiro 2009; Amin 2009; and Kaplan 2009 for country studies demonstrating the importance of flexible labor markets for higher employment rates and, therefore, economic performance.
- 14 See Aghion and Howitt 1992 and Barro and Sala-i-Martin 2003 for a technical exposition of technology-based growth theories.
- 15 A general purpose technology (GPT), according to Trajtenberg (2005), is one that, in any given period, gives a particular contribution to an overall economy's growth thanks to its ability to transform the methods of production in a wide array of industries. Examples of GPTs have been the invention of the steam engine and the electric dynamo.
- 16 See Sachs and Warner 1995; Frenkel and Romer 1999; Rodrik and Rodriguez 1999; Alesina et al. 2005; and Feyrer 2009. The case of the European Union illustrates the importance of the market size for competitiveness. Although the reduction of trade barriers and the harmonization of standards within the European Union have contributed to raising exports within the region, many barriers to a true single market, in particular in services, remain in place and lead to important border effects. Therefore we continue to use the size of the national domestic and foreign market in the Index.
- 17 This is particularly important in a world in which economic borders are not as clearly delineated as political ones. In other words, when Belgium sells goods to the Netherlands, the national accounts register the transaction as an export (so the Netherlands is a foreign market for Belgium), but when California sells the same kind of output to Nevada, the national accounts register the transaction as domestic (so Nevada is a domestic market for California).
- 18 See Romer 1990; Grossman and Helpman 1991; and Aghion and Howitt 1992.
- 19 Probably the most famous theory of stages of development was developed by the American historian W. W. Rostow in the 1960s (see Rostow 1960). Here we adapt Michael Porter's theory of stages (see Porter 1990). Please see Chapter 1.1 of *The Global Competitiveness Report 2007–2008* (Sala-i-Martin et al. 2007) for a complete description of how we have adapted Michael Porter's theory for the present application.
- 20 Some restrictions were imposed on the coefficients estimated. For example, the three coefficients for each stage had to add up to one, and all the weights had to be non-negative.
- 21 In order to capture the resource intensity of the economy, we use as a proxy the exports of mineral products as a share of overall exports according to the sector classification developed by the International Trade Centre in their Trade Performance Index. In addition to crude oil and gas, this category also contains all metal ores and other minerals as well as petroleum products, liquefied gas, coal, and precious stones. The data used cover the years 2009 through 2013. Further information on these data can be found at <http://legacy.intracen.org/appli1/TradeCom/Documents/TradeCompMap-Trade%20Performance%20Index-Technical%20Notes-EN.pdf>.

All countries that with more than 70 percent of their exports made up of mineral products are considered to be to some extent factor driven. The stage of development for these countries is adjusted downward smoothly depending on the exact primary export share. The higher the minerals export share, the stronger the adjustment and the closer the country will move to stage 1. For example, a country that exports 95 percent of mineral exports and that, based on the income criteria, would be in stage 3 will be in transition between stages 1 and 2. The income and primary exports criteria are weighted identically. Stages of development are dictated solely by income for countries that export less than 70 percent minerals. Countries that export only primary products would automatically fall into the factor-driven stage (stage 1).
- 22 In practice, this applies to countries where the GDP per capita at current market prices has, for the past five years, been above an average of that of economies at the technology frontier. Countries at the technology frontier are the 10 countries with the highest per capita patenting activity according to Patent Cooperation Treaty data.
- 23 We have retained the geographical classifications used in past editions of the Report while changing the groupings in the country/economy profiles. The groupings in the profiles are based on IMF data, and use the IMF classifications.
- 24 IMF 2014a.
- 25 World Bank 2014.
- 26 Overall, the agricultural sector in GDP remains high at 25%, accounting for more than 60% of employment on average and for more than 80% in many countries. See AfDB, OECD, and UNDP 2014.
- 27 IMF 2014b.
- 28 The Central Bank's bailout of African Bank Investments on August 11, 2014, is not reflected in the EOS data this year, but might affect the country's performance in this pillar in the following year.
- 29 See <http://www.gouv.sn/Plan-Senegal-Emergent-PSE.html>.
- 30 The Competitiveness Lab and Competitiveness Practice Repository is a new initiative of the World Economic Forum to orchestrate an informed multi-stakeholder process for better understanding and shaping the competitiveness agenda of a country or region.

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Appendix A: Statistically testing the validity of the Global Competitiveness Index as an estimate of the level of productivity of an economy

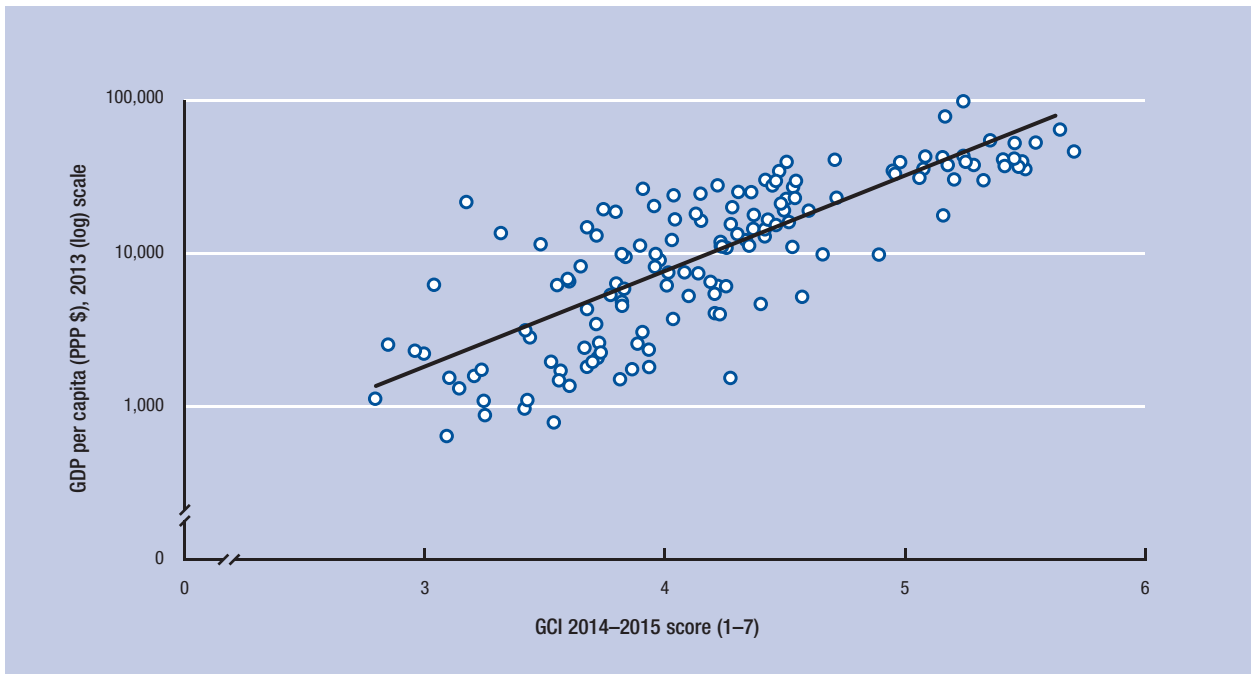
For almost 10 years, the Global Competitiveness Index (GCI) has been used by the World Economic Forum to assess the level of productivity of an economy, which determines its long-term growth potential. This appendix presents the results of an empirical analysis that supports the validity of the GCI as a sound estimate of the level of productivity.

It must be said from the start that measuring the level of productivity of an economy is a difficult task. The seminal work of Solow (1957) provided a methodology to estimate the *growth rate of productivity*, known as “total factor productivity (TFP)” or “Solow residual” in the academic literature. This estimate of productivity growth is traditionally calculated as the difference between the actual growth rate of gross domestic product (GDP) and

the part of that growth rate that could not be accounted for by the accumulation of physical capital and human capital. This methodology, however, cannot be used to estimate the actual *level* of productivity, which is the aim of the GCI.

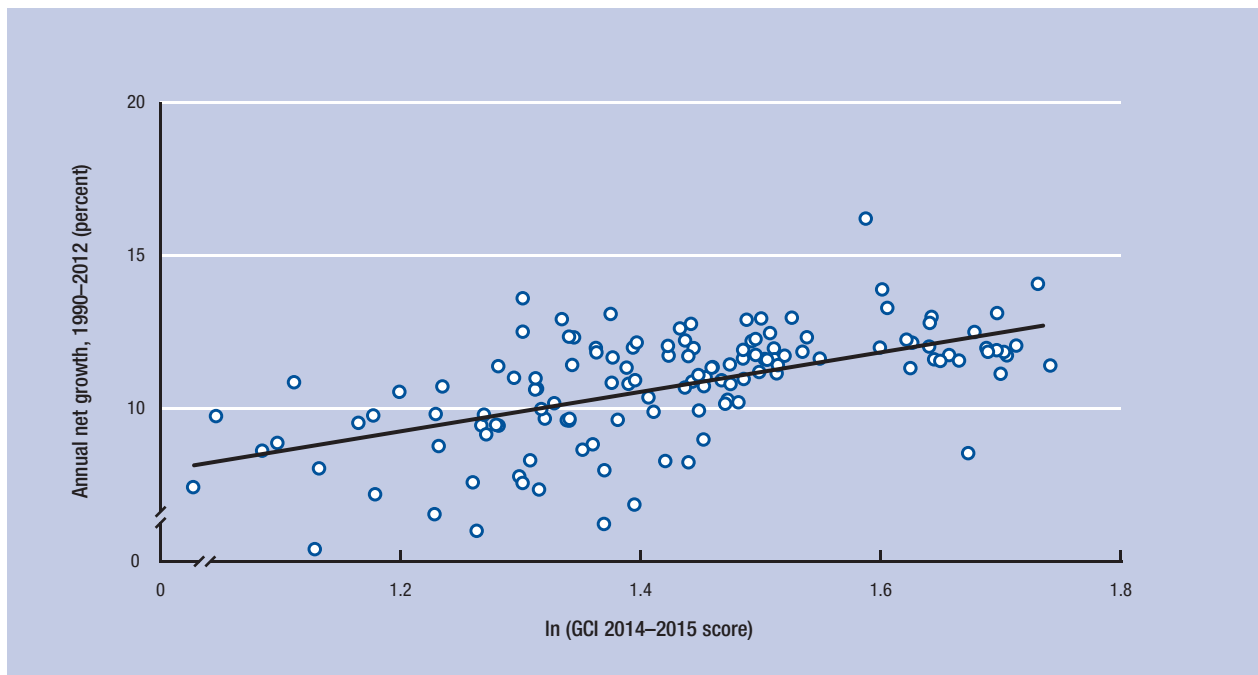
Despite this difficulty, Hall and Jones (1996) have shown that around 89 percent of the variation in GDP per capita is due to variation in the level of productivity. As a result, GDP per capita can be used as a proxy for the level of productivity of a country. Figure 1 illustrates the strong and positive relationship between GDP per capita and the GCI. The bivariate model, in which we regress the log of the level of GDP per capita on the GCI score, reveals that about two-thirds of the variation in GDP per capita can be explained by the GCI.

Figure 1: Relationship between the GCI and level of income for 143 economies



Source: World Economic Forum; IMF *World Economic Outlook Database* April 2014.

Figure 2: Relationship between the GCI and growth (net of convergence effect)



Source: World Economic Forum and World Bank, *World Development Indicators* (accessed August 18, 2014).
 Note: See text for details. $N = 132$ economies.

Another way to check the relation between the GCI and the level of productivity of a country is to look at the relation between the GCI and the growth rate of that country. Indeed, most economic growth theories predict that the growth rate will be directly related to the level of productivity, which, in turn, determines the rate of return of investment in an economy. As a result, most theories would predict the GCI to be positively related to an economy's growth rate.

However, estimating a bivariate relation between the growth rate and the GCI would be a mistake. The reason for that lies in what economists call the “conditional convergence effect,” which posits that, all other things being equal, there is a natural tendency for poor economies to grow faster—a phenomenon known as *conditional convergence*.¹ In other words, if all countries had the same investment and population growth rates and the same levels of productivity, then we should observe poor countries growing faster than rich ones. Conversely, if all countries had the same level of income, then those that were more competitive would experience higher rates of long-term economic growth. In reality, however, countries differ both in their levels of income and their levels of productivity, and therefore it is very hard to predict the relationship between the growth rate and the level of productivity with a bivariate correlation analysis that includes the initial level of income.

As an alternative, we can calculate the correlation between the GCI and GDP growth (once the conditional convergence effects have been discounted). In order to do that, we need to estimate net-of-convergence growth

rates; these rates would be more closely affected only by the level of productivity across different economies. If these net-of-convergence growth rates are positively related to the GCI, it will indicate that the GCI is a good estimate of the determinants of productivity.

Formally, in a growth convergence equation,² the growth rate of GDP per capita of country i is a positive function of the GCI score and a negative function of GDP per capita at time t , y_{it} :

$$\gamma_{y_i} = \alpha_0 + \alpha_1 \times \ln(GCI_i) - \beta \times \ln(y_{it}) + \epsilon_i \quad (1)$$

Using World Bank GDP purchasing power parity-adjusted data, one can estimate Equation (1) for the 1990–2012 period. The coefficient of the natural log of GCI is 0.067 with a t -statistic of 5.23, and the coefficient of the log of the initial (i.e., 1990) level of income is -0.010 with a t -stat of -5.82 . We can net out the convergence effect from the overall growth rate and relate the result to the level of the GCI.³

Figure 2 plots this “net growth rate” against the natural log of the GCI score, revealing a positive and strong correlation, which is consistent with the view that the GCI is a good proxy for the level of productivity or competitiveness of an economy.

In conclusion, the results of both Figures 1 and 2 indicate that the GCI is a good estimate of the level of productivity. In other words, the GCI's estimate of the determinants of competitiveness—which, in turn, fundamentally shape the (conditional) medium to long-run growth rate of an economy and its level of prosperity—is validated on a statistical level.

NOTES

- 1 The reason that poor economies do not grow systematically faster is that “other things are not equal.” Among those other things that are not equal, we find the level of productivity or competitiveness, as defined by the World Economic Forum.
- 2 A growth convergence equation can be derived, for example, from the basic neoclassical growth theory as seen in Barro and Sala-i-Martin (2004).
- 3 This is done by adding the term $\beta \times \ln(y_{it})$ from both sides of Equation (1) and using the β estimated in Equation (1). GDP per capita in constant 2011 international dollars were used for the computation.

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Appendix B: Computation and structure of the Global Competitiveness Index 2014–2015

This appendix presents the structure of the Global Competitiveness Index 2014–2015 (GCI). The numbering of the indicator matches the numbering of the data tables. The number preceding the period indicates to which pillar the indicator belongs (e.g., indicator 1.11 belongs to the 1st pillar and indicator 9.04 belongs to the 9th pillar).

The computation of the GCI is based on successive aggregations of scores from the indicator level (i.e., the most disaggregated level) all the way up to the overall GCI score. Unless noted otherwise, we use an arithmetic mean to aggregate individual indicators within a category.^a For the higher aggregation levels, we use the percentage shown next to each category. This percentage represents the category's weight within its immediate parent category. Reported percentages are rounded to the nearest integer, but exact figures are used in the calculation of the GCI. For example, the score a country achieves in the 11th pillar accounts for 50 percent of this country's score in the *innovation and sophistication factors* subindex, irrespective of the country's stage of development. Similarly, the score achieved on the *transport infrastructure* subpillar accounts for 50 percent of the score of the *infrastructure* pillar.

Unlike the case for the lower levels of aggregation, the weight put on each of the three subindexes (*basic requirements*, *efficiency enhancers*, and *innovation and sophistication factors*) is not fixed. Instead, it depends on each country's stage of development, as discussed in the chapter.^b For instance, in the case of Burundi—a country in the first stage of development—the score in the *basic requirements* subindex accounts for 60 percent of its overall GCI score, while it represents just 20 percent of the overall GCI score of Sweden, a country in the third stage of development. For countries in transition between stages, the weighting applied to each subindex is reported in the corresponding profile at the end of this volume. For instance, in the case of Azerbaijan, currently in transition from stage 1 to stage 2, the weight on each subindex is 56.3 percent, 37.8 percent, and 5.9 percent, respectively, as reported in the country profile on page 118.

Indicators that are not derived from the Executive Opinion Survey (the Survey) are identified by an asterisk (*) in the following pages. The Technical Notes and

Sources section at the end of the *Report* provides detailed information about each of these indicators. To make the aggregation possible, the indicators are converted to a 1-to-7 scale in order to align them with the Survey results. We apply a min-max transformation, which preserves the order of, and the relative distance between, country scores.^c

Indicators that are followed by the designation “1/2” enter the GCI in two different pillars. In order to avoid double counting, we assign a half-weight to each instance.^d

	Weight (%) within immediate parent category
BASIC REQUIREMENTS	20–60% ^b
1st pillar: Institutions	25%
A. Public institutions	75%
1. Property rights.....	20%
1.01 Property rights	
1.02 Intellectual property protection ^{1/2}	
2. Ethics and corruption	20%
1.03 Diversion of public funds	
1.04 Public trust in politicians	
1.05 Irregular payments and bribes	
3. Undue influence.....	20%
1.06 Judicial independence	
1.07 Favoritism in decisions of government officials	
4. Government efficiency.....	20%
1.08 Wastefulness of government spending	
1.09 Burden of government regulation	
1.10 Efficiency of legal framework in settling disputes	
1.11 Efficiency of legal framework in challenging regulations	
1.12 Transparency of government policymaking	
5. Security.....	20%
1.13 Business costs of terrorism	
1.14 Business costs of crime and violence	
1.15 Organized crime	
1.16 Reliability of police services	
B. Private institutions	25%
1. Corporate ethics	50%
1.17 Ethical behavior of firms	
2. Accountability	50%
1.18 Strength of auditing and reporting standards	
1.19 Efficacy of corporate boards	
1.20 Protection of minority shareholders' interests	
1.21 Strength of investor protection*	

2nd pillar: Infrastructure.....25%**A. Transport infrastructure.....50%**

- 2.01 Quality of overall infrastructure
- 2.02 Quality of roads
- 2.03 Quality of railroad infrastructure^e
- 2.04 Quality of port infrastructure
- 2.05 Quality of air transport infrastructure
- 2.06 Available airline seat kilometers*

B. Electricity and telephony infrastructure.....50%

- 2.07 Quality of electricity supply
- 2.08 Mobile telephone subscriptions*^{1/2}
- 2.09 Fixed telephone lines*^{1/2}

3rd pillar: Macroeconomic environment25%

- 3.01 Government budget balance*
- 3.02 Gross national savings*
- 3.03 Inflation*^f
- 3.04 Government debt*
- 3.05 Country credit rating*

4th pillar: Health and primary education.....25%**A. Health.....50%**

- 4.01 Business impact of malaria^g
- 4.02 Malaria incidence*^g
- 4.03 Business impact of tuberculosis^g
- 4.04 Tuberculosis incidence*^g
- 4.05 Business impact of HIV/AIDS^g
- 4.06 HIV prevalence*^g
- 4.07 Infant mortality*
- 4.08 Life expectancy*

B. Primary education.....50%

- 4.09 Quality of primary education
- 4.10 Primary education enrollment rate*

EFFICIENCY ENHANCERS35–50%^b**5th pillar: Higher education and training.....17%****A. Quantity of education.....33%**

- 5.01 Secondary education enrollment rate*
- 5.02 Tertiary education enrollment rate*

B. Quality of education.....33%

- 5.03 Quality of the education system
- 5.04 Quality of math and science education
- 5.05 Quality of management schools
- 5.06 Internet access in schools

C. On-the-job training.....33%

- 5.07 Local availability of specialized research and training services
- 5.08 Extent of staff training

6th pillar: Goods market efficiency17%**A. Competition.....67%****1. Domestic competitionvariable^h**

- 6.01 Intensity of local competition
- 6.02 Extent of market dominance
- 6.03 Effectiveness of anti-monopoly policy
- 6.04 Effect of taxation on incentives to invest
- 6.05 Total tax rate*
- 6.06 Number of procedures required to start a business*ⁱ
- 6.07 Time required to start a business*ⁱ
- 6.08 Agricultural policy costs

2. Foreign competitionvariable^h

- 6.09 Prevalence of trade barriers
- 6.10 Trade tariffs*
- 6.11 Prevalence of foreign ownership
- 6.12 Business impact of rules on FDI
- 6.13 Burden of customs procedures
- 6.14 Imports as a percentage of GDP*^j

B. Quality of demand conditions33%

- 6.15 Degree of customer orientation
- 6.16 Buyer sophistication

7th pillar: Labor market efficiency17%**A. Flexibility.....50%**

- 7.01 Cooperation in labor-employer relations
- 7.02 Flexibility of wage determination
- 7.03 Hiring and firing practices
- 7.04 Redundancy costs*
- 7.05 Effect of taxation on incentives to work

B. Efficient use of talent.....50%

- 7.06 Pay and productivity
- 7.07 Reliance on professional management^{1/2}
- 7.08 Country capacity to retain talent
- 7.09 Country capacity to attract talent
- 7.10 Female participation in labor force*

8th pillar: Financial market development.....17%**A. Efficiency.....50%**

- 8.01 Availability of financial services
- 8.02 Affordability of financial services
- 8.03 Financing through local equity market
- 8.04 Ease of access to loans
- 8.05 Venture capital availability

B. Trustworthiness and confidence50%

- 8.06 Soundness of banks
- 8.07 Regulation of securities exchanges
- 8.08 Legal rights index*

9th pillar: Technological readiness.....17%**A. Technological adoption.....50%**

- 9.01 Availability of latest technologies
- 9.02 Firm-level technology absorption
- 9.03 FDI and technology transfer

B. ICT use.....50%

- 9.04 Internet users*
- 9.05 Broadband Internet subscriptions*
- 9.06 Internet bandwidth*
- 9.07 Mobile broadband subscriptions*
- 2.08 Mobile telephone subscriptions*^{1/2}
- 2.09 Fixed telephone lines*^{1/2}

10th pillar: Market size.....17%**A. Domestic market size75%**

- 10.01 Domestic market size index*^k

B. Foreign market size25%

- 10.02 Foreign market size index*^l

INNOVATION AND SOPHISTICATION FACTORS5–30%^b**11th pillar: Business sophistication50%**

- 11.01 Local supplier quantity
- 11.02 Local supplier quality
- 11.03 State of cluster development
- 11.04 Nature of competitive advantage
- 11.05 Value chain breadth
- 11.06 Control of international distribution
- 11.07 Production process sophistication
- 11.08 Extent of marketing
- 11.09 Willingness to delegate authority
- 7.07 Reliance on professional management^{1/2}

12th pillar: R&D Innovation50%

- 12.01 Capacity for innovation
- 12.02 Quality of scientific research institutions
- 12.03 Company spending on R&D
- 12.04 University-industry collaboration in R&D
- 12.05 Government procurement of advanced technology products
- 12.06 Availability of scientists and engineers
- 12.07 PCT patent applications*
- 1.02 Intellectual property protection^{1/2}

NOTES

- a Formally, for a category *i* composed of *K* indicators, we have:

$$category_i = \frac{\sum_{k=1}^K indicator_k}{K}$$

- b As described in the chapter, the weights are as specified below. Refer to Table 2 of the chapter for country classification according to stage of development:

	Stage of development				
	Factor-driven stage (1)	Transition from stage 1 to stage 2	Efficiency-driven stage (2)	Transition from stage 2 to stage 3	Innovation-driven stage (3)
GDP per capita (US\$) thresholds*	<2,000	2,000–2,999	3,000–8,999	9,000–17,000	>17,000
Weight for basic requirements	60%	40–60%	40%	20–40%	20%
Weight for efficiency enhancers	35%	35–50%	50%	50%	50%
Weight for innovation and sophistication factors	5%	5–10%	10%	10–30%	30%

- * For economies with a high dependency on mineral resources, GDP per capita is not the sole criterion for the determination of the stage of development. See text for details.

- c Formally, we have:

$$6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 1$$

The *sample minimum* and *sample maximum* are, respectively, the lowest and highest country scores in the sample of economies covered by the GCI. In some instances, adjustments were made to account for extreme outliers. For those indicators for which a higher value indicates a worse outcome (e.g., disease incidence, government debt), the transformation formula takes the following form, thus ensuring that 1 and 7 still corresponds to the worst and best possible outcomes, respectively:

$$-6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 7$$

- d For those categories that contain one or several half-weight variables, country scores are computed as follows:

$$\frac{(\text{sum of scores on full-weight variables}) + \frac{1}{2} \times (\text{sum of scores on half-weight variables})}{(\text{count of full-weight variables}) + \frac{1}{2} \times (\text{count of half-weight variables})}$$

- e “N/Appl.” is used for economies where there is no regular train service or where the network covers only a negligible portion of the territory. Assessment of the existence of a network was conducted by the World Economic Forum based on various sources.
- f In order to capture the idea that both high inflation and deflation are detrimental, inflation enters the model in a U-shaped manner as follows: for values of inflation between 0.5 and 2.9 percent, a country receives the highest possible score of 7. Outside this range, scores decrease linearly as they move away from these values.
- g The impact of malaria, tuberculosis, and HIV/AIDS on competitiveness depends not only on their respective incidence rates but also on how costly they are for business. Therefore, in order to estimate the impact of each of the three diseases, we combine its incidence rate with the Survey question on its perceived cost to businesses. To combine these data we first take the ratio of each country's disease incidence rate relative to the highest incidence rate in the whole sample. The inverse of this ratio is then multiplied by each country's score on the related Survey question. This product is then normalized to a 1-to-7 scale. Note that countries with zero reported incidence receive a 7, regardless of their scores on the related Survey question. In the case of malaria, countries receive a 7 if the World Health Organization (WHO) has classified them as malaria-free countries or included them in the supplementary list of areas where malaria has never existed or has disappeared without specific measures.
- h The *competition* subpillar is the weighted average of two components: *domestic competition* and *foreign competition*. In both components, the included indicators provide an indication of the extent to which competition is distorted. The relative importance of these distortions depends on the relative size of domestic versus foreign competition. This interaction between the domestic market and the foreign market is captured by the way we determine the weights of the two components. Domestic competition is the sum of consumption (C), investment (I), government spending (G), and exports (X), while foreign competition is equal to imports (M). Thus we assign a weight of $(C + I + G + X)/(C + I + G + X + M)$ to *domestic competition* and a weight of $M/(C + I + G + X + M)$ to *foreign competition*.
- i Indicators 6.06 and 6.07 combine to form one single indicator.
- j For indicators 6.14, imports as a percentage of GDP, we first apply a log-transformation and then a min-max transformation.
- k The size of the domestic market is constructed by taking the natural log of the sum of the gross domestic product valued at purchased power parity (PPP) plus the total value (PPP estimates) of imports of goods and services, minus the total value (PPP estimates) of exports of goods and services. Data are then normalized on a 1-to-7 scale. PPP estimates of imports and exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP. The underlying data are reported in the data tables section (see Tables 10.03, 6.14, and 10.04).
- l The size of the foreign market is estimated as the natural log of the total value (PPP estimates) of exports of goods and services, normalized on a 1-to-7 scale. PPP estimates of exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP. The underlying data are reported in the data tables.

Assessing Progress toward Sustainable Competitiveness

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One of the key developments in the policy space over the past decade has been the advancement of concepts related to environmental sustainability and more recently inclusive growth. Such conceptual schemes comprise social, economic, and environmental components of sustainability, and they provide an intellectual basis for societies around the world to coalesce around the principles of sustained and universal levels of prosperity.

The emergence and widespread acceptance of the principle of social inclusion in the public domain has both a cultural origin and an economic one. Its cultural origin can be traced back as far as the 17th-century idea of egalitarianism, an idea that became embedded in cultural norms and then evolved into a widely held value system in international politics that provided a common rhetoric about human development. In the aftermath of World War II, this concept was translated into the universal declaration of human rights.¹ Its economic origin is rooted in the unprecedented economic development of Western economies since the mid-20th century. During this period, high standards of living were achieved by large swaths of the populations of these economies, with the expectation that these standards would remain high and expand globally over time.

In a similar fashion, the concept of environmental sustainability has evolved from two ideas: ecologism—the idea that the non-human world is worthy of moral consideration²—and environmentalism, a broad-based movement concerned with protecting the environment, and in particular with the effects of environmental damage on the health and well-being of both humans and the environment.

Over the past decades, these ideas have become prominent in the global discourse and have helped to create a public expectation of growing prosperity that goes hand in hand with social justice and environmental protection. Yet the possibility of achieving this vision within the boundaries of the prevalent growth model has been called into question as increasing pressures on the environment have become evident, and as concerns voiced over the distribution of the benefits of economic development have grown more forceful. The mounting social and environmental pressures observed in rapidly growing developing and emerging economies suggest that these dimensions are strongly intertwined and therefore should be addressed as part of the economic development process. And because environmental and social sustainability are simultaneously inputs and outcomes of the growth process, they should not be considered in isolation, but rather as integral parts of the economic growth process.

Despite increased awareness about the urgency of social and environmental issues, progress toward a more sustainable future is slow. On the environmental sustainability side, although concrete improvements have been achieved in many countries on specific issues such

Box 1: The Advisory Board on Sustainable Competitiveness

The Advisory Board on Sustainable Competitiveness has been assisting the World Economic Forum to integrate the concept of sustainability more fully into its competitiveness work since the beginning of the Sustainable Competitiveness project. Members are drawn from the network of Global Agenda Councils, the World Economic Forum's knowledge backbone. They represent voices from key business sectors, government, and civil society. The members of the Advisory Board are:

James Cameron, Chairman, Climate Change Capital, United Kingdom

Dan Esty, Professor, Yale University, USA

Clément Gignac, Chief Economist and Senior Vice-President, Industrial Alliance Insurance and Financial Services, Canada

Jeni Klugman, Director for Gender, The World Bank, USA

Marc A. Levy, Deputy Director, Center for International Earth Science Information Network, Columbia University, USA

John W. McArthur, Senior Fellow, UN Foundation & Nonresident Senior Fellow, Brookings Institution

Kevin X. Murphy, President and Chief Executive Officer, J.E. Austin Associates Inc., USA

Mari Elka Pangestu, Minister of Tourism and Creative Economy, Indonesia

Lindene Patton, Chief Climate Product Officer, Zurich Financial Services, Switzerland

Anthony O'Sullivan, Head Private Sector Development, Organisation for Economic Co-operation and Development (OECD), France

Xavier Sala-i-Martin, Professor, Economics Department, Columbia University, USA

Mark Spelman, Global Managing Director, Accenture, United Kingdom

Simon Zadek, Co-Director of the UNEP Inquiry on Options for a Sustainable Finance System, United Nations Environment Programme, Switzerland

as the regulation of hazardous substances,³ progress on broader issues has been patchy. Pollution and biodiversity loss are of growing concern, while climate change and its unpredictable consequences remain substantially unaddressed. The world is also facing an increasing scarcity of water, energy, and mineral resources, for which demand continues to climb. These developments signal that—despite growing awareness about the risks related to unsustainable resource and environmental management—the world is not moving toward a more sustainable path and concrete results are yet to be achieved.

On the social sustainability side, there appears to be a trend toward more polarized societies. Although part of this trend can be traced back to the slowdown following the financial crisis, research also finds a structural decline in the share of GDP accruing to labor, mainly driven by skill-biased technological change related to globalization.⁴ There is a concern that this trend may result in a high concentration of wealth similar to that experienced by Western economies in the earlier stages of industrialization. According to Thomas Piketty's recent analysis,⁵ the widespread gains in prosperity to which Western societies have become accustomed and that emerging economies aim to achieve were realized only in the first decades following World War II.⁶

The recent interest in social inclusion and socioeconomic inequality is linked, in large part, to its potentially socially destabilizing effect. Research shows that more polarized societies may undermine trust in

democratic and market institutions, leading to greater political instability.⁷

Taken together, the limited progress in addressing environmental and social concerns could undermine the prospects for worldwide shared prosperity. In the absence of economic growth, any effort toward a more equal distribution of income would do little good for the millions of people in developing countries who remain at low levels of income and human development. Therefore, while enhancing competitiveness remains a fundamental prerequisite to raising prosperity, it should be accompanied by transformations that adapt to the new technological, geopolitical, and ecological reality to ensure that progress translates into higher human development for all. At the same time, sustainable competitiveness should be at the heart of the thinking about sustainability because competitive economies tend to be more innovative, more resilient, and better able to respond to external shocks and thus maintain high levels of prosperity going forward.

Attaining higher levels of sustainability requires that governments, businesses, and civil society work together to address the emerging challenges. Progress on these challenges requires high levels of multi-stakeholder collaboration—for example, on environmental regulation, where a balance with productivity needs to be ensured, and on social inclusion, which can be achieved only if businesses contribute to human capital development. Such collaboration is needed to achieve more pragmatic

progress and allow countries to transition to more sustainable models of growth.

Even though the number of studies on sustainability has grown significantly over the past decades, the detailed linkages between sustainability and competitiveness remain to a large extent uncertain.

To fill this gap, the World Economic Forum has engaged in a series of activities to expand its knowledge of sustainability and of the relationship between sustainability and competitiveness, and has been at the forefront of the discussion on environmental sustainability. This work aims to shape the agenda by catalyzing public-private platforms that help governments draw on their joint expertise to identify and implement solutions to the most pressing issues facing the global community. Issues of economic, social, and environmental sustainability have been showcased and discussed at many of the Forum's regional and annual meetings. Since 2010, the World Economic Forum—in collaboration with a multi-stakeholder Advisory Board of international experts (Box 1)—has embarked on an effort to integrate the concept of sustainability into its competitiveness work. The Forum continues its efforts to build a more robust narrative of the concept of sustainable competitiveness.

DEFINING SUSTAINABLE COMPETITIVENESS

With the 1987 publication of the report *Our Common Future*, sustainable development was defined as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”⁸ The breadth of the definition was meant to capture the several dimensions of development that go beyond the usual boundaries of economic growth in order to include both the tangible and intangible necessities of life.

The concept of sustainable competitiveness places more emphasis than the concept of sustainable development does on the importance of productivity as a driver of prosperity and long-term growth. We define *sustainable competitiveness* as *the set of institutions, policies, and factors that make a nation productive over the longer term while ensuring social and environmental sustainability. Social sustainability*, in turn, is defined as *the institutions, policies, and factors that enable all members of society to experience the best possible health, participation, and security; and that maximize their potential to contribute to and benefit from the economic prosperity of the country in which they live. And we define environmental sustainability as the institutions, policies, and factors that ensure an efficient management of resources to enable prosperity for present and future generations.*

Fundamental to the concept of sustainable competitiveness is the notion that, although competitiveness can be equated with productivity,

sustainable competitiveness can be linked to a broader concept that focuses on aspects that go beyond mere economic outcomes to include other important elements that render societies sustainably prosperous by ensuring high-quality growth.

Another way of looking at the concept of sustainable competitiveness is that it aims to gauge not only whether a country has the potential to grow over the medium and long term, but whether the national development process is producing the kind of society in which we want to live.

Competitiveness and environmental sustainability

The concepts of competitiveness and environmental sustainability are linked at both the country and the firm level. At the country level, because Earth's natural resources are either limited or are renewed at a specific physical rate, finding an appropriate combination of technology and the planet's carrying capacity could prevent the limitations of resources from becoming a drag on growth. Developing sustainable practices could also, to a certain extent, fuel productivity. For example, biodiversity can be an important source of innovation.

At the firm level, the impact of environmental regulations on productivity is still controversial, especially if externalities are not taken into account. However, many companies have started to become more aware that environmental challenges such as pollution, climate change, and resource scarcity could affect them (see Box 2). First, these challenges could affect a firm's bottom line at some point in time, for example through frequent supply chain disruptions resulting from unforeseen meteorological catastrophes (which are thought to be affected by climate change). Second, stricter environmental regulations could also impact business operations, for example when businesses must face higher prices for commodities used as inputs of production. And third, as consumers become more aware of environmental sustainability issues, companies become more concerned about reputational risks.⁹ Consequently, the business sector has started to take a keener interest in environmental issues than it did a couple of decades ago. This is evidenced in the increasing number of companies voluntarily reporting on their emissions,¹⁰ and in the number of financial management firms signing on to the United Nation's Principles for Responsible Investment.¹¹ Companies are also taking action on issues that may impact the sector in which they do business. For example, food-processing companies have put forward and supported initiatives relating to water scarcity because this scarcity may have—in some cases is already having—an impact on crops and therefore on the supply of raw materials and cost of commodities. Another example is the information technology (IT) sector, where “sustainability is fast becoming an important corporate-performance

Box 2: Progress toward stronger environmental regulations

In the run-up to the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change to be held in 2015 in Paris, when a new climate accord is due, countries are getting more serious about their environmental policies.

On climate change, for example, as a recent report by the Global Legislators Organisations (GLOBE International) and the Grantham Research Institute at the London School of Economics points out, climate legislation in 66 countries now covers nearly 88 percent of current greenhouse gas emissions.¹ To be sure, although some major industrialized countries have experienced serious resistance to climate legislation—for example, Australia’s government repealed a key element of the country’s Clean Energy Act (the carbon tax) three times in 2014;² and Japan announced, in the COP 19 session of the Convention on Climate Change in Warsaw, that its greenhouse gas emissions will be slashed by only 3.8 percent by 2020 compared with 2005 levels to accommodate a much reduced reliance on low carbon nuclear energy after the accident at Fukushima³—almost 500 climate laws were passed in the 66 countries studied.⁴

According to the GLOBE report, developing countries and emerging markets have passed climate change laws and regulations at a faster pace than developed countries. For example:

Sub Saharan Africa saw major developments in 2013, with progress made in almost all of the study countries, notably the approval of national plans and strategies on climate change

- Kenya adopted 2013-2017 Climate Change Action Plan;
- Mozambique adopted 2013-2025 National Strategy for Climate Change;
- Tanzania passed its National Strategy on REDD+;
- Nigeria’s Legislative Council approved the adoption of a National Climate Change Policy and Response Strategy

The Americas are also taking concrete legislations

- Bolivia passed its Framework Law on Mother Earth and Integral Development to Live Well;
- El Salvador adopted its National Climate Change Strategy;
- In Ecuador, Decree 1815 established the Intersectoral National Strategy for Climate Change;
- In Costa Rica a draft General Law on Climate Change has been introduced and is expected to pass in 2014.⁵

Another breakthrough in the climate change regulatory landscape this year is the United States’ announcement to tackle carbon dioxide emissions. President Barack Obama,

who promised to “respond to the threat of climate change” in his inaugural speech after his re-election, has exercised executive authority through the Environmental Protection Agency to reduce emissions nationwide by an average of 25 percent by 2020 and 30 percent by 2030.⁶

Confirming this trend, Figure 1 shows that, overall, countries are getting more serious about their environmental regulation. Findings from the Executive Opinion Survey (the Survey) show that the stringency of regulations has increased by more than 0.1 points in the last 10 years, and regulatory enforcement has increased by nearly 0.1 points in the same period of time.

Whether motivated by improved climate change science, the cost of doing nothing,⁷ or the heightened perception of environmental risk (since 2010, the respondents of the World Economic Forum’s Global Risks Perceptions Survey consider environmental risks both to be more likely to happen and to have greater impact),⁸ the increase in the number and efficacy of environmental regulations is welcome and timely. The drivers for this increase differ across the world. In Asia, for example, stronger policies are motivated as much by energy security as they are by local pollution and public health challenges, and in forested nations international attention on deforestation probably plays a key role in encouraging more stringent regulation to preserve forests. A growing realization that environmental degradation could derail growth is also contributing to this trend. The World Bank estimates the cost of pollution to China at around 9 percent of its gross national income,⁹ while China’s Ministry of Environmental Protection put it at around 3.5 percent of GDP (based on 2010 figures). According to the Global Burden of Disease 2010 study published in the *Lancet* in December 2012–January 2013, air pollution contributed to 1.2 million premature deaths in China in 2010.¹⁰

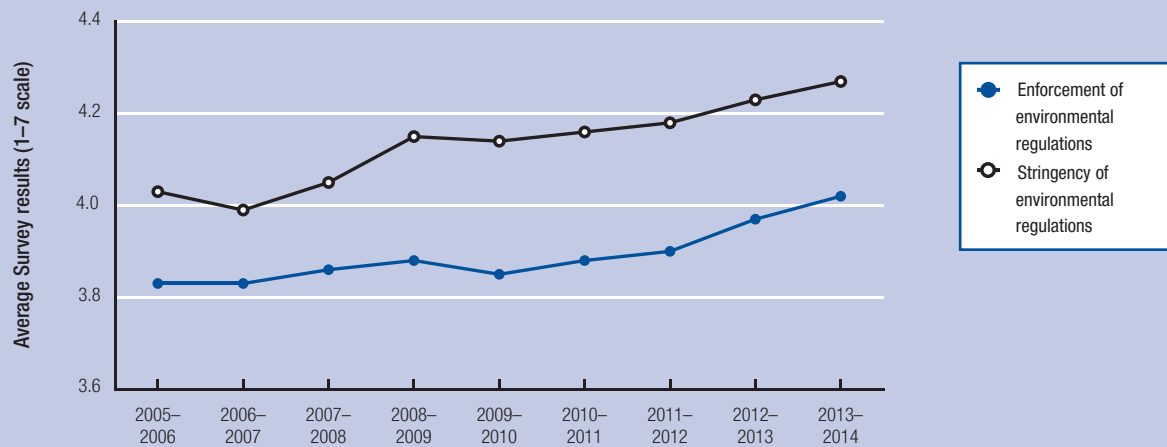
However, the GLOBE International report concludes that, despite the positive trends toward a greater number of environmental regulations, the cumulative ambition of these laws is still not enough to limit global average temperature rise to 2°C above pre-industrial levels—the agreed goal of the international community. In general, the expanded efforts of regulators to deliver more sustainable development mechanism have not yet produced tangible effects on a large scale.

Against this backdrop, it is clear that private sector–led initiatives and public-private partnerships are needed to help mobilize new constituencies and deliver the needed targets. Already some key private-sector groups are forming to act voluntarily on climate and realize opportunities associated with climate-smart business. For example, the Consumer Goods Forum (CGF) is a group focused on sustainability composed of 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries, with combined sales of nearly US\$2.5 trillion.¹¹ More specifically, the CGF has four key focus areas: addressing climate change, achieving zero net deforestation, shifting to natural refrigerants, and removing waste from supply chains. In another example, the Banking and Environment Initiative (BEI) comprises 10 of the world’s largest banks, including Barclays, China Construction Bank, and Deutsche Bank. Its mission is to lead the banking

(Cont’d.)

Box 2: Progress toward stronger environmental regulations (cont'd.)

Figure 1: Evolution of Survey results for environmental regulation indicators, 2005–14



Source: World Economic Forum, Executive Opinion Survey, multiple years.

Note: Full Survey questions are provided here:

Stringency of environmental regulations: How would you assess the stringency of your country's environmental regulations? [1 = very lax; 7 = among the world's most stringent];

Enforcement of environmental regulations: How would you assess the enforcement of environmental regulations in your country? [1 = very lax; 7 = among the world's most rigorous]

industry in collectively directing capital toward environmentally and socially sustainable economic development.

These groups are not only working on a sectoral basis but also coming together across industries to drive more significant impacts. For example, the BEI is supporting the CGF by providing models to finance sustainable commodity supply chains. Initiatives that encourage collaboration and communication cross stakeholders are just a first step toward finding a pragmatic solution to complex environmental problems, yet they represent a key step because they set the foundation for crafting regulations that are more simple and effective when applied to the reality of business operations.

Notes

1 Nachmany et al. 2014.

2 For more information, see the website of the Australian Government's Department of the Environment at <http://www.environment.gov.au/climate-change/repealing-carbon-tax>.

3 Kuramochi 2014.

4 See the *GLOBE Climate Legislation Study* by Nachmany et al. 2014.

5 Nachmany et al. 2014; this checklist is from pages 4 and 5 of a summary of that report on the organization's website, <http://www.globeinternational.org/studies/legislation/climate>.

6 Harder 2014.

7 The Economist 2014.

8 World Economic Forum 2014.

9 World Bank and the Development Research Center of the State Council, P. R. China 2013, p. 249.

10 The Lancet 2013.

11 For information about the Consumer Goods Forum, see <http://www.theconsumergoodsforum.com/>.

metric.”¹² Information technology companies—concerned with energy costs, reputational risks, and difficulties they confront in continuing to expand their capacity—are beginning to reduce their footprint by adopting “greener data centers” that significantly reduce energy demand.

The relationship between environmental sustainability and competitiveness is multifaceted and affects an economy in different ways. Multiple channels support a positive relationship between environmentally

sustainable practices and productivity gains; here we identify and describe the main ones:

- **Efficient use of natural resources.** The efficient use of natural resources includes both managing exhaustible raw materials and using renewable resources within their regenerative capacity in order to minimize production costs, ensure their availability for future generations, and reduce pollution.

As described by the literature on public goods, welfare increases once the negative externalities generated by pollution are corrected.¹³ It follows that environmental sustainability can bring about a better economic outcome if it is associated with formal or informal institutions that define property rights and result in the adoption of sustainable processes over the use of scarce resources.

- **Carbon reduction.** Climate change is a global issue, but its impact on individual countries and companies is significant. Some sectors are more exposed than others: agriculture is the most exposed to the effects of climate change such as rise of temperature, water scarcity, and extreme weather. Although solutions for global emission reductions require international coordination, carbon-reducing business practices can have a positive effect on long-term competitiveness. In the context of rising energy demand, improving energy efficiency through management changes, investing in technology improvement, and using low-carbon energy infrastructure can produce significant savings relatively quickly.¹⁴ In addition, investments in capital expenditures for emission reduction can generate business opportunities for new sectors

Climate change is already perceived as one of the environmental challenges with the most far-reaching and most severe negative impact on human well-being, but the debate on how to address it most efficiently is still ongoing. Some studies support the position that increasing energy efficiency and introducing emissions standards are more costly to the economy as a whole than the use of carbon pricing,¹⁵ while others see carbon taxes as having more negative impact on the economy in the short run. For example, according to a study by the Congressional Budget Office of the United States,¹⁶ the impact of a carbon tax could be detrimental to output in the short run by raising the cost of energy and transport; however, this cost could be partially offset by cuts in marginal income taxation. In the longer run, a higher pricing of carbon-intensive goods would reduce emissions and thus reduce the taxation level and the initial economic drag associated with it.

One more element to take into account is the impact of externalities linked to climate change. Choosing a less carbon-intensive development path generates returns by reducing losses that result from climate change. For example, the negative impact of climate change on crops is already documented.¹⁷

There is also agreement that climate change gives rise to extreme weather, which in turn can destroy tangible assets such as infrastructure,

public facilities, and industrial stocks. These weather events interrupt the regular flow of goods and services both within and between countries. According to an estimate of the 2007–2008 UN *Human Development Report*, to reach the Millennium Development Goals by 2015, the cost associated with coping with a more hostile climate since 2007 is approximately US\$85 billion per year more than would be required to achieve these same goals if climate change did not have to be considered. To take one example, the recent floods in the Balkans are, according to scientists, probably linked to climate change.¹⁸ According to the World Health Organization,¹⁹ this event has caused the death of almost 60 people and displaced over 60,000 more. Looking at its economic impact alone, the European Bank for Reconstruction and Development reports physical damages estimated at €1.5–€2 billion in Serbia and about €1.3 billion in Bosnia and Herzegovina, particularly affecting agriculture, power generation, mining, and transport infrastructure.

- **Improved health.** A high-quality natural environment improves the productivity of the workforce by reducing health damage caused by pollution or environmental degradation. Since health affects productivity and pollution affects health, efforts to reduce pollution may be interpreted as an investment in human capital. Recent empirical evidence has indicated that, in the United States, ozone levels below federal air quality standards have a positive impact on productivity (a 10 parts per billion decrease in ozone concentrations raises worker productivity by 4.2 percent).²⁰ Finally, environment-driven health problems lead to resource misallocation, forcing governments to fund additional, and otherwise unnecessary, health programs and diverting resources that would otherwise go into productivity-enhancing investments in, for example, education or innovation.
- **Biodiversity for innovation.** Ultimately, environmental degradation can impact the way ecosystems work and reduce biodiversity. Biodiversity supports the productivity of the workforce by providing food, fiber, shelter, and natural medicines, and it regulates the water supply and air quality. According to the Convention on Biodiversity,²¹ more than 1.3 billion people in the world depend on biodiversity and on basic ecosystem goods for their livelihoods. Biodiversity losses caused by deforestation or significant land use changes—which today are estimated to be 100 to 1,000 times greater than is thought to occur naturally—increase the vulnerability of terrestrial and aquatic ecosystems and induce changes in

climate and ocean acidity.²² Biodiversity is also a key driver of economic growth, especially in developing countries, because it provides the basis for many innovations in areas such as pharmaceutical or cosmetic products. At the same time, interfering with ecosystems may make living conditions for humans more difficult and perhaps engender additional costs. Last but not least, biodiversity restoration and protection can create profitable business opportunities, incentivizing the development of new technologies and products for their utilization in still-unexplored markets. Furthermore, investing in the greening of tourism can reduce the cost of energy, water, and waste and thus enhance the value of biodiversity, ecosystems, and cultural heritage.²³

Competitiveness and social sustainability

Interest among economists and social scientists in the relationship between income distribution and economic performance has been growing over the last 20 years. Although the findings are not yet conclusive, the diverging patterns in income of different population clusters in developing and developed economies alike are certainly tangible and explain the broad interest around this topic.

However, the concept of social sustainability goes beyond just inequality. Although there is no unique consensus around the concept of social sustainability, it is possible to identify recurring themes in the different definitions that have been proposed so far. Human rights, equity, and social justice are among the most relevant.

Since the recommendations of the Stiglitz-Sen-Fitoussi Commission in 2009,²⁴ many attempts have been made to identify the relationship between social sustainability and development. However, empirical evidence to support the theory that the two are interdependent remains somewhat inconclusive.

More recently the concept of *inclusive growth* has entered international discourse. Although not yet universally defined, inclusive growth looks at how countries can achieve growth and balanced social outcomes simultaneously. Box 3 describes a related initiative on inclusive growth launched at the World Economic Forum, which attempts to respond to this challenge.

Recent events in different parts of the world have generated concerns that an unbalanced social model can undermine the stability of the growth process for both current and future generations. If economic benefits are perceived to be unevenly distributed within a society, and this inequality leads to significant social discontent, the capacity of individuals to contribute to and benefit from higher rates of economic growth can be affected.

Based on our definition of sustainable competitiveness, specified above, we analyze here those dimensions of social sustainability that are likely to fuel productivity and long-term prosperity while at the same time preserving social stability. Our aim is to unbundle the most relevant elements, even if they are often interrelated and not always clearly distinct:

- **Inclusion.** An inclusive society ensures that all citizens contribute to and benefit from the economic prosperity of their country. Inclusion is a prerequisite for social cohesion because, if some members of the community are marginalized, the society will lack the necessary coherence of goals to accomplish common purposes. Typical examples of social exclusion that have a considerable negative impact on the competitiveness of a nation are the lack of access to basic necessities, discrimination according to gender, youth marginalization, and extreme polarization of income. Any type of social exclusion that prevents people from fully participating in the labor market reduces the availability of talent to a country's firms and organizations, thereby reducing competitiveness. Lack of access to sanitation, drinkable water, or healthcare can dramatically impair labor productivity, reducing the ability of the economy to compete globally. At the same time, when young people are marginalized by the labor market and have access only to short-term and highly volatile jobs, they remain vulnerable, especially during downturns. These workers usually receive less on-the-job training than their counterparts in stable positions, thus reducing the overall level of human capital. Finally, the participation and empowerment of women is key to ensuring a large talent pool and tends to bring about other positive effects, such as reducing infant mortality, reducing poverty, improving the management of scarce resources, reducing conflict, and guaranteeing food security.
- **Equity and cohesion.** An equitable society guarantees the same opportunities for all its members, rewarding them according to their talents and fairly redistributing the benefits of growing wealth,²⁵ creating a cohesive society with no excessive income disparities across different groups. Inequality is a multidimensional concept. For the purposes of this *Report*, we are mainly interested in income inequality, which certainly represents one of the biggest challenges for policymakers globally and which is highly correlated with access to other opportunities.

Although some earlier literature found a positive relationship between growth and inequality, more recent research tends to find the opposite, via the following channels: first, high levels of inequality

Box 3: The World Economic Forum's Global Project on Inclusive Growth

In many countries, the gap between rich and poor is widening, youth unemployment is rising, and access to basic services remains a challenge. Even in several fast-growing developing countries, it appears that growth has not made a notable dent in income inequality or poverty, and the vulnerabilities associated with these problems remain entrenched.¹ The global community is calling for change—for solutions that foster economic growth in a more inclusive manner.

The question of how to unlock new sources of productive employment and strengthen the contribution of economic growth to improvements in broad living standards is becoming an increasingly important concern for political and business leaders in developed and developing countries alike. However, although international consensus on the need to develop new approaches in this respect is widespread, very little in the way of concrete policy guidance has emerged from the G-20 or from international institutions. There is a growing need for analytical frameworks and evidence-based solutions suited to this purpose.

The economic fundamentals that have accompanied high and sustained economic growth are well known and form the basis of the World Economic Forum's 12-pillar model of competitiveness. Nevertheless, the economic debate on inclusive growth is still taking shape, and the Forum is playing an active role in disentangling the complex relationship between growth and equity, building on its existing benchmarking and sustainability work. The mechanisms through which growth-enhancing policies impact poverty and inequality are difficult to unravel, however. Several policy areas have been identified as “win-win” or “super pro-poor” in that they have both a positive effect on growth and a negative effect on inequality, while others remain inconclusive.²

For example, policies and structural reforms should provide equality of opportunity so that all segments of society can participate in its growth by expanding and improving labor, technology, and capital in order to raise living standards. Increasing affordability and access to high-quality education and training, and providing access to credit and other incentives for small business development, are among the most effective instruments available to governments for achieving progressive growth. These should be complemented by policies that redress some of the inequalities in outcomes, particularly those experienced by poor and vulnerable segments of the populations, through attention to areas such as provisioning public services, establishing a progressive tax code, and providing basic social and labor protections.³

The international community has made significant progress in defining inclusive growth. However, agreeing on a comprehensive and more actionable framework remains an ongoing challenge. One widely accepted definition of inclusive

growth involves output growth that is sustained over decades, is broad-based across economic sectors, creates productive employment opportunities for the majority of the country's population, and reduces poverty.⁴ Reductions in excessive income inequality have also emerged as a prerequisite for inclusive growth, supported by mounting evidence that inequality undermines growth.⁵ In summary, inclusive growth is about both the pace and pattern of economic growth.⁶

The World Economic Forum's Global Project on Inclusive Growth aims to mobilize a better response to this challenge by drawing on its multiple, relevant capabilities in partnership with key international organizations to build on this initial framework and push the policy agenda further. Specifically, it will seek to assemble a comparative analysis of the extent to which countries make use of the wide spectrum of policy incentives and institutional mechanisms that influence the pattern and pace of broad-based progress in living standards.

An initial framework includes areas such as creating an enabling environment for human capital formation, reinforcing the wage and productivity growth link, fostering entrepreneurship and investment, reinforcing business and political ethics, promoting gender parity, reviewing fiscal policy (tax code and social protection), and providing improved public services and infrastructure. Once completed, this framework will be used as a point of departure for a series of policy dialogues among policymakers, business leaders, and other opinion shapers. The goal is to establish a more concretely actionable foundation for policy by giving countries a clearer relative sense of the extent to which they are exploiting the policy space and the best practices available to them on the basis of the recent experience of their peers or the historical experience of other relevant countries. By doing so, the Global Project on Inclusive Growth aims to shed light on the full spectrum of policy levers available to promote social participation in the process and benefits of economic growth without dampening incentives to work, save, and invest.

Notes

- 1 While extreme poverty (at a \$1.25 per day threshold) has declined notably, taking such narrowly defined poverty headcount ratios underestimates the large numbers of low-income people who fall just above fixed international poverty thresholds (e.g., \$2 or \$2.75 per day). See AfDB 2013; Ali and Zhuang 2007.
- 2 Lopez 2004; Killick 2002.
- 3 Furman 2014; IMF 2013.
- 4 Commission on Growth and Development 2008; Ianchovichina and Lundstrom 2009.
- 5 Berg and Ostry 2011; Ostry et al. 2014.
- 6 Ianchovichina and Lundstrom Gable 2012.

can potentially distort the political process;²⁶ second, inequality can lead to reduction in human capital investments;²⁷ third, it may require more redistributive efforts, thus potentially introducing more market distortions; fourth, in presence of weak institutions, it can lead to economically harmful social tensions; and finally, in countries defined as “wage-led,” a more equal distribution of income tends to deliver higher output.²⁸ Persistent inequalities tend to limit upward social mobility, preventing gifted and hard-working individuals from being rewarded according to their talents. However, it can be argued that some degree of disparity—provided it is not driven by rent positions—is actually beneficial for growth because it incentivizes people to invest in education, work harder, and be more innovative and productive.

- **Resilience.** A social system is resilient when it can absorb temporary or permanent shocks and adapt to quickly changing conditions without compromising its stability. Formal or informal institutions usually perform the role of shock absorber, reducing the vulnerability of the society as a whole. In advanced economies, welfare states promote the economic and social well-being of the society by protecting their members from excessive loss of income during old age and during periods of unemployment or illness. Although welfare systems represent a source of stability for an economy, they can turn into a hurdle for its competitiveness since overly generous social security programs increase labor costs; can undermine the stability of public finances and limit macro-stabilization policies; and can hamper the incentives to work, innovate, and excel. In order to be sustainable, a social protection system needs to be well balanced and affordable.

The resilience of a social system also depends on the features of its labor market and on the extent of the black economy. When workers have access only to short-term contracts or vulnerable employment, they are exposed to negative shocks and to all the costs associated with unemployment. Moreover, a widespread black economy may affect the resilience of a social system, since informal workers are more vulnerable to concerns related to job loss, old age, maternity, disability, or illness.

Relationship between environmental and social sustainability

The third and final relationship we would like to explore is the one between environmental and social sustainability. The quality of the environment and the structure of a society are clearly correlated. On the one hand, well-managed natural resources increase the quality of life, reduce tensions within and between generations,

provide better opportunities for the whole community, and improve the resilience of the society. Moreover, the management of natural resources might translate into “in-kind” income distribution, as resource scarcity may leave the poorest of the population unable to access basic necessities. On the other hand, widespread prosperity, which facilitates a high quality of life, requires a functioning economy that, by definition, uses natural resources. For this reason, although the academic literature tends to focus on these two dimensions individually, the World Economic Forum is interested in exploring the way environmental and social sustainability interact with one another. In this chapter, selected channels that have been extensively highlighted by the literature are presented:

- **Health and environmental degradation.** As discussed in the previous section, a degraded environment negatively affects the health, and thus the productivity, of the workforce. It also reduces the overall quality of life of members of the society. Each year, air pollution, unsafe drinking water, and exposure to chemical products contribute to a number of often-lethal diseases both in the developed and developing world. According to the Organisation for Economic Co-operation and Development (OECD),²⁹ unsafe water supplies, lack of sanitation, and poor hygiene are responsible for 3 percent of all deaths worldwide, of which 90 percent are children's. An unhealthy environment dampens economic opportunities, prevents people from participating in the life of the community, diverts resources from productive uses, and contributes to urban decline.
- **Demography, poverty, and the environment.** The relationship between demography and environmental/social sustainability is extremely intricate. Rapidly growing populations can be a source of environmental stress, leading to greenhouse gas emissions, high rates of soil erosion, and the extinction of species. If rapid population growth is not accompanied by environmental management, it can give rise to tensions between groups for the control of scarce resources and can therefore be a source of further social instability, creating a vicious circle. Persistent poverty may also affect the environment and may lead to massive unplanned urbanization, such as slums, where large segments of the population are without access to basic services. Such settlements can have significant repercussions for the environment, including deforestation and the pollution of water resources, which results from the lack of waste management.

- **Energy and social stability.** Increases in energy prices disproportionately affect the real purchasing power of the lowest earners in the society, because the elasticity of energy demand (fuel and electricity) is relatively rigid in the short run. Rising energy prices can therefore exacerbate income polarization. In societies where the purchasing power of significant segments of the population is low, high energy prices can endanger the affordability of basic services unless the loss of purchasing power is offset by fiscal policies.

An additional link between energy, environment, and social sustainability is the use of particular alternative energy sources such as ethanol and biodiesel. Although these types of energy sources help to reduce CO₂ emissions, they also use wide land areas and contribute to increased food prices. Moreover, these alternatives also have significant environmental impact in the form of additional pressure on water resources. Hence, the assessment of energy policies needs to be based on a holistic view that takes into consideration a broad spectrum of environmental and social consequences.

- **Climate change, food security, and conflict.**³⁰

In the future, rising sea levels and more extreme weather conditions may force millions of people to migrate, adding pressure to natural resources—especially water—in the destination areas. Rising competition over these resources could eventually result in military conflict. Adverse changes in temperature and precipitation have started to affect the capacity of many areas to produce food, thus increasing the vulnerability of the population. According to some studies, at present 1.7 billion people live in water-stressed countries. Industrialization and demographic forces are likely to further aggravate the situation, and climate change may exacerbate the situation even more by decreasing stream-flow and groundwater recharge.

Pressure on water resources and land, combined with a growing world population and rising poverty in some regions, may also aggravate migration and food security concerns, which already represent major problems today.³¹ At present, the Food and Agriculture Organization of the United Nations estimates that approximately 850 million people globally (or 12 percent of the world's population) are without sufficient access to food or are malnourished; these people are concentrated mostly in the developing world.³² In less-developed countries, decreasing crop yields may lead to further exploiting degraded land, while globally, changing environmental conditions are reducing crop productivity. This constellation of pressures

may increase food insecurity in the long term, even in areas where food availability is relatively secure today, which in turn may lead to exacerbate poverty and migration phenomena.

- **Climate change and women's empowerment.**³³

According to a growing body of research, climate change is not gender neutral. In many rural and traditional societies in Africa, women are responsible for securing water, food, and energy for cooking and heating. But the effects of climate change such as droughts, heat waves, infections encouraged by rising temperatures, deforestation, and uncertain rainfall make it harder for these women to secure the resources they need. This, in turn, further weakens their position in society and reduces opportunities to better their lives and that of their families.

THE MEASUREMENT OF SUSTAINABLE COMPETITIVENESS

In order to assess where we stand today and to provide meaningful insights about how best to address the complex and highly interdependent challenges related to sustainable competitiveness, it is helpful to structure the analysis through a conceptual framework and to be able to measure the concept.

Efforts to measure sustainability

The following sections lay out the key existing approaches to measuring sustainability and describe the methodology of the sustainability-adjusted Global Competitiveness Index, which is the World Economic Forum's ongoing contribution to these efforts.

At the country level, the main references in this domain remain, as highlighted in previous editions of this *Report*, the recommendations of the Stiglitz-Sen-Fitoussi Commission; the European Commission's sustainability objectives presented in the Europe 2020 growth strategy; the OECD's Better Life Index; and the United Nations Development Programme's (UNDP) Human Development Index (HDI), which has included the environmental sustainability and equity adjustments.³⁴ The United Nations, subsequent to the first Millennium Development Goals, is discussing a wider set of indicators to track progress in sustainability with the new Sustainable Development Goals (see Box 4).

Other efforts to measure specific aspects of social sustainability include the World Bank's *Worldwide Governance Indicators Framework* and the International Labour Organization's Decent Work initiative.³⁵ For the metrics of environmental sustainability, the main contributions remain the Environmental Performance Index (EPI) developed by researchers at Yale and Columbia universities;³⁶ the Ecological Footprint, developed by the Global Footprint Network;³⁷ and the Global Adaptation Index.³⁸

Box 4: The Sustainable Development Goals: A sound basis for sustainable growth

Because the Millennium Development Goals (MDGs) have evolved into the Sustainable Development Goals (SDGs)—a development that is expected to be adopted in by the United Nations in 2015—sustainable development is once again a top priority on policymakers' agendas. The vision emerging from the discussion of the SDGs 2015 is a more encompassing one of sustainable development that is at the center of the political process, putting poverty eradication at the core of the SDGs but also recognizing that “changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development.”¹

boundaries and the importance of just, equitable, and inclusive growth for long-term development. This approach is very much in line with the World Economic Forum's work on sustainable competitiveness that, since *The Global Competitiveness Report 2011–2012*, attempts to show a direct link between environmental and social sustainability and economic performance.

Moving from the MDGs to the SDGs is also important from a financing point of view. The cost of achieving the SDGs promises to be significantly higher than the cost of achieving the MDGs. The Organisation for Economic Co-operation and Development (OECD) estimated that the “finance gap” (the amount of investment necessary to achieve the MDGs by 2015) was approximately US\$120 billion a year,² while a

Table 1: Sustainable Development Goals and Global Competitiveness Index equivalents

Goals proposed by the UN's Open Working Group on SDGs	Equivalent in the GCI
Goal 3: Attain healthy lives for all	4th pillar (health subpillar)
Goal 4: Provide quality education and life-long learning opportunities for all	4th pillar (primary education subpillar) and 5th pillar (higher education and training)
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	7th pillar (labor market efficiency)
Goal 9: Promote sustainable infrastructure and industrialization and foster innovation	2nd pillar (infrastructure) and 12th pillar (innovation)
Goal 16: Achieve peaceful and inclusive societies, access to justice for all, and effective and capable institutions	1st pillar (institutions)

Source: United Nations Open Working Group on Sustainable Development Goals, July 2014.

The SDGs now appear to be linked more closely to competitiveness than they used to be because most are prerequisites for job creation and long-term sustainable growth. This link is one of the reasons that policymakers find them attractive. In the proposed list of 17 SDGs to be achieved by 2030, five are directly captured by pillars and subpillars of the Global Competitiveness Index (GCI) (Table 1), while three—Goals 6 (Ensure available and sustainable use of water and sanitation for all), 10 (Reduce inequality within and among countries), and 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)—are captured by the sustainable competitiveness framework.

In addition, by dedicating nearly half of the goals directly to environmental and social sustainability, the United Nations' Open Working Group acknowledges both our planet's

recent report by the United Nations Conference on Trade and Development (UNCTAD) estimated the gap of reaching the SDGs to be nearly US\$2.5 trillion per year.³

Aid will not be enough to achieve these goals. However, by focusing on factors that incorporate some of the drivers of higher standards of living, the SDGs can create a virtuous cycle that could enable countries to generate significant wealth to lift their own people out of poverty, enhancing sustainable competitiveness.

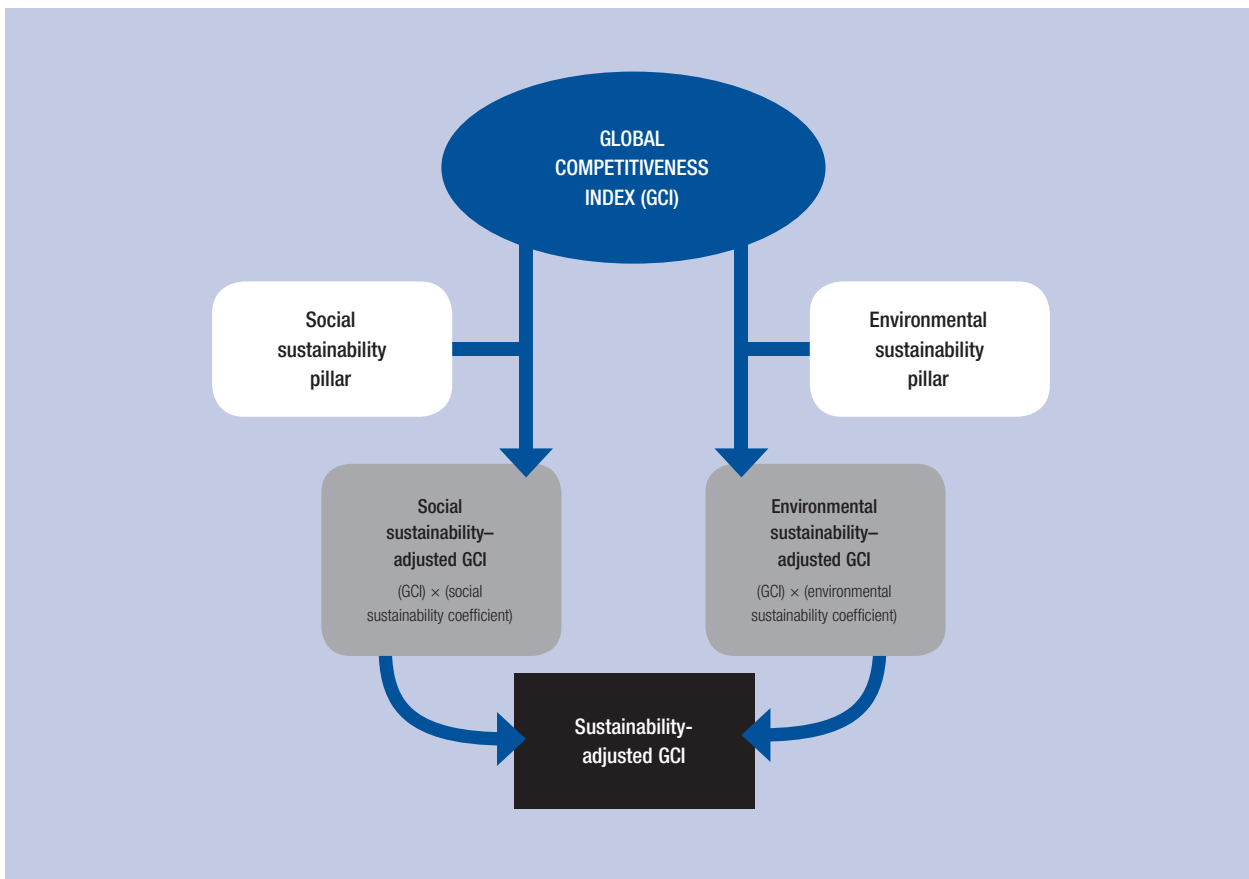
Notes

- 1 United Nations Open Working Group on Sustainable Development Goals 2014; further information about the SDGs is available at <http://sustainabledevelopment.un.org/owg.html>.
- 2 Stijns et al. 2012.
- 3 UNCTAD 2014.

Another source of sustainability measures comes from companies' reporting standards such as the *triple bottom line accounting*, as a growing body of firms and public institutions systematically reveal information about their environmental and social performance beyond the traditional financial statement.

Despite this progress, a generalized lack of high-quality, internationally comparable data that would allow countries to fully understand how they fare in these critical areas and benchmark themselves against peers persists. Without an improvement in the quality and availability of key data on social and environmental sustainability, countries will continue to face challenges

Figure 1: The structure of the sustainability-adjusted GCI



Note: Refer to appendix A for a detail explanation of the methodology.

when assessing and monitoring key dimensions of their situation. The lack of data also renders far-reaching quantitative analysis of the topic impossible and makes it difficult to identify channels of influence and assign relative importance to the different aspects of sustainable competitiveness. Better data would enable countries to make better decisions in their attempt to identify and implement appropriate policies and measures to ensure that their development model leads to the desired outcomes. The lack of data is a challenge that is shared by all the frameworks described above as well as by our sustainable competitiveness assessment, detailed in the next section.

Sustainable competitiveness: The analytical framework

Based on our definition of sustainable competitiveness, we have developed a framework that aims to create a common ground to develop policies that balance economic prosperity with social inclusion and environmental stewardship. This conceptual model is represented in Figure 1, which presents a framework where the Forum's index for measuring competitiveness, the Global Competitiveness Index (GCI), is adjusted by factors that encompass social and environmental sustainability. This framework highlights the central

position of competitiveness as the key driver of prosperity in society, recognizing that high levels of competitiveness are crucial to sustained prosperity.

The GCI measures the level of competitiveness of an economy, as discussed in Chapter 1.1, which is defined as *the set of institutions, policies, and factors that determine the level of productivity of an economy*. The GCI is a comprehensive index that takes into account 12 pillars or drivers: institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. The variables that are analyzed in each of these 12 pillars are well known and benefit from more than 30 years of ongoing work on competitiveness at the World Economic Forum as well as a rich literature on growth and development.

However, the framework presented in Figure 1 indicates that competitiveness on its own may not lead to sustainable levels of prosperity. Although the attainment of a certain level of economic prosperity is essential for achieving high standards of living, within this exercise, countries are assessed also for their ability to generate this long-lasting prosperity for their citizens in a sustainable way. In other words, competitiveness is

Figure 2: Summary of indicators for social sustainability

Access to basic necessities	Vulnerability to economic exclusion	Social cohesion
<ul style="list-style-type: none"> • Access to sanitation • Access to improved drinking water • Access to healthcare 	<ul style="list-style-type: none"> • Vulnerable employment • Extent of informal economy • Social safety net protection 	<ul style="list-style-type: none"> • Income Gini index • Social mobility • Youth unemployment

a necessary but not sufficient condition for continued prosperity—hence the need for the additional social sustainability-adjusted and environmental sustainability-adjusted measures of competitiveness.

As described in the first half of this chapter, defining the functional relationship between competitiveness and sustainability and identifying and measuring the pillars and variables that are driving environmental and social sustainability are complex tasks from both a conceptual and a measurement point of view. Sufficient evidence does not yet exist that would allow us to identify a solid functional relationship among them; we therefore opt for the simple approach of defining a linear relationship among the three dimensions. As a result, the final overall sustainability-adjusted Global Competitiveness Index is an average of the two sustainability-adjusted indexes: the social sustainability-adjusted GCI and the environmental sustainability-adjusted GCI.³⁹

Social sustainability pillar

For social sustainability, the Forum identifies three conceptual elements (Figure 2). The first category aims to assess a *population's access to basic necessities*.⁴⁰ It includes three indicators: *Access to sanitation*, *Access to improved drinking water*, and *Access to healthcare services*. This category is thus a measure of inclusion as well as a measure of the fulfillment of basic physical needs. Other indicators that we would have liked to incorporate but could not because of the lack of data include access to decent housing and food security. A population with poor access to water, food, shelter, healthcare, and sanitation cannot develop to its full capacity.

The second category is linked to the concept of perceived economic security. Hence it aims to evaluate a *population's vulnerability to economic exclusion*. Three indicators have been chosen for this evaluation: *Vulnerable employment* as a percentage of total employment, the *Extent of the informal economy*, and *Social safety net protection*. The vulnerable employment indicator measures the percentage of people who are self-employed in a small business or are in a small family business that may provide income levels insufficient to meet the living standards of the country of residence and can prove unstable in times of economic difficulties.

The extent of the informal economy provides a sense of how well integrated the workforce is into official structures. A workforce that is less integrated leaves workers more vulnerable to concerns related to job loss, old age, maternity, disability, or illness. The social safety net is a complementary measure of protection: in times of financial and economic instability, the safety net helps households to maintain their access to basic necessities and to weather crises without falling into poverty traps. Providing protection also leads to a sense of financial security that enables individuals to undertake investments and entrepreneurial risk, which can in turn translate into the creation of new jobs and innovative ideas, thus benefitting the economy.

A third category can be thought of as an assessment of *social cohesion* and includes the following indicators: the *Income Gini index*, *Social mobility*, and *Youth unemployment*. The income Gini index is a measure of income inequality, but keep in mind that—from a normative approach—excessive inequality may hide relative poverty that would prevent lower-income families from accessing the same opportunities as those with incomes at the high end of the range in the society.

Linked to this idea, we include an indicator on social mobility. In the context of sustainable competitiveness, it is crucial that subsequent generations can improve their condition regardless of the socioeconomic status of their parents. From a purely economic perspective, the absence of such social mobility can be detrimental to human capital development because talented individuals, in a society that does not allow them to access education or to move ahead, will not be leveraged for economic advancement and they may leave their home country to pursue opportunities abroad. Additionally, low expectations for the future in a context of high unemployment and persistent inequality can spark political instability. On a broader conceptual level, social mobility is also a direct measure of the freedom to pursue human development.

Finally, high youth unemployment can reduce social cohesion and incur significant economic and social costs. It depresses lifetime earnings for unemployed workers, taking a toll on their health and reducing the potential of the next generation to succeed. From an economic standpoint, high youth unemployment

Figure 3: Summary of indicators for environmental sustainability

Environmental policy	Use of renewable resources	Degradation of the environment
<ul style="list-style-type: none"> • Environmental regulations (stringency and enforcement) • Number of ratified international environmental treaties • Terrestrial biome protection 	<ul style="list-style-type: none"> • Baseline water stress • Wastewater treatment • Forest cover change • Fish stocks' overexploitation 	<ul style="list-style-type: none"> • Level of particulate matter concentration • CO₂ intensity • Quality of the natural environment

reflects a failure to mobilize existing resources and build productive skills.

Environmental sustainability pillar

To develop the environmental sustainability pillar, the Forum has continued to work closely with experts at Yale's Center for Environmental Law and Policy (YCELP), with the Center for International Earth Science Information Network (CIESIN) at Columbia University's Earth Institute, and with the World Resource Institute (WRI) to define the best existing indicators in this area and to understand the strengths and limitations of these data.

More generally, the measures captured here and presented in the environmental sustainability pillar are meant to complement the analysis carried out through the Environmental Performance Index (EPI), which provides a much more comprehensive indication of national performance on a variety of environmental indicators. In this pillar, indicators have been selected according to three categories (see Figure 3) aimed at covering the most relevant aspects of environmental sustainability.

The first area measured in the environmental sustainability pillar is *environmental policy*, which is composed of a gauge of the stringency and enforcement of *Environmental regulations* along with the extent to which land areas are protected (biome protection), providing an assessment of a country's commitment to protecting natural capital. We also include a measure of the number of key *International environmental treaties*, out of a total of 25, in which the country is a participant. This indicator demonstrates the country's level of engagement with environmental issues and thus its willingness to become involved in international efforts toward addressing global environmental challenges. Together these variables capture to some extent the political will of countries to respond to environmental issues in a structured and consistent way and indicate their importance in the government agenda.

The second area relates to the *use of renewable resources*. These indicators comprise measures of Baseline water stress in an economy, which models the relation between water supply availability and demand in each country; *Wastewater treatment*, which gauges

what percentage of (mainly urban) wastewater is treated before it is released into the ecosystem; *Forest cover change*, which takes into account reported information about the percentage of total land area that is deforested (or afforested) over time; and the overexploitation of *Fish stocks*. A diminishing regeneration capacity is one of the major environmental issues for which a simple solution is not easily identified. Although the data in this area are among the most difficult to collect and interpret, it is crucial for a country to manage these resources in order to ensure that they remain available for future generations.

The third area takes into consideration the *degradation of the environment*, which can cause serious damage to human health while destroying the ecosystem. The specific indicators used to measure this concept are the *Level of particulate matter concentration*, *CO₂ intensity*, and the *Quality of the natural environment*. Particulate matter concentration is a proxy for air pollution, which has proven negative effects on human health and is monitored by local authorities in many countries. The quality of the natural environment is a perception-based assessment of the local status of the environment that measures the observation of local business leaders on the ground. CO₂ intensity is a measure of the efficiency of energy use in relation to the emissions it produces.

It is important to note that, although CO₂ intensity also provides a sense of national contributions to climate change, the decision was taken again this year not to include climate change as a specific factor in this pillar. This is because there is currently no agreement on how to attribute emission responsibilities to particular countries. For example, in a world of globalized markets, should emissions be allocated to the country producing the goods that created the emissions or to the consuming country? Also it is not yet clear what impact countries' contributions to climate change would have on national competitiveness, particularly in the absence of an international agreement that would impose costs on large emitters.

While the variables described in this and the previous sections capture a number of important aspects of social and environmental sustainability, additional variables are needed to obtain a more

complete measure of the concept. These indicators include measurements of social participation and respect for core human rights, as well as discrimination and the treatment of minority populations and additional environmental indicators. However, because of the lack of quality indicators in these areas, we are unable to include them for the time being.

Updates to the environmental sustainability pillar

As a result of collaboration with our partners and our research, we were able to improve the methodology this year by updating a number of indicators because data became available or because improved measurement methodologies were provided. The indicator *Baseline water stress* replaces *Agricultural water intensity*. The methodology for the calculation of the indicators *Forest cover change*, *Particulate matter (2.5) concentration*, and *Fish stocks overexploited* has been updated to bring these indicators in line with the results of the Environmental Performance Index. Finally, the new indicator *Wastewater treatment* was added to the framework.

Calculation of the sustainability-adjusted GCI

The two areas of sustainability—social and environmental—are treated as independent adjustments to each country's performance in the GCI.

The details behind the aggregation are described in Appendix A; Appendix B provides detailed notes and sources for each indicator. The aggregation leads to three outcomes: an environmental sustainability-adjusted GCI, a social sustainability-adjusted GCI, and an overall sustainability-adjusted GCI that combines the two effects. Lacking clear theoretical guidelines in assigning weights to the individual elements, each indicator has been given an equal weight within each pillar.

As described in detail in Appendix A, each pillar is converted into an "adjustment coefficient" with a range of 0.8 to 1.2; this coefficient is then used to adjust the GCI score upward or downward. Consequently, the sustainability-adjusted GCI score ranges between a maximum of 20 percent lower or 20 percent higher than the underlying GCI score.

The single indicators are aggregated using a simple average. Although this aggregation method is transparent and simple to replicate, its limitation is that it allows for compensation across the different sustainability dimensions. For example, a country may achieve a strong performance in terms of carbon intensity but a poor performance on deforestation. In this case, the two scores will be averaged out and the overall score may mask an uneven performance across different dimensions. This needs to be kept in mind when interpreting the results. Notwithstanding extensive research efforts, again this year we were not able to

identify new metrics of appropriate quality to be included in the index.

In the Sustainable Competitiveness exercise, country coverage is again driven by data availability: we are able to cover 113 economies this year, a subset of the 144 economies covered in the 2014–2015 GCI.

Results of the sustainability-adjusted GCI analysis

This section presents the results of the sustainability-adjusted GCI. Table 1 shows how the GCI score is adjusted once sustainability indicators are taken into account. An upward arrow shows that sustainability results drive a better score than the GCI itself; a downward arrow points to a situation of vulnerability in terms of social and/or environmental sustainability that lowers the GCI score. A horizontal arrow indicates that GCI results do not change substantially when considering sustainability aspects. The results indicate that there is no clear trade-off between being competitive and being sustainable.

As noted in previous editions, the findings show that, irrespective of their level of competitiveness, on the two elements of sustainability countries can attain results that are above or below their competitiveness score. However, we observe that countries in the top half of the competitiveness rankings tend to perform better on sustainability as well. This is particularly true for the social sustainability dimension, which is, not surprisingly, highly correlated with level of development. Developed economies tend to have more mature institutions that ensure that citizens have access to basic infrastructure, healthcare, and welfare. At the same time, countries that face challenges related to their competitiveness fare even more poorly in terms of social sustainability.

In terms of environmental sustainability, the picture is more complex. Countries toward the lower end of the competitiveness scale tend to fare better than advanced economies in terms of emissions such as CO₂, as well as in manufacturing-related pollution such as waste and by-products of industrial processes.⁴¹ However, these economies are currently facing problems that advanced economies have already experienced in their own earlier stages of development, such as biodiversity loss caused by deforestation, urbanization, and the expansion of agricultural land as well as air pollution (proxied here by particulate matter, or PM_{2.5}, emissions) triggered by the use of older combustion technologies, especially in the transport sector.

RESULTS FOR SELECTED ECONOMIES

Because many of the aspects relating to sustainability require many years for significant change to occur, we observe only small movements in the performance of economies from one year to the next. Nonetheless, constant monitoring and benchmarking of selected indicators helps to identify possible areas of risk and the

Table 1: Adjustment to the GCI scores by sustainability indicators

Country/Economy	GCI 2014–2015		Social sustainability-adjusted GCI [†]		Environmental sustainability-adjusted GCI [‡]		Sustainability-adjusted GCI ^{††}	
	Rank*	Value	Value	Direction	Value	Direction	Value	Direction
Switzerland	1	5.7	6.75	↑	6.84	↑	6.8	↑
United States	3	5.54	5.97	↗	5.24	↘	5.61	⇒
Finland	4	5.5	6.38	↑	5.98	↗	6.18	↗
Germany	5	5.49	6.36	↑	6	↗	6.18	↗
Japan	6	5.47	6.29	↗	5.83	↗	6.06	↗
Netherlands	8	5.45	6.39	↑	5.88	↗	6.13	↗
United Kingdom	9	5.41	5.95	↗	5.75	↗	5.85	↗
Sweden	10	5.41	6.05	↗	5.95	↗	6	↗
Norway	11	5.35	6.43	↑	6.14	↗	6.28	↑
United Arab Emirates	12	5.33	6.1	↗	5.16	⇒	5.63	↗
Denmark	13	5.29	6.14	↑	5.69	↗	5.91	↗
Canada	15	5.24	5.95	↗	5.51	↗	5.73	↗
New Zealand	17	5.2	5.94	↗	6.04	↑	5.99	↑
Belgium	18	5.18	5.89	↗	5.48	↗	5.68	↗
Luxembourg	19	5.17	5.96	↑	5.73	↗	5.85	↗
Malaysia	20	5.16	5.59	↗	4.86	↘	5.22	⇒
Austria	21	5.16	6	↑	5.85	↗	5.92	↑
Australia	22	5.08	5.8	↗	5.54	↗	5.67	↗
France	23	5.08	5.56	↗	5.52	↗	5.54	↗
Saudi Arabia	24	5.06	5.2	⇒	4.74	↘	4.97	⇒
Ireland	25	4.98	5.38	↗	5.14	⇒	5.26	↗
Korea, Rep.	26	4.96	5.25	↗	4.85	⇒	5.05	⇒
China	28	4.89	4.96	⇒	4.28	↘	4.62	↘
Estonia	29	4.71	5.13	↗	4.71	⇒	4.92	⇒
Iceland	30	4.71	5.41	↗	5.39	↗	5.4	↑
Thailand	31	4.66	4.63	⇒	4.38	↘	4.51	⇒
Chile	33	4.6	4.68	⇒	4.78	⇒	4.73	⇒
Indonesia	34	4.57	4.31	↘	4.26	↘	4.28	↘
Spain	35	4.55	4.65	⇒	4.73	⇒	4.69	⇒
Portugal	36	4.54	4.61	⇒	4.56	⇒	4.58	⇒
Czech Republic	37	4.53	4.97	↗	4.9	↗	4.93	↗
Azerbaijan	38	4.53	4.33	⇒	4.09	↘	4.21	↘
Mauritius	39	4.52	4.7	⇒	4.25	↘	4.47	⇒
Lithuania	41	4.51	4.66	⇒	4.85	↗	4.75	↗
Latvia	42	4.5	4.64	⇒	4.89	↗	4.77	↗
Poland	43	4.48	4.48	⇒	4.62	⇒	4.55	⇒
Turkey	45	4.46	4.49	⇒	4.05	↘	4.27	⇒
Panama	48	4.43	4.42	⇒	4.53	⇒	4.47	⇒
Italy	49	4.42	4.36	⇒	4.44	⇒	4.4	⇒
Kazakhstan	50	4.42	4.69	↗	3.91	↘	4.3	⇒
Costa Rica	51	4.42	4.51	⇒	4.63	⇒	4.57	⇒
Philippines	52	4.4	4.26	⇒	4.25	⇒	4.25	⇒
Russian Federation	53	4.37	4.46	⇒	4.19	⇒	4.33	⇒
Bulgaria	54	4.37	4.31	⇒	4.48	⇒	4.4	⇒
South Africa	56	4.35	4.11	↘	4.18	⇒	4.14	⇒
Brazil	57	4.34	4.29	⇒	4.54	⇒	4.42	⇒
Cyprus	58	4.31	4.48	⇒	4.07	↘	4.27	⇒
Romania	59	4.3	4.13	⇒	4.21	⇒	4.17	⇒
Hungary	60	4.28	4.35	⇒	4.54	↗	4.44	⇒
Mexico	61	4.27	4.2	⇒	3.98	↘	4.09	⇒
Macedonia, FYR	63	4.26	4.13	⇒	3.66	↘	3.9	↘
Peru	65	4.24	3.99	↘	4.02	↘	4	↘
Colombia	66	4.23	3.8	↘	4.17	⇒	3.98	↘
Montenegro	67	4.23	4.08	⇒	4.38	⇒	4.23	⇒
Vietnam	68	4.23	4.11	⇒	3.67	↘	3.89	↘
Georgia	69	4.22	3.88	↘	4.1	⇒	3.99	⇒
Slovenia	70	4.22	4.52	↗	4.78	↗	4.65	↗

(Cont'd.)

Table 1: Adjustment to the GCI scores by sustainability indicators (cont'd.)

Country/Economy	GCI 2014–2015		Social sustainability-adjusted GCI†		Environmental sustainability-adjusted GCI‡		Sustainability-adjusted GCI**	
	Rank*	Value	Value	Direction	Value	Direction	Value	Direction
India	71	4.21	3.98	↘	3.72	↘	3.85	↘
Morocco	72	4.21	3.88	↘	3.89	↘	3.88	↘
Sri Lanka	73	4.19	4.1	⇒	4.47	↗	4.28	⇒
Slovak Republic	75	4.15	4.23	⇒	4.41	↗	4.32	⇒
Ukraine	76	4.14	4.19	⇒	3.7	↘	3.95	⇒
Croatia	77	4.13	4.06	⇒	4.21	⇒	4.14	⇒
Guatemala	78	4.1	4	⇒	4.05	⇒	4.03	⇒
Algeria	79	4.08	3.89	⇒	3.58	↘	3.73	↘
Uruguay	80	4.04	4.19	⇒	4.21	⇒	4.2	⇒
Greece	81	4.04	3.85	⇒	4.09	⇒	3.97	⇒
Moldova	82	4.03	3.98	⇒	3.97	⇒	3.98	⇒
Iran, Islamic rep.	83	4.03	3.73	↘	3.64	↘	3.68	↘
El Salvador	84	4.01	3.78	↘	3.63	↘	3.71	↘
Armenia	85	4.01	3.79	↘	3.92	⇒	3.85	⇒
Jamaica	86	3.98	3.58	↘	3.71	↘	3.65	↘
Tunisia	87	3.96	3.74	↘	3.58	↘	3.66	↘
Namibia	88	3.96	3.48	↘	4.11	⇒	3.79	⇒
Trinidad and Tobago	89	3.95	4.03	⇒	3.62	↘	3.83	⇒
Kenya	90	3.93	3.53	↘	4.05	⇒	3.79	⇒
Serbia	94	3.9	3.68	↘	3.86	⇒	3.77	⇒
Cambodia	95	3.89	3.58	↘	3.85	⇒	3.71	⇒
Zambia	96	3.86	3.48	↘	4.08	↗	3.78	⇒
Albania	97	3.84	3.63	↘	3.56	↘	3.59	↘
Mongolia	98	3.83	3.6	↘	3.3	↘	3.45	↘
Nicaragua	99	3.82	3.55	↘	3.79	⇒	3.67	⇒
Honduras	100	3.82	3.52	↘	3.78	⇒	3.65	⇒
Dominican Republic	101	3.82	3.38	↘	3.44	↘	3.41	↘
Nepal	102	3.81	3.74	⇒	3.66	⇒	3.7	⇒
Argentina	104	3.79	3.75	⇒	3.36	↘	3.55	↘
Bolivia	105	3.77	3.44	↘	3.76	⇒	3.6	⇒
Gabon	106	3.74	3.27	↘	3.98	↗	3.63	⇒
Kyrgyz Republic	108	3.73	3.66	⇒	3.29	↘	3.47	↘
Bangladesh	109	3.72	3.65	⇒	3.35	↘	3.5	↘
Ghana	111	3.71	3.4	↘	3.79	⇒	3.6	⇒
Senegal	112	3.7	3.43	↘	3.82	⇒	3.62	⇒
Lebanon	113	3.68	3.49	↘	2.95	↓	3.22	↘
Côte d'Ivoire	115	3.67	3.37	↘	3.66	⇒	3.52	⇒
Cameroon	116	3.66	3.37	↘	3.85	↗	3.61	⇒
Guyana	117	3.65	3.56	⇒	3.33	↘	3.45	↘
Ethiopia	118	3.6	3.24	↘	3.75	⇒	3.5	⇒
Egypt	119	3.6	3.33	↘	3.26	↘	3.3	↘
Paraguay	120	3.59	3.31	↘	3.42	⇒	3.37	↘
Tanzania	121	3.57	3.38	↘	3.59	⇒	3.48	⇒
Swaziland	123	3.55	3.27	↘	3.4	⇒	3.34	↘
Zimbabwe	124	3.54	3.24	↘	3.81	↗	3.53	⇒
Libya	126	3.48	2.93	↓	2.79	↓	2.86	↓
Nigeria	127	3.44	2.97	↘	3.57	⇒	3.27	⇒
Pakistan	129	3.42	3.16	↘	2.99	↘	3.08	↘
Venezuela	131	3.32	3.15	↘	3.13	↘	3.14	⇒
Mozambique	133	3.24	2.7	↓	3.2	⇒	2.95	↘
Timor-Leste	136	3.17	2.89	↘	2.68	↓	2.78	↘
Haiti	137	3.14	2.51	↓	2.72	↘	2.62	↓
Sierra Leone	138	3.1	2.85	↘	2.96	⇒	2.91	↘
Angola	140	3.04	2.59	↘	2.75	↘	2.67	↘
Yemen	142	2.96	2.56	↘	2.37	↓	2.46	↓
Guinea	144	2.79	2.61	↘	2.6	↘	2.61	↘

* This is the GCI rank, as presented in Chapter 1.1. Only the 113 economies covered by this exercise are included in the table.

† This is the score obtained by multiplying the GCI score by the social sustainability coefficient.

‡ This is the score obtained by multiplying the GCI score by the environmental sustainability coefficient.

** This is the average of social sustainability-adjusted GCI and environmental sustainability-adjusted GCI scores.

Please refer to the technical appendix of this chapter for a description of how the coefficients are calculated. All the underlying indicators are available at <http://www.weforum.org/content/pages/sustainable-competitiveness>.

Key

- ↑ GCI score changes by > +15% to +20%
- ↗ GCI score changes by > +5% to +15%
- ⇒ GCI score remains stable between +5% and -5%
- ↘ GCI score changes by < -5% to -15%
- ↓ GCI score changes by < -15% to -20%

direction of progress on particular dimensions in each country. The following description of results (presented in the order of this year's GCI ranking) provides an overall picture of the performance and highlights the main strengths and areas of challenge for selected economies.

Switzerland confirms its strong sustainability performance. Its 1st place in the GCI rankings is reinforced when that Index is adjusted by social and environmental sustainability indicators. Youth unemployment is slightly increasing but remains at a fairly low level (8.4 percent), while social protection and mobility remain in line with past rankings, painting a positive picture of the Swiss social system. In terms of environmental sustainability, Switzerland, by achieving relatively positive results across all the measured dimensions, again demonstrates that trade-offs between being sustainable and being competitive are not necessary. For example, the country's strong results on environmental stewardship are achieved by enforcing effective environmental regulations, providing water treatment, and protecting its biodiversity. However, improvements could be made in some areas: air pollutant emissions are still above an optimal level, and the country has also seen a slight decrease in forest cover since the year 2000. Therefore, although Switzerland's leadership manages its social and environmental capital rather well, stakeholders should not be complacent and should continue to monitor and improve the management of Swiss resources.

The sustainability performance of the **United States** is mixed. When adjusted by the social sustainability dimension, US competitiveness improves slightly but less than that of other advanced economies because of its still-high levels of income inequality and youth unemployment (15 percent on a decreasing trend). In terms of environmental sustainability, the adjusted score reveals a somewhat lower performance, spanning air pollutant emission, depleting fish stocks, and a low commitment to joining international treaties. Recent reports of a greater policy focus on social and environmental problems—as exemplified by the adoption of the Clean Water Act and Clean Power Act—puts the country in the right direction for attaining more sustainable path.

Nordic countries also continue to perform well overall and display specific areas of improvement. **Finland**, despite an inclusive social system and a track record of managing resources responsibly, has to address a rather high level of youth unemployment (approximately 19 percent), depleting fish stocks, diminishing forest cover, and limited protected areas.

Germany is similar in many respects to the Nordic economies. On the social sustainability pillar, it is characterized by relatively low youth unemployment, widespread access to healthcare, and the presence of

a social safety net. However, emerging social difficulties, such as rising poverty in Germany, are reported by local studies, demonstrating that such difficulties have started to concern a significant portion of the population even in some of the most prosperous countries in the world.⁴² Like social sustainability, environmental sustainability is also assessed relatively positively. Stringent and well-enforced regulations and the existence of a large area of protected land indicate Germany's particular attention to environmental issues. However, CO₂ intensity is still relatively high and does not seem to be on a decreasing trend, fish stocks are overexploited, and particulate matter emission is beyond the optimal level.

Japan delivers a relatively positive performance on the social sustainability component as a result of its low youth unemployment, its small informal economy, and its resilient social safety net. The country attains an overall positive performance on the environmental dimension as well, but with a number of areas still in need of improvement. Japan is tightening some of its environmental policies, yet it continues to be penalized by a high level of CO₂ emissions and shows some signs of water stress.

Sweden has the highest youth unemployment rate within the Nordic group, which results in its relatively weaker position within the Nordics on the social sustainability pillar. Nonetheless, Sweden remains a country with notable social protection and is one of the least unequal societies in the world. In terms of environmental sustainability, it adopts effective regulations and manages to control air pollution, but it is depleting its fish stocks and its forests have diminished over the last decade, two areas that may require policy attention.

Norway attains the strongest social sustainability performance of all the countries in the sample this year, balancing low inequality and social protection with high mobility and low level of unemployment. On the environment side, similar to other economies in the region, Norway is making efforts to reduce its footprint on its natural capital but should manage fish stocks and forests in a more sustainable way because both are declining.

In the **United Arab Emirates**, low youth unemployment and wide access to basic necessities positively influence social sustainability, which therefore does not compromise its general competitiveness level. In terms of environmental sustainability, severe water stress (which is partly a consequence of the country's particular geographical positioning), pressure on fish stocks, and a high concentration of particulate matter and CO₂ emissions impact its sustainability-adjusted competitiveness. In addition, the country is signatory to fewer international environmental treaties than most other economies.

China's competitiveness continues to suffer from limitations resulting from low sustainability, especially as it pertains to the environment. In terms of social sustainability, China is slowly expanding access to drinking water and sanitation for the entire population, but inequality is still high and the welfare system is available only to some full-time urban workers. The country does not report data related to youth unemployment or vulnerable employment; these indicators cannot therefore be assessed. On the environmental sustainability side, China encounters some severe difficulties especially concerning water and air pollution. CO₂ emissions have stopped increasing but they remain high, while the concentration of PM_{2.5} particles signals potential health concerns related to air pollution, especially in urban areas. The country's management of water resources is relatively unsustainable: increasing water stress and the heavy pollution of streams results in severely damaged water resources, and only a low proportion of the water withdrawn is treated before it is returned to the ecosystem. The introduction of pollution taxes has not yet delivered a significant reduction of emissions, and, despite intentions to improve the situation, policy has yet to be implemented in an effective way.

Indonesia's competitiveness performance declines when adjusted by sustainability. In terms of social sustainability, the most critical area remains the significant share of the population in vulnerable employment, despite a slight improvement. Additionally, access to healthcare and sanitation remains low (40 percent of the population still does not have regular access to sanitation facilities). In terms of environmental sustainability, deforestation, fish stock depletion, and lack of water management continue to damage Indonesia's highly diverse ecosystem. Environmental regulations and their enforcement remain insufficient, putting the invaluable natural capital of the country at risk.

As it faces difficulties related to sustainability, especially in the environmental area, the **Russian Federation** attains an intermediate performance on both pillars again this year. In terms of social sustainability, the Russian Federation is still characterized by a relatively weak social safety net, high and increasing inequality, and limited social mobility. All these indicators have remained constant since the last assessment. In terms of environmental sustainability, regulations are still only weakly enforced and only 21 percent of the water withdrawn is treated. This low treatment rate could be a source of water stress in the future, although today Russia is endowed with one of the largest water reserves in the world. Emissions, especially CO₂ intensity, are also higher than international standards, and fish stocks are depleting. The country should better manage its natural capital to ensure prosperity in the long run.

South Africa's main social problems remain its extremely high income inequality and youth unemployment, but inadequate access to healthcare and a poor social safety net are also contributing to a below par result on the social sustainability dimension. In addition, the country has not yet achieved universal access to sanitation. From an environmental point of view, South Africa is not protecting its rich biodiversity enough: it protects only a few areas, has little wastewater treatment, and is depleting its fish stocks. In addition, CO₂ emissions are at the level of more industrialized economies. On a positive note, it seems that the country has made progress in forest stewardship.

Brazil's results on sustainable competitiveness remain substantially in line with its GCI score. In terms of social sustainability, inequality is still very high and, despite some positive developments, the country is still characterized by its population's limited access to the healthcare system and the social safety net. However, these factors are partially compensated by its low youth unemployment and almost universal access to improved drinking water. From the environmental point of view, deforestation—despite efforts from the government such as the creation of the Real Time Deforestation Detection System—and a lack of water treatment remain significant issues. On a positive note, despite the negative effect of deforestation on greenhouse gas emissions, the overall carbon intensity level and particulate matter concentration are lower than in countries at a similar stage of development. In addition, an abundance of water puts little stress on water availability. But the adoption of tighter environmental regulations is needed to make sure that Brazil's rich natural capital is managed responsibly and will remain an asset for future generations.

Mexico's competitiveness is also not entirely sustainable, especially from the environmental point of view, where there are several penalizing factors: the enforcement of its regulations is rather lax, and perhaps partially explains the country's low performance on most of the dimensions: management of water resources, fish stocks, forestry, and carbon intensity. Only 37 percent of the wastewater is treated, adding pressure to the country's water supply. Looking at Mexico's social sustainability performance, its low youth unemployment and widespread access to water and sanitation offset its relatively high level of inequality, its widespread informal economy, and the limited coverage of its social safety net.

Colombia's competitiveness is reduced again this year once sustainability is taken into account. Although overall poverty has been declining for decades, the country's social sustainability is still weak: access to healthcare services is limited and Colombia does not yet have an integrated social safety net, which exposes a large fraction of the population in vulnerable

employment to poverty risk. The existence of some social programs and the Family Welfare Institute has not so far been able to provide a structure that sufficiently supports disadvantaged individuals. The difficult economic situation of many households hinders social mobility, which reinforces persistent income inequality. In terms of environmental sustainability, Colombia should better defend its vast and biologically diverse natural capital endowment. The country has managed to institute several protected areas and can count on remarkable water reserves. However, its enforcement of environmental regulations remains weak and its treatment of the water used is limited. Deforestation also continues to represent a problematic issue. Forest is cleared mainly because of illegal logging, agriculture, mining operations, and the construction of infrastructure and housing. Balancing economic development and sustainability is particularly challenging for a country whose surface area is 50 percent covered by forests, yet preserving its natural heritage and managing its forests sustainably would bring benefits for Colombia's competitiveness in the long run.

Vietnam's GCI performance is again weakened once sustainability measures are considered. In terms of social sustainability, the country's main challenges are the insufficient coverage of its social safety nets in the context of large segments of its population living with vulnerable employment and low social mobility. In the environmental domain, difficulties are even more worrisome in some areas. Regulations are still assessed as lax and not well enforced, and the country's level of commitment to international treaties remains low. Vietnam's recent industrialization combined with its limited environmental norms is having a strong negative impact on the environment, including air and water pollution, where only a negligible fraction of the water used is treated.

India's competitiveness is also reduced when sustainability is taken into account. Social sustainability is hindered mainly by the population's very uneven access to sanitation (still only 36 percent of Indians have access to these basic services) and high rates of vulnerable employment. To a lesser extent, its large informal economy and its lack of a universal social safety net show that India remains largely a poor country that is developing with large disparities within its society. India's environmental performance is also below par because the country's natural assets are depleting, despite some efforts in tightening environmental regulations since the adoption of the Air (Prevention and Control of Pollution) Act 1981.⁴³ Air quality has slightly improved this year, but concentrations of particulate matter and carbon intensity are still very high: this is the case especially in the main urban centers, which are ranked among the 50 most polluted cities worldwide. In addition, the limited treatment of wastewater is increasing pressure

on India's water tables, and limited protected areas are wearing down the assessment of the quality of the natural environment. Although on some issues the authorities are working to improve the situation, little action has been taken on specific but significant areas of environmental management. For example, in 2011, the Indian Supreme Court refused to ban asbestos, which is internationally recognized as toxic and banned in almost all developed countries. Also, enforcement of its regulations is often ineffective, especially when it comes to improving water quality—a lack that is still having an effect on child mortality.⁴⁴

Kenya's sustainable competitiveness is weakened primarily by the social dimension of sustainability, while environmental sustainability is not presently affecting the country's overall sustainability-adjusted score. Kenya has made only slight progress in expanding access to improved drinking water, healthcare services, and sanitation facilities. Youth unemployment has increased and inequality remains relatively high. In terms of environmental sustainability, however, Kenya has been sensitive to the loss of biodiversity that accompanies its socioeconomic development and the government has adopted measures to protect the environment with a relatively strict regulatory framework, a strong commitment to international treaties, the creation of protected land areas, and the adoption of a national environment policy. Yet protection of forests and habitats remains an issue, with logging related to timber production and agriculture reducing the stock of forests faster than their natural regenerative capacity. Furthermore, water treatment practices are rare and fish stocks are depleting.

Although **Ghana** is one of the most developed countries in the region, the social sustainability pillar assessment unveils persistent gaps in access to improved sanitation, and large portions of the population work in vulnerable jobs or in the informal economy and do not have access to social security. In terms of environmental sustainability, Ghana's performance is somewhat more balanced but some concerns remain. Deforestation is continuing to deplete the country's natural resources at a rapid rate: on average, almost 5 percent of the forest cover is lost each year. In addition to logging, commercial agriculture is clearing land by burning and cutting wooded areas, damaging the country's forest cover. Water withdrawn is almost never treated, resulting in further polluting streams and aquifers. In addition, environmental regulations are not very stringent and tend to be somewhat poorly enforced. More efficient resource management would enable Ghana to preserve its natural wealth and improve the living conditions of its citizens.

Senegal's main areas of vulnerability are related to social sustainability. Although slightly improving this year, access to improved sanitation is limited (this is

available to only 52 percent of the population). Access to improved drinking water is more widely available, albeit still insufficient (74 percent). In addition, large portions of the population do not have access to healthcare services and are not protected by a social safety net. The social structure of Senegal remains somewhat less unequal than other African economies, however. Its income Gini index is 40.3—better than that of Ghana or Kenya. The environmental sustainability pillar, despite an overall performance that is in line with the GCI, also presents some areas of concern. Overexploited fish stocks, along with air and water pollution, are again the priorities that need to be addressed to ensure sustainability. Because of its level of development, it is hardly surprising that infrastructure for water treatment is also lacking. The creation of several protected land areas and commitments to most of the international environment treaties are important steps that the country has recently taken toward protecting the environment. By expanding the protection of its resources, Senegal could achieve a more sustainable development path.

Africa's most populated country, **Nigeria**, is encountering sustainability challenges especially in the social domain. Access to basic services remains very low for millions of Nigerians: only 28 percent of the population has access to basic hygiene, and less than 65 percent enjoys improved water. Similarly, safety nets and healthcare services are available only to a minority of people. These issues, typical of a developing economy, may jeopardize the future competitiveness of the country as they limit the country's human capital. On the environmental side, Nigeria's low stage of development results in a low level of carbon intensity, and the country is currently not putting excessive stress on its water resources. However, water treatment is virtually nonexistent and could be a source of concern for future water availability that could have significant social consequences, as over 35 percent of the population uses un-improved water. Environmental regulations are also limited and not appropriately enforced, which could result in further environmental damages affecting the population.

CONCLUSIONS AND NEXT STEPS

This chapter assesses sustainable competitiveness in 113 economies and fosters the understanding of conceptual links between productivity on the one hand and social and environmental sustainability on the other. By combining social and environmental indicators with the GCI's results, the Forum has been able to continue its assessment of sustainable competitiveness at the national level and to contribute to creating a policy space for both dimensions of sustainability in relation to competitiveness. This analysis continues to support the important finding that there is no necessary trade-off between being competitive and being sustainable.

In fact, competitiveness and sustainability can work in complementary ways and holistic policies can have a positive effect on both in the long term.

As environmental and social tipping points become more palpable, economies that have been investing and planning for the long run, balancing economic progress with social inclusion and good and effective environmental stewardship, will be in a better position to maintain high prosperity for their citizens, even in presence of external shocks. Given the complexity of the issue at hand and important gaps in data, it must be remembered that this is a work in progress and that conclusions regarding countries' performance in terms of sustainable competitiveness can only be indicative.

We find that progress varies across different areas of sustainability. Five consecutive years of low growth in advanced economies and the more recent slowdown in emerging markets create a climate of lack of opportunities, which is reflected in growing concerns about the social dimension. This makes the inclusiveness of the growth process an increasingly topical and timely issue.

Public interest in environmental issues—with the exception of climate change—is higher than it was decades ago, although it seems less strong than it had been before the crisis. At the same time, firms are now more actively transitioning toward more sustainable practices. Overall, it is increasingly urgent that more tangible results on enhancing environmental sustainability are achieved.

The World Economic Forum will continue to serve the international community by providing a neutral multi-stakeholder platform to advance the understanding and analysis of this important concept. The Forum will also continue to work at the frontier of sustainability measurement to fully assess progress in national policies. Recognizing that multi-stakeholder collaboration is vital for creating the confidence necessary to undertake the investments to build more sustainable economies, we hope that this assessment will provide the basis for public-private dialogue on how to make economies environmentally and socially more sustainable for the benefit of present and future generations.

NOTES

- 1 Beitz 2009.
- 2 Brian Baxter wrote an introduction to ecogism in a book by that name in 2000. See Baxter 2000.
- 3 For example, asbestos has been banned in many countries following the 1992 Stockholm Convention on persistent organic pollutants. The European Union banned leaded gasoline in 2000, and restricted the use of certain hazardous substances in electrical and electronic equipment in 2003.
- 4 See, for example, Singh and Dhumale 2000; for the change in labor shares, see Neiman and Karabarbounis 2013.

- 5 *Capital in the Twenty-First Century*. The central idea of the analysis by Piketty is that only when the growth rate is higher than the return to capital will the benefits of growth lead to widespread prosperity. When the relationship flips, inequality would surge. See Piketty 2014.
- 6 In addition, the slow growth experienced recently in advanced economies has revived concerns about “secular stagnation,” with Lawrence Summers envisaging that even before the financial crisis a trend of low aggregate demand had begun in the United States.
- 7 For examples, see Acemoglu and Robinson 2006 and Arent 2014.
- 8 This definition is from the World Commission on Environment and Development’s (the Brundtland Commission’s) report *Our Common Future*. This report is commonly known as “the Brundtland Report.”
- 9 For an example of a company’s awareness of sustainability and reputational risk, see <http://www.scjohnson.com/en/commitment/focus-on/greengauge.aspx>.
- 10 As reported by nongovernmental organizations, such as the Carbon Disclosure Project; see <https://www.cdp.net/en-US/Pages/HomePage.aspx>.
- 11 For information about the Principles for Responsible Investment, see <http://www.unpri.org/>.
- 12 Bughin et al. 2010.
- 13 Luenberger 1995.
- 14 CDP and WWF-US 2013.
- 15 Parry et al. 2014.
- 16 CBO 2013.
- 17 The Economist 2014.
- 18 See, for example, UNEP 1997 for an analysis of the link between climate change and exceptional natural events.
- 19 WHO 2014.
- 20 Zivin and Neidell 2011.
- 21 Information on the Convention on Biological Diversity is available at <https://www.cbd.int/development/>.
- 22 See Rockström 2009.
- 23 UNEP 2011.
- 24 Stiglitz et al. 2009.
- 25 For an overview on the income inequality problem, see OECD 2011; Mankiw 2013; and Stiglitz 2012.
- 26 See for example Alesina and Rodrik 1994; Persson and Tabellini 1994.
- 27 See for example Deininger and Squire 1996.
- 28 Carvalho and Rezaei 2013.
- 29 OECD 2012.
- 30 See Raleigh and Urdal 2009 for further discussion of this topic.
- 31 UNCTAD 2011b.
- 32 See <http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.U9jppPmSxfE> for the United Nations Food and Agriculture Organization statistics.
- 33 See Bätthge 2010 for further discussion of climate change and women’s empowerment.
- 34 See Stiglitz et al. 2009; the European Commission’s Europe 2020 growth strategy, available at http://ec.europa.eu/europe2020/index_en.htm; the OECD’s Better Life Index, available at <http://www.oecdbetterlifeindex.org/>; and UNDP 2011.
- 35 The World Bank’s *Worldwide Governance Indicators Framework* is available at <http://info.worldbank.org/governance/wgi/index.aspx>; Information about the Decent Work initiative is available at <http://www.ilo.org/integration/themes/mdw/lang--en/index.htm>.
- 36 For more information on the EPI, see <http://www.epi.yale.edu/>.
- 37 See <http://www.footprintnetwork.org/en/index.php/GFN/page/methodology/> for information about information about the Global Footprint Network.
- 38 Information about the Global Adaptation Index is available at <http://index.gain.org/>.
- 39 The lack of some additional indicators, especially in the social sustainability dimension, constrains the model and does not allow for a comprehensive measurement of sustainability. For example, Germany performs well on the social sustainability pillar despite an existing trend of decreasing wages in Germany where, according to the Federal Employment Agency, over the past four years the number of individuals who require state support to get by despite full- or part-time jobs has increased steadily. Similarly, in Italy, the Italian National Institute of Statistics (Istat) disseminates the relative and absolute poverty estimations for households in the country, based on 2012 Households Budget Survey data. In 2012 the relative poverty incidence was equal to 12.7 percent, whereas the absolute poverty rate was 6.8 percent. These dimensions, although measured at country level in advanced economies, are not measured worldwide. Additionally, because poverty thresholds change from country to country, it is difficult to establish a cross-country comparison. The Gini index variable does not yet capture similar phenomena in the assessed countries.
- 40 The lack of access to basic necessities indicates a state of poverty.
- 41 Industry-related pollution is not measured by indicators used by the Sustainable Competitiveness framework.
- 42 See <http://www.der-paritaetische.de/ab2013/trends/>.
- 43 See India’s National Biodiversity Authority, available at <http://nbaindia.org/uploaded/Biodiversityindia/Legal/23.%20Air%20%28Prevention%20and%20control%20of%20Pollution%29%20Act%201981.pdf>.
- 44 Greenstone and Hanna 2011.

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Appendix A: Calculation of the sustainability-adjusted GCI

As described in the text, the two areas of sustainability—social and environmental—are treated as independent adjustments to each country’s performance in the Global Competitiveness Index (GCI). The adjustment is calculated according to the following steps.

AGGREGATION

In the first step, the individual indicators in each area are normalized on a 1-to-7 scale and aggregated by averaging the normalized scores, such that a social sustainability score and an environmental sustainability score are calculated for each country.

In the second step, these scores are normalized again on a 0.8-to-1.2 scale,^a which is based on the distribution of each of the two sustainability components. The purpose of this methodology is to reward the countries attaining a relatively good performance on the two sustainability components while penalizing those that register a poor performance. Applying this methodology corresponds to transforming actual averages into coefficients ranging from 0.8 to 1.2. For example, the worst performer on the social sustainability pillar obtains a score of 0.8 and the best performer a 1.2. The same calculation is conducted for the environmental sustainability pillar.

Normalizing on a 0.8-to-1.2 scale and using the actual sample maximum and minimum are corroborated by the statistical distribution of the data, so as to ensure that the final data are not skewed. In the absence of empirical evidence, the selection of the impact limits (0.8–1.2) relies on the best judgment of the authors and is based on the assumption that countries can experience either an opportunity if they manage their resources well or a weakness if they do not.

The selection of this methodology is not intended to be scientific, but it represents a normative approach aimed at stimulating discussions on policy priorities and possibly stimulating scientific research in this field.

In the third step, the GCI score of each country is multiplied twice: once by its social sustainability coefficient and once by its environmental sustainability coefficient, to obtain two separate sustainability-adjusted GCI scores. Finally, an average of the two scores provides an overall measure of the sustainability adjustment.

STRUCTURE OF THE SUSTAINABILITY PILLARS

The computation of the sustainability components is based on an arithmetic mean aggregation of scores from the indicator level.^b

Variables that are not derived from the Executive Opinion Survey (the Survey) are identified by an asterisk (*) in the following pages. To make the aggregation possible, these variables are transformed into a 1-to-7 scale in order to align them with the Survey results. We apply a min-max transformation, which preserves the order of, and the relative distance between, country scores.^c

Indicators marked with a “(log)” subscript are transformed applying the logarithm (base 10) to the raw score.

Social sustainability pillar

- S01 Income Gini index*
- S02 Youth unemployment*
- S03 Access to sanitation*_(log)
- S04 Access to improved drinking water*^d
- S05 Access to healthcare services^d
- S06 Social safety net protection
- S07 Extent of informal economy
- S08 Social mobility
- S09 Vulnerable employment*

Environmental sustainability pillar

- S10 Stringency of environmental regulations^e
- S11 Enforcement of environmental regulations^e
- S12 Terrestrial biome protection*
- S13 No. of ratified international environmental treaties*
- S14 Baseline water stress*
- S15 Wastewater treatment*
- S16 CO₂ intensity*_(log)
- S17 Fish stocks overexploited*_(log)
- S18 Forest cover change*
- S19 Particulate matter (2.5) concentration*_(log)
- S20 Quality of the natural environment

NOTES

a. Formally we have

$$0.4 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 0.8$$

The *sample minimum* and *sample maximum* are, respectively, the lowest and highest country scores in the sample of economies covered by the sustainability-adjusted GCI in each pillar.

b Formally, for a category i composed of K indicators, we have:

$$category_i = \frac{\sum_{k=1}^K indicator_k}{K}$$

c Formally, we have:

$$6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 1$$

The *sample minimum* and *sample maximum* are, respectively, the lowest and highest country scores in the sample of economies covered by the sustainability-adjusted GCI. In some instances, adjustments were made to account for extreme outliers. For those indicators for which a higher value indicates a worse outcome (e.g., CO₂ emission, income Gini index), the transformation formula takes the following form, thus ensuring that 1 and 7 still corresponds to the worst and best possible outcomes, best possible outcomes, respectively:

$$-6 \times \left(\frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}} \right) + 7$$

d Variables S03, S04, and S05 are combined to form one single variable.

e Variables S10 and S11 are combined to form one single variable.

Appendix B:

Technical notes and sources for sustainability indicators

The data in this *Report* represent the best available estimates from various national authorities, international agencies, and private sources at the time the *Report* was prepared. It is possible that some data will have been revised or updated by the sources after publication. Throughout the *Report*, *n/a* denotes that the value is not available or that the available data are unreasonably outdated or do not come from a reliable source.

For each indicator, the title appears on the first line, preceded by its number to allow for quick reference. The numbering is the same as the one used in Appendix A. Below is a description of each indicator or, in the case of Executive Opinion Survey data, the full question and associated answers. If necessary, additional information is provided underneath.

S01 Income Gini index

Measure of income inequality [0 = perfect equality; 100 = perfect inequality] | 2010 or most recent

This indicator measures the extent to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Sources: World Bank, *World Development Indicators Online* (retrieved June 20, 2014); African Economic Outlook online statistics (retrieved March 21, 2014); Organisation for Economic Co-operation and Development (OECD), *Society at a Glance 2014*; US Central Intelligence Agency (CIA), *The World Factbook* (retrieved March 21, 2014); Eurostat, online statistics (retrieved March 21, 2014); national sources

S02 Youth unemployment

Percent of total unemployed youth to total labor force aged 15–24 | 2012 or most recent

Youth unemployment refers to the share of the labor force aged 15–24 without work but available for and seeking employment.

Sources: International Labor Organization, ILOstat database available at http://www.ilo.org/ilostat/faces/home/statisticaldata/bulk-download?_adf.ctrl-state=t48e83vhx_4&clean=true&_afLoop=76512585054249 (retrieved March 27, 2014); World Bank, *World Development Indicators Online* (retrieved June 20, 2014); national sources

S03 Access to sanitation

Percent of total population using improved sanitation facilities | 2012 or most recent

Share of the population with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained.

Source: World Health Organization, *World Health Statistics 2014* available at <http://apps.who.int/gho/data/node.main.606?lang=en> (retrieved June 27, 2014)

S04 Access to improved drinking water

Percentage of population with access to improved drinking water | 2012 or most recent

Share of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpipe, borehole, protected well or spring, or rainwater collection. Unimproved sources include vendors, tanker trucks, and unprotected wells and springs. *Reasonable access* is defined as the availability of at least 20 liters per person per day from a source within 1 kilometer of the dwelling.

Source: World Health Organization, *World Health Statistics 2014*, available at <http://apps.who.int/gho/data/node.main.606?lang=en> (retrieved June 27, 2014)

S05 Access to healthcare services

How accessible is healthcare in your country? [1 = limited—only the privileged have access; 7 = universal—all citizens have access to healthcare] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this *Report*.

S06 Social safety net protection

In your country, to what extent does a formal social safety net provide protection for the general population from economic insecurity in the event of job loss or disability? [1 = not at all; 7 = provides full protection] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this *Report*.

S07 Extent of informal economy

In your country, how much economic activity would you estimate to be undeclared or unregistered? [1 = most economic activity is undeclared or unregistered; 7 = most economic activity is declared or registered] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this *Report*.

S08 Social mobility

In your country, to what extent do individuals have the opportunity to improve their economic situation through their personal efforts regardless of the socioeconomic status of their parents? [1 = little opportunity exists to improve one's economic situation; 7 = significant opportunity exists to improve one's economic situation] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this Report.

S09 Vulnerable employment

Proportion of own-account and contributing family workers in total employment | 2012 or most recent

Vulnerable employment refers to unpaid family workers and own-account workers as a percentage of total employment—that is, the share of own-account and contributing family workers in total employment. A contributing family worker is a person who is self-employed in a market-oriented establishment operated by a related person living in the same household, and who cannot be regarded as a partner because the degree of his or her commitment to the operation of the establishment, in terms of the working time or other factors to be determined by national circumstances, is not at a level comparable with that of the head of the establishment.

Source: World Bank, *World Development Indicators Online* (retrieved June 20, 2014)

S10 Stringency of environmental regulations

How would you assess the stringency of your country's environmental regulations? [1 = very lax, among the worst in the world; 7 = among the world's most stringent] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this Report.

S11 Enforcement of environmental regulations

In your country, how would you assess the enforcement of environmental regulations? [1 = very lax, among the worst in the world; 7 = among the world's most rigorous] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this Report.

S12 Terrestrial biome protection

Weighted average of the percentage of land area protected in each biome (weights are derived from the proportion of the national territory falling in each biome) | 2012 or most recent

This indicator is calculated by CIESIN (Columbia University's Center for International Earth Science Information Network) by overlaying the protected area mask on terrestrial biome data from Olson et al. (2001) for each country. A *biome* is defined as a major regional or global biotic community, such as a grassland or desert, characterized chiefly by the dominant forms of plant life and the prevailing climate. Scores are capped at 17 percent per biome such that higher levels of protection of some biomes cannot be used to offset lower levels of protection of other biomes, hence the maximum level of protection a country can achieve is 17 percent. CIESIN uses time series of the World Database on Protected Areas (WDPA) developed by the United Nations Environment Programme (UNEP) World Conservation Monitoring Centre (WCMC) in 2011, which provides a spatial time series of protected area coverage from 1990 to 2012. The WCMC considers all nationally designated protected areas whose location and extent is known. Boundaries were defined by polygons where available, and where they were not available protected area centroids were buffered to create a circle in accordance with the protected area size. The WCMC removed all overlaps between different protected areas by dissolving the boundaries to create a protected areas mask.

Source: Yale Center for Environmental Law & Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, Environmental Performance Index 2014, available at <http://epi.yale.edu/epi/issue-rankings>

S13 No. of ratified international environmental treaties

Total number of ratified environmental treaties | 2012 or most recent

This indicator measures the total number of international treaties from a set of 25 for which a state is a participant. A state is acknowledged as a "participant" whenever its status for each treaty appears as "Ratified," "Accession," or "In Force." The treaties included are: the International Convention for the Regulation of Whaling, 1948 Washington; the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended in 1962 and 1969, 1954 London; the Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971 Ramsar; the Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972 Paris; the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 London, Mexico City, Moscow, Washington; the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 Washington; the International Convention for the Prevention of Pollution from Ships (MARPOL) as modified by the Protocol of 1978, 1978 London; the Convention on the Conservation of Migratory Species of Wild Animals, 1979 Bonn; the United Nations Convention on the Law of the Sea, 1982 Montego Bay; the Convention on the Protection of the Ozone Layer, 1985 Vienna; the Protocol on Substances that Deplete the Ozone Layer, 1987 Montreal; the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989 Basel; the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 London; the United Nations Framework Convention on Climate Change, 1992 New York; the Convention on Biological Diversity, 1992 Rio de Janeiro; the International Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly Africa, 1994 Paris; the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1994 New York; the Agreement relating to the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 New York; the Kyoto Protocol to the United Nations Framework Convention on the Climate Change, Kyoto 1997; the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998 Rotterdam; the Cartagena Protocol of Biosafety to the Convention on Biological Diversity, 2000 Montreal; the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000 London; the Stockholm Convention on Persistent Organic Pollutants, 2001 Stockholm; the International Treaty on Plant Genetic Resources for Food and Agriculture, 2001 Rome; the International Tropical Timber Agreement, 2006 Geneva.

Source: The International Union for Conservation of Nature (IUCN), Environmental Law Centre ELIS Treaty Database

S14 Baseline water stress**Normalized (0–5) ratio of total annual water withdrawals to total available annual renewable supply | 2010 or most recent**

This indicator measures total annual water withdrawals (municipal, industrial, and agricultural) expressed as a percentage of the total annual available flow. It is calculated as the ratio of water withdrawal to the mean available blue water (1950–2008). In turn, water withdrawals and available blue water are estimated separately. Water withdrawal is calculated in two steps: (1) national-level withdrawals are estimated using multiple regression time series models of withdrawals as a function of GDP, population, irrigated area, and electrical power production. Regressions are performed separately for each sector (domestic, industrial, and agricultural) and used to predict withdrawals for the current year. (2) These withdrawal estimates are then spatially disaggregated by sector based on regressions with spatial datasets. Available blue water is the sum of water flowing into the catchment from upstream catchments plus any imports of water to the catchment; upstream consumptive use plus runoff (precipitation minus evaporation and change in soil moisture storage) are then subtracted. For further details about the calculation of each component, please refer to the working paper “Aqueduct Metadata Document, Aqueduct Global Maps 2.0,” available at http://www.wri.org/sites/default/files/pdf/aqueduct_metadata_global.pdf.

Source: World Resources Institute, *Aqueduct Country and River Basin Rankings*, December 2013 edition, available at <http://www.wri.org/resources/data-sets/aqueduct-country-and-river-basin-rankings>

S15 Wastewater treatment**Percentage of wastewater that receives treatment weighted by connection to wastewater treatment rate | 2012 or most recent**

This indicator measures the percentage of wastewater that is treated before it is released back into ecosystems. The percentage of wastewater treated represents a measure of largely urban waste collection and treatment, since few rural areas are connected to sewage systems. The variable is calculated by weighting the average of the wastewater treatment rate values for the years 2000 through 2012 by the sewerage connection percentages. The original values are collated using a hierarchy of sources, selected in the following order: (1) country-level statistical data and reports; (2) values derived from the Organisation of Economic Co-operation and Development (OECD)’s variable “Connected to wastewater treatment plan without treatment” by taking the inverse of this percentage; (3) the United Nations Statistics Division’s “Population connected to wastewater treatment” variable; (4) secondary treatment levels from the *Pinsent Masons Water Yearbook*, 14th edition, available at <http://wateryearbook.pinsentmasons.com/>; and (5) FAO-AQUASTAT values (Total volume of wastewater treated/Total volume of wastewater collected) $\times 100$ for a given year in a given country.

Source: Yale Center for Environmental Law & Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, Environmental Performance Index 2014, available at <http://epi.yale.edu/epi/issue-rankings>

S16 CO₂ intensity**CO₂ intensity (kg of CO₂ per kg of oil equivalent energy use) | 2010 or most recent**

Carbon dioxide (CO₂) emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include CO₂ produced during consumption of solid, liquid, and gas fuels and gas flaring. *Energy use* refers to use of primary energy before transformation to other end-use fuels, which is equal to indigenous production plus imports and stock changes, minus exports and fuels supplied to ships and aircraft engaged in international transport. A logarithm transformation is applied to the ratio of these statistics in order to spread the data distribution.

Source: World Bank, *World Development Indicators database*, <http://data.worldbank.org> (retrieved June 20, 2014)

S17 Fish stocks overexploited**Fraction of the country’s exclusive economic zone with overexploited and collapsed stocks | 2011 or most recent**

The Sea Around Us (SAU) project’s Stock Status Plots (SSPs) are created in four steps (Kleisner and Pauly, 2011). In the first step, SAU defines a *stock* as a taxon (at the species, genus, or family level of taxonomic assignment) that occurs in the catch records for at least 5 consecutive years, over a minimum span of 10 years, and that has a total catch in an area of at least 1,000 tonnes over the time span. In the second step, SAU assesses the status of the stock for every year relative to the peak catch. SAU defines five states of stock status for a catch time series. This definition is assigned to every taxon that meets the definition of a stock for a particular spatial area (e.g., exclusive economic zones, or EEZs). These states are: (1) Developing—before the year of peak catch and less than 50 percent of the peak catch; (2) Exploited—before or after the year of peak catch and more than 50 percent of the peak catch; (3) Overexploited—after the year of peak catch and less than 50 percent but more than 10 percent of the peak catch; (4) Collapsed—after the year of peak catch and less than 10 percent of the peak catch; and (5) Rebuilding—after the year of peak catch and after the stock has collapsed, when catch has recovered to between 10 percent and 50 percent of the peak. In the third step, SAU graphs the number of stocks by status in a given year by tallying the number of stocks in a particular state and presenting these as percentages. In the final step, the cumulative catch of stock by status in a given year is summed over all stocks and presented as a percentage in the catch by stock status graph. The combination of these two figures represents the complete Stock Status Plot. The numbers for this indicator are taken from the overexploited and collapsed numbers of stocks over total numbers of stocks per EEZ. A logarithm transformation is applied to these statistics in order to spread the data distribution.

Source: Yale Center for Environmental Law & Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, Environmental Performance Index 2014, available at <http://epi.yale.edu/epi/issue-rankings>

S18 Forest cover change**Forest cover change, as compared to 2000 levels | 2012 or most recent**

This indicator measures the percent change in forest cover between 2000 and 2012 in areas with greater than 50 percent tree cover. It factors in areas of deforestation (forest loss), reforestation (forest restoration or replanting), and afforestation (conversion of bare or cultivated land into forest). Hansen et al. (2013) used 650,000 Landsat 7 satellite images with a resolution of 30 meters to quantify the area of forest loss. As defined in Hansen et al. (2013), *trees* were defined as all vegetation taller than 5 meters. *Forest loss* was defined as a stand replacement disturbance or the complete removal of tree cover canopy at the Landsat pixel scale. Results were disaggregated by reference percent tree cover stratum (e.g., greater than 50 percent crown cover to approximately 0 percent crown cover) and by year.

Source: Yale Center for Environmental Law & Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, Environmental Performance Index 2014, available at <http://epi.yale.edu/epi/issue-rankings>

S19 Particulate matter (2.5) concentration

Population-weighted exposure to $PM_{2.5}$ (micro-grams per cubic meter) | 2012 or most recent

$PM_{2.5}$, also known as *fine particulate matter*, refers to particles or droplets in the air that are 2.5 micrometers or less in width. Although invisible to the naked human eye as individual particles, $PM_{2.5}$ can reduce visibility and cause the air to appear hazy when its levels are elevated. This indicator is based on a model that was parameterized by data on aerosol optical depth (AOD) from NASA's MODIS, SeaWiFS, MISR satellite instruments, and the GEOS-Chem chemical transport model. The parameterized model covered all areas south of 70 degree north latitude and north of 70 degree south latitude. Van Donkelaar et al. estimated annual global surface $PM_{2.5}$ concentrations at a 10 x 10 km spatial resolution, and then created three-year moving averages from 2000 to 2012. Population-weighted average exposure values were calculated using population data from the Global Rural Urban Mapping Project (2011) database. For additional details, see Aaron van Donkelaar, January 2015 (embargoed), and http://epi.yale.edu/files/2014_epi_metadata.pdf.

Source: Yale Center for Environmental Law & Policy (YCELP) and the Center for International Earth Science Information Network (CIESIN) at Columbia University, Environmental Performance Index 2014, available at <http://epi.yale.edu/epi/issue-rankings>

S20 Quality of the natural environment

In your country, how would you assess the quality of the natural environment? [1 = extremely poor, among the worst in the world; 7 = among the world's most pristine] | 2013–2014 weighted average

Source: World Economic Forum, Executive Opinion Survey. For more details, refer to Chapter 1.3 of this Report.

The Executive Opinion Survey: The Voice of the Business Community

CIARA BROWNE

ATTILIO DI BATTISTA

THIERRY GEIGER

TANIA GUTKNECHT

World Economic Forum

Since 1979 and its first report on the competitiveness of European industry, the World Economic Forum's annual survey has been a key ingredient of its research and benchmarking activities. The Executive Opinion Survey (the Survey) is the longest-running and most extensive survey of its kind. Box 1 retraces the history of this instrument, which is closely related to the history of the competitiveness report series. The Survey captures the opinions of business leaders around the world on a broad range of topics for which data sources are scarce or, frequently, nonexistent on a global scale. It helps to capture aspects of a particular domain—such as the extent of the skills gap, the level of corruption, or the intensity of market competition—that are more qualitative than hard data can provide. Thus it is an indispensable complement to the sources of data made available by international organizations and national statistical offices.

The indicators derived from the Survey are used in the calculation of the Global Competitiveness Index (GCI) and other Forum indexes, including the Networked Readiness Index, the Enabling Trade Index, the Travel & Tourism Competitiveness Index, and the Gender Gap Index, as well as in a number of regional studies.

A truly unique source of data, the Survey has also long been used by a number of international and nongovernmental organizations, think tanks, and academia for empirical and policy work. For example, Transparency International has been using the Survey data for the elaboration of their Corruption Perceptions Index and the Bribe Payers Index. Institutions such as the Organisation for Economic Co-operation and Development (OECD), the World Bank, and the International Monetary Fund (IMF) also refer to the Forum's Survey data in their publications, as do a number of academic publications. Finally, an increasing number of countries publish national competitiveness reports that draw on or refer to the Survey data.

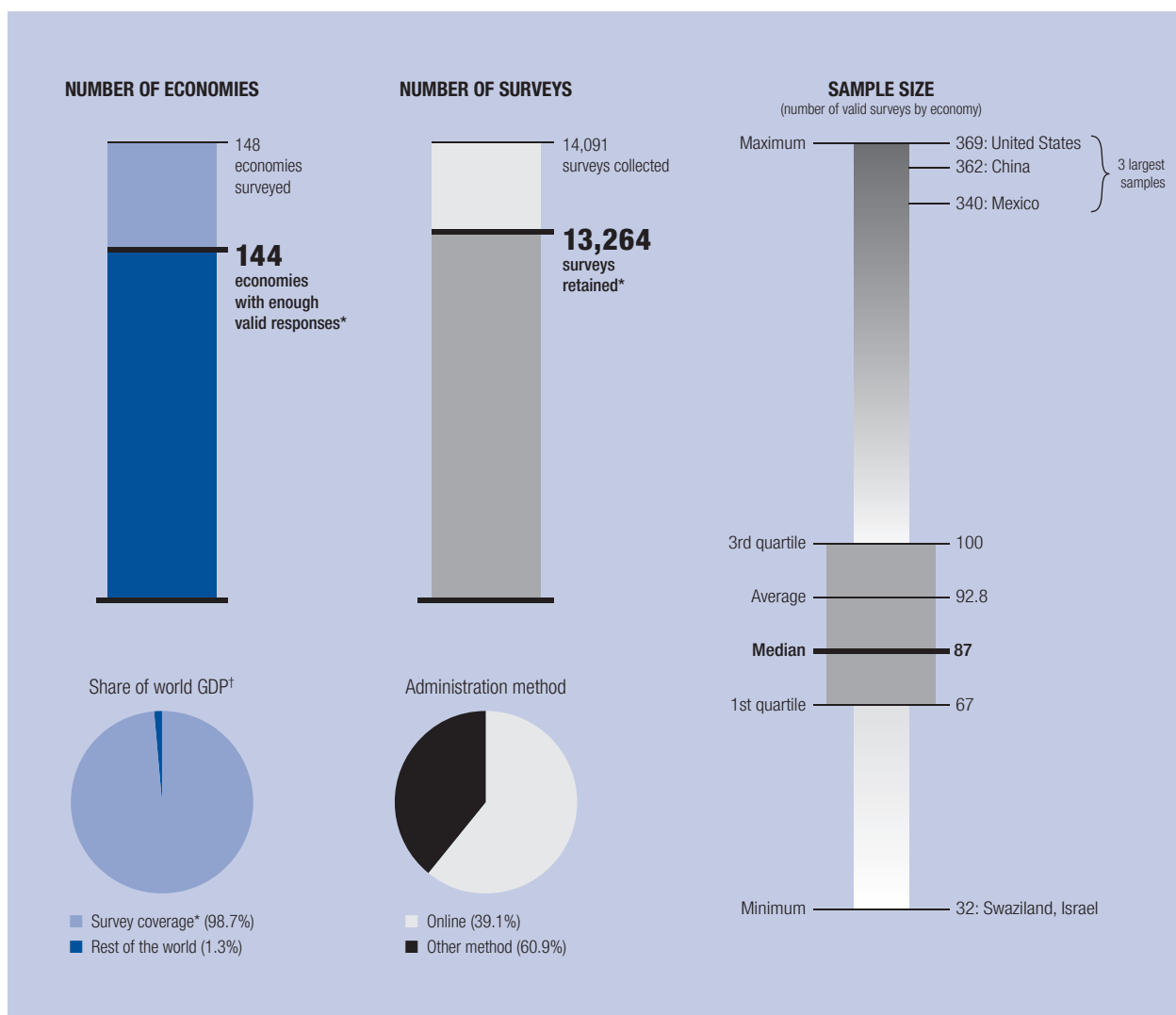
THE SURVEY IN NUMBERS

The 2014 edition of the Survey captured the opinions of over 14,000 business leaders in 148 economies between February and June 2014; because of data issues, out of the 148 economies surveyed, 144 are included in the GCI this year (please see the data treatment section below for further details). Figure 1 presents some key descriptive statistics. The Survey is available in 42 languages, of which 20 are available online (see Table 1). This year almost 40 percent of respondents took the Survey online. In 22 economies the Survey was administered entirely online, while in a further 16 over 90 percent of respondents completed the Survey online (see Table 2 for statistics about the administration approach).

Geographic coverage

Following a year of non-inclusion, Tajikistan is reinstated in the 2014 edition; however, no new economy is added

Figure 1: Descriptive statistics of the Executive Opinion Survey 2014



Source: International Monetary Fund, *World Economic Outlook* database, April 2014 edition.

Note: Not all charts are drawn to scale.

* Following data treatment. See text for details.

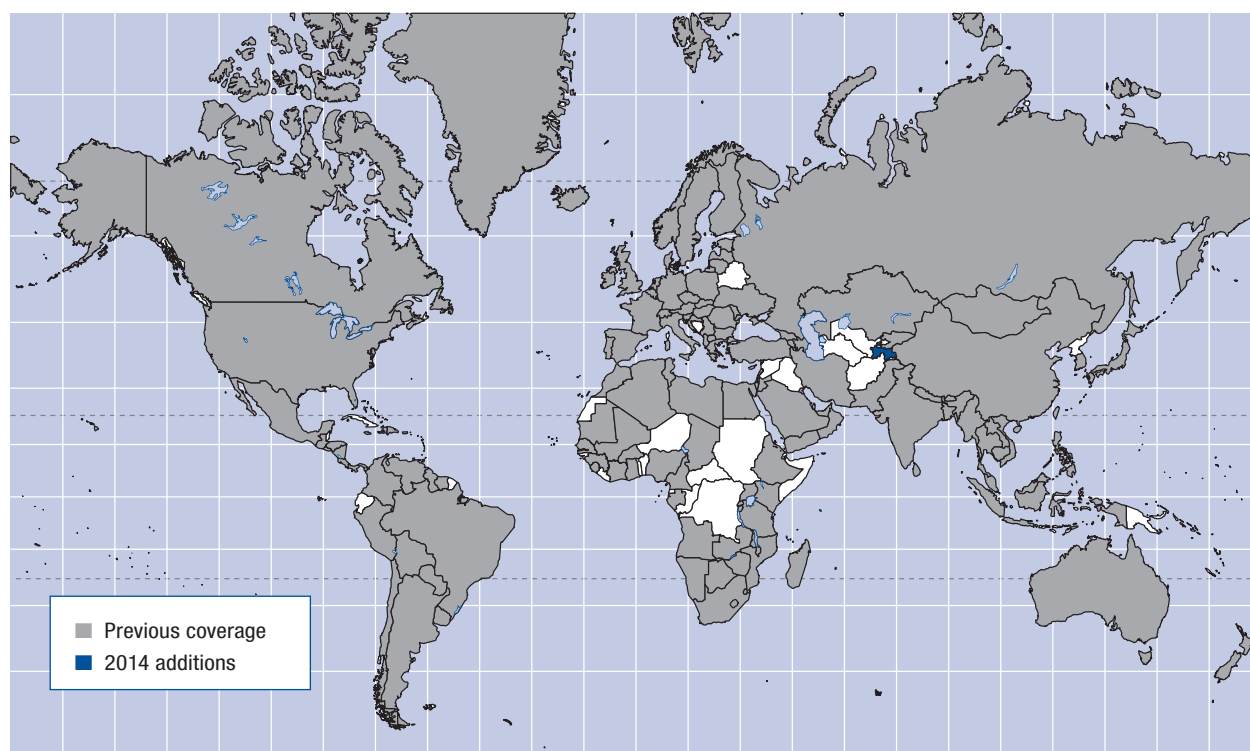
† Based on purchasing power parity estimates.

Table 1: The 42 languages in which the 2014 Survey was available

Albanian	Croatian*	Hungarian*	Mongolian	Slovenian
Arabic*	Czech*	Italian	Montenegrin	Spanish*
Armenian	Danish	Japanese	Persian*	Thai
Azeri	Estonian*	Khmer	Polish*	Turkish*
Bosnian	English*	Korean	Portuguese*	Urdu
Brazilian Portuguese	French*	Laotian	Romanian	Vietnamese
Bulgarian	German*	Latvian*	Russian*	
Burmese	Greek*	Lithuanian*	Serbian	
Chinese*	Hebrew*	Macedonian	Slovak*	

* Language also available in the online Survey tool (20 languages).

Figure 2: Country/economy coverage of the Executive Opinion Survey



this year. The Survey was not completed to minimum requirements in Benin, Brunei Darussalam, or Liberia, and therefore those countries could not be included this year. Furthermore, Bosnia and Herzegovina and Ecuador are not included in this edition of the *Report* because of data quality concerns (see “Trend analysis and exceptions” below for more detail). The Forum’s Global Competitiveness and Benchmarking Network continues its efforts to increase country coverage year on year.

SURVEY STRUCTURE, ADMINISTRATION, AND METHODOLOGY

The Survey is divided into 14 sections:

- I. About Your Company
- II. Overall Perceptions of Your Economy
- III. Infrastructure
- IV. Innovation and Technology Infrastructure
- V. Financial Environment
- VI. Foreign Trade and Investment
- VII. Domestic Competition
- VIII. Company Operations and Strategy
- IX. Government and Public Institutions
- X. Education and Human Capital
- XI. Corruption, Ethics and Social Responsibility
- XII. Travel & Tourism
- XIII. Environment
- XIV. Health

Most questions in the Survey ask respondents to evaluate, on a scale of 1 to 7, one particular aspect of their operating environment. At one end of the scale, 1 represents the worst possible situation; at the other end of the scale, 7 represents the best (see Box 2 for an example).

The administration of the Survey could not be carried out without the network of over 160 Partner Institutes worldwide. Partner Institutes are recognized research or academic institutes, business organizations, national competitiveness councils, or other established professional entities and, in some cases, survey consultancies, that have the network and capacity to reach out to the business community, are reputable organizations, and have a firm commitment to improving the competitiveness conditions of their economies. The full list of Partner Institutes can be found at the beginning of this *Report*.¹

In administering the Survey, Partner Institutes are asked to follow detailed sampling guidelines to ensure that the sample of respondents is the most representative possible and is comparable across the globe and in a specific timeframe. The sampling guidelines have evolved over time and are based on best practices in the field of survey administration and on discussions with survey experts. The Survey sampling guidelines specify that the Partner Institute build a “sample frame”—that is, a list of potential business executives from small- and medium-sized enterprises and large companies—from the various

Table 2: Executive Opinion Survey: Descriptive statistics and weightings

Country/Economy	First component*			Second component: 2014 edition*		
	Survey edition	No. of respondents	Weight (%)*	No. of respondents	Online (%)	Weight (%)*
Albania	2013	81	45.3	79	—	54.7
Algeria	2013	65	40.1	97	—	59.9
Angola	2013	35	41.3	47	—	58.7
Argentina	2013	122	47.0	104	100.0	53.0
Armenia	2013	76	45.0	76	5.3	55.0
Australia	2013	57	43.2	66	100.0	56.8
Austria	2013	99	49.1	71	43.7	50.9
Azerbaijan	2013	85	44.6	88	—	55.4
Bahrain	2013	41	42.3	51	92.2	57.7
Bangladesh	2013	71	44.1	76	1.3	55.9
Barbados	2013	51	45.8	48	87.5	54.2
Belgium	2013	86	48.7	64	100.0	51.3
Bhutan	2013	85	46.9	73	—	53.1
Bolivia	2013	74	40.1	110	100.0	59.9
Botswana	2013	87	40.7	123	26.8	59.3
Brazil	2013	98	43.1	114	98.2	56.9
Bulgaria	2013	81	41.9	104	—	58.1
Burkina Faso	2013	57	50.6	36	—	49.4
Burundi	2013	110	47.0	94	—	53.0
Cambodia	2013	93	47.0	79	—	53.0
Cameroon	2013	81	44.8	82	—	55.2
Canada	2013	133	51.4	79	96.2	48.6
Cape Verde	2013	80	44.4	84	9.5	55.6
Chad	2013	102	50.0	68	—	50.0
Chile	2013	130	43.8	143	51.7	56.2
Colombia	2013	204	47.9	162	59.9	52.1
Costa Rica	2013	110	52.5	59	98.3	47.5
Côte d'Ivoire	2013	81	45.8	76	—	54.2
Croatia	2013	80	44.7	82	2.4	55.3
Cyprus	2013	63	47.4	52	—	52.6
Czech Republic	2013	50	39.7	77	100.0	60.3
Denmark	2013	173	53.0	89	1.1	47.0
Dominican Republic	2013	56	43.7	62	—	56.3
Timor-Leste	2013	34	43.0	40	—	57.0
Egypt	2013	60	38.8	100	—	61.3
El Salvador	2013	44	43.7	49	100.0	56.3
Estonia	2013	92	45.4	89	100.0	54.6
Ethiopia	2013	98	44.7	100	—	55.3
Finland	2013	40	42.5	49	100.0	57.5
Macedonia, FYR	2013	82	45.6	78	—	54.4
France	2013	80	35.2	184	80.4	64.8
Gabon	2013	59	49.8	40	20.0	50.2
Gambia, The	2013	76	43.6	85	—	56.4
Georgia	2013	74	49.6	51	98.0	50.4
Germany	2013	170	51.6	99	89.9	48.4
Ghana	2013	70	41.5	93	4.3	58.5
Greece	2013	91	45.9	85	91.8	54.1
Guatemala	2013	86	45.4	83	1.2	54.6
Guinea	2013	56	40.9	78	—	59.1
Guyana	2013	92	47.9	73	—	52.1
Haiti	2013	117	57.5	39	—	42.5
Honduras	2013	55	36.9	108	—	63.1
Hong Kong SAR	2013	60	44.4	63	65.1	55.6
Hungary	2013	88	43.5	99	82.8	56.5
Iceland	2013	91	45.9	85	100.0	54.1
India	2013	85	34.4	211	0.9	65.6
Indonesia	2013	87	44.6	90	—	55.4
Iran, Islamic Rep.	2013	121	42.2	152	100.0	57.8
Ireland	2013	55	45.7	52	100.0	54.3
Israel	2013	60	52.6	32	100.0	47.4
Italy	2013	85	44.7	87	1.1	55.3
Jamaica	2013	61	49.9	41	—	50.1
Japan	2013	115	52.1	64	6.3	47.9
Jordan†	2012	156	48.6	117	—	51.4
Kazakhstan	2013	107	43.2	124	10.5	56.8
Kenya	2013	100	43.5	113	—	56.5
Kuwait	2013	36	43.1	42	19.0	56.9
Kyrgyz Republic	2013	101	45.5	97	—	54.5
Lao PDR	2013	62	42.3	77	—	57.7
Latvia	2013	97	47.2	81	100.0	52.8
Lebanon	2013	39	44.7	40	97.5	55.3
Lesotho	2013	97	46.6	85	—	53.4
Libya	2013	63	50.6	40	15.0	49.4

(Cont'd.)

Table 2: Executive Opinion Survey: Descriptive statistics and weightings (cont'd.)

Country/Economy	First component*			Second component: 2014 edition*		
	Survey edition	No. of respondents	Weight (%)*	No. of respondents	Online (%)	Weight (%)*
Lithuania	2013	141	44.6	146	60.3	55.4
Luxembourg	2013	57	42.6	69	100.0	57.4
Madagascar	2013	157	50.7	99	—	49.3
Malawi	2013	55	44.3	58	22.4	55.7
Malaysia	2013	106	46.2	96	43.8	53.8
Mali	2013	94	46.3	85	—	53.7
Malta	2013	42	42.3	52	82.7	57.7
Mauritania	2013	88	43.7	98	—	56.3
Mauritius	2013	77	48.9	56	96.4	51.1
Mexico	2013	320	44.2	340	97.1	55.8
Moldova	2013	122	43.8	134	—	56.2
Mongolia	2013	86	45.7	81	—	54.3
Morocco	2013	82	51.8	47	80.9	48.2
Mozambique	2013	87	42.4	107	0.9	57.6
Myanmar	2013	79	43.9	86	1.2	56.1
Namibia	2013	79	45.3	77	—	54.7
Nepal	2013	93	46.3	84	1.2	53.7
Netherlands	2013	87	44.9	88	97.7	55.1
New Zealand	2013	37	43.7	41	100.0	56.3
Nicaragua	2013	69	52.9	36	91.7	47.1
Nigeria	2013	109	45.3	106	1.9	54.7
Norway	2013	68	42.1	86	100.0	57.9
Oman†	2012	78	42.5	95	31.6	57.5
Pakistan	2013	130	54.9	56	21.4	45.1
Panama	2013	130	44.9	131	38.9	55.1
Paraguay	2013	58	44.8	59	—	55.2
China	2013	364	45.1	362	0.3	54.9
Peru	2013	79	44.1	85	42.4	55.9
Philippines	2013	95	42.1	120	—	57.9
Poland	2013	208	45.5	200	98.0	54.5
Portugal	2013	100	40.8	140	76.4	59.2
Puerto Rico	2013	57	46.4	51	100.0	53.6
Qatar	2013	106	45.4	103	5.8	54.6
Korea, Rep.	2013	81	42.4	100	—	57.6
Montenegro	2013	78	42.5	95	—	57.5
Serbia	2013	100	45.0	100	—	55.0
Romania	2013	103	49.4	72	—	50.6
Russian Federation	2013	294	45.8	276	0.4	54.2
Rwanda‡	2013	81	100.0	n/a	n/a	n/a
Saudi Arabia	2013	139	41.7	181	72.4	58.3
Senegal	2013	98	44.7	100	—	55.3
Seychelles	2013	31	36.5	63	—	63.5
Sierra Leone	2013	99	45.9	92	—	54.1
Singapore	2013	150	44.0	163	60.7	56.0
Slovak Republic	2013	114	48.6	85	84.7	51.4
Slovenia	2013	98	46.9	84	1.2	53.1
South Africa	2013	47	42.4	58	96.6	57.6
Spain	2013	84	46.3	76	75.0	53.8
Sri Lanka	2013	100	45.4	97	—	54.6
Suriname	2013	50	49.1	36	100.0	50.9
Swaziland	2013	32	45.0	32	31.3	55.0
Sweden	2013	45	41.0	62	98.4	59.0
Switzerland	2013	71	44.7	73	100.0	55.3
Taiwan, China	2013	71	43.1	83	37.3	56.9
Tajikistan‡‡	—	—	—	97	—	100.0
Tanzania	2013	92	44.5	96	—	55.5
Thailand	2013	86	43.0	101	99.0	57.0
Trinidad and Tobago	2013	132	42.2	165	99.4	57.8
Tunisia	2013	84	44.9	85	76.5	55.1
Turkey	2013	94	45.8	88	47.7	54.2
Uganda	2013	93	45.4	90	—	54.6
Ukraine	2013	108	45.4	105	1.0	54.6
United Arab Emirates†	2012	169	45.9	157	21.0	54.1
United Kingdom	2013	118	49.9	79	100.0	50.1
United States	2013	598	50.9	369	100.0	49.1
Uruguay	2013	92	44.1	99	46.5	55.9
Venezuela	2013	54	48.7	40	100.0	51.3
Vietnam	2013	109	46.7	95	7.4	53.3
Yemen	2013	72	48.8	53	—	51.2
Zambia	2013	85	48.0	67	—	52.0
Zimbabwe	2013	57	47.7	46	56.5	52.3
Grand total/average				13,264	39.1	

Notes: Bold typeface identifies economies where the Survey was conducted entirely online. All statistics were computed following the edition of the data. See text for details.

Survey edition(s) used for the computation of economy scores: † 2012 and 2014; ‡ 2013; ‡‡ 2014. See Box 2 for details about exceptions.

* Weight applied to the country score in that edition of the Survey. See Box 4 for details.

Box 1: A brief history of the Executive Opinion Survey and *The Global Competitiveness Report*

The Global Competitiveness Report began as a research project by Professor Klaus Schwab in 1979. The report, entitled *The Competitiveness of European Industry*, would later become the annual *Global Competitiveness Report*. This first report was an analysis of the competitiveness of 16 European countries. The study was based on Schwab's innovative concept of competitiveness, which extended beyond the traditional notion of labor and capital productivity. *Competitiveness*, in that early report, was defined as the ability of one enterprise to do as well as, or outperform, another company or group of companies while taking into account the framework conditions in the country.

That year, of the 200 indicators selected for the Forum's first competitiveness index, 50 were derived from a survey. The survey was mailed out in English, French, and German to potential respondents throughout Europe, mainly Chief Executive or Chief Planning Officers of European companies; Managing Directors of subsidiaries of US companies operating in these 16 countries, leading representatives of industrial and employers' associations, labor unions, economic and social institutes; university faculties of economics or business administration; and the economic media. Median values were calculated for each question and by country. In parallel, Forum researchers visited statistical offices and ministries in order to gather relevant quantitative data. The report was finalized in November 1979. The Forum's work on competitiveness and its various indexes has therefore been including a mix of proprietary survey data and statistics from international organizations since its very inception.

The report was the first attempt to support policymakers and business leaders in their efforts to formulate improved economic policies and institutional reforms. In the minds of its authors, "an undertaking of this dimension can never be perfect, certainly not in its first publication. It will be enriched, in the future, by the comments and suggestions of its readers."¹

Thirty-five years later, as envisioned by Professor Schwab, *The Global Competitiveness Report* has grown to cover over 140 economies to assess the key drivers of development. The methodology underpinning the analysis has been improved over the years in order to reflect the newest thinking in matters of economic growth. Since 2005, the Global Competitiveness Index has provided the methodology used to conduct the assessment. This evolution has been achieved while keeping true to the original objective of supporting policymakers and business leaders in their efforts to formulate improved economic policies and institutional reforms.

In parallel to this development of the index, the original survey has evolved and is today known as the Executive Opinion Survey (the Survey). Over the years, it has undergone a number of revisions and audits, which have enabled an improved administration process and methodology. The Survey has grown in scope, too. It now includes over 140 questions distributed in 14 sections. And it largely influences the coverage of the Forum's global indexes: in most cases, an economy not included in the Survey cannot be covered by an index.

Note

1 European Management Forum 1979.

sectors of activity, as detailed below. It then applies a dual stratification procedure based on these two criteria of company size and sector. Specifically, the Partner Institutes are asked to carry out the following steps:

1. Prepare a "sample frame," or large list of potential respondents, which includes firms representing the main sectors of the economy (agriculture, manufacturing industry, non-manufacturing industry, and services).
2. Separate the frame into two lists: one that includes only large firms, and a second list that includes all other firms (both lists representing the various economic sectors).²
3. Based on these lists, and in view of reducing survey bias, choose a random selection of these firms from both lists to receive the Survey.

Furthermore, the sampling guidelines specify that the Partner Institute should aim to collect a combination of random respondents with some repeat respondents for further comparative analysis.³ The Survey is

administered in a variety of formats, including face-to-face or telephone interviews with business executives, mailed paper forms, and online surveys. For energy, time, and cost considerations, the Forum encourages the use of the online survey tool. However, deciding which of these differing methodologies to use may be based on the particular country's infrastructure, distance between cities, cultural preferences, and other such issues.

The Partner Institutes also play an active and essential role in disseminating the findings of *The Global Competitiveness Report* and other reports published by The Global Competitiveness and Benchmarking Network by holding press events and workshops to highlight the results at the national level to the business community, the public sector, and other stakeholders.

Striving for excellence

The Global Competitiveness and Benchmarking Network has, over the years, always given great importance to reflecting the newest thinking in matters of development and measurement of economic growth as well as to applying surveying best practices. To this end, it has

undertaken two audits since 2008 as well as yearly reviews of both the Index and the Survey.

An initial external audit by a team of survey experts from Gallup was performed in 2008. Four years after implementing the recommendations from the first audit, a second audit was conducted in 2012 by Gallup. During this second audit, the Survey instrument, the sampling guidelines, and the administration process underwent a thorough review. The review took a twofold approach, analyzing the recommendations and their impact on the process as well as keeping up to date on best practices in the field of surveying. Overall, the outcome of the review regarding the implementation of the 2008 recommendations was commendable; the review determined that the Executive Opinion Survey process followed best practices and made the improvements noted in both the Survey tool and translations as well as in sampling quality. Box 3 presents some statistics about the Survey's demographics and reveals that the sample of respondents is very diverse.

The 2012 audit addressed an important aspect related to the impact of national culture—the so-called cultural bias—that may impact interviewee responses. The Global Competitiveness and Benchmarking Network recognizes this as a possibility; nonetheless, following international best practices and upon Gallup's recommendation, the Forum decided not to re-weight the data using vignettes because of the limited effectiveness of such a procedure and to prevent introducing additional noise into the data that occurs with such an approach.

In the context of the GCI revision (see Chapter 1.1), the Survey will undergo a full review in the Fall of 2014. Along with updating some questions, following expert recommendations, the Survey will be shortened and its terminology simplified.

With such ongoing efforts in the realm of survey administration best practice, the Global Competitiveness and Benchmarking Network team continues to improve processes to achieve greater data accuracy and heightened comparability across economies.

DATA TREATMENT AND SCORE COMPUTATION

This section details the process whereby individual responses are edited and aggregated in order to produce the scores of each economy on each individual question of the Survey. These results, together with other indicators obtained from other sources, feed into the GCI and other research projects.⁴

Data editing

Prior to aggregation, the respondent-level data are subjected to a thorough editing process. A first series of tests is run to identify and exclude those surveys whose patterns of answers demonstrate a lack of sufficient focus on the part of the respondents. Surveys with a

Box 2: Example of a typical Survey question

In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures?

Extremely weak < 1 2 3 4 5 6 7 > Extremely strong

Circling 1... means you agree completely with the answer on the left-hand side

Circling 2... means you largely agree with the left-hand side

Circling 3... means you somewhat agree with the left-hand side

Circling 4... means your opinion is indifferent between the two answers

Circling 5... means you somewhat agree with the right-hand side

Circling 6... means you largely agree with the right-hand side

Circling 7... means you agree completely with the answer on the right-hand side

completion rate inferior to 50 percent are excluded.⁵ Surveys with straight answers (e.g., only 4s or only 1s) are also excluded. The very few cases of duplicate surveys—which can occur, for example, when a survey is both completed online and mailed in—are also excluded in this phase.

In a second step, a multivariate test is applied to the data using the Mahalanobis distance method. This test estimates the probability that an individual survey in a specific country “belongs” to the sample of that country by comparing the pattern of answers of that survey against the average pattern of answers in the country sample.

More specifically, the Mahalanobis distance test estimates the likelihood that one particular point of N dimensions belongs to a set of such points. One single survey made up of N answers can be viewed as the point of N dimensions, while a particular country sample c is the set of points. The Mahalanobis distance is used to compute the probability that any individual survey i does not belong to the sample c . If the probability is high enough—we use 99.9 percent as the threshold—we conclude that the survey is a clear outlier and does not “belong” to the sample. The implementation of this test requires that the number of responses in a country be greater than the number of answers, N , used in the test. The test uses 52 questions, selected by their relevance and placement in the Survey instrument.

A univariate outlier test is then applied at the country level for each question of each survey. We use

Box 3: Insights from the Executive Opinion Survey 2014

The respondents of the Executive Opinion Survey largely reflect the characteristics and diversity of the economic fabric of the countries covered. They also demonstrate the efforts undertaken by the Partner Institutes to follow the sampling guidelines. Figure 1 presents selected statistics about the Survey’s demographics.

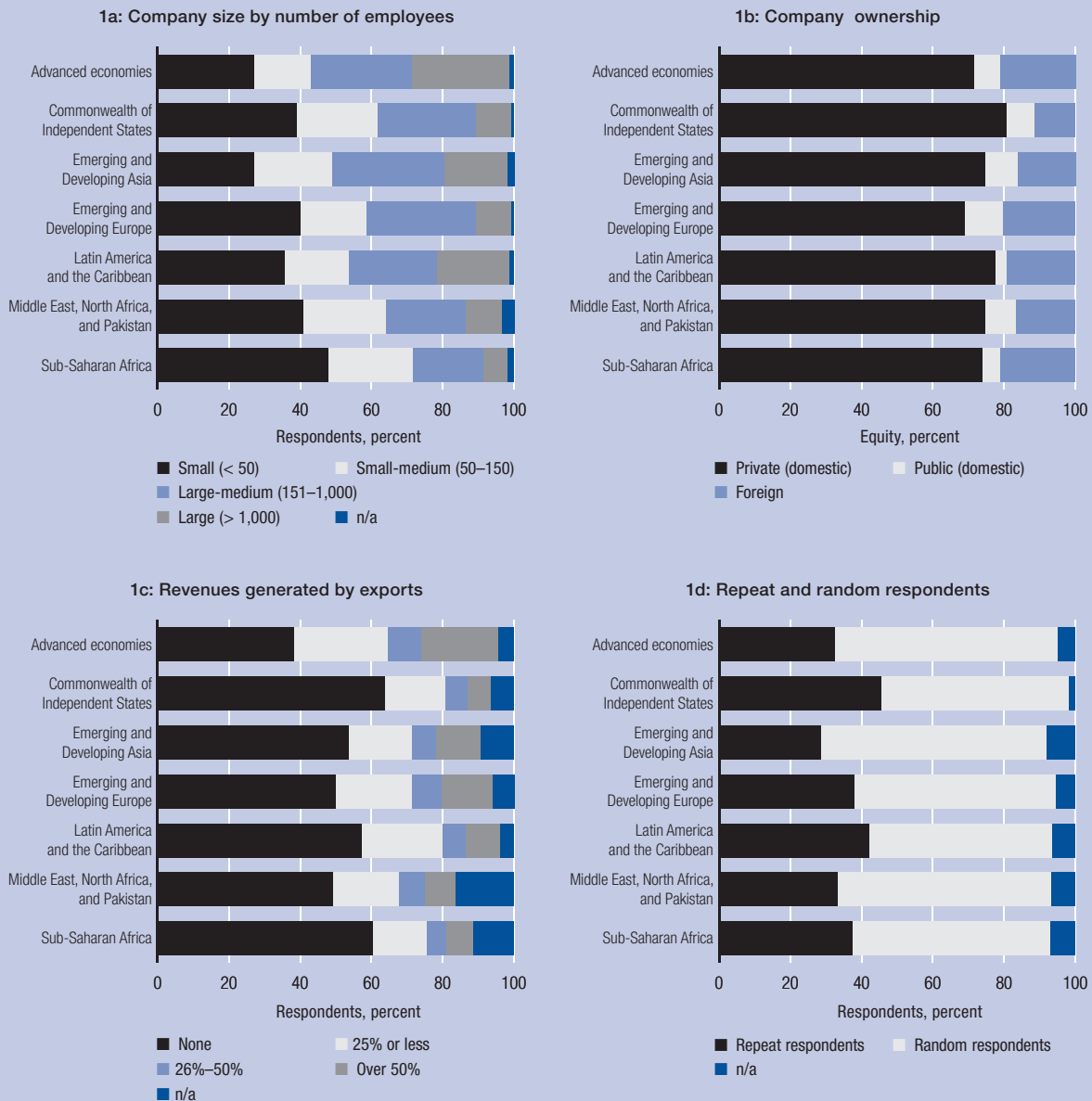
Because small- and medium-sized enterprises (SMEs) account for a large share of economic activities in most countries, the Survey aims to collect the opinion of executives from those smaller companies (Figure 1a). Indeed, small enterprises, defined here as those with fewer than 50 employees, account for 27 percent of the sample in *Advanced Economies* and *Emerging and Developing Asia* and for 48 percent in *Sub-Saharan Africa*, also reflecting the respective economic structure of these regions. The Partner Institutes are asked to collect a mix of SMEs and large companies.

The Survey also aims to capture the diversity of companies in terms of ownership (Figure 1b). On average, 19 percent of the surveyed companies’ equity is owned by foreigners (as either minority or majority shareholders).

Further, the Survey sampling also aims to ensure the coverage of a variety of non-exporting and exporting companies (Figure 1c). Regular exporters (companies for which exports account for more than 50 percent of revenues) account for just 6 percent of the sample in the *Commonwealth of Independent States* and as much as 22 percent in *Advanced Economies*.

Finally, in alignment with the Forum’s sampling guidelines, approximately a third of the 2014 Survey respondents are “repeat” respondents—that is to say, they are executives who have previously taken part in the Survey (Figure 1d). This improves the comparability of data across years.

Figure 1: Executive Opinion Survey: Respondent profile



the standardized score—or “z-score”—method, which indicates by how many standard deviations any one individual answer deviates from the mean of the country sample. Individual answers with a standardized score greater than 3 are dropped.

Aggregation and computation of country averages

Through 2013, the computation of country averages used a weighting by economic sector: averages of individual responses were computed for the four main economic sectors (agriculture, manufacturing industry, non-manufacturing industry, and services) in a given country. Country averages were then derived by taking a weighted average of the sector averages using the estimated contributions of each sector to a country's GDP as weights. The aim was to obtain a more representative average.

However, while appealing in theory, this approach presents a number of implementation challenges and limitations. First, in many countries covered by the Survey, information about economic structure is not reliable or is subject to significant revision. Special treatment is also required for 10 countries for which the breakdown of industry between manufacturing and non-manufacturing is not available. Second, the structure of the sample of responses might end up differing significantly from the actual structure of the economy, despite the efforts of our Partner Institutes, especially in challenging environments where the administration of the Survey is difficult. Third, in some major petroleum- and gas-producing countries, a handful of very large companies account for a sizeable share of the non-manufacturing sector. This means that attempting to mirror the structure of the economy would result in assigning a very high individual weight to the respondent from those companies. A related issue arises if none of those companies are surveyed, in which case the non-manufacturing sector is not represented at all in the country sample. Elsewhere, where agriculture still accounts for a large share of an economy, the agriculture sector tends to be under-represented in the Survey sample because of the difficulty of identifying respondents in that sector who have an international perspective. The issue of sectoral representation tends to be exacerbated when the sample of respondents is small.

In the presence of unbalanced samples, we used to limit the maximum implicit weight of an individual response in the sample to 10 percent.⁶ In some extreme cases, where a sample size was too small or the sectoral representation too different from the actual structure of the economy, this mechanism was not sufficient to prevent an individual response from receiving a disproportionate weight. In such a case, the economic sector stratification average was abandoned and a simple average of the surveys was applied.

For all these reasons, this year we decided to revert back to using a simple average to compute scores of all countries. Therefore, every individual response carries the same implicit weight, regardless the company's sector of activity. Yet, as explained above, we will continue to work with our Partner institutes to obtain samples of respondents that are as representative as possible.

Formally, the country average of a Survey indicator i for country c , denoted $q_{i,c}$, is computed as follows:

$$q_{i,c} = \frac{\sum_j^{N_{i,c}} q_{i,c,j}}{N_{i,c}}$$

where

$q_{i,c,j}$ is the answer to question i in country c from respondent j ; and

$N_{i,c}$ is the number of respondents to question i in country c .

Moving average and computation of country scores

As a final step, the country averages for 2014 are combined with the 2013 averages to produce the country scores that are used for the computation of the GCI 2014–2015 and for other projects.⁷

This moving average technique, introduced in 2007, consists of taking a weighted average of the most recent year's Survey results together with a discounted average of the previous year. There are several reasons for doing this. First, it makes results less sensitive to the specific point in time when the Survey is administered. Second, it increases the amount of available information by providing a larger sample size. Additionally, because the Survey is carried out during the first quarter of the year, the average of the responses in the first quarter of 2013 and first quarter of 2014 better aligns the Survey data with many of the data indicators from sources other than the Survey, which are often year-average data.

To calculate the moving average, we use a weighting scheme composed of two overlapping elements. On one hand, we want to give each response an equal weight and, therefore, place more weight on the year with the larger sample size. At the same time, we would like to give more weight to the most recent responses because they contain more updated information. That is, we also “discount the past.” Table 2 reports the exact weights used in the computation of the scores of each country, while Box 4 details the methodology and provides a clarifying example.

Trend analysis and exceptions

The two tests described above address variability issues among individual responses in a country. Yet they were not designed to track the evolution of country scores across time. We therefore carry out an analysis to assess the reliability and consistency of the Survey data over

Box 4: Country/economy score calculation

This box presents the method applied to compute the country scores for the vast majority of economies included in *The Global Competitiveness Report 2014–2015* (see text for exceptions).

For any given Survey question i , country c 's final score, $q_{i,c}^{2013-14}$, is given by:

$$q_{i,c}^{2013-14} = w_c^{2013} \times q_{i,c}^{2013} + w_c^{2014} \times q_{i,c}^{2014} \quad (1)$$

where

$q_{i,c}^t$ is country c 's score on question i in year t , with $t = 2013, 2014$, as computed following the approach described in the text; and

w_c^t is the weight applied to country c 's score in year t (see below).

The weights for each year are determined as follows:

$$w_c^{2013} = \frac{(1-\alpha) + \frac{N_c^{2013}}{N_c^{2013} + N_c^{2014}}}{2} \quad (2a) \quad \text{and} \quad w_c^{2014} = \frac{\alpha + \frac{N_c^{2014}}{N_c^{2013} + N_c^{2014}}}{2} \quad (2b)$$

where N_c^t is the sample size (i.e., the number of respondents) for country c in year t , with $t = 2013, 2014$. α is a discount factor. Its value is set at 0.6. That is, the 2013 score of country c is given 2/3 of the weight given to the 2014 score.

Plugging Equations (2a) and (2b) into (1) and rearranging yields:

$$q_{i,c}^{2013-14} = \frac{1}{2} \times \underbrace{(1-\alpha) \times q_{i,c}^{2013}}_{\text{discounted-past weighted average}} + \alpha \times q_{i,c}^{2014} + \frac{1}{2} \times \underbrace{\frac{N_c^{2013}}{N_c^{2013} + N_c^{2014}} \times q_{i,c}^{2013} + \frac{N_c^{2014}}{N_c^{2013} + N_c^{2014}} \times q_{i,c}^{2014}}_{\text{sample-size weighted average}}. \quad (3)$$

In Equation (3), the first component of the weighting scheme is the discounted-past weighted average. The second component is the sample-size weighted average. The two components are given half-weight each. One additional characteristic of this approach is that it prevents a country sample that is much larger in one year from overwhelming the smaller sample from the other year.

(Cont'd.)

time. As part of this analysis, we run an inter-quartile range test, or IQR test, to identify large swings—positive and negative—in the country scores. More specifically, for each country we compute the year-on-year difference, d , in the average score of a core set of 62 Survey questions. We then compute the inter-quartile range (i.e., the difference between the 25th percentile and the 75th percentile), denoted IQR , of the sample of 146 economies.⁸ Any value d lying outside the range bounded by the 25th percentile minus 1.5 times IQR and the 75th percentile plus 1.5 times IQR is identified as a potential outlier. Formally, we have:

$$\begin{cases} \text{lower bound} = Q1 - 1.5 \times IQR \\ \text{upper bound} = Q3 + 1.5 \times IQR \end{cases}$$

where

$Q1$ and $Q3$ correspond to the 25th and 75th percentiles of the sample, respectively, and IQR is the difference between these two values.

This test allows for the identification of potentially problematic countries, which display large upward or downward swings or repeated and significant changes over several editions. The IQR test is complemented by a series of additional empirical tests, including an analysis of five-year trends and a comparison of changes in the Survey results with changes in other indicators capturing similar concepts. We also conduct interviews of local experts and consider the latest developments in a country in order to assess the plausibility of the Survey results.

Based on these quantitative and qualitative analyses, the 2014 Survey data collected in Bosnia and Herzegovina, Ecuador, and Rwanda deviate significantly from the historical trends, and recent developments in these countries do not seem to provide enough justification for the large swings observed. In the case of Rwanda, we use only the 2013 Survey data in the computation of the Survey scores (see the Exceptions section in Box 4). Rwanda therefore is still covered in the GCI 2014–2015. Although this remains a remedial

Box 4: Country/economy score calculation (cont'd.)

The formula is easily generalized. For any two consecutive editions t_1 and t_2 of the Survey, country c 's final score on question i is computed as follows:

$$q_{i,c}^{t_1-t_2} = \frac{1}{2} \times \left[(1-\alpha) \times q_{i,c}^{t_1} + \alpha \times q_{i,c}^{t_2} \right] + \frac{1}{2} \times \left[\frac{N_c^{t_1}}{N_c^{t_1} + N_c^{t_2}} \times q_{i,c}^{t_1} + \frac{N_c^{t_2}}{N_c^{t_1} + N_c^{t_2}} \times q_{i,c}^{t_2} \right]. \quad (4)$$

Exceptions

As described in the text, there are a number of exceptions to the approach described above. In describing them below, we use actual years—rather than letters—in equations for the sake of concreteness.

In the case of Survey questions that were introduced in 2014, where, by definition, no past data exist, the weight applied to the 2013 score is $w_c^{2013} = 0$ and the weight applied to the 2014 score is $w_c^{2014} = 1$. Equation (1) simply is $q_{i,c}^{2013-14} = q_{i,c}^{2014}$. The same is true for Tajikistan, which was reinstated in 2014. In this case, we have $q_{i,c}^{2013-14} = q_{i,c}^{2014}$.

In the case of countries that failed the inter-year robustness check, the weight applied is $w_c^{2013} = 1$ and $w_c^{2014} = 0$, so that Equation (1) simply becomes $q_{i,c}^{2013-14} = q_{i,c}^{2013}$. In the case of countries that failed the inter-year robustness check last year and for which the 2013 data were discarded, we use the Survey data from 2012 instead, and combine them with those of 2014 to compute the scores. Equation (1) then becomes $q_{i,c}^{2012-2014} = w_c^{2012} \times q_{i,c}^{2012} + w_c^{2014} \times q_{i,c}^{2014}$.

Example of score computation

For this example, we compute the score of Tanzania for indicator 5.08 Extent of staff training, which is derived from the following Survey question: "In your country, to what extent do companies invest in training and employee development? [1 = not at all; 7 = to a great extent]." This question is *not* a new Survey question and Tanzania did not fail the inter-year robustness test either this year or last year. Therefore, the general case of Equation (1) applies. Tanzania's score was 3.76 in 2013 and 3.31 in 2014. The weighting scheme described above indicates how the two scores are combined. In Tanzania, the size of the sample was 92 in 2013 and 96 in 2014. Using $\alpha = 0.6$ and applying Equations (2a) and (2b) yields weights of 44.5 percent for 2013 and 55.5 percent for 2014 (see Table 2). The final country score for this question is given by Equation (1):

$$\underbrace{0.445 \times 3.76}_{2013} + \underbrace{0.555 \times 3.31}_{2014} = 3.51.$$

This is the final score used in the computation of the GCI and reported in Table 5.08 (see page 463). Although numbers are rounded to two decimal places in this example and to one decimal place in the data tables, exact figures are used in all calculations.

measure, we will continue to investigate the situation over the coming months in an effort to improve the reliability of the Survey data in this country.

Last year, the same analysis resulted in the Survey data of four countries—Bosnia and Herzegovina, Jordan, Oman, and United Arab Emirates—being dismissed. This year, as an intermediate step toward the re-establishment of the standard computation method, we used a weighted average of the Survey data of 2012 and 2014 for these countries, with the exception of Bosnia and Herzegovina described further below.

In the case of Bosnia and Herzegovina, we observe a very high degree of volatility in the Survey results over the past four years. For Ecuador, the trend exhibited by the Survey results over the past four years is not corroborated by developments on the ground during that period. Therefore, as an exceptional measure, both countries are excluded from this year's coverage. We will work closely with the respective Partner Institutes to improve the administration process and the reliability of

the data, with the aim of reinstating both countries in the near future.

CONCLUSION

Since 1979, the World Economic Forum has been conducting a survey to gather perception data for its research on competitiveness. Over the years, the Executive Opinion Survey has become the largest poll of its kind, this year collecting the insight of more than 14,000 executives into critical drivers of their respective countries' development. This scale could not be achieved without the tremendous efforts of the Forum's network of over 160 Partner Institutes in carrying out the Survey at a national level. The Survey gathers valuable information on a broad range of variables for which data sources are scarce or nonexistent. For this reason, and for the integrity of our publication and related research, sampling thoroughness and comparability across the globe remain an essential and ongoing endeavor of The Global Competitiveness and Benchmarking Network.

NOTES

- 1 The World Economic Forum's Global Competitiveness and Benchmarking Network would like to acknowledge e-Rewards Market Research for carrying out the Executive Opinion Survey 2014 in the United States, following the detailed sampling guidelines. Furthermore, e-Rewards supplemented a sample in Germany and Sweden, as well as France.
- 2 *Company size* is defined as the number of employees of the firm in the country of the Survey respondent. The company size value used for delineating the large and small company sample frames varies across countries. The size value tracks closely with the overall size of the economy. Adjustments were made to the value based on searches in company directories and data gathered through the administration of the Survey in past years.
- 3 In order to reach the required number of surveys in each country (80 for most economies and 300 for the BRICS countries and the United States), a Partner Institute uses the response rate from previous years.
- 4 The *results* are the *scores* obtained by each economy in the various questions of the Survey. The two terms are used interchangeably throughout the text.
- 5 The *completion rate* is the proportion of answered questions among a subset of questions in the survey instrument. These 123 core questions are all numerical questions of sections II through XI.
- 6 Practically, under the old approach, when, for a particular country, the ratio of the weight of one sector in the economy to the percentage of surveys from that sector in the country sample exceeded 5, the sector weight used for the weighted average was capped at five times the percentage of surveys from that sector in the sample. The weights of the other sectors were then adjusted proportionally to their weight in the country's GDP.
- 7 The 2013 scores were computed using a sector-weighted average.
- 8 The Survey was conducted in 148 economies in 2014. However, in Brunei Darussalam and Liberia there were not enough responses collected for inclusion. Therefore, those two countries were excluded prior to carrying out the IQR test.

REFERENCE

European Management Forum. 1979. *The Competitiveness of European Industry*. Geneva: European Management Forum.