



THE BOSTON CONSULTING GROUP

The Challenge of Converting Wealth into Well-Being

The 2017 Sustainable Economic Development Assessment

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AT A GLANCE

Income inequality and weak social inclusion are growing challenges globally. Countries that improve the conversion of their wealth into the well-being of their people will make progress in addressing those two problems as well.

MEASURING WELL-BEING

BCG's Sustainable Economic Development Assessment examines the relative well-being of countries around the world and how well they are converting their wealth into well-being.

CONVERSION OF WEALTH INTO WELL-BEING CHANGES LITTLE OVER TIME

Analysis of SEDA results from 2012 through 2017 shows that a country's effectiveness at harnessing wealth to deliver well-being changes only gradually—often despite concerted efforts to do so.

OBSTACLES TO HARNESSING WEALTH

Essential aspects of sustainable well-being, such as the quality of governance and civil society, are greatly affected by the soundness and vitality of a nation's institutions, yet those institutions are often hard to change.

ECONOMIC GROWTH IS NOT a goal in itself but only a means to improving the well-being of a nation's population. Yet GDP growth is too often taken to be the key measure of performance. Tracking economic growth does make sense, but focusing on it alone misses the point. Of course, countries growing at a robust rate have an expanding pool of resources, and that provides a great foundation on which to build. But the conversion of wealth and economic growth into well-being is not automatic, and it occurs very differently from country to country. Tracking measures other than GDP is critical to understanding how a country is converting its wealth into well-being and its economic growth into improvements in well-being. Such an understanding can then set the stage for policies and actions aimed at making the most of wealth and economic growth.

BCG's Sustainable Economic Development Assessment (SEDA) was designed to measure well-being and to track countries' relative performance in converting their wealth into the well-being of their people. (See the sidebar "Defining and Measuring Well-Being.") Our 2017 analysis of the most recent data available for 162 countries around the globe reveals which countries are leading the pack—and which are trailing—when it comes to that conversion.¹ This year's analysis also highlighted the fact that the rate at which countries convert wealth into well-being changes very little over time. So while income and growth rates may rise or fall, a country's effectiveness at harnessing wealth to deliver well-being changes only gradually—often despite concerted efforts to do so. This finding holds true for all the countries in our data set, including the 35 countries with the largest populations and/or the largest economies.

The phenomenon is likely due in large part to the fact that, as a large body of research has shown, most of the institutions that underpin a society, and which are central to harnessing growth to improve well-being, themselves change only slowly. For example, civil society and governance—essential factors in the sustainability of well-being—are greatly affected by the strength and vitality of a nation's institutions (as reflected, for instance, in the rule of law and civic activism). And in every year that we have performed the SEDA analysis, we have found that countries that perform poorly in terms of converting wealth into well-being also tend to have low scores on those dimensions of well-being. Furthermore, this year's analysis reveals that income inequality is a critical factor as well, with high levels linked to weaker performance in converting wealth into well-being.

Civil society, governance, and income equality are all important factors in the overall level of a society's inclusiveness. The bottom line is that countries characterized

This year's analysis reveals that high levels of income inequality are linked to weaker performance in converting wealth into well-being.

DEFINING AND MEASURING WELL-BEING

Many economists, including Nobel laureates Amartya Sen, Michael Spence, and Joseph Stiglitz, argue that placing well-being at the center of policies and public investment priorities requires incentives that go beyond economics and, most important, measures to track progress. In 2012, The Boston Consulting Group proposed SEDA as a new means to measure well-being.

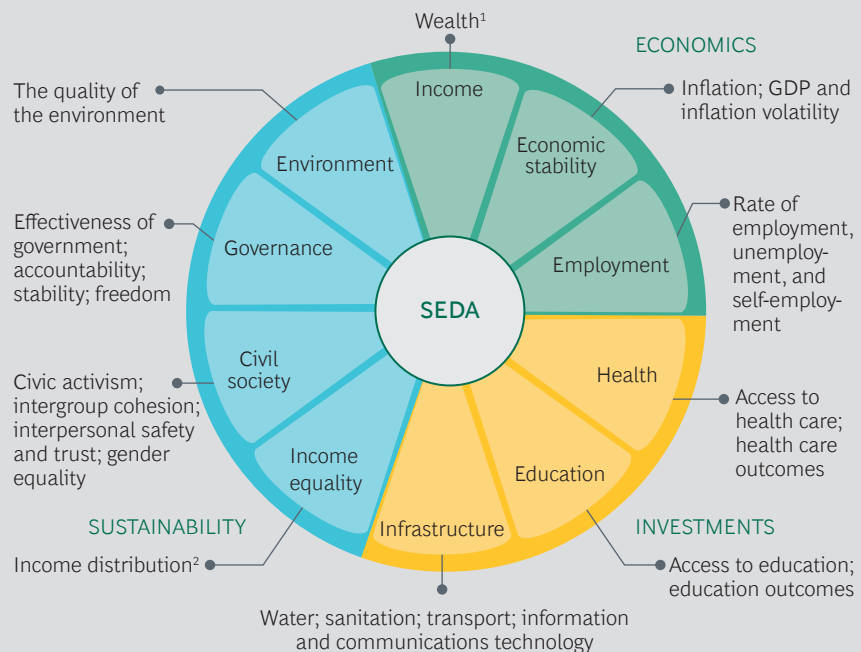
SEDA combines objective data on outcomes, such as in health and education, with other inputs, such as expert assessments of governance. It is also a relative measure that assesses how a country performs compared with either the entire

universe of 162 countries or individual peers or groups. SEDA offers a current snapshot as well as a measure of progress over time, and it is designed to complement purely economic indicators like GDP.

SEDA defines well-being on the basis of ten dimensions grouped into three categories. (See the exhibit below.)

- **Economics** includes the dimensions of income, as well as economic stability and employment.
- **Investments** includes the dimensions of education, health, and infrastructure, which reflect

SEDA's Ten Dimensions of Well-Being



Source: BCG analysis.

¹Wealth is measured as GDP per capita (purchasing-power parity, current international \$) for current-level scores, and GDP per capita (constant local currency unit) for recent-progress scores.

²Income distribution is based on the Gini coefficient.

the outcomes of policies and programs that account for the bulk of any government's nondefense expenditures.

- **Sustainability** comprises the environment and three contributors to social inclusion: income equality, a strong civil society, and sound governance.

Using 44 indicators, we measure country performance by calculating a current-level score and a recent-progress score for each dimension. (See the Appendix for details.) The current-level score represents performance on the basis of the most recently available data, generally for 2015 in our 2017 analysis; the recent-progress score represents change over the period from 2006 through 2015. Both current-level and recent-progress scores are normalized on a scale of 0 (the lowest score among the 162 countries) to 100 (the highest). (It is worth noting that owing to limits on available data, very recent developments are not included in the analysis, and for a few countries, such as Argentina and Brazil, the changes since 2015 have been significant.)

We then aggregate the scores for the ten SEDA dimensions to provide an overall current-level and recent-progress score for each country. These two scores can be used to compare a country with any other country or group of countries. In general, wealthier countries tend to have higher current-level scores than less wealthy countries. But when it comes to recent-progress scores, there is no

obvious pattern related to income or to any other dimension, since these scores reflect the socioeconomic dynamics—including policy effectiveness—in different countries.

SEDA's ten dimensions also provide an organizing structure for reviewing priorities for remedial action, since a country's performance relative to the rest of the world or a group of peers can highlight critical strengths and weaknesses. Armed with such insights, governments can begin to set strategies for addressing the most pressing issues.

On the basis of their current-level and recent-progress scores, we can examine how well countries are able to convert either their wealth or their growth into well-being. We do this using two relative measures:

- **The wealth to well-being coefficient** compares a country's SEDA score for its current level of well-being with the score that would be expected given the country's GDP per capita and the average relationship between that measure and the worldwide current-level scores of well-being. The coefficient thus provides a relative indicator of how well a country has converted its wealth into the well-being of its population. Countries that have a coefficient greater than 1.0 deliver higher levels of well-being than would be expected given their GDP levels, while those below 1.0 deliver lower levels of well-being than would be expected.

DEFINING AND MEASURING WELL-BEING (continued)

- **The growth to well-being coefficient** compares a country's SEDA score for recent progress with the score that would be expected given the country's GDP growth rate and given the average relationship between recent-progress scores and GDP growth rates during the same period for all countries. The coefficient therefore shows how well a country has translated income growth into improved well-being. As with the wealth to well-being coefficient, countries that have a coefficient greater than 1.0 are producing improvements in well-being beyond what would be expected given their GDP growth rate from 2006 to 2015.

by greater inclusiveness are better able to harness their wealth and growth to deliver well-being to their populations.

Of course, none of this means that GDP and GDP growth rates are not key measures of national development. In the second half of the 20th century, huge gaps in per capita income developed in many countries. Narrowing that gap remains a major challenge for many of them, but for many others—including some with very large populations—there is an even more pressing issue. Although economic growth has boosted average per capita GDP levels significantly, income inequality has increased and large segments of the population have been disappointed in their expectations for a rising standard of living. This shift has far-reaching implications, including a potential retreat from the free flow of goods and services that has been a major driver of prosperity—including GDP growth—over the past two decades.

To address this challenge, national strategies must more explicitly treat well-being as a central goal and ensure that the benefits of globalization are shared widely. And government leaders must examine what is keeping their country from effectively converting wealth into well-being and preventing globalization from being a force for inclusion. Such insights can help them identify the institutions that need to be improved, paving the way for a sustained effort that can move the needle on well-being for current and future generations.

Well-Being in the 162 Countries in Our Data Set

By looking at a country's current-level and recent progress SEDA scores, we can see how it compares with other countries in terms of its existing level of well-being and the progress it has shown in improving well-being over the last nine years. Exhibit 1 shows the greatly varying results for all 162 countries covered in our latest SEDA update.

The exhibit is segmented by the global median for current-level and recent-progress scores—45.3 and 51.2, respectively—producing four quadrants. The upper-left

EXHIBIT 1 | Current-Level and Recent-Progress Scores Vary Widely



Source: SEDA 2017.

Note: The named countries constitute the 35 countries in our subset with the largest populations and/or the largest economies.

quadrant contains the countries that have current-level scores above the median and recent-progress scores below the median, a group that can be described as “good but losing ground.” The upper-right quadrant shows the countries with both current-level and recent-progress above the median, a group that is “good and improving.” The lower-right quadrant shows the countries we consider “weak but improving,” meaning that they have current-level scores below the median but recent-progress scores above the median. The lower-left quadrant contains the most challenged countries, with both current-level and recent-progress scores below the median; they can be described as “weak and losing ground.”

The position of countries within these quadrants is revealing. Although countries that had lower levels of well-being at the beginning of the period used to calculate recent progress (2006–2015) had more room for improvement, they are not necessarily the ones that have made the most progress. While a good number of countries have low current-level and high recent-progress scores—those in the “weak but improving” quadrant—there are a significant number in the “weak and losing ground” quadrant. Similarly, some countries with high current-level scores have still managed to chalk up strong recent progress, landing them in the “good and improving” quadrant.

Well-Being in the Subset of 35 Major Countries

Questions about our analyses and findings often center on the world's major economies. Therefore, our latest update—in addition to covering all 162 countries as usual—focuses on a subset of the 25 largest economies and the 25 most populous countries. Because some countries fall into both categories, we are left with a set of 35 nations, which account for about 86% of the global economy and 79% of the world's population.

There are significant differences in the rate at which wealth is converted into well-being even among countries with similar levels of per capita income.

Like the larger group, these countries are distributed over the four quadrants shown in Exhibit 1. And while the quadrant into which a country falls provides a useful snapshot, it is also important to consider location within a quadrant. Thus, Germany, Switzerland, and the Netherlands—all in the “good but losing ground” quadrant—have the highest current-level scores and are close to the global median on recent progress; in the same quadrant, Italy, Spain, and France likewise have high current-level scores, but their recent progress, if any, is well below the global median. Similarly, in the “weak but improving” quadrant, Indonesia and Vietnam have been making strong progress and have well-being levels very close to the global median, while Nigeria has a much lower current-level score and its recent progress is only a bit above the global median.

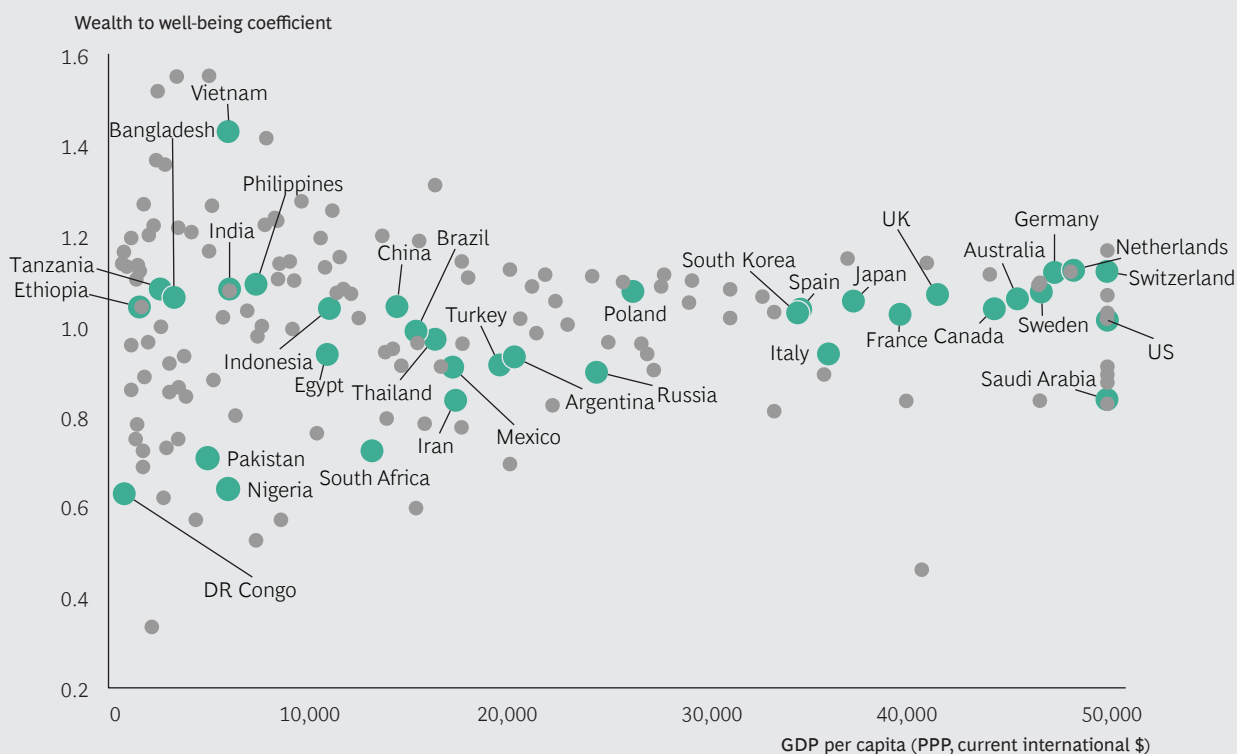
Converting Wealth into Well-Being

The ability to assess how well countries are converting their wealth (income) into well-being for their citizens is the source of SEDA's most powerful insights. The striking differences among countries are reflected in the wealth to well-being coefficient, which provides an indicator of a country's success at harnessing its wealth relative to the global average; coefficients above 1 indicate above-par performance and coefficients below 1 mean that the country is converting its wealth into well-being at a rate below par.

As in the past, our analysis shows no evidence of a relationship between a country's wealth and the rate at which it converts that wealth into well-being for its citizens. So there are significant differences in conversion rates even among countries with similar levels of per capita income. (See Exhibit 2.) GDP per capita in Indonesia and South Africa, for instance, is quite similar (at around \$12,000), but Indonesia is converting that wealth into well-being at a rate above the global average—that is, its wealth to well-being coefficient is relatively high—while South Africa's conversion rate is greatly below par.

As noted above, we found that income inequality is a major factor in weaker performance in converting wealth into well-being. South Africa has the lowest current-level score on income equality among the 35 countries in our subset, while Indonesia's score of 57 is well above the global median. Income inequality often correlates with performance in other dimensions of well-being, such as access to basic social services. Thus, South Africa has much weaker scores on health and education—32 and 30, respectively—compared with Indonesia, which scored 54 in health and 52 in education. The gap in scores for employment was similar—21 for South Africa and 44 for Indonesia—suggesting that equality of opportunity, too, is much greater in Indonesia than in South Africa.

EXHIBIT 2 | Conversion of Wealth into Well-Being Varies Widely, Even at Similar GDP Per Capita Levels



Among the 35 countries in our subset, Vietnam stands out for its greatly above-par performance in converting wealth into well-being, while Nigeria's performance—like that of many other oil-rich countries—is among the worst. Again, this disparity exists despite nearly identical levels of GDP per capita (\$6,000 in PPP terms) and is no doubt related to the very large differences in the scores of the two countries on the dimensions of civil society (71 for Vietnam versus 8 for Nigeria) and health (76 versus 18). (See *Lotus Nation: Sustaining Vietnam's Impressive Gains in Well-Being*, BCG report, March 2016, and *Unlocking Nigeria's Potential: The Path to Well-Being*, BCG report, April 2016.)

Converting Economic Growth into Well-Being

While the wealth to well-being coefficient provides a snapshot of a country's current ability to harness wealth, reflecting the legacy of its history of policy decisions, the growth to well-being coefficient zeroes in on how well it has converted income growth into improved well-being (as measured by recent progress) since 2006.

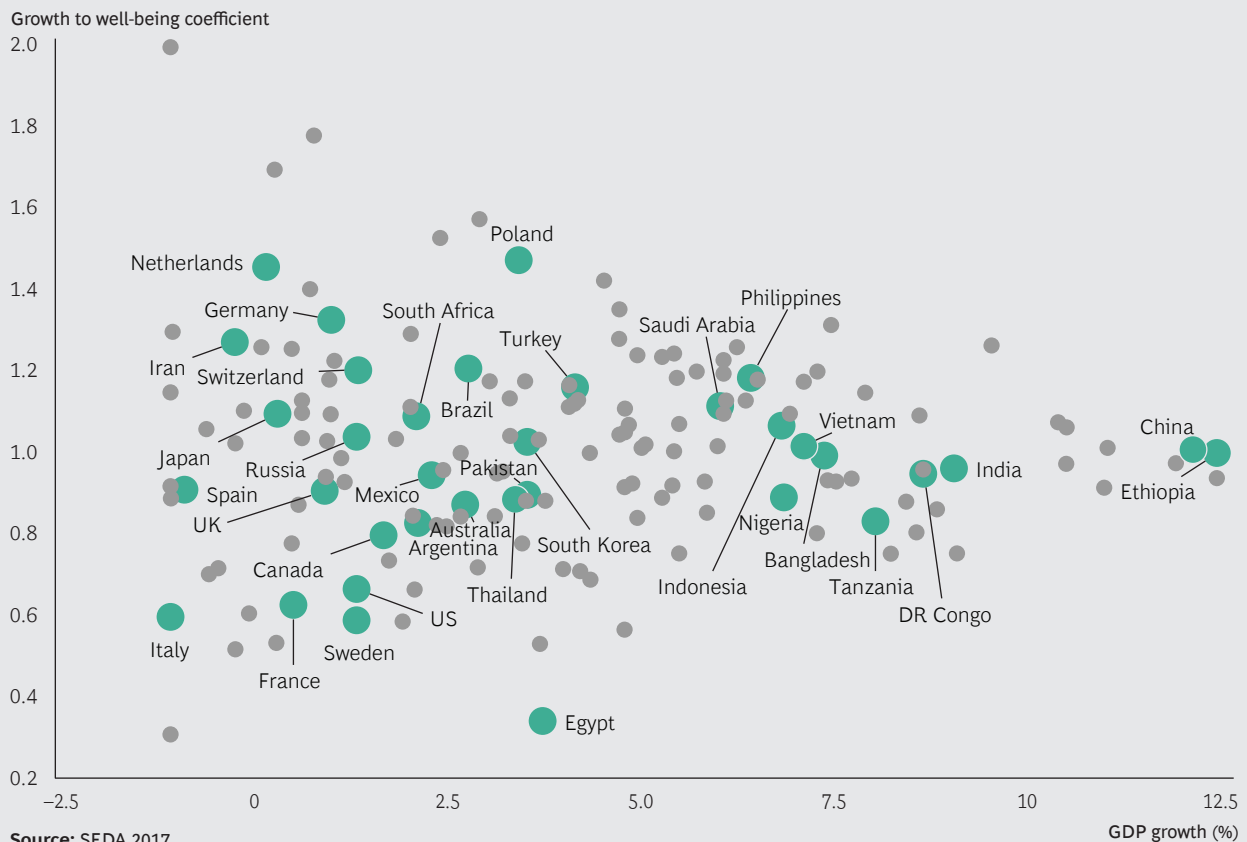
Our analysis of the recent progress of all 162 countries in our data set indicates that even countries whose GDP is growing at a similar rate may convert that economic

growth into well-being improvements at very different rates. (See Exhibit 3.) For example, Canada, Germany, Russia, Sweden, Switzerland, the UK, and the US all grew at an average rate of 1% to 2% during the 2006–2015 period, but only Germany and Switzerland were able to convert that growth into improvements in well-being at significantly above-par rates.

Japan and France grew their GDP at a similarly slow pace (less than 1% per year), but Japan managed to convert its growth into improvements in well-being at an above-par rate, while France did not. This difference was due in part to the recent-progress performance of both countries in terms of employment and income equality, with Japan posting progress equal to or above the global median and France performing below the median in both dimensions.

Among the fastest-growing countries, China, Indonesia, and Vietnam all succeeded in converting growth into well-being at slightly above-par rates—which was quite an accomplishment given their high growth rates. India was not far behind, growing very rapidly and converting that growth into well-being improvements at rates only just below par.

EXHIBIT 3 | Conversion of Growth into Improved Well-Being Varies Widely, Even at Similar GDP Growth Rates



Source: SEDa 2017.

Note: The named countries constitute the 35 countries in our subset with the largest populations and/or the largest economies. The x-axis reflects the average annual change in GDP (in constant local currency) from 2006 to 2016.

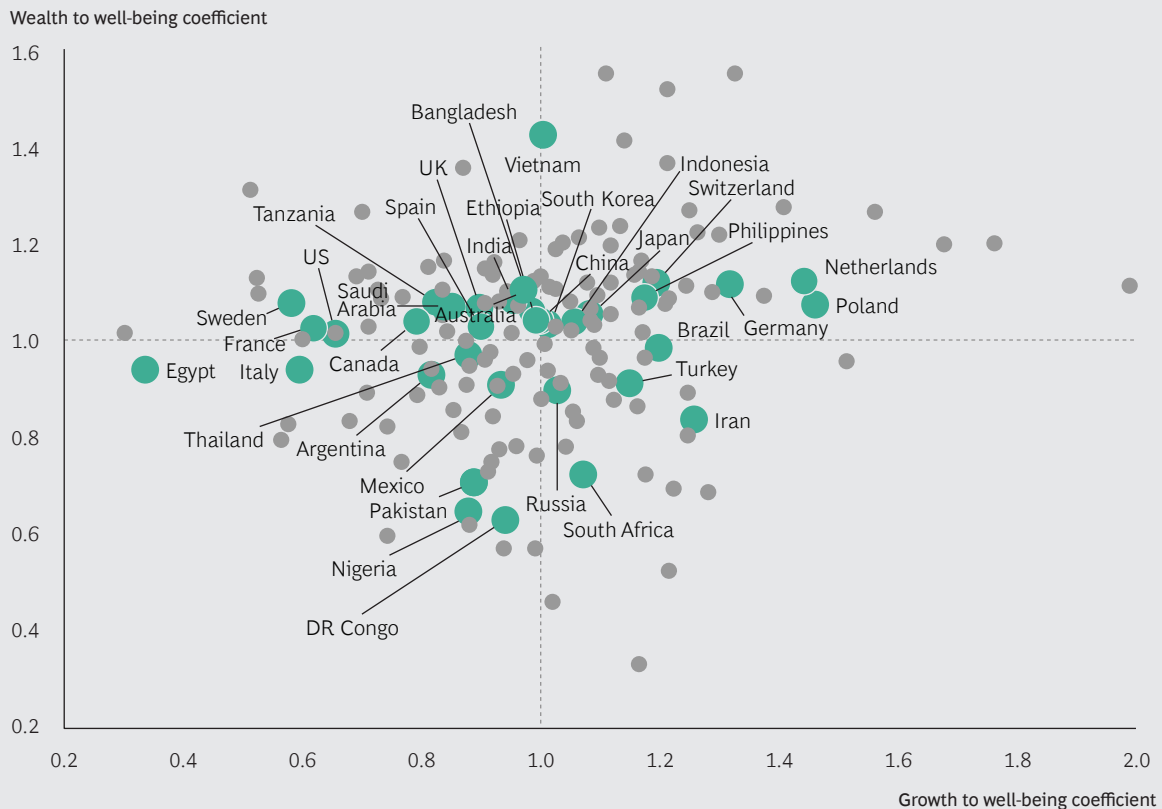
Conversion of Wealth and Growth into Well-Being

Combining the static view provided by the wealth to well-being coefficient with the dynamic view provided by the growth to well-being coefficient can produce valuable insights.

Sometimes the two perspectives show a consistently positive trend. For instance, China and South Korea have slightly above-par coefficients in both wealth and growth. But sometimes the growth coefficient can raise a red flag, signaling a potential deterioration in a country's well-being as measured by its current-level SEDA score; the UK, for example, has a wealth to well-being coefficient that is well above par but a growth coefficient that is well below par. In other cases, the growth coefficient can suggest a potential positive change in direction; Turkey, for example, has a below-par wealth coefficient but a growth coefficient that is well above par.

The 35 countries in our subgroup are fairly well dispersed when mapped against both the wealth to well-being and growth to well-being coefficients. (See Exhibit 4.) Germany, the Netherlands, the Philippines, Poland, and Switzerland stand out among the best-performing countries, with well above-par performance in both wealth and growth. Brazil, while not yet converting wealth into well-being at par, is noteworthy because its success in converting solid growth into significant improve-

EXHIBIT 4 | Performance Varies in Converting Both Wealth and Growth into Well-Being



Source: SEDA 2017.

Note: The named countries constitute the 35 countries in our subset with the largest populations and/or the largest economies.

ments in well-being has gradually pushed the country's wealth to well-being coefficient almost up to par.

France and the US, meanwhile, have slightly above-par wealth to well-being coefficients but significantly below-par growth to well-being coefficients. Compounding the challenges for both countries is the fact that they are growing rather slowly. Failure to convert that weak growth into well-being at even average rates—the consequence, in part, of limited progress in improving health and infrastructure—is producing very unimpressive improvements in well-being for the citizens of these two countries.

As overall inequality increases, gaps also grow in access to education, health care, and other key components of well-being.

Countries with below-par conversion of both wealth and growth into well-being represent diverse regions and reflect the impact of varying dynamics. Their challenged position may be due to persistent structural factors (as in the case of Argentina and Mexico), prolonged economic crisis (Italy), or social and political turmoil (the Democratic Republic of Congo, Pakistan, and Thailand).

From this perspective, Egypt and Nigeria appear to face the greatest challenges among our group of major countries. Egypt's wealth coefficient is slightly below par and its growth coefficient is very weak (the worst of the 35 countries). Nigeria's wealth coefficient is greatly below par (the worst of the 35) and its growth coefficient is below par.

Inequality's Role in Constraining Wealth and Growth

As noted above, research shows that most national institutions tend to change slowly, which is probably a key reason for the slow progress of a country's ability to convert wealth into well-being. And since civil society and governance are especially reliant on the strength of those institutions, it is not surprising that countries with low scores in these dimensions of well-being tend to perform below par at converting wealth into well-being.

Inequality, too, is a function of a country's institutions. This topic has received a lot of attention recently—not least because many observers see a link with the political surprises of 2016. Certainly the global economy has now largely recovered from the 2008 financial crisis, and GDP growth in 2017 promises to remain solid. But the recovery has brought to the forefront the challenge of inclusion, with many people around the world feeling that globalization has left them behind. In order to prevent a sustained and damaging retreat from open markets and free trade, renewed attention must be paid to the issue of inclusive growth. (See “The New Globalization: Going Beyond the Rhetoric,” BCG article, April 2017.)

In this year's analysis, therefore, we took a close look at the link between income inequality and well-being. The most common assumption about income inequality—and the view of many experts—is that it has a negative effect on a country's overall living standard and on citizens' sense of well-being. As overall inequality increases, not only does the gap between average incomes and the incomes of the less wealthy increase, but gaps also grow in access to education, health care, and other key components of well-being.

If inequality does in fact have a detrimental impact on a country's level of well-being relative to its income level, we would expect to find a negative correlation between the two. To explore the relationship between levels of inequality and well-being, we relied on SEDA's wealth to well-being coefficient rather than on SEDA's current-level score. The coefficient provides a way to control for the important effect of income on well-being and for the fact that income equality is one of the ten dimensions that SEDA uses to define well-being. A clear correlation between the coefficient and inequality would indicate that countries with higher levels of inequality do worse at converting their wealth into well-being—independently of their income level.

We found three types of statistical confirmation of the negative relationship between inequality and the wealth to well-being coefficient. First, regression analysis shows the negative correlation between the two measures to be statistically significant, with a confidence level above 99.5%.

Second, we divided the 162 countries in our SEDA database into three tiers of roughly equal size (those with wealth to well-being coefficients near the average and those above and below).² For each tier, we looked at the average Gini index, a measure of income inequality in which the higher the number, the greater the inequality. We found that the Gini index is lowest, at 35.4, for countries converting wealth into well-being at above-average rates and highest, at 42.6, for countries converting wealth into well-being at below-average rates. The index for countries converting wealth into well-being at about the average rate is in the middle, at 37. Interestingly, the gap between the Gini index for the middle tier and the Gini index for the bottom tier is greater than the gap between the Gini index for the middle tier and for the top tier. This suggests that there might be a threshold beyond which inequality has particularly pernicious effects.

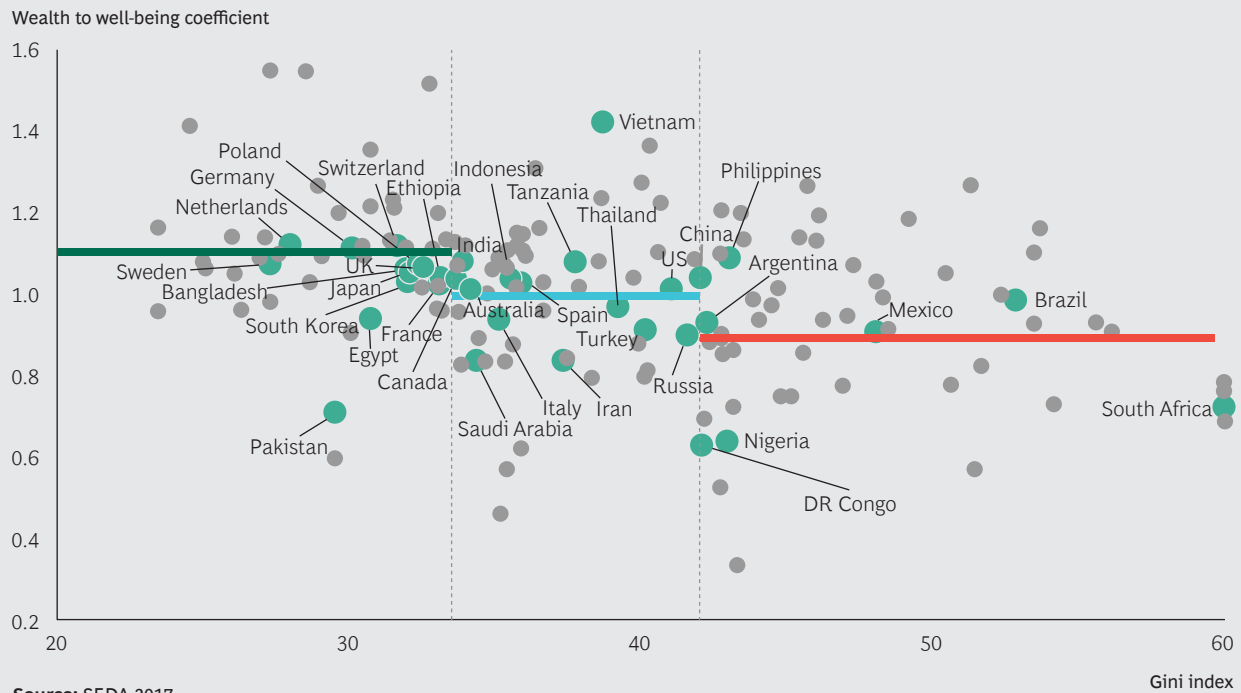
Finally, we looked at the mirror image of this relationship. Dividing the 162 countries into three tiers of equal size on the basis of Gini index, we found that countries in the middle tier (with inequality levels near the median) have a wealth to well-being coefficient of 1 (meaning that as a group, they convert wealth into well-being at par), while countries characterized by greater inequality have a coefficient of 0.9 (underperforming in the conversion of wealth into well-being) and countries characterized by less inequality have an average wealth to well-being coefficient of 1.1. (See Exhibit 5.) Given the nature and scale of the coefficients, these are very significant differences.

This evidence clearly indicates that income inequality is a drag on the ability to convert wealth into well-being, a finding with far-reaching implications. (See the sidebar, "Unequal and Unhappy.") The important connection between equality and well-being, along with the impact of a strong civil society and sound governance on a country's ability to convert wealth into well-being, point to the areas on which government leaders should focus.

The important connection between equality and well-being points to the areas on which government leaders should focus.

INCLUSIVE GROWTH—PROSPERITY THAT is widespread within and across countries—is a critical global challenge. How a nation converts its current wealth and

EXHIBIT 5 | Income Equality Is Associated with Better Conversion of Wealth into Well-Being



economic growth into well-being is a telling indicator of progress toward inclusion. This is true for fast-growing countries with young populations and a lot of catching up to do in terms of income per capita, as well as for slow-growing, wealthy countries with aging populations—and for every country in between.

Well-being is a function of many different factors. Our SEDA analyses suggest that there is a close relationship between a society's inclusiveness—as reflected in income equality and in the quality of civil society and governance—and its ability to convert wealth into well-being. And given the impact of strong institutions on all three factors, it is clear that countries that want to improve how they harness their wealth must examine and address fundamental flaws in those institutions.

NOTES

1. Our data set comprises 161 countries plus Hong Kong, which is a special administrative region of China. For the sake of simplicity, we refer to all of these entities as countries.
2. We deemed countries with coefficients between .935 and 1.065 to be converting wealth into well-being at roughly average rates.

UNEQUAL AND UNHAPPY

Are people in countries with higher levels of income inequality less happy than they would otherwise be expected to be?

To answer this question, we first assessed the relationship between well-being as measured by SEDA and happiness as measured by the UN's World Happiness Report. Overall, we found a strong correlation between the two. (See the exhibit below.)

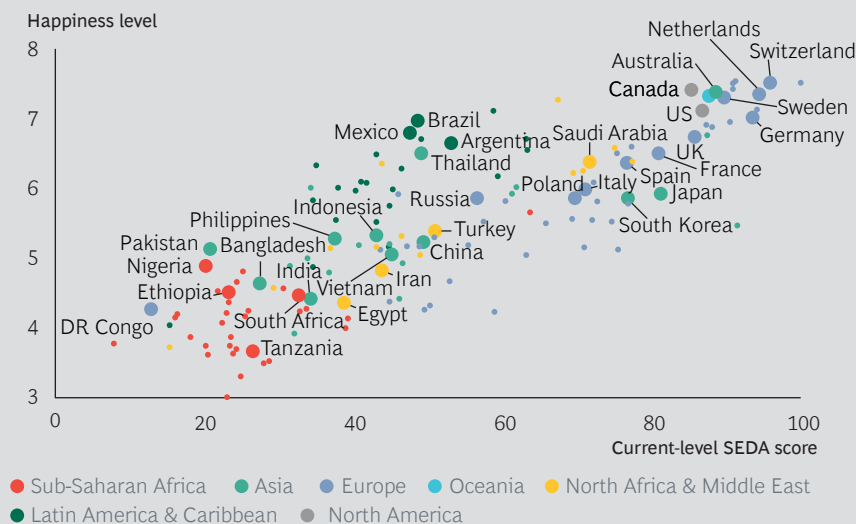
We then looked at whether the gap between well-being and happiness is strongly correlated with income inequality (as measured by the Gini index). We found that countries with high levels of income inequality tend to have a larger gap between well-being and happiness. Conversely, countries with low levels of inequality

tend to report levels of happiness higher than what SEDA's more objective measure of well-being would suggest.

Of course, factors other than inequality are at work when it comes to happiness versus well-being. For example, there are clear patterns related to cultural differences. Latin Americans tend to be optimistic (their happiness levels are higher than would be expected given the well-being scores of their respective countries), while the opposite is true for Central and Eastern Europeans. And the happiness scores of East Asians are quite consistent with the well-being scores of their respective countries.

Similar variations occur from country to country. South Korea and Spain

Happiness and Well-Being Are Strongly Linked, with Marked Regional Differences



Sources: SEDA 2017; UN 2017 World Happiness Report.

Note: The named countries constitute the 35 countries in our subset with the largest populations and/or the largest economies.

UNEQUAL AND UNHAPPY (continued)

have very similar well-being scores, but Spaniards report being considerably happier than South Koreans. Thailand has a slightly lower well-being score than Turkey, but Thais report being considerably happier than Turks. Similarly, Canadians report being much happier than the British in spite of having slightly lower scores on well-being.

It's important to note that neither subjective measures of happiness nor

SEDA's more objective measure of well-being effectively captures people's sense of opportunity—what those in a particular country think about their future prospects. This factor is often overlooked and it is likely crucial in determining whether people are happier or less happy than the current state of well-being in their country would seem to warrant.

APPENDIX

SEDA's measure of well-being is based on three elements that comprise ten dimensions represented by 44 indicators from publicly available sources. The 2017 data set includes 161 countries plus Hong Kong, which is a special administrative region of China (for the sake of simplicity, we refer to all entities as "countries"), and contains a total of nearly 50,000 data points.

The choice of indicators was not intended to provide a comprehensive coverage of issues in each dimension; that would have required many more indicators, with large overlaps and correlations. Rather, the goal was to include enough indicators to characterize the dimension and capture differences across countries.

The first element, *economics*, comprises three dimensions that include eight indicators. The second element, *investments*, comprises three dimensions that include 21 indicators. The third element, *sustainability*, comprises four dimensions that include 15 indicators. (See Table 1.)

TABLE 1 | INDICATORS FOR SEDA'S ELEMENTS AND DIMENSIONS

ECONOMICS

DIMENSIONS	INDICATORS	PRIMARY DATA SOURCES
INCOME	For current-level scores: GDP per capita, purchasing-power parity (current international dollars)	World Bank, World DataBank, International Monetary Fund, World Economic Outlook database
	For recent-progress scores: GDP per capita (constant local currency unit)	World Bank, World DataBank, International Monetary Fund, World Economic Outlook database
ECONOMIC STABILITY	Inflation, average consumer prices (absolute percentage change)	International Monetary Fund, World Economic Outlook database
	Inflation-rate volatility (log standard deviation) ¹	International Monetary Fund, World Economic Outlook database; BCG analysis
	GDP growth volatility (log standard deviation) ¹	International Monetary Fund, World Economic Outlook database; BCG analysis
EMPLOYMENT	Unemployment, total (% total labor force)	World Bank, World DataBank; International Monetary Fund, World Economic Outlook database
	Employment rate, population aged 15–64 (%)	World Bank, World DataBank; BCG analysis
	Self-employment rate (% total labor force)	International Labour Organization, Key Indicators of the Labour Market

TABLE 1 | INDICATORS FOR SEDA'S ELEMENTS AND DIMENSIONS (CONTINUED)
INVESTMENTS

DIMENSIONS	INDICATORS	PRIMARY DATA SOURCES
HEALTH	Life expectancy at birth, total (years)*	World Bank, World DataBank
	Mortality rate, under age 5 (per 1,000 live births)*	World Bank, World DataBank
	Prevalence of HIV, total (% of population, aged 15–49)	World Bank, World DataBank
	Incidence of tuberculosis (per 100,000 people)	World Bank, World DataBank
	Prevalence of undernourishment (% of population) ⁴	World Bank, World DataBank
	Population obesity (% BMI $\geq$ 30, age-standardized estimate) ²	World Health Organization, WHO Global InfoBase
	Immunization, diphtheria, pertussis, and tetanus (% of children aged 12–23 months) ³	World Bank, World DataBank
	Immunization, measles (% of children aged 12–23 months) ³	World Bank, World DataBank
	Number of physicians (per 1,000 people)	World Bank, World DataBank
	Number of hospital beds (per 1,000 people)	World Bank, World DataBank
EDUCATION	School enrollment, tertiary (% gross)	World Bank, World DataBank
	Years of schooling, primary to tertiary (years)	World Bank, World DataBank
	Teacher-to-pupil ratio, primary	World Bank, World DataBank
	Average of math and science scores	OECD, Programme for International Student Assessment, Trends in International Mathematics and Science Study
INFRASTRUCTURE	Internet users (per 100 people)	World Bank, World DataBank
	Mobile cellular subscriptions (per 100 people)	World Bank, World DataBank

TABLE 1 | INDICATORS FOR SEDA'S ELEMENTS AND DIMENSIONS (CONTINUED)**INVESTMENTS**

DIMENSIONS	INDICATORS	PRIMARY DATA SOURCES
INFRASTRUCTURE	Quality of roads network (1–7)	World Economic Forum, Global Competitiveness reports
	Quality of railroads infrastructure (1–7)	World Economic Forum, Global Competitiveness reports
	Improved water source (% of population with access)	World Bank, World DataBank
	Improved sanitation facilities (% of population with access)	World Bank, World DataBank
	Quality of electricity supply (1–7)	World Economic Forum, Global Competitiveness reports

SUSTAINABILITY

DIMENSIONS	INDICATORS	PRIMARY DATA SOURCES
INCOME EQUALITY	Gini index (0–100)	World Bank, World DataBank; Eurostat Global Economy and Development, The Brookings Institution
CIVIL SOCIETY	Level of civic activism (0–1)	Indices of Social Development
	Interpersonal safety and trust index (0–1)	Indices of Social Development
	Intergroup cohesion measure (0–1)	Indices of Social Development
	Level of gender equality (0–1)	Indices of Social Development
GOVERNANCE	Control of corruption (–2.5 to 2.5) ⁴	Worldwide Governance Indicators
	Rule of law (–2.5 to 2.5) ⁴	Worldwide Governance Indicators
	Political stability and absence of violence and terrorism (–2.5 to 2.5)	Worldwide Governance Indicators
	Voice and accountability (–2.5 to 2.5) ⁵	Worldwide Governance Indicators
	Press freedom (0–100) ⁵	Freedom house, Freedom of the Press
	Property rights index (0–100)	Heritage Foundation, Index of Economic Freedom

TABLE 1 | INDICATORS FOR SEDA'S ELEMENTS AND DIMENSIONS (CONTINUED)**SUSTAINABILITY**

DIMENSIONS	INDICATORS	PRIMARY DATA SOURCES
ENVIRONMENT	Air pollution, effects on human health (0–100)*	Environmental Performance Index (Yale University)
	Carbon dioxide intensity (kg per kg of oil-equivalent energy use)*	World Bank, World DataBank
	Terrestrial and marine protected areas (% total territorial area)	World Bank, World DataBank
	Electricity generation from renewable sources, excluding hydro (% of total electricity generated)	U.S. Energy Information Administration, International Energy Statistics; BCG analysis

Source: BCG analysis.

Note: All indicators within the same dimension were given equal weight except for those marked with an asterisk (*), which were assigned double the weight.

¹Calculation based on IMF World Economic Outlook database indicators.

²The SEDA model uses a composite of the undernourished-population and the obese-population indicators.

³The SEDA model uses a composite of the indicators for immunization against measles and for immunization against diphtheria, pertussis, and tetanus.

⁴The SEDA model uses a composite of the indicators for corruption and for the rule of law.

⁵The SEDA model uses a composite of the indicators for voice and accountability and for press freedom.

NORMALIZATION

As a result of differences in the scales used in the original sources, we needed to normalize the data before feeding it into the SEDA model. Individual indicators are made comparable, while preserving the relative distance among the original data values, with a minmax normalization approach, which subtracts the minimum value of an indicator's raw data set from each country's value in a particular year. The result is then divided by the range of the indicator (maximum value minus minimum value in the data set). That result is then converted into a scale of 0 to 100, where 100 is always the best possible score.

Some of the raw data that we used contained outliers—that is, data whose values lie beyond a defined point from other values. In order to avoid an outlier bias in the overall SEDA scores, we adjusted the model so that none of the values would exceed a limit of ± 2.5 standard deviations of the mean.

As a result, SEDA scores for a particular country—whether overall or for a dimension—are always relative to those of other countries. For example, if the current level of well-being in a country is ranked zero, that does not mean that there is no well-being in the country. Rather, it means that the country is the worst performer compared with the other 161 countries.

WEIGHTING

Reflecting that not all dimensions of well-being are equally important, the SEDA model utilizes a simple weighting approach: income, health, education, and governance dimensions were assigned a weighting factor of 2; infrastructure, income equality, civil society, and environment dimensions were assigned a factor of 1;

economic stability and employment dimensions were assigned a factor of 0.5.

We applied a similar approach at the indicator level, but with only two factors: 2 or 1. All indicators within the same dimension were given equal weight except for those marked with an asterisk in Table 1, which were assigned double the weight.

CURRENT LEVEL AND RECENT PROGRESS

We analyzed overall well-being and each of the ten dimensions along two time horizons:

- **Current level** is a snapshot resulting from the normalization and weighting process described above, using the most recent data available.
- **Recent progress** measures the change in current-level data for the most recent period for which data is available. For most indicators, the time frame we analyzed to measure recent progress is 2006 to 2015. We calculated recent progress through a least-squares, best-fit approach.

In both the current-level and recent-progress assessments, we used all the same indicators except for the dimensions of income and health. In income, we used GDP per capita (purchasing-power parity, current international dollars) to compare current-level performance across countries, but we used GDP (constant local currency unit) to estimate recent progress in real terms from 2006 to 2015. In health, HIV prevalence and incidence of tuberculosis were excluded from the recent-progress calculation because of a lack of historical data.

COEFFICIENTS FOR WEALTH TO WELL-BEING AND GROWTH TO WELL-BEING

The wealth to well-being coefficient compares a country's current-level SEDA score with the score that would be expected given its per capita GDP as measured by purchasing-power parity. The expected score reflects the average worldwide relationship between current-level scores of well-being and per capita GDP as estimated by the best-fit regression line, in this case a second-order polynomial regression. Countries with a coefficient greater than 1.0 deliver higher levels of well-being than would be expected given their GDP levels, while those with coefficients less than 1.0 deliver lower levels of well-being than would be expected.

The growth to well-being coefficient compares a country's recent-progress score with the score that would be expected given its GDP growth rate. We use real GDP as the best comparable measure of economic expansion and calculate growth rates from the slope of the least-squares best-fit line for the period in the recent-progress analysis. The expected score reflects the average worldwide relationship between recent-progress scores in well-being and GDP growth rates as estimated by the best-fit line, in this case a simple linear regression. Again, countries that have a coefficient greater than 1.0 are producing improvements in well-being beyond what would be expected given their GDP growth rate over the study period. (See Table 2.)

TABLE 2 | OVERALL COUNTRY-SPECIFIC SEDA SCORES AND COEFFICIENTS

COUNTRY ¹	CURRENT-LEVEL SCORE	RECENT-PROGRESS SCORE	WEALTH TO WELL-BEING COEFFICIENT	GROWTH TO WELL-BEING COEFFICIENT
Albania	52.9	72.0	1.3	1.6
Algeria	43.8	49.7	0.9	1.0
Angola	18.1	75.6	0.5	1.2
Argentina	53.1	34.4	0.9	0.8
Armenia	44.9	45.8	1.2	1.1
Australia	87.8	38.7	1.1	0.9
Austria	94.1	38.4	1.1	1.1
Azerbaijan	50.9	50.5	1.0	0.9
Bahamas, The	61.1	18.5	1.0	0.6
Bahrain	69.5	36.3	0.8	0.7
Bangladesh	27.6	68.0	1.1	1.0
Barbados	66.6	15.2	1.3	0.5
Belarus	60.4	57.2	1.1	1.2
Belgium	90.3	48.0	1.1	1.4
Belize	40.4	37.5	1.1	0.8
Benin	27.9	57.4	1.2	1.0
Bhutan	44.9	81.3	1.2	1.1
Bolivia	34.6	67.7	1.0	1.1
Bosnia and Herzegovina	48.9	61.8	1.2	1.8
Botswana	39.1	57.9	0.8	1.0
Brazil	48.5	54.4	1.0	1.2
Brunei Darussalam	76.6	39.5	0.9	1.3
Bulgaria	58.9	35.4	1.1	1.0
Burkina Faso	23.4	72.3	1.0	1.1
Burundi	23.1	60.2	1.1	1.2
Cambodia	32.2	90.2	1.2	1.3
Cameroon	21.8	59.0	0.9	1.1
Canada	85.3	31.4	1.0	0.8
Central African Republic	0.0	10.0		0.9
Chad	7.9	78.7	0.3	1.2
Chile	63.3	58.8	1.1	1.1
China	49.5	91.6	1.0	1.0
Colombia	43.1	61.2	0.9	1.1
Costa Rica	58.8	51.2	1.2	1.0
Côte d'Ivoire	22.8	68.6	0.9	1.2
Croatia	65.9	46.4	1.1	2.0
Cuba	58.4	41.5	1.0	1.0
Cyprus	72.0	7.5	1.0	0.3
Czech Republic	77.3	37.2	1.1	1.1

TABLE 2 | OVERALL COUNTRY-SPECIFIC SEDA SCORES AND COEFFICIENTS (CONTINUED)

COUNTRY ¹	CURRENT-LEVEL SCORE	RECENT-PROGRESS SCORE	WEALTH TO WELL-BEING COEFFICIENT	GROWTH TO WELL-BEING COEFFICIENT
Democratic Republic of the Congo	12.9	71.1	0.6	0.9
Denmark	91.2	33.3	1.1	1.1
Djibouti	19.8	56.0	0.8	0.9
Dominican Republic	44.7	51.2	1.0	0.9
Ecuador	45.3	69.3	1.1	1.2
Egypt	38.8	16.9	0.9	0.3
El Salvador	41.9	34.2	1.1	0.9
Equatorial Guinea	36.8	36.8	0.5	1.0
Eritrea	16.4	37.5	0.8	0.8
Estonia	74.7	41.9	1.1	1.3
Ethiopia	23.3	94.2	1.0	1.0
Fiji	42.1	45.0	1.1	1.0
Finland	91.0	19.5	1.1	0.7
France	80.9	20.9	1.0	0.6
Gabon	39.3	68.8	0.7	1.2
Georgia	49.6	76.5	1.3	1.4
Germany	93.5	47.7	1.1	1.3
Ghana	33.7	81.8	1.2	1.0
Greece	63.1	0.0	1.0	
Guatemala	35.0	42.9	1.0	0.9
Guinea	20.5	65.8	1.0	1.5
Guinea-Bissau	17.2	47.2	0.8	1.0
Guyana	33.7	51.2	1.0	0.9
Haiti	15.6	53.2	0.7	1.3
Honduras	34.7	39.4	1.2	0.8
Hong Kong	91.6	54.4	1.1	1.2
Hungary	70.9	17.2	1.1	0.5
Iceland	91.0	25.9	1.1	0.8
India	34.4	73.9	1.1	1.0
Indonesia	43.0	69.8	1.0	1.1
Iran	43.8	37.6	0.8	1.3
Iraq	29.3	54.5	0.6	0.8
Ireland	87.2	27.3	1.0	0.7
Israel	67.4	36.5	0.9	0.7
Italy	71.1	15.2	0.9	0.6
Jamaica	43.1	20.5	1.1	0.7
Japan	81.3	35.5	1.1	1.1
Jordan	46.5	26.2	1.1	0.5
Kazakhstan	61.2	70.9	1.0	1.2

TABLE 2 | OVERALL COUNTRY-SPECIFIC SEDA SCORES AND COEFFICIENTS (CONTINUED)

COUNTRY ¹	CURRENT-LEVEL SCORE	RECENT-PROGRESS SCORE	WEALTH TO WELL-BEING COEFFICIENT	GROWTH TO WELL-BEING COEFFICIENT
Kenya	23.4	69.5	0.9	1.1
Kuwait	70.9	23.7	0.8	0.6
Kyrgyzstan	40.8	73.3	1.6	1.3
Lao PDR	31.5	89.2	1.0	1.1
Latvia	69.4	30.4	1.1	1.0
Lebanon	37.0	31.4	0.8	0.6
Lesotho	18.4	53.7	0.7	0.9
Liberia	23.9	63.7	1.2	0.9
Lithuania	72.7	44.2	1.1	1.2
Luxembourg	88.1	41.6	1.0	1.0
Macedonia	43.7	35.3	0.9	0.8
Madagascar	24.3	29.2	1.1	0.7
Malawi	25.5	71.2	1.2	1.1
Malaysia	61.9	57.7	0.9	1.0
Mali	22.4	57.3	1.0	1.1
Malta	75.4	32.7	1.0	0.7
Mauritania	23.0	64.2	0.8	0.9
Mauritius	63.6	52.8	1.1	1.0
Mexico	47.5	40.2	0.9	0.9
Moldova	46.0	58.1	1.6	1.1
Mongolia	46.7	88.9	1.1	1.0
Montenegro	47.3	36.1	1.0	1.0
Morocco	43.2	69.9	1.2	1.3
Mozambique	18.3	65.1	0.9	0.9
Myanmar	26.5	87.6	0.9	1.0
Namibia	30.6	58.6	0.8	1.0
Nepal	36.7	70.6	1.5	1.2
Netherlands	94.5	46.1	1.1	1.4
New Zealand	88.1	37.2	1.2	0.9
Nicaragua	38.0	36.9	1.3	0.7
Niger	23.6	81.1	1.1	1.2
Nigeria	20.3	58.4	0.6	0.9
Norway	100.0	42.2	1.2	1.2
Oman	66.1	62.8	0.8	1.1
Pakistan	20.9	43.7	0.7	0.9
Panama	49.2	57.8	0.8	0.7
Papua New Guinea	24.7	59.7	1.0	0.8
Paraguay	37.7	62.3	1.0	1.0
Peru	44.8	75.5	1.0	1.2

TABLE 2 | OVERALL COUNTRY-SPECIFIC SEDA SCORES AND COEFFICIENTS (CONTINUED)

COUNTRY ¹	CURRENT-LEVEL SCORE	RECENT-PROGRESS SCORE	WEALTH TO WELL-BEING COEFFICIENT	GROWTH TO WELL-BEING COEFFICIENT
Philippines	37.6	75.1	1.1	1.2
Poland	70.0	71.0	1.1	1.5
Portugal	75.6	33.1	1.1	1.3
Qatar	77.5	88.3	0.9	0.9
Republic of the Congo	25.9	78.7	0.8	1.3
Romania	57.5	39.1	1.0	1.1
Russia	56.5	39.1	0.9	1.0
Rwanda	28.7	100.0	1.3	1.3
Saudi Arabia	71.6	68.4	0.8	1.1
Senegal	32.9	63.0	1.4	1.2
Serbia	55.5	54.6	1.2	1.7
Seychelles	60.0	46.9	0.9	0.8
Sierra Leone	24.9	81.2	1.1	1.1
Singapore	87.5	51.6	1.0	0.9
Slovakia	72.1	34.8	1.1	0.8
Slovenia	76.8	29.4	1.1	1.1
South Africa	32.7	44.9	0.7	1.1
South Korea	76.8	49.8	1.0	1.0
Spain	76.7	23.9	1.0	0.9
Sri Lanka	46.2	65.7	1.1	0.9
Sudan	16.2	44.4	0.6	1.0
Suriname	46.5	44.1	0.9	0.9
Swaziland	21.1	44.3	0.6	0.9
Sweden	89.7	22.1	1.1	0.6
Switzerland	96.0	45.5	1.1	1.2
Tajikistan	33.9	64.7	1.4	0.9
Tanzania	26.6	59.5	1.1	0.8
Thailand	49.2	42.5	1.0	0.9
Timor-Leste	28.9	89.8	1.2	1.1
Togo	24.9	56.8	1.1	1.0
Trinidad and Tobago	59.4	29.6	0.8	0.9
Tunisia	49.0	35.6	1.2	0.8
Turkey	51.0	60.3	0.9	1.2
Uganda	20.2	54.3	0.9	0.8
Ukraine	50.2	26.1	1.4	1.1
United Arab Emirates	75.1	54.0	0.9	1.1
United Kingdom	85.7	32.3	1.1	0.9
United States	86.7	24.9	1.0	0.7
Uruguay	63.4	43.6	1.1	0.7

TABLE 2 | OVERALL COUNTRY-SPECIFIC SEDA SCORES AND COEFFICIENTS (CONTINUED)

COUNTRY ¹	CURRENT-LEVEL SCORE	RECENT-PROGRESS SCORE	WEALTH TO WELL-BEING COEFFICIENT	GROWTH TO WELL-BEING COEFFICIENT
Uzbekistan	34.3	79.3	1.1	0.9
Venezuela	41.0	33.4	0.8	0.9
Vietnam	45.2	67.8	1.4	1.0
Yemen	15.5	20.7	0.6	0.9
Zambia	25.3	72.0	0.9	1.0
Zimbabwe	16.4	73.2	0.7	1.2

¹Our data set includes 161 countries plus Hong Kong, which is a special administrative region of China. For the sake of simplicity, we refer to all entities as “countries.”

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