PROSPERITY INDEX

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The Legatum Prosperity Index™ 2017

Methodology Report

Creating Pathways from Poverty to Prosperity

Contents

1 Introduction

Brief Introduction to the Prosperity Index

The word 'legatum' means 'legacy'. At the Legatum Institute, we are focused on tackling the major challenges of our generation—and seizing the major opportunities—to ensure the legacy we pass on to the next generation is one of increasing prosperity and human flourishing. Based in London, we are an international think tank and educational charity which seeks to provide evidence-based solutions for those who would see free, just and flourishing societies. We do this through our research and by bringing together those who wish to work towards creating a better, more prosperous world. At the Legatum Institute, we believe that prosperity is not just a journey of accumulation, but one of transformation.

The Legatum Prosperity Index is a reflection of this view. It is a framework that assesses countries on the promotion of their citizens' flourishing, reflecting both wealth and wellbeing across nine pillars of prosperity. This makes the Index, covering 149 countries, a unique global benchmarking tool. It captures the richness of a truly prosperous life and in so doing seeks to redefine the way we measure national success, changing the conversation from what we are getting to who we are becoming. Thus it is an authoritative measure of human progress, offering a unique insight into how prosperity is forming and changing across the world.

A nation's prosperity has traditionally been measured by macroeconomic indicators of wealth such as average income per person or GDP per capita. In moving "beyond GDP" to cover both wealth and wellbeing—and not just one or the other—the Prosperity Index faces challenges that the Legatum Institute has striven over the past decade to meet with academic and analytical rigour.

Ultimately, the Prosperity Index is a tool for change. It provides leaders with the evidence they need to transform their nations into more prosperous ones and it provides citizens with the information they need to hold those leaders to account.

This methodological report, which first accompanied the release of the 2016 Prosperity Index, has been updated for the 2017 Index. It offers the reader an understanding of how the Index had been refreshed for the 2016 edition, following a two-year methodological review, to get us closer to a measure of prosperity that is transparent and policy-relevant. The 2016 and 2017 editions of the Index cover more countries and more variables, include a new pillar on the environment, and are based on a more transparent and conceptually clear weighting scheme.

We endeavour to create an Index that is methodologically sound. Our aim in publishing this methodology report is to provide all the information required to understand the Legatum Prosperity

Index and to present it in a way that is transparent, useful, and informative.

Since last year's report, we have changed the source of data for two indicators in the Economic Quality Pillar: labour market participation and female labour market participation. Our past measure has been the ILO estimate of overall, and female, labour force participation rate as a percentage of the population aged 15-64. However, these two datasets have been discontinued, thus we have replaced them with close analogues, the labour force participation rate as a percentage of the population aged 15+. These new metrics also include the labour force participation of older workers. Consequently, there have been some changes in the rankings for these indicators - countries with smaller 64+ populations tend to have more favourable scores – yet on the level of the overall Prosperity Index, this switch of indicators has had negligible impact on rankings.

Structure of the Report

Section 2 of this report describes the conceptual framework of the Prosperity Index and its pillars. Section 3 provides an overview of the Index's methodological approach. It explains the thinking behind the choice of our nine pillars and their underlying 104 variables. Section 4 burrows beneath the surface of our data characteristics and sources. It explains how we arrived at data coverage for all 149 countries over ten years. Section 5 explains the calculation steps involved in standardising, weighting, and aggregating our variables and pillars into a single composite index. We also provide robustness tests of our weighting strategy. Section 6 gives an overview of the ways in which the Index can be used to assess countries' prosperity performance. Appendix I contains a list of all our variables, their sources, and descriptions. Appendix II contains a bibliography.

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Prosperity Worldview

Conceptual Framework

The Legatum Prosperity Engine is the conceptual framework underlying the Prosperity Index. It is represented in Figure 1. The model is a visual representation of the way in which a nation's economic wealth and social wellbeing act upon each other, either accelerating or restraining the creation of individual and shared prosperity.

What is Prosperity?

True prosperity is more than just material wealth. Prosperity, as measured by the Prosperity Index, is created by both economic wealth and social wellbeing working together in a relationship where each benefits and advances the other.

Wealth provides means, not meaning. Survival, comfort, and pleasure are not enough. Man is a meaning machine. The accumulation of wealth without the voluntary pursuit of a meaningful purpose leads to disillusionment and emptiness. It is through contribution and compassion (selflessness, service, and social connection) that human beings find deeper meaning. These qualities also build the rich resources of wider social capital that sustain a virtuous national character, so vital to a smoothly functioning economy.

Free enterprise also has an important role to play. As Adam Smith observed, when people voluntarily strive to meet their own and each other's needs, material prosperity grows and standards of living rise. An economic "flywheel" emerges from the accumulation of surplus wealth, providing the resources for yet further investment. As standards of living rise, it becomes possible to invest in various forms of human development, such as healthcare and education, thereby helping to lift people out of poverty and build greater levels of social cohesion and trust.

As social capital grows, the social capital flywheel advances, which also accelerates the economic flywheel. Healthy, educated, high-trust societies are essential for sustained economic development. Conversely, when social capital is weak, as a result of an unhealthy or corrupt community, a significant restraint on economic development is created. High levels of material prosperity are not sustainable without strong social capital.

In this way, the two flywheels are interconnected and interdependent. They work together as a

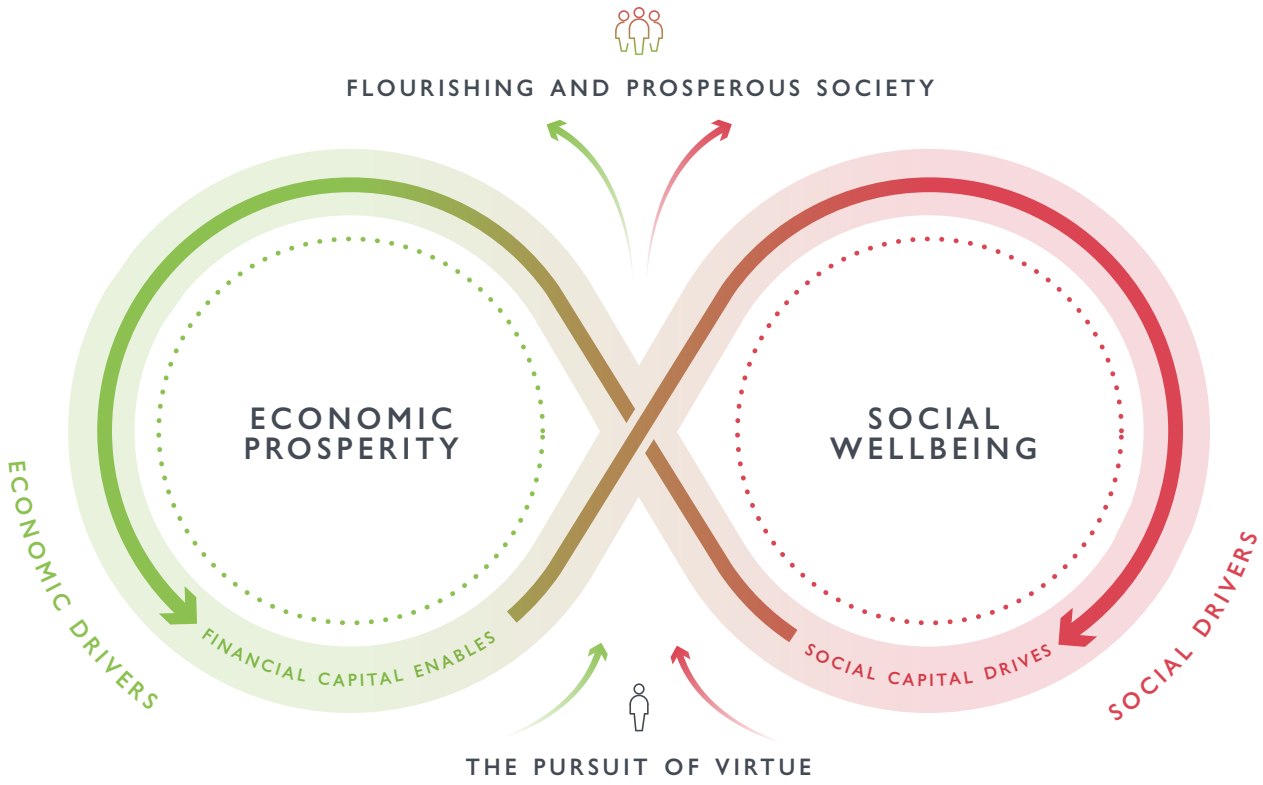

Figure 1: The Legatum Prosperity Engine

single engine of prosperity, each sustaining and accelerating the other. However, they can also act as brakes upon each other. For example, an anaemic economic performance will fail to provide the investment needed for the creation of strong social capital. Similarly, weak social capital will result in a shortage of the healthy, educated, diligent, and trustworthy participants who are so essential for a productive workforce and vigorous economy.

When either of these two flywheels is prevented from turning efficiently, it retards the entire engine of growth. And if both of these drivers of prosperity are failing, the result is a nation perpetually mired in poverty.

The Pursuit of Virtue

No model would be complete without considering the role of governance in creating and sustaining prosperity. Our observation is that institutions can guarantee order, but not outcome. Institutions are open to both use and abuse, depending upon the national character reflected in the people leading them. Put another way, the benefit provided, or harm inflicted, by national institutions is in direct proportion to the virtues of their leadership. Institutions, like laws, can be used to either liberate or enslave, to protect or punish, depending upon how they are employed.

It is essential to distinguish between the merit-based competition of free markets and the crony capitalism which thrives upon regulation, permits, licences, tariffs, and other political favours. Tyrannies are seldom known by the absence of laws, but rather by the manner in which laws are selectively employed, either against opponents or in favour of friends. For this reason, in our model the pursuit of virtue furnishes the environment within which the two flywheels function.

When the economy and society operate within a virtuous, high-trust, service-oriented moral framework, then resources flow efficiently to the most productive people and places, for the benefit of the many. When virtue is weak and a sense of stewardship is absent, wealth is redirected by and toward the governing elite and their crony

capitalist friends, leaving fewer resources available for essential investments in either economic growth or social capital.

From Concept to Measurement

The Prosperity Engine underlies the rest of this report, which explains how we go from a conceptual framework to an empirical implementation.

The Prosperity Engine has at its heart two central flywheels: economic prosperity and social wellbeing. In principle, we could rank countries according to their overall level of per capita income (a measure of economic prosperity) and the life satisfaction of their citizens (a popular measure of social wellbeing). However, this would not allow us to ask the crucial question of whether citizens in a country truly have the opportunity to flourish and lead prosperous lives. It would not have anything to say about the economic or social drivers of their success. Authoritarian regimes, for example, might deliver a high GDP per capita and life satisfaction, but the absence of freedom is a restriction on true prosperity. The Prosperity Index seeks to enhance our understanding of global prosperity by investigating all the different drivers that underlie a country's wealth and wellbeing.

The Prosperity Index is founded on the notion that prosperity is multidimensional. Wellbeing encompasses all aspects of human life, including but not restricted to emotional happiness and life satisfaction. Similarly, wealth extends beyond GDP per capita to incorporate qualitative and distributive aspects not captured by monetary measures. If wealth and wellbeing could be measured in an appropriate way by single variables, there would be no need to construct the Prosperity Index on such a complex basis. But prosperity is a multidimensional concept and one that the Index seeks to measure, explore, and understand as fully as possible.

3

Methodology Overview

Pillars and variables: Overview of Structure

We combed through decades of academic research that has identified the determinants of economic performance and social wellbeing across countries. Appendix II, available in the online version of this report, contains a full bibliography.

The review identified more than 200 variables that have an impact on wealth and wellbeing, and could therefore be considered for inclusion in the Index. The review also made clear that countries often follow different paths to prosperity, but some common themes emerged. The Prosperity Engine's drivers might not all be present in every country to the same degree, but every country needs some combination of these drivers to achieve prosperity. For example, South Korea has achieved prosperity despite low levels of social capital, while Singapore has achieved prosperity despite low levels of Personal Freedom. As the Prosperity Index's coverage is global, we necessarily cover all drivers highlighted by our Prosperity Engine that enable countries to achieve prosperity.

By examining the statistical relationship between wealth and wellbeing and each one of the 200 variables, we further refined the list of 200 variables down to 104 variables. We did this by selecting only the variables that displayed a statistically significant and meaningful relationship with at least wealth or wellbeing. As a final check on our list of 104 variables, we consulted a group of academic and policy experts who advised us on the reliability of data sources, the credibility of variables' measurement, and the correct form in which to express the variables. We then distributed these variables across nine pillars, each representing a different aspect of prosperity.

in 2016, we have added a ninth pillar—Environment. We have now reached a high point in the accumulation of evidence on the role of the environment in bringing a sense of wellbeing and economic benefits to a population. It does this through characteristics that may be physical, such as air quality; social, such as green areas in which to meet; or symbolic, such as national parks and conservation areas that also provide biodiversity. Economic benefits come through the practice of sustainable agriculture, which improves land productivity, and through the slowing

of degradation, which acts as a drag on long-run productivity. Policymakers are growing increasingly aware of the environment's importance in delivering a sense of prosperity and need broad metrics that go beyond single-issue debates, such as air pollution.

We continuously monitor the availability and quality of global data, and this year's variable count of 104 marks an increase from the 2015 edition's 89. Wider data availability meant we could increase our coverage from 142 countries to 149 for the 2016 edition.

A country is given a score for each pillar. This score is based on that country's performance with respect to each of the variables and on the level of importance—the weight, which we discuss in the following section—assigned to each variable. Finally, the pillar scores are averaged to obtain an overall prosperity score, which determines each country's rank. By averaging pillar scores to obtain an overall prosperity score, we do not judge any one of the pillars to have a greater a *priori* weight than any other. This is especially important in the construction of a global index where different pillars have greater importance in different countries at different times. Health, for instance, might be a high priority until war breaks out, after which Safety & Security becomes the main concern. Like the UN's Human Development Index (HDI), which is a composite of three indicators, this equal weighting of pillars makes the normative assumption that people value each pillar equally.

For each pillar, we provide individual country scores and rankings. While the Index score provides an overall assessment of a country's prosperity, each pillar score serves as a reliable guide to how that country is performing with respect to a particular foundation of prosperity.

The relationships between the 104 variables and the nine pillars are complex. For example, a country that performs well in educating its citizens is more likely to have an innovative and high-quality economy. Our Education and Economic Quality pillars are, in fact, highly correlated.

There are, however, many paths to prosperity, as the academic literature emphasises. It is possible to achieve prosperity through different policy mixes. Some countries move closer to prosperity by improving their Business Environment and Education scores, while others might emphasise Safety & Security and Social Capital. For example, the United States ranks 21st in overall prosperity, first in the Business Environment pillar, but 52nd in the Safety & Security pillar. Luxembourg, in contrast, ranks 12th overall, 29th in Business Environment, but second in the Safety & Security pillar.

The distribution of our 104 variables across nine pillars is not a comment on their distinct contribution to overall prosperity, but offers a framework, based on our Prosperity Engine, that enables users to assess countries' prosperity in a comprehensive and practical way.

Figure 2: Pillars of Prosperity

The Pillars

Figure 2 displays our nine pillars of prosperity

Economic Quality

Sound and stable or, simply, high-quality economic fundamentals increase economic wealth and promote social wellbeing. The Economic Quality pillar measures countries' performance in four key areas: structural policies (e.g., trade barriers), economic satisfaction and expectations (e.g., satisfaction with living standards), distribution of prosperity (e.g., relative poverty), engagement (e.g., labour force participation and financial access), and production quality and diversity (e.g., export diversity and quality). We include long-run per capita income growth because stable, persistent growth raises living standards, but—as recent research has found—volatile growth is related to lower levels of wellbeing, as people struggle to adjust to the sudden changes triggered by such growth.

Business Environment

A strong business environment is one that provides an entrepreneurial climate in which citizens can pursue new ideas and opportunities to improve their lives, leading to more wealth and higher social wellbeing. The Business Environment pillar measures these factors in the following categories: access (to infrastructure such as the Internet and transport, and to credit), business flexibility (the costs of starting a business and of hiring and firing), clear and fair regulation (e.g., intellectual property rights), and perceptions of meritocracy and opportunity. The Business Environment pillar is based on research into how entrepreneurship drives innovation and generates economic growth, and into the positive effects that result from individuals realising their entrepreneurial potential. When a country improves the likelihood that entrepreneurial initiative will

pay off and individuals experience the satisfaction of entrepreneurial success, a society's prosperity increases overall.

Governance

Well-governed, democratic societies tend to enjoy higher levels of per capita income and of citizen wellbeing. The Governance pillar measures countries' performance in four areas: effective and accountable government, fair elections and political participation, the rule of law, and the level of a country's democracy. Stable and democratic governing institutions safeguard political and economic freedom and create an environment of civic participation, leading to higher levels of income and wellbeing. The Governance pillar also assesses levels of government corruption and competition, and citizens' confidence in the honesty of elections and the broader policymaking process.

Personal Freedom

When citizens enjoy freedom of expression, belief, and organisation, as well as personal autonomy in a society welcoming of diversity, their country experiences higher levels of income and wellbeing. The Personal Freedom pillar measures countries' performance in two areas: individual freedom and social tolerance. The Personal Freedom pillar captures the importance of various freedoms—of choice, expression (including press freedom), movement, and belief—and tolerance of minorities and immigrants, for a country's wealth and the wellbeing of its citizens. Societies that foster strong civil rights and freedoms have been shown to enjoy increases in levels of satisfaction among their citizens. When citizens' personal liberties are protected, a country benefits from higher levels of national income.

Social Capital

Social networks and the cohesion a society experiences when people trust and respect one another have a direct effect on the prosperity of a country. The Social Capital pillar measures countries' performance in three areas: social cohesion and engagement (bridging social capital), community and family networks (bonding social capital), and political participation and institutional trust (linking social capital). This pillar evaluates how factors such as volunteering, helping strangers, and donating to charitable organisations impact economic performance and life satisfaction. It measures levels of trust—whether citizens believe they can rely on others and whether they can rely on institutions such as the police force. It also measures whether citizens feel and act as though they have a say in the political process. Empirical studies on social capital have shown that citizen wellbeing improves through social trust and family and community ties. Similarly, societies with lower levels of trust—a central component of social capital—have been shown to experience lower levels of economic growth. Thus the word "capital" in "social capital" highlights the contribution of social networks as an asset that produces economic returns and improves wellbeing.

Safety & Security

Threats to national security and personal safety jeopardise economic and social wellbeing. The Safety & Security pillar measures countries' performance in three areas: national security, personal precariousness, and personal safety. A stable social and political environment (as measured by a political terror scale) is necessary for attracting investment and sustaining economic growth. When citizens worry about their personal safety (measured through questions such as "Do you feel safe walking alone at night?"), their overall wellbeing suffers. The Safety & Security pillar combines objective measures of security and subjective measures of personal safety. Factors such as instability resulting from group grievances (like ethnic wars) limit GDP growth. When people's food and shelter situation is precarious, and when institutions cannot support them, they flee. Academic research shows that organised political violence such as coups or civil war, as well as crime, hinders economic growth. In addition, an environment of fear and uncertainty negatively affects life satisfaction.

Education

The Education pillar measures countries' performance in four broad areas: access to education,

quality of education, human capital, and competitiveness. Access to education (measured by enrolment rates and an education inequality index) allows citizens to develop their potential and contribute productively to their society. In addition, the pillar shows that a country's human capital stock (measured by years of education per worker) encourages research and development and adds knowledge to society. Citizens' perception of the educational opportunities available to them and their children is also key to assessing the quality of education in a given country. This pillar is inspired by research on economic growth which has found human capital to be an engine for growth, making a case for the non-diminishing effect of education on rising per capita income levels. Academic research also shows that basic education enhances people's opportunities to increase life satisfaction.

Health

A strong health infrastructure which enables citizens to enjoy good physical and mental health leads to higher levels of economic prosperity and wellbeing. Poor health keeps people from fulfilling their potential. The Health pillar measures countries' performance in three areas: basic health outcomes, health infrastructure and preventative care, and physical and mental health. The Health pillar evaluates countries on the basis of indicators that reflect a strong health infrastructure, such as rates of immunisation and sanitation facilities. Countries are also assessed on average life expectancy and mortality rates. The pillar further includes measures of individual satisfaction with health. Researchers have found that self-reported wellbeing and self-reported health are strongly and significantly correlated to a society's overall health, further fostering human capital creation, which is favourable to higher economic development. Mentally and physically healthy citizens are the bedrock of a productive workforce, which in turn increases levels of income per capita.

Natural Environment

New in the 2016 Prosperity Index was the Environment pillar. In our research, we have found that several indicators of the environment, including use of pesticides, land and marine area devoted to nature, and air quality, show a significant relationship with average national wellbeing and material wealth. These findings will be immediately obvious to anyone who has moved in search of cleaner air or more green space, and to the rural populations who were lifted out of poverty through sustainable agricultural methods that increase productivity. In short, we have included the Environment pillar because a high-quality environment conveys a sense of wellbeing and satisfaction to a country's population through characteristics that may be physical (such as air quality), social (such as green areas to meet), or symbolic (such as national parks), and because a high-quality environment can provide substantial material economic benefits to those whose living depends on the environment.

Variable Selection Criteria

Each pillar contains around 12 variables. Appendix I contains a list of all 104 variables, which includes their description, source, and weight. This section explains the criteria we developed with our expert advisers to refine the 200 variables drawn from the literature review down to 104. We asked of every variable the "five As": is it applicable, actionable, agnostic, adaptable, and accessible?

- **Applicable** requires the variable to speak to contemporary policy debates with global resonance and to offer relevant and useful analysis and advice. The Index touches on a range of aspects of human life that affect a country's capabilities to deliver prosperity to its citizens. Variables must speak to policy and development issues that policymakers and the public care about most.

- **Actionable** demands that the variables reflect conditions that can be targeted and affected in the short to medium term. In other words, they should be concrete, measurable, and susceptible to policy influence. For example, instead of including a demographic trend, like population ageing, which cannot be changed immediately despite its considerable effect on a country's productivity potential, the Index turns to related but more adjustable measurements, such as the proportion of people who suffer from health problems that prevent them from working normally. This preference for short- to medium-term variables over long-term variables ensures that recommendations and analysis based on the Index are actionable for real-world policymakers.

- **Agnostic** is the criterion that guarantees the Index's analytical strength and coherence. First, only internationally comparable variables underpinned by a consistent and solid methodology are selected. Priority is given to variables that capture prosperity outcomes, rather than arrangements—or inputs—that may lead to prosperity. As this may show a negative bias towards countries that have not yet been able to produce prosperity, but have established the groundwork to do so, we also include in the Index variables that reflect institutional and social inputs, such as the rule of law and government effectiveness.

- **Adaptable** refers to the Index's scope for improvement over time and its capacity to target different countries based on their specific characteristics. With respect to the first condition, the Index is built in a way that allows it to be updated as new data and research are produced. The 2016 Index follows a two-year methodological review that took into account the latest academic research, expert assessments, and statistical analyses of different construction approaches. With respect to the second condition, the Index's component variables are adapted to the diverse sample of countries it covers, allowing it to speak to issues faced by both developed and developing countries.

- **Accessible** means that the Index is produced in a way that is not only logically and statistically robust, but also accessible to specialist and non-specialist users alike. This level of accessibility ensures a high level of transparency throughout the Index's methodology and data, so that users can question and analyse countries' performance. Most importantly, by making the Index accessible, we want to widen its use as a tool for change.

4 Variables and Data

Data Characteristics and Sources

Data for the 104 variables listed in the Prosperity Index are drawn from a wide range of sources including intergovernmental organisations such as the United Nations, World Bank, International Monetary Fund, and World Health Organization; independent research and non-governmental organisations (NGOs) such as Freedom House, Amnesty International, and Transparency International; and databases compiled by academics.

For the subjective variables, two major global surveys are used: the Gallup World Poll and the Executive Opinion Survey organised by the World Economic Forum. For a variable to qualify as usable, it must not only satisfy the "five As" listed above, but also meet the practical requirements of geographical coverage (at least 80 percent of countries), methodological robustness, and availability during the years covered by the Index. Sources for each variable are listed in Appendix I.

The variables can be categorised into three different groups: objective and subjective variables; output and input variables; and quantitative and qualitative variables.

Objective and Subjective Variables

The inclusion of both objective and subjective data is a unique feature of the Prosperity Index. The Prosperity Engine holds that institutional and material conditions play an important role in creating a prosperous society, but they do not tell the full story. People's perceptions of their living standards and wellbeing also matter. Only when these material improvements are perceived and enjoyed by the population can we say that there is overall prosperity. Likewise, the inclusion of subjective data allows us to measure situations where people living in materially less developed countries still feel prosperous.

While objective data measure material and institutional qualities in the form of falsifiable and "hard" statistics, subjective data, obtained through large-scale surveys, capture mental or emotional qualities felt by the population.

Approximately two-thirds of the variables are objective, and they fall into two categories: (1)

objective variables that are survey-based, such as how many people subscribe to high-speed Internet; and (2) assessments based on expert research, such as the World Bank's Governance Indicators. The remaining one-third of the variables measure respondents' self-reported assessments of their life, such as how anxious or joyful they are, or how satisfied they are with their freedom of choice.

A useful illustration of this category is provided by the Health pillar. In evaluating the performance of a healthcare system, researchers have long emphasised both effectiveness (the system's influence over people's health conditions) and responsiveness (the degree to which the system responds to patients' concerns). Reflecting this duality, the Prosperity Index chooses, for example, life expectancy and mortality rates as proxies for effectiveness, and a survey question on people's satisfaction with their healthcare system as a proxy for responsiveness, thereby giving a more comprehensive evaluation of prosperity in health.

Output and Input Variables

We prioritise output variables (economic, social, and political outcomes that are components of a prosperous life), while allowing an auxiliary role for input variables (policy and institutional arrangements that cultivate and safeguard conditions for prosperity). This decision was taken because the interpretation of outcomes (how prosperous people are) is more straightforward than that of inputs, which requires some consensus on how effective those inputs are in achieving prosperity. We still include input variables because they provide value beyond outcome variables alone. An input variable that measures a country's policy choice—for example, insolvency laws in our Business Environment pillar—provides policymakers with the evidence they need to make decisions.

Moreover, a closer look at the distinction between output and input variables reveals that the boundary between the two can be quite blurred in practice. For example, the Education pillar variable *Number of Global Top-200 Universities* can be categorised as an output measurement of the quality of a country's higher education, in terms of the number of graduates and quality of research it produces. However, it can also be thought of as an input variable in terms of its function of improving the human capital.

Quantitative and Qualitative Variables

Most variables are quantitative measurements—for example, *Intentional Homicides*—but we also include qualitative indicators. They are mostly variables relevant to policy or institutional input such as the existence of conscription or the property rights enjoyed by female citizens compared to their male counterparts. In these cases, the variables are not continuous but rather categorical and ordinal.

Variable Transformation

While the majority of the variables in the Prosperity Index have normally distributed values and have hard upper and lower bounds, some need transformation in order to be compared across borders without discrimination against countries of certain demographic or political conditions. Depending on the specific characteristics of the data, solutions vary from taking logarithms of the data to capping the variable at a rational limit or normalising values by, for example, population or land area.

Logged Variables

In cases where the data distribution is skewed by outliers, we log-normalised the variable. For example, in 2014 most countries in the world suffered no casualties related to terrorism. However, Iraq on its own lost 13,076 people as the result of terrorist attacks, raising the average per country to 107 people. Variation of this nature requires normalisation so that different observations can be compared within a narrower data range, and so that extreme variation in a single variable

does not unreasonably affect a country's overall performance.

Eight variables are transformed in this manner: *Terrorist Attack Casualties in the Last Five Years, Battlefield Deaths, Intentional Homicides, Traffic Accident Deaths, Number of Refugees by Country of Origin, Quality-Adjusted Life Years Lost Due to Tuberculosis, Number of Global Top-200 Universities,* and *Cost of Getting Electricity*.

Capped Variables

Two variables, *Primary Completion Rate* and *Freshwater Withdrawal Rate*, are assigned an upper bound at 100 percent, albeit for different reasons.

An indicator of both the coverage and the quality of education, *Primary Completion Rate* is the ratio of the total number of students successfully graduating from the last year of primary school in a given year to the total number of children of official graduation age in the population. According to the World Bank, the value of this variable can exceed 100 percent since the numerator may include late entrants and over-age children who have repeated one or more grades of primary education as well as children who entered school early. The denominator is the number of children at the entrance age for the last grade of primary education. We capped the possible variation of value at 100 percent to avoid such distortions.

Freshwater Withdrawal Rate measures the amount of annual freshwater withdrawals as a proportion of total internal renewable resources. This variable can take a value over 100 percent where extraction from non-renewable aquifers or desalination plants is considerable, or where there is significant water reuse. We capped this variable at 100 percent to avoid substantially punishing countries with limited or no renewable freshwater resources as a result of their geographical position or topographical features.

Other Adjusted Variables

In the Social Capital pillar, countries' *Voter Turnout Rate in Most Recent National Election* is multiplied by the democratic level of its political system, according to Polity IV's Democracy score. The *Voter Turnout* variable is selected because it can serve as a proxy for the linkage between the ruling group and the electorate. A higher voter turnout in a country where votes do not translate into political representation and participation—for example, Vietnam and China—does not represent a meaningful link between the country's ruling group and electorate. Multiplication with Polity IV's Democracy score means that high voter turnouts matter most when democracy levels are also high. In this formulation, the more democratic the political system is, the more influence the electorate can impose on the policymakers.

In the Environment pillar, for the *Fish Stock* variable, landlocked European Union (EU) member states are assigned the average value of EU countries, to reflect the EU Common Fisheries Policy.

In the Education pillar, the variable *Education Quality Score* draws on the database created by Nadir Altinok, Claude Diebolt, and Jean-Luc Demeulemeester, which standardises measurements of pupil's achievements in reading, mathematics, and sciences in primary and secondary education. We update their dataset with the results of Programme for International Student Assessment (PISA) in 2012. This update makes up approximately one-third of the resulting dataset.

Imputation Techniques for Missing Data

The Prosperity Index, as with any other global composite index, faces the problem of incomplete data. Some data points might be missing for some countries, some variables might be missing for some countries, and some variables might be released with time lag.

To complete our dataset, we prioritised real data in the following order:

1. Where missing data are detected, we first use the latest data available. For example, variables with missing data in 2015 are assigned the corresponding values of 2014.

2. Where data are missing and no prior data are available, which mainly happens with the Index's earlier years, the earliest data available are employed. For example, Gallup started polling in Angola in 2011, which means no survey data exist for Angola before that year; therefore, for the years 2008 to 2010, we repeat the country's data from 2011.

3. Where no reliable real data are accessible, imputation is employed on a case-by-case basis.

For 2016, before imputation, the Index had in total 783 missing data points out of 15,496—5.1 percent of the dataset. We addressed these missing data using two imputation methods: the first is our preferred method; the second is used only in rare cases where the first proves unreliable.

Targeted imputation. This method uses a set of proxy variables, provided by a variety of different sources, which are highly correlated with the Prosperity Index variables that have missing data. We use the relationship between the proxies and the variable in question (where and when data are available) to project values for missing data points. We only selected variables that have a strong statistical and conceptual relationship with the Prosperity Index variables. For example, the proportion of the population who are physically active in a country (provided by the World Health Organization) is highly correlated with the prevalence of obesity (also from the World Health Organization) used in the Prosperity Index. We replaced the missing data points with the predictions of a regression in which the Prosperity Index variable with missing data is regressed on its proxies—in this case, a regression of the obesity rate on physical inactivity, and a standard set of controls. This method is used when data are randomly missing. A total of 738 data points—94.3 percent of all imputations, or 4.8 percent of all data points—were imputed in this way.

Expert-based imputation. We primarily use this technique for data points related to governance and socio-political conditions. For each country with missing data, we asked two country experts to provide estimates for the missing data items. We then had each estimate peer-reviewed by a third expert to ensure the robustness of the estimate. After the peer review, we averaged the three values to obtain the imputed variable value. As a quality control, we used expert estimates only if the standard deviation of the estimates was substantially smaller than the standard deviation of the variable in question. A total of 45 data points—5.7 percent of all imputations, or 0.3 percent of all data points—were imputed in this way.

Six variables require imputation for more than 30 data points because of the lack of valid available data. These variables are listed in Table 1 overleaf, together with the number of missing data points and, if applicable, notes of treatment.

Temporal Coverage

In calculating the Prosperity Index scores, we use the most recent data that are available for each variable and country. This allows the Index to reflect the best information that is available at the time we calculate the rankings and, therefore, to provide the most recent estimate of prosperity in the country. This can, however, sometimes lead to inconsistencies, especially when the data on specific variables are not updated annually for every country.

For the 2016 and 2017 editions of the Index, most variables (75 percent) are based on data from 2014 onwards. However, there are some variables and countries that use data from previous years. This is mainly because some variables—for instance, the *Economic Diversification Index* and the *Export Quality Index* generated by the IMF—are released in waves over a certain period rather than being updated annually. Statistics may also be

Variable Name	Number of Missing Data	Note of Special Treatment
Tuberculosis QALY	74	
Traffic Accident Deaths	72	
Mortality Rate	71	
Fish Stocks	64	Given the European Union Common Fisheries Policy, landlocked EU member states are given EU average value. Other landlocked countries are assigned with world average so that they are not punished for their geographical location.
Absolute Poverty	49	
Marine protected areas	40	Landlocked countries are assigned with world average so that they are not punished for their geographical location. A zero value would punish them unfairly while a missing value would exclude the variable altogether.
Relative Poverty	33	

Table 1: Imputation of variables with more than 30 missing data points

updated only for a group of countries each time, rather than being released once for all countries.

Figure 3 shows the distribution of publishing years of all the data points used in the 2016 Prosperity Index. Some 75 percent of the data appearing in the Index are released after 2014, and only 7 percent have a time lag longer than six years. In addition, we imputed around 5 percent of the total data points.

Subnational Variation

The Prosperity Index, by design, concentrates on indicators with global coverage and policy issues with international resonance. This international outlook gives the Index considerable comparative power, allowing users to ask why countries whose income levels are similar have different levels of prosperity and providing policymakers with the evidence they need to set policy nationally. An international perspective, however, can obscure meaningful variation within countries. Prosperity differentials within countries are very often greater than those between countries. For this reason, the Prosperity Index programme is rolling out a series of subnational indices.

Subnational indices show citizens and policymakers what is really happening within their own country. This is the case for small and large countries alike. For example, in September 2016, the Legatum Institute released a UK Prosperity Index that covers 389 districts across the UK. This Index revealed large inequalities in overall prosperity, as well as considerable disparities across the different pillars of prosperity. The UK Prosperity Index also allowed a rigorous statistical analysis of the link between prosperity and voting outcomes in the "Brexit" referendum, showing that districts

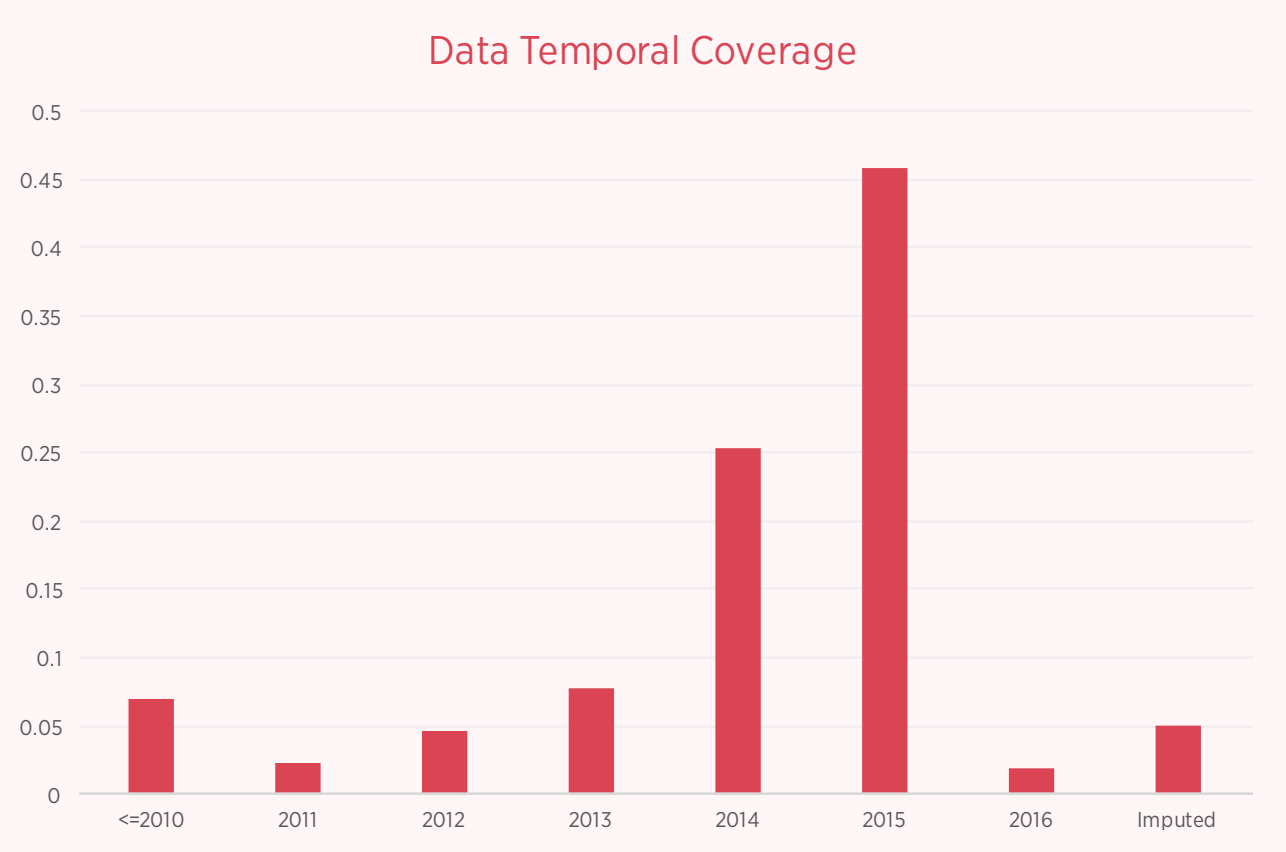

Figure 3: Distribution of publishing years for all data used in the 2016 Prosperity Index.

with lower levels of prosperity tended to vote for Britain to leave the EU.

Building subnational indices provides policymakers with a higher degree of accuracy. Districts within the UK showed varying degrees of performance across pillars, with some ranking highly in Health and Education and others ranking highly in Economic Quality and Business Environment. This information allows policymakers to prioritise their efforts and resources, and it gives citizens the evidence they need to assess the use and distribution of national resources.

5

Calculation and Testing

Calculation Method

1. Weighting

Each variable is assigned a weight, indicating the level of importance it has in affecting prosperity. Variables are assigned one of four weights: 0.5, 1, 1.5, and 2. By default each variable is weighted as 1, and based on its significance to prosperity, its weight may be adjusted downwards or upwards. A variable with a weight of 2 is twice as important in affecting prosperity as a variable with a weight of 1.

Weights were determined by three factors, prioritised as follows: (1) the relevance and significance of the variable with respect to the accumulation of material wealth and the enhancement of well-being as informed by the academic literature; (2) expert opinions offered by the Index's special advisers; and (3) the degree of compatibility with the Prosperity Engine.

Why not give all variables equal weight? While seemingly more objective, we do not equally weight our variables, first, because we include a wide variety of different variables, in line with our multidimensional view of prosperity; and, second, because some variables are more important than others in delivering prosperity. Equal weighting is justifiable when an index covers a limited set of variables, as with the Human Development Index's education, health, and income components; in such cases an argument that variables are of equal importance can be made. In the Prosperity Index, equal weighting would be tantamount to claiming—for example, in the Governance pillar—that a country's rule of law (weight x2) is as important in delivering prosperity as its voting age population turnout (weight x1). Weights allow us to speak to a range of issues while remaining true to our conceptual framework and research findings.

In other cases, variables may offer related but not identical information on the same issue. For example, in the Health pillar, the *Diabetes Prevalence* and *Obesity Prevalence* variables are both chosen as proxies for health conditions and risk factors for a range of ailments. Yet—despite the fact that they measure different phenomena—the two are statistically correlated with each other, meaning that they share some common ground: people with obesity are more likely to be diabetic than non-obese people. Statistically

speaking, we address this multi-colinearity by assigning smaller weights to each of the variables. This allows us to keep both variables in the Index, and so retain the unique information they give, while alleviating the double-counting issue that comes from their being correlated.

Such overlapping variables are either given smaller weights—in the case of *Diabetes* and *Obesity*, each is weighted 0.5, so that together they take on the same weight as a baseline variable; or they are coalesced into a single composite variable covering all the related measurements, as with experiences of sadness and worry which together make up our *Negative Emotions* variable.

The weight of each variable is summarised in Appendix I. Later in this section, we show that different variable weighting schemes have little effect on countries' ultimate pillar rankings. This is because the large number of variables, and the variation across countries within the same variable, are quantitatively more important than a weighting scheme bounded between 0.5 and 2. The weighting scheme we adopt allows us to express our views of what is most significant to prosperity, while also keeping within the range of evidence available in the academic literature and from expert opinion.

2. Normalisation

The variables in the Index are based on many different units of measurement such as numbers of individuals, years, percentages, and ordinal scales. These different units need to be normalised for comparison between variables and countries to be meaningful. A distance-to-frontier approach is employed for this task.

The distance-to-frontier approach compares a country's performance in a variable with the values of the best case and the worst case across the entire sample of the 149 countries covered by the Index. In this way, the country's relative position can be captured by the distance-to-frontier score generated.

The first step is to define the frontiers—the best and worst cases—for each variable. In practice this involves two different scenarios.

For variables whose possible values have clear logical upper and lower bounds, the highest and lowest possible values are automatically set as the best and worst cases. This scenario mainly applies to variables generated by survey questions, whose answers range from 0 to 100 percent of respondents, or to variables with ordinal scales as unit of measurement. The variable *Political Participation and Rights*, for instance, can only take values between 1 and 7, thus its frontiers are defined according to its logical boundaries.

For variables whose values can vary on a spectrum that is unlimited at one or both ends, best and worst cases are imposed on the basis of the data collected for the Index since 2007. In cases, as with life expectancy, where it is likely that the historical upper bound will be superseded in the future, we left room for improvement, incrementally extending the upper bound. Where greater values indicate worse outcomes—for instance, in the case of unemployment and deaths—we inverted the variables, so that distance-to-frontier scores always indicate better performance.

After we determined the frontiers, the next step is to calculate a country's distance-to-frontier score for each variable using the formula (X_t – Worst Case) / (Best Case – Worst Case), where X_t is the raw value of country i in variable j.

Using distance-to-frontier scores allows direct comparison of values across variables and countries, and also allows tracking and comparison of a country's performance across years. Since the best and worst frontiers are fixed across years, changes in a country's year-to-year distance-to-frontier score reflect its improvement or deterioration in the same variable, pillar, or overall prosperity in absolute terms.

3. Pillar Scores and Rankings

In each of the nine pillars, variables' distance-to-frontier scores are multiplied by their

weights and then summed to generate countries' pillar scores, and the countries are then ranked according to their scores in each pillar.

4. Prosperity Index Scores and Rankings

The Prosperity Index score is determined by assigning equal weights to all nine pillars for each country. The mean of the nine pillar scores yields a country's overall Prosperity Index score.

Thus the Prosperity Index applies equal weights to each pillar for all countries, regardless of their level of development. While it is true that countries at different levels of development each have different needs, to construct a global index it is crucial to measure each country by the same yardstick. Giving different weights to pillars would make country rankings incomparable across different income levels.

Users of the Index are invited to assign their own weights to each of the pillars and to see how these different weights affect the rankings. This can be done at: www.prosperity.com.

Sensitivity Analysis

Admittedly, our weighting choice is only one of many possible approaches that are justifiable on different grounds. In this section, we test the impact on the Index's scores and rankings by comparing our weighting approach with equally weighted variables and with a randomised weighting approach derived using Monte Carlo randomisation simulations.

Equally Weighting Approach

Figure 4 plots, on the vertical axis, countries' rankings derived by equally weighting variables and, on the horizontal axis, countries' rankings derived using our weighting strategy. The overall correlation is clearly strong. Equally weighting variables sees many countries experience minor changes in their overall prosperity score and ranking. In fact, only seven countries—Oman (-27), Brazil (-15), Nepal (+14), El Salvador (+13), Bangladesh (+12), Namibia (+11), and Russia (-10), marked on the chart in red—report an absolute change greater than or equal to ten ranks when variables are equally weighted. Most deviations appear in the middle range of the ranking as the dispersion of the spots becomes wider. Changes in the middle part of this distribution are expected because it is densely populated by countries of similar scores, resulting in a greater sensitivity to weights.

Randomised Weighting Approach

Figure 5 reports the results of Monte Carlo simulations. We randomly generated 1,000 different weights across our variables, reporting the resulting median ranks in Figure 5's blue markers, along with the corresponding highest (95th percentile) and lowest (fifth percentile) resulting rankings marked out as error bars. The top and bottom of these bars mark the most extreme values that resulted from our randomisations, giving a sense of how far—at the extremes—different weights can affect a country's ranking. The representative result, however, is the median ranking. For the majority of countries, the median ranking obtained from the simulations corresponds to the Prosperity Index ranking. Again we observe that higher levels of uncertainty are concentrated in the middle part of the distribution of rankings. This is indicated by the larger variance in the simulated rankings. The most volatile countries are Rwanda (+13), Laos (+11), Bulgaria (-10), Nepal (+9), Cambodia (+9), Kenya (+9), Ethiopia (+9), Romania (-8), Brazil (-8), and Sri Lanka (-8).

What Figures 4 and 5 show is that the scores and rankings in the Prosperity Index are overwhelmingly affected by variations in the variables themselves, with weights attached to the variables playing a secondary role. This implies that our choice of weights balances an expression of Legatum's views on what constitutes prosperity with a less normative view on how prosperity should be measured.

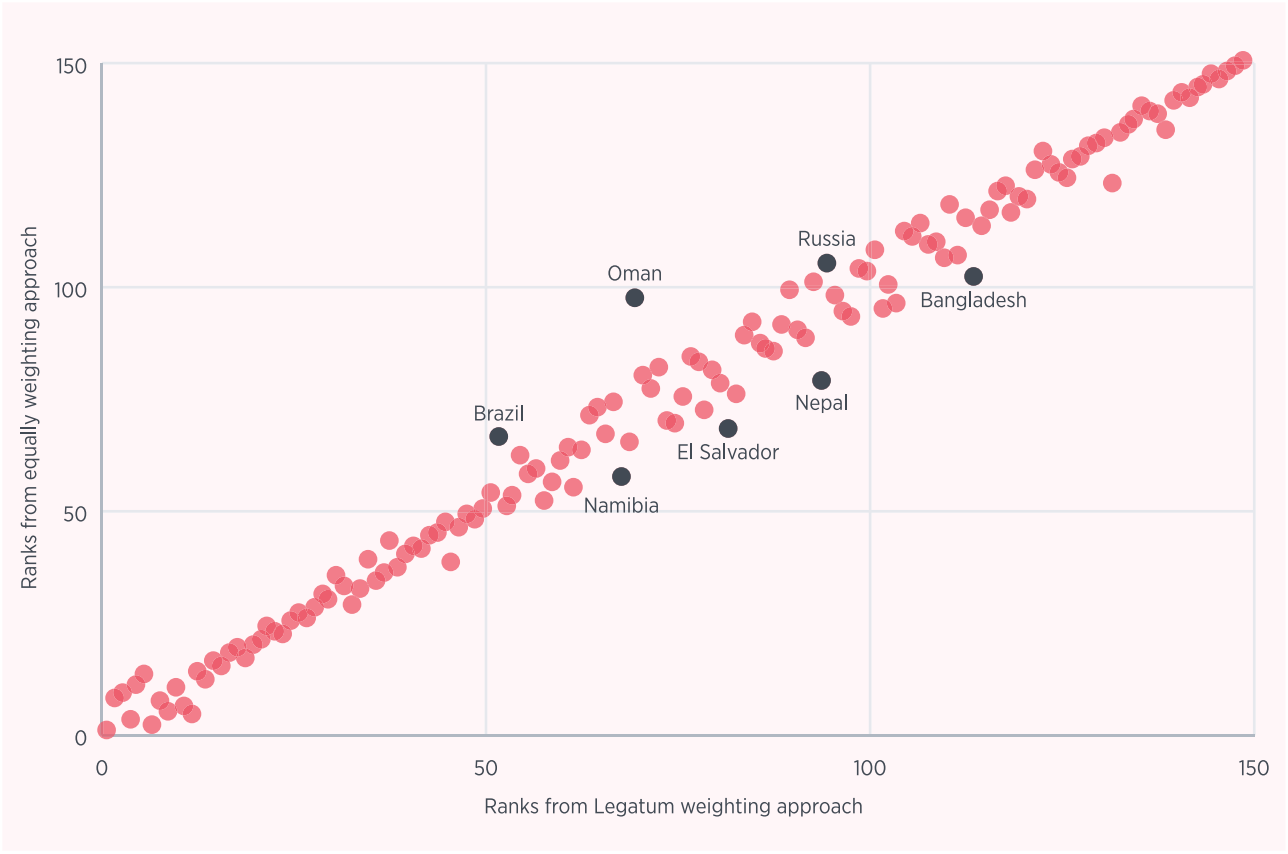

Figure 4: Comparison of equal-weighting and Legatum-weighting strategies.

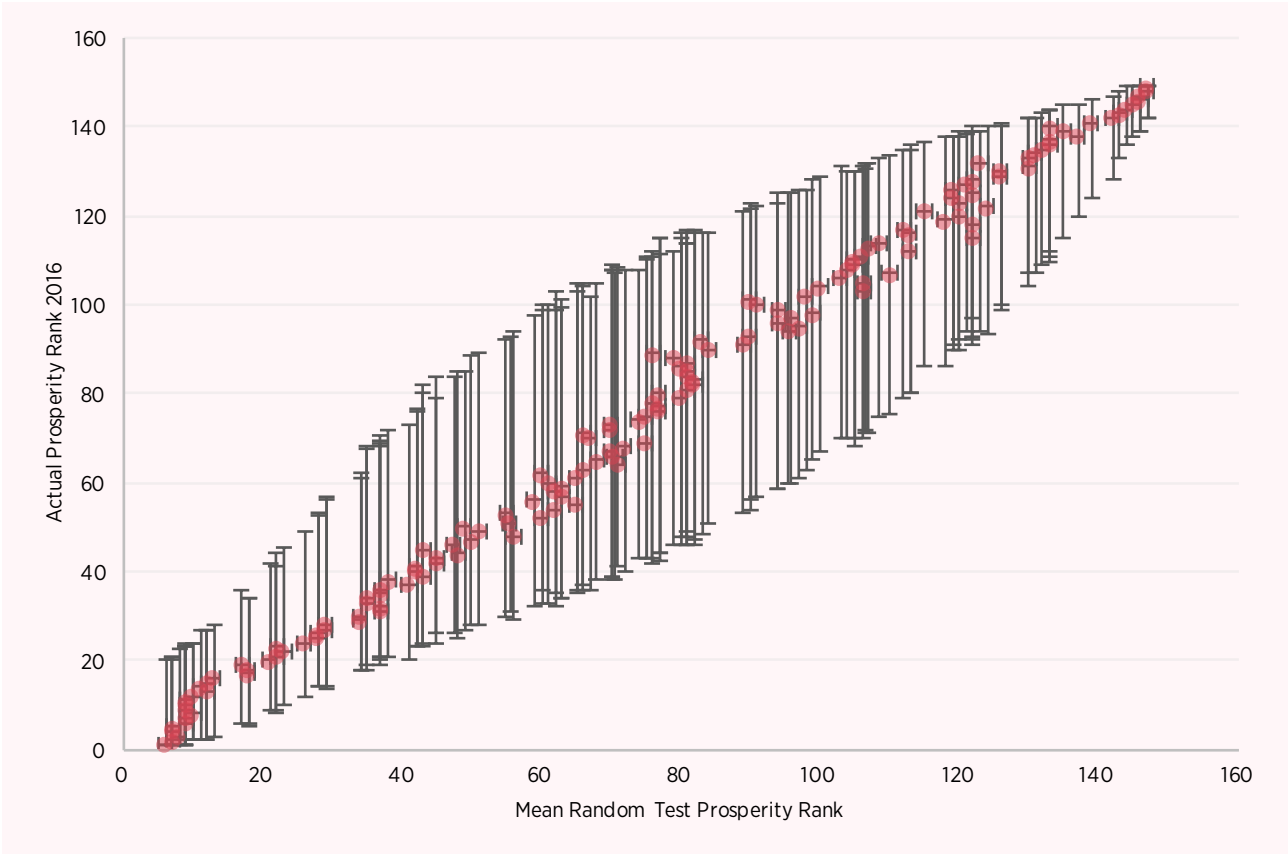

Figure 5: Comparison of randomised-weighting and Legatum-weighting strategies.

6

Assessing the Prosperity Index

Summary Statistics

Table 2 shows the summary statistics of the Prosperity Index and all nine pillars used for the 2016 version. The Governance pillar shows the lowest mean value, at 49.83, with a large standard deviation of 15.2. The lowest dispersion is in the Social Capital pillar, with a standard deviation of 7.07. The highest mean score is registered in the Health pillar, at 69.97. Table 1 implies that, in 2016, average global prosperity is good overall, but there is considerable variation across pillars. This supports the view that there are many paths to prosperity.

Figure 6 provides a clearer picture of the dispersion in prosperity across pillars. The red circle locates the median score in each pillar; the upper and lower bars mark the 75th percentile and the 25th percentile of the pillar score, respectively; and dots outside the bars indicate outlier countries that register extreme values. An extreme value is more than 1.5 times the length of the box, from either end of the box, which represents the data's interquartile range.

In most pillar scores, including the overall prosperity score, the whole sample of 149 countries forms a normal distribution, with the bulk of countries crowding in the middle range and a few leading or lagging countries occupying the top and bottom positions. In Governance and Personal Freedom, however, the scores take a long-stretched dispersion with both ends distanced from the median value. This illustrates drastic variations in the practice of governance and the status of freedoms around the globe, which corresponds to the current global competition between democratic and authoritarian states in defining the best governance and development model. In addition, outliers are detected in the Safety & Security and Education pillars—in both cases, war-torn or politically fragile countries at the lower end of the distribution. These failing performances are vivid examples of the costs of wars, civil conflicts, and civil and political instability.

Pillar	Mean	Standard Deviation	Min	Max
Overall Prosperity	58.77	10.04	37.56	79.31
Economic Quality	61.75	10.09	41.40	81.09
Business Environment	53.29	10.00	34.81	75.87
Governance	49.83	15.20	22.76	85.29
Education	54.88	15.53	18.55	81.32
Health	69.97	9.23	45.68	85.17
Safety & Security	66.11	11.57	33.08	86.62
Personal Freedom	58.79	17.35	21.54	92.52
Social Capital	50.82	7.07	35.00	68.95
Environment	63.53	8.58	41.06	85.59

Table 1: Summary statistics of 2016 Prosperity Index and Pillars.

Figure 6: Distribution of Prosperity Index and Pillar Scores.

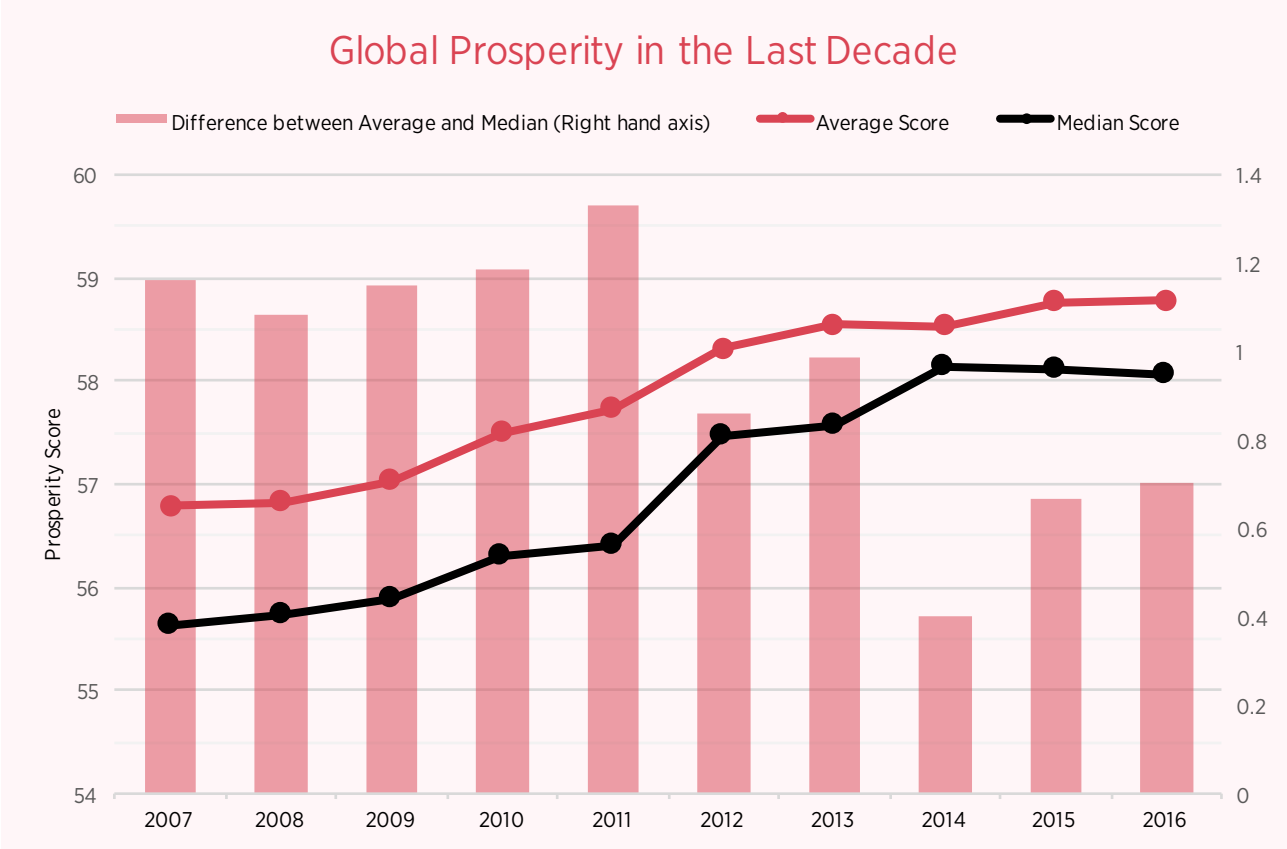

Figure 7: Global Prosperity from 2007 to 2016.

Prosperity over Time

Using our revised 2016 methodology, we have back-calculated all Prosperity Indices and pillar scores from 2017 to 2007. Crucially, this provides a dataset that is consistent over time, enabling users of the Index to analyse changes in countries' performance. This version and the 2016 version of the Index, and their accompanying dataset covering 2007 to 2017, are incompatible with releases of the Prosperity Index before 2016.

Figure 7 shows the movement of the global prosperity score from 2007 to 2016. It shows that, in general, the world has become more prosperous in the past decade: the average level of prosperity has made a steady, if incremental, rise. More importantly, the distance between the mean and median prosperity scores has shrunk in the past decade, indicating that the increase in overall global prosperity has not been achieved at the cost of countries on the lower rungs of the ladder, but rather represents a genuine narrowing in the gap between the rich and poor.

More specifically, as figure 8 indicates, countries at the bottom of the ranking have made great progress in delivering more prosperity to their populations, contributing to the ascending trend mentioned above. Nevertheless, the improving trend has slowed, and even reversed, in the least prosperous countries since 2011 (the Index has a time lag of one to two years), reflecting the damage inflicted by the global financial crisis.

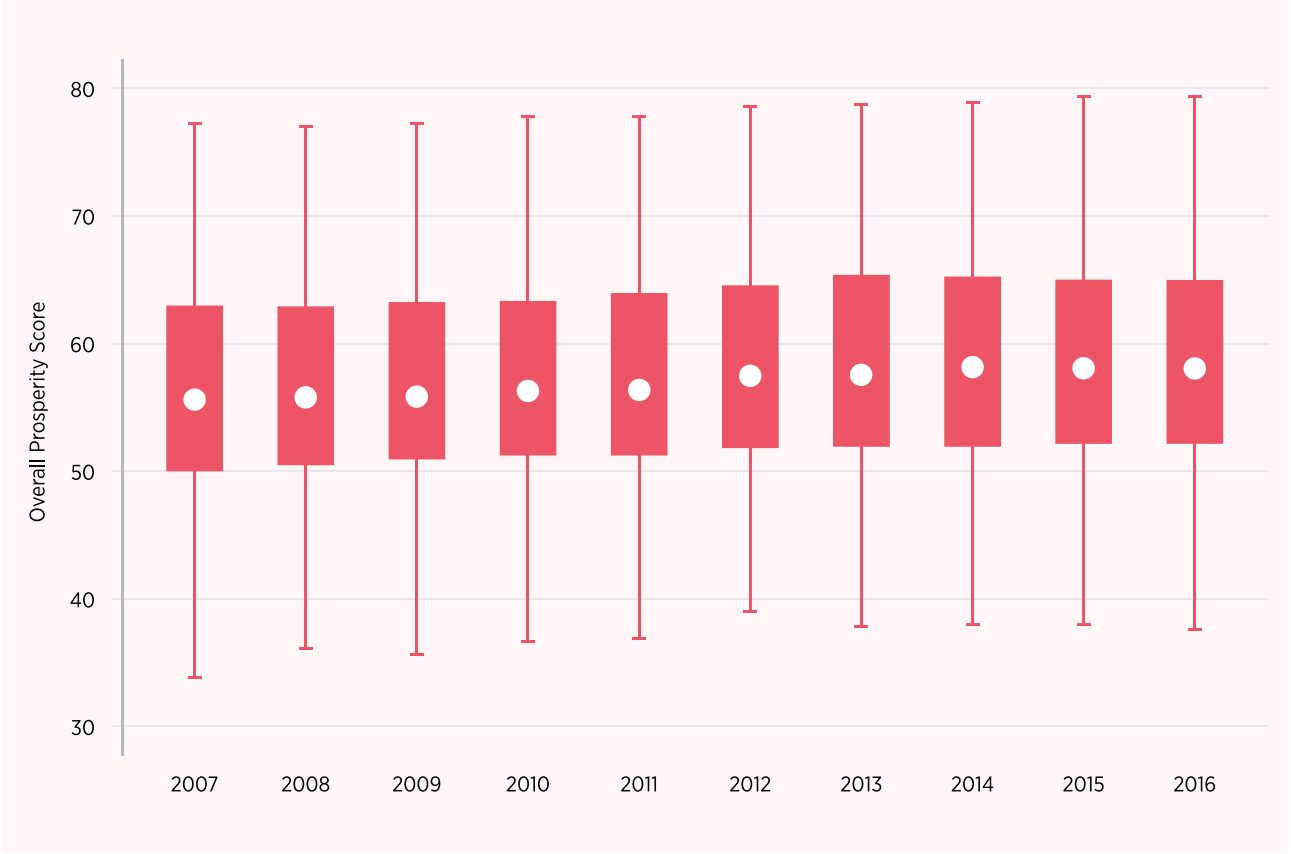

Figure 8: YoY Change in World Prosperity 2007 to 2016.

Prosperity vs GDP per Capita and Wellbeing

Earlier, we raised the question: why not rank countries according to their per capita income (economic prosperity) and their citizens' levels of wellbeing? The answer is, first, that prosperity is multidimensional, encompassing all aspects of human life; and, second, that such a simple ranking scheme would not allow us to ask the crucial question of why countries rank in the position they do.

In this section, we empirically test this answer by comparing our Prosperity Index to GDP per capita and to survey responses by country on citizens' levels of life satisfaction, a standard measure of wellbeing. If the association between the Prosperity Index and per capita income and life satisfaction is high, then the Prosperity Index would arguably be redundant—that is, it would make more sense to simply rank countries according to income and life satisfaction. If, however, the association is weak, then the Prosperity Index would be "adding value" beyond these two variables.

A problem with comparisons like this is the ambiguity over the degree of statistical association, as measured by the coefficient of determination *(R^2)*, that actually determines one index or variable as redundant with respect to another. An arbitrary threshold has to be specified which delimits redundancy from non-redundancy.

We follow the literature and choose two threshold levels for the R^2: 0.90 and 0.70. The first implies that a new index is redundant if most of its variation can be accounted for by an existing indicator—that is, R^2 values above 0.90 mean the Index is redundant. The second is sufficiently high to say that if two variables have a correlation this high or higher, then it is difficult to claim that one is imparting additional information to that given by the other. For ease of reference, these thresholds are represented graphically in Figure 9.

Figure 9: R^2 Redundancy Thresholds

If the R^2 describing the relationship between the Prosperity Index and GDP per capita and life satisfaction is above 0.90, we call the Index redundant. If it is between 0.70 and 0.90, we say it has passed Level 2 redundancy. If it is between 0 and 0.70, we say it has passed Level 1 redundancy. This is the most stringent threshold.

Starting with GDP per capita, regressing the Prosperity Index on GDP per capita yields an R^2 of 0.48.[1] That is, GDP per capita can explain only 48 percent of the variation in the Prosperity Index.[2] This passes Level 1 redundancy, meaning that the Prosperity Index imparts a substantial amount of additional information over and above GDP per capita.

Next is life satisfaction, which is self-reported and measured on an ordinal scale of 0 (lowest) to 10 (highest).[3] Regressing the Prosperity Index on the life satisfaction variable, we get an R^2 of 0.12. That is, life satisfaction can only explain 12 percent of the variation in the Prosperity Index.[4] As with GDP per capita, this passes Level 1 redundancy.

Finally, we checked whether GDP per capita and life satisfaction together are strongly correlated with the Prosperity Index. Regressing the Prosperity Index on the two variables yields an R^2 of 0.60.[5] That is, GDP per capita and life satisfaction can explain up to 60 percent of the variation in the Prosperity Index. Both coefficients, on GDP per capita and life satisfaction, are statistically significant, but the overall explanatory power of the regression fails to clear Level 1 redundancy.

Figure 10 shows the correlation between the Prosperity Index and GDP per capita in graphical form. The line of best fit between these two variables is logarithmic—it rises quickly from low initial values, but then plateaus at middle to high values. After fitting this line, the R^2 rises to 0.62. Although higher than the R^2 of 0.48 from the linear regression above, it still falls within Level 1 redundancy.

Figure 10 paints an interesting picture of how some countries over-deliver prosperity relative to their level of wealth, while others under-deliver. Statistically speaking, some countries have large positive residuals (over-deliverers), while others have negative residuals (under-deliverers). An

1 The GDP per capita data are from the World Bank Development Indicators dataset, and mostly refer to 2015. The correlation is based on 148 countries.

2 This is a simple OLS regression of the Prosperity Index on GDP per capita, where N = 148, R^2 = 0.48, and the t-ratio on GDP per capita is 11.7.

3 The life satisfaction question is: "Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?" The data are from Gallup's World Poll and refer to 2015. The correlation is based on 125 countries.

4 This is a simple OLS regression of the Prosperity Index on the life satisfaction variable, where N = 125, R^2 = 0.12, and the t-ratio on GDP per capita is 4.2.

5 This is an OLS regression of the Prosperity Index on the GDP per capita and life satisfaction variables, where N = 124, R^2 = 0.60 (adj.- R 2= 0.59), and the t-ratio on GDP per capita is 11.97 and on life satisfaction 2.08.

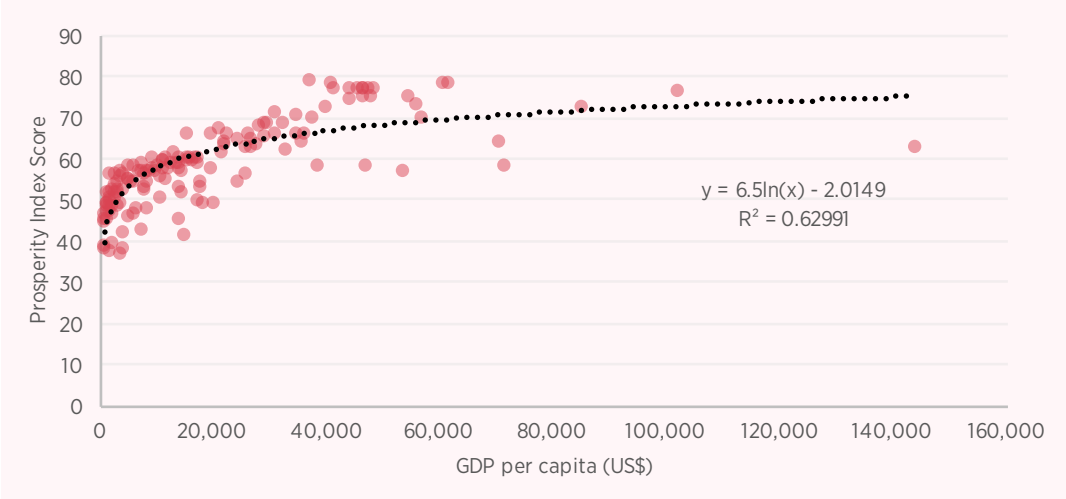

Figure 8: Prosperity Index versus GDP per capita, 2016

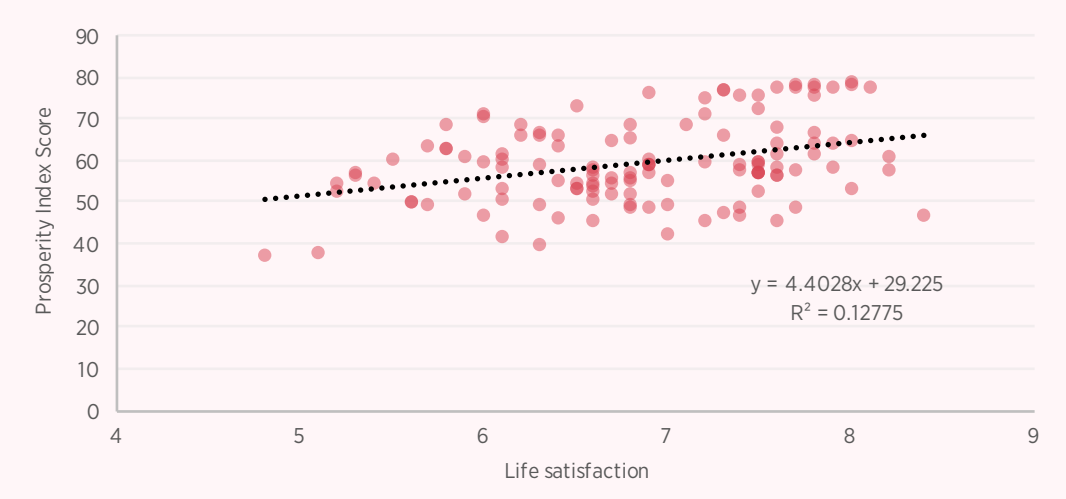

Figure 9: Prosperity Index versus Life satisfaction, 2016

example of the former is Rwanda which, by improving its Governance, has achieved high prosperity by African standards, given its low income level. This contrasts with Angola, whose dramatic income growth over the past few years thanks to oil revenues has failed to deliver prosperity to its citizens.

There are important policy implications to be drawn from this. First, it supports the "beyond GDP" thinking that a single-minded focus on economic growth and improving income levels is misguided. It is possible to achieve high levels of prosperity without reaching for higher and higher levels of income. Second, for those countries that are below the regression line—the under-deliverers—the implication is that they can and should be doing more with their resources to deliver prosperity to their citizens.

Figure 11 represents the correlation between the Prosperity Index and life satisfaction. Here we found that the line of best fit between the two variables is linear. As mentioned above, the correlation is weak and this is what we see in Figure 11. While the linear relationship implies

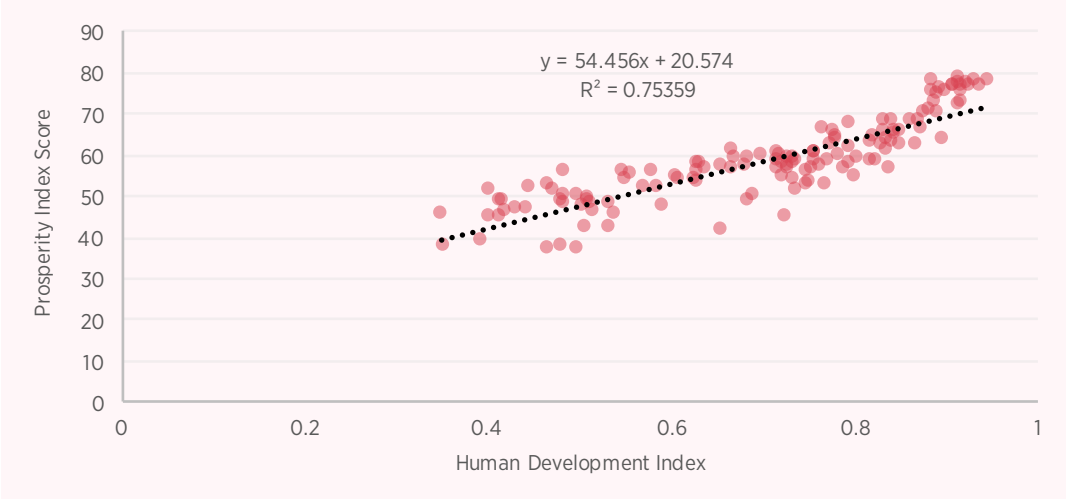

Figure 10: Prosperity Index (2016) versus HDI (2014)

that incremental improvements in life satisfaction are predictably followed by incremental improvements in prosperity, there is a wide range of outcomes across countries. This is, in part, due to what the literature on life satisfaction calls "complexity of calculus": the problem that the overall life satisfaction measure is implicitly derived from a weighted sum of sub-components affecting it, like income satisfaction, outlook on the past, perspectives on the future, sense of health, and so on. Anyone who has tried will appreciate the difficulty in *subjectively* reducing these sub-components into a single composite measure going from 0 to 10.

The Prosperity Index is built to encompass this multidimensionality, and incorporates both subjective and objective measures. This alleviates the "complexity of calculus" bias in the life satisfaction question, and allows for a range of policy implications to be drawn. Rather than focusing on improving life satisfaction—a measure too broad and subjective to make for a useful policy target—policymakers can target one or more pillars and/or one or more variables in the Prosperity Index, knowing their efforts will contribute to an improvement in overall prosperity

Comparison with the Human Development Index

Ever since its first release in 1990, the United Nations' Human Development Index (HDI) has been the global standard in measuring human development beyond GDP alone. Its three components—health, education, and income—are equally weighted. It ranges from 0 (lowest human development relative to the rest of the world) to 1 (highest possible relative human development). How does the HDI compare with the Prosperity Index? Is the Prosperity Index contributing anything new?

Figure 12 represents the correlation between the Prosperity Index and HDI graphically. The R^2 of 0.75 fails the Level 1 redundancy threshold by 0.05 points; this means it still clears Level 2 redundancy. This is a higher correlation than that with GDP per capita or life satisfaction, which is expected given the HDI covers more variables, bringing it closer to the Prosperity Index.

It is reassuring that there is a close correlation between the Prosperity Index and the HDI. The two indices, while built very differently and with somewhat different underlying conceptual foundations, are meant to provide an answer to the

same basic question: how good is human life? It is also reassuring that some 25 percent of the variation in the Prosperity Index, as implied by the R^2 in Figure 12, remains unexplained by the HDI. The Prosperity Index takes into account many more of the determinants of a good and prosperous life and, in doing so, broadens the potential for actionable Insights that can be drawn from it. The three components of the HDI are correlated with the Prosperity Index in aggregate and also with its component variables, but—by looking at the high-level HDI alone—how can we know precisely what is driving what? The holistic nature of the Prosperity Index allows its users to be more precise in targeting pathways to prosperity.

7

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I

Appendix I

Variable List

Note: Two indicators have changed from last year's report because the datasets containing the old measures have been discontinued:

Pillar	Indicator	Old measure	New measure
Economic Quality	Female Labour Force Participation	Female labour force participation rate as a percentage of the population aged 15-64	Female labour force participation rate as a percentage of the female population aged 15+.
Economic Quality	Labour Force Participation	Labour force participation rate as a percentage of the population aged 15-64	Labour force participation rate as a percentage of the population aged 15+.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Business Environment	Affordability of Financial Services	Expert Opinion Survey: "In your country, to what extent are financial services affordable for businesses? [1 = not affordable at all; 7 = affordable]".	World Economic Forum	1	1	7	Affordable financial services allow citizens to pursue new ideas and opportunities that improve prosperity.
Business Environment	Ease of Getting Credit	A distance to frontier score based on the components: 1) strength of creditor and borrower's legal rights (strength of collateral laws for borrowers and creditors, and bankruptcy laws for creditors); 2) depth of credit information; 3) credit bureau coverage; 4) credit registry coverage.	World Bank Doing Business Data	2	0	100	If citizens and businesses are unable to get credit to fund their ideas, then individual and overall prosperity suffers.
Business Environment	Ease of Getting Electricity	The cost to obtain a connection to electricity, as % of income per capita. Logged value.	World Bank Doing Business Data	1	0.61	59874	Access to affordable electricity allows business to generate prosperity and individuals to enjoy prosperous lives.
Business Environment	Ease of Resolving Insolvency	A distance to frontier score based on the components: 1) time to recover debt; 2) cost of recovering debt; 3) outcome (going concern or assets sold piecemeal); 3) recovery rate for secured creditors.	World Bank Doing Business Data	1	0	100	Weaknesses in existing insolvency law and procedural and administrative bottlenecks in the insolvency process keep businesses taking risks and innovatio, which are central to prosperity generation.
Business Environment	Ease of Starting a Business	A distance to frontier score based on the components: : 1) Time for Preregistration, registration and postregistration; 2) Cost of registrations; 3) Procedures before final document is received; 4) Paid-in minimum capital.	World Bank Doing Business Data	2	0	100	Greater barriers to starting a business block the flow of new ideas into the economy and keep citizens from creating opportunity.
Business Environment	Fixed Broadband Subscriptions	Fixed broadband subscriptions refers to fixed subscriptions to high-speed access to the public Internet, per 100 people.	World Development Indicators	1	0	80	Access to high-speed Internet provides businesses with a wealth of opportunity to grow and flourish.
Business Environment	Hiring and Firing Practices	Expert Opinion Survey: "In your country, how would you characterize the hiring and firing of workers? [1 = heavily impeded by regulations; 7 = extremely flexible]".	World Economic Forum	0.5	1	7	A flexible labour market allows businesses to adapt to new challenges and to hire the people they need when they need.
Business Environment	Intellectual Property Protection	Expert Opinion Survey: "In your country, how strong is the protection of intellectual property, including anti-counterfeiting measures? [1 = extremely weak; 7 = extremely strong]".	World Economic Forum	1.5	1	7	Fair and clear regulation, by establishing clear rules of ownership and rights, incentivises business innovation.
Business Environment	Logistics Performance Index	Weighted average of: 1) Efficiency of the clearance process by border control agencies, including customs; 2) Quality of trade and transport related infrastructure ;3) Ease of arranging competitively priced shipments; 4) Competence and quality of logistics services; 5) Ability to track and trace consignments; 6) Timeliness of shipments in reaching destination within the scheduled or expected delivery time. Scaled from 1 to 5.	World Bank Development Indicators	1.5	1	5	High tariffs, restrictive regulations, and poor infrasrtucture limit the market access that businesses need to flourish.
Business Environment	Perception of Starting New Businesses	Survey question: "Is the city or area where you live a good place or not for people starting new businesses?"	Gallup World Poll	1	0.09	1	If citizens feel they can't start a new business, it keeps them from fulfilling their potential and keeps the wider economy from flourishing.
Business Environment	Perception of Working Hard Getting One Ahead	Survey question: "Can people in this country get ahead by working hard, or not?"	Gallup World Poll	1.5	0.1	1	The perception that hard work pays off is a central characteristic of a business environment that is free and fair, and generates prosperity for all.
Business Environment	Redundancy Costs	Redundancy costs in weeks of salary	World Economic Forum	0.5	0	104	Excessive redundancy costs make it hard for businesses to adapt to new challenges and to rationalise their resources.
Economic Quality	Absolute poverty	The percentage of population living living on less than $1.90 a day at 2011 international prices.	World Bank Development Indicators; Own Calculation	1.5	0	100	For citizens to be prosperous, they must at least a basic absolute level of material wealth.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Economic Quality	Average economic growth in previous 5 years	GDP per-capita growth rate, trailing five years.	International Monetary Fund	1.5	-0.2	0.2	Stable, persistent growth can raise aggregate living standards and material wealth.
Economic Quality	Effectiveness of Anti-monopoly Policy	Question: "In your country, to what extent does anti-monopoly policy promote competition? [1 = does not promote competition; 7 = effectively promotes competition]".	World Economic Forum	1.5	1	7	Effective anti-monopoly policies ensure an economy is competitive and diverse, and that delivers broad-based material wealth.
Economic Quality	Export Diversification Index	Measure of diversification of export basket. Higher values indicate less complexity.	International Monetary Fund	2	0	7	A complex economy provides a wider range of goods and services, and opportunities for a wider range of skills. It is also more resilient to shocks.
Economic Quality	Export Quality Index	Measures uses export prices as a proxy for quality of exports. Higher values indicate greater quality.	International Monetary Fund	1	0	1.3	An economy capable of producing high quality exports is one that adds value to prosperity at home and abroad.
Economic Quality	Feelings about Household Income	Survey question: "Which one of these phrases comes closest to your own feelings about your household income these days?"	Gallup World Poll	1	0	0.9	Aggregate economic growth and development matters most when it translates into more material prosperity for households.
Economic Quality	Female labour Force Participation	Female labour force participation rate as a percentage of the female population aged 15+.	International Labour Organization	1	0	100	Low female labour force participation rates imply that around half of a country's labour force does not have direct access to the economy and the material benefits it brings.
Economic Quality	Financial Engagement	Percentage of population aged 15 or above with a bank account .	International Monetary Fund	1	0	100	Access to financial services enables citizens to benefit fully from economic prosperity.
Economic Quality	Labour Force Participation	Labour force participation rate as a percentage of the population aged 15+.	International Labour Organization	1	30	100	A low overall labour force participation rate implies that a country's labour force is not contributing to and does not have access to the material benefits produced by its economy.
Economic Quality	Prevalence of trade barriers	Question: "In your country, to what extent do non-tariff barriers (e.g., health and product standards, technical and labeling requirements, etc.) limit the ability of imported goods to compete in the domestic market? [1 = strongly limit; 7 = do not limit at all]".	World Economic Forum	1.5	1	7	Many trade barriers are non-tariff: regulations that limit consumer choice and producer opportunity.
Economic Quality	Relative poverty	The percentage of the population living below the national poverty lines.	World Bank Development Indicators; Own Calculation	1.5	0	100	In more developed economies, the basic absolute level of wealth suggested by the absolute poverty measure is not high enough. In these economies, the basic level of wealth is estimated relative to the costs of living in the country.
Economic Quality	Satisfied with Standard of Living	Survey question: "Are you satisfied or dissatisfied with your standard of living, all the things you can buy and do?"	Gallup World Poll	1.5	0	1	A high quality economy delivers more than just household income. It is one where citizens have access to a range of affordable goods and services.
Economic Quality	Unemployment	The percentage of labour force that is not employed.	International Labour Organization	2	0	40	Unemployment has large negative effect on individual and social well-being, and on material prosperity.
Education	Adult Literacy Rate	% population aged 15 and above who can, with understanding, read and write a short, simple statement on their everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations.	World Bank Development Indicators; UN; Own Calculation	1	5	100	Adult literacy is a measure of broad based access to education, which allows citizens to develop their potential and contribute productively to their society.
Education	Education Inequality Index	Gini Coefficient of education distribution among 15+ population. Accounts for dispersion of average years of schooling among the population, and for levels of education within four categories and cumulative years of schooling at each level of education.	Castelló-Climent and Doménech (2012)	2	0	1	High Education Inequality implies that access to education is uneven, restricting the ability of citizens fully contribute to their societies.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Education	Education Quality Score	Standardized measure of pupils' achievements in reading, mathematics and sciences in primary and secondary education based on various international assessments available.	Indicators of Quality of Student Achievement (IQSA). Altinoka, Dieboltb & Demeulemeesterc (2014); Own Calculation	2	150	650	Moving beyond the quantity dimension of education, measured by enrolment, the Education Quality Score measures the quality of education available to citizens. A better-educated citizenry is better able to contribute to their society.
Education	Girls to Boys Enrolment Ratio	The absolute variation from 100 in the ratio of the gross enrolment rate of girls to boys in primary and secondary education levels in both public and private schools. We have adjusted this variable by the share of each gender in the population.	World Bank Development Indicators	1	0	0.5	Ratios close to 1 indicate a more gender-even access to education, allowing both genders to contribute to and share in their country's prosperity.
Education	Perception that Children are Learning in Society	Survey question: "Do most children have the opportunity to learn and grow every day, or not?"	Gallup World Poll	1	0.02	1	Citizens' perception of the educational opportunities available to them and their children are also key to assessing the quality of education in a given country. This measure covers educational opportunities available outside the formal education sector.
Education	Primary Completion Rate	Ratio of total number of students successfully completing or graduating from the last year of primary school in a given year to the total number of children of official graduation age in the population.	World Bank Development Indicators	1.5	10	100	The primary completion rate is both a measure of basic educational access and school quality, both of which enhance peoples' opportunities to increase life satisfaction.
Education	Satisfaction with Educational Quality	Survey question: "In the city or area where you live, are you satisfied or dissatisfied with the educational system or the schools?"	Gallup World Poll	1	0.12	1	Citizens' perception of the educational opportunities available to them and their children are also key to assessing the quality of education in a given country.
Education	Secondary education per worker	Average years of secondary education completed per worker	Barro and Lee (2010) and Own Calculation	1	0	7	Human capital, measured by the years of education per head or worker, is an engine for growth in material wealth. This measures human capital at a foundational level.
Education	Technical and vocational education enrolment	Technical/vocational enrolment (between ages 11 and 18) as % of total enrolment of those ages.	World Bank Development Indicators	1	0	50	A prosperous society recognises and benefits from a diversity of talents. Technical and vocational education offers non-academic students a chance to flourish.
Education	Tertiary education per worker	Average years of tertiary education completed per worker	World Bank Development Indicators	1	0	2	Human capital, measured by the years of education per head or worker, is an engine for growth in material wealth. This measures human capital at a more advanced level.
Education	Top Universities	Count of tertiary institutions in the top-200 list of the QS World University Rankings. Logged value and adjusted by population.	QS World University Rankings	1	0	90	The number of top universities in a country is both a measure of how available high-quality education is and of the ability of the education sector to contribute through R&D to a country's prosperity.
Education	Youth Literacy Rate	The percentage of people aged 15 to 24 years who can both read and write with understanding a short simple statement on their everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations.	World Bank Development Indicators; UN; Own Calculation	1	5	100	Youth literacy is a measure of access to education at the younger end of the population structure. Particularly as this group is a country's future labour force, high youth literacy allows citizens to develop their potential and contribute productively to their society.
Environment	Air pollution	Average proportion of the population whose exposure to PM2.5 is above the World Health Organization thresholds. PM2.5comes from combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes.	Environmental Performance Index	2	0	1	Air pollution has immediate negative effects on peoples' health and in preventing them from enjoying their environment, on social well-being.
Environment	Fish stocks	Fraction of fish stocks overexploited and collapsed by EEZ. Landlocked countries are given a regional mean.	Environmental Performance Index	1	0	100	Biodiversity provides people with a wider range of goods and services, while also conveying a sense of social well being.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Environment	Freshwater withdrawal	Domestic freshwater withdrawal as percentage of renewable resource. Capped at 100.	World Bank Development Indicators	1	0	100	The over-exploitation of resources like freshwater damages the natural environment, restricting its ability to support biodiversity, and also damages the sustainability of agriculture.
Environment	Marine protected areas	Areas of intertidal or subtidal terrain--and overlying water and associated flora and fauna and historical and cultural features--that have been reserved by law or other effective means to protect part or all of the enclosed environment (% territorial waters).	World Bank Development Indicators	1	0	100	The disruption of marine areas has an impact on health, economic production (tourism), and peoples' opportunities for recreation.
Environment	Pesticide regulation	Regulation of the dirty-dozen persistent organic pollutants (POPs) under the Stockholm Convention. Scaled from 0 to 25.	Environmental Performance Index	1	0	25	The use of persistent organic pesticides negatively affects well being directly, through its effects on health, and indirectly, through its effects on the ecosystem.
Environment	Preservation efforts	Survey question: "Are you satisfied with efforts to preserve the environment?"	Gallup World Poll	1	0	1	Peoples' perception of space, and the opportunities they have for outdoor activities, has an effect on on social cohesion and creates a sense of community, besides affecting physical and mental health.
Environment	Terrestrial protected areas	Totally or partially protected areas of at least 1,000 hectares that are designated by national authorities as scientific reserves with limited public access, national parks, natural monuments, nature reserves or wildlife sanctuaries, protected landscapes, and areas managed mainly for sustainable use (% total land area).	World Bank Development Indicators	1	0	70	Protected and open green areas provide people with the opportunity for outdoor recreation, creating a stronger community and elevating individual well being.
Environment	Wastewater treatment	Percentage of anthropogenic wastewater that receives treatment	Environmental Performance Index	1	0	100	Treating anthropogenic wastewater reduces water pollution, improving the health and well being of surrounding populations
Environment	Water source	The percentage of population with access to an improved drinking water source: piped water to premises; public taps, wells, or boreholes; protected springs; and rainwater collection.	World Bank Development Indicators	2	20	100	Access to drinking water that is clean and safe has immediate health benefits.
Governance	Confidence in Honesty of Elections	Survey question: "In this country, do you have confidence in the honesty of elections?"	Gallup World Poll	1	0	1	Citizens who have more confidence in the honesty of elections and who feel they vote is meaningful, enjoy higher levels of well being.
Governance	Confidence in National Government	Survey question: "In this country, do you have confidence in the national government?"	Gallup World Poll	1	0	1	Citizens who have more confience in their national government and its institutions are better at generating social capital and social well being.
Governance	Corruption Perceptions Index	An index of perceived corruption in the public sector. A combination of surveys and assessments of corruption, collected by a variety of reputable institutions.	Transparency International	2	0	100	Corruption damages governance and economic growth, while also making citizens disengaged with politics and non-participative in political, which reduces social well being.life
Governance	Democracy level	The extent to which a society is autocratic or democratic. This measure depends on the competitiveness of executive recruitment, constraints on chief executives, regulation of political participation, and competitiveness of political participation.	Center for Systemic Peace	1.5	-10	10	Citizens living in democracies, where their voice is heard and their governments accountable, enjoy higher levels of social well being and income.
Governance	Efficiency of Legal System in Challenging Regulation	Executive Opinion Survey: "In your country, how easy is it for private businesses to challenge government actions and/or regulations through the legal system? [1 = extremely difficult; 7 = extremely easy]".	World Economic Forum	1	1	7	A legal system that enables private citizens to challenge and hold their governments to account generates more institutional and social trust, and higher levels of well being and economic wealth.
Governance	Government effectiveness	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Scaled from -2.5 to 2.5.	World Bank Worldwide Governance Indicators	1.5	-2.5	2.5	Improving peoples' perceptions of quality in public services is an important part of building social capital, and is essential in measuring social well being.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Governance	Judicial Independence	Executive Opinion Survey: "In your country, to what extent is the judiciary independent from influences of members of government, citizens, or firms? [1 = heavily influenced; 7 = entirely independent]".	World Economic Forum	2	1	7	Judicial independence is a central component of a well governed society, and a well governed society provides higher levels of income and well being to its citizens.
Governance	Political Participation and Rights	Ability to participate in political processes such as voting in legitimate elections, joining parties, running for office, etc. This variable captures elements relating to the electoral process, political pluralism and participation as well as the functionality of the government and additional discretionary political rights.Scaled from 1 to 7.	Freedom House	1.5	1	7	While political rights and participation are mediated by institutions, they reflect personal freedom and human rights, which are central components of prosperity.
Governance	Regulatory quality	Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Scaled from -2.5 to 2.5.	World Bank Worldwide Governance Indicators	1	-2.5	2.5	Regulations that incentivise rather than inhibit the private sector development create prosperity.
Governance	Rule of law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Scaled from -2.5 to 2.5.	World Bank Worldwide Governance Indicators	2	-2.5	2.5	Rule of Law builds trust in institutions and between citizens, improving social well being, and providing the foundation for growth.
Governance	Transparency of Government Policymaking	Executive Opinion Survey: "In your country, how easy is it for businesses to obtain information about changes in government policies and regulations affecting their activities? [1 = extremely difficult; 7 = extremely easy]".	World Economic Forum	0.5	1	7	Opaque and unpredictable policies make the operation of businesses, and the creation of wealth, difficult.
Governance	Voting Age Population Turnout	Voting age population turnout statistics is calculated by dividing the total vote by an estimated voting age population.	Institute for Democracy and Electoral Assistance	1	0	110	Voting allows citizens to improve their society's well being, and a high turnout indicates an active and engaged citizenry.
Governance	Women in National Parliaments	The percentage of women in the lower or single House of the National Parliament.	Inter-Parliamentary Union	1	0	0.8	Women's participation and representation in the political process reflects the personal freedoms and human rights - and so prosperity - of a large share of the population.
Health	Diabetes Prevalence	The percentage of population aged 18 or above that have diabetes. The variable is imputed based on Diabetes Disability-Adjusted Life Year (DALY).	International Diabetes Federation and Own Calculation	0.5	0	50	Diabetes is an important public health concern for all countries, and its prevalence is increasing at a rapid rate.
Health	Health Problems	Survey question: "Do you have any health problems that prevent you from doing any things people your age normally can do?"	Gallup World Poll	1	0	0.58	Self-reported health is related to actual health problems and risk factors, and offers a window into how healthy people perceive themsleves to be.
Health	Immunization against DPT	Percentage of 12-23-month children who have received three doses of the combined diphtheria, tetanus toxoid and pertussis (DTP3) vaccine in a given year.	World Health Organisation	1.5	0	100	Immunisation against infectious diseases measures a country's healthcare system coverage and performance; how well it is keeping its population healthy.
Health	Immunization against Measles	Percentage of 12-23-month children who received vaccinations before 12 months or at any time before the survey. A child is considered adequately immunised against measles after receiving one dose of vaccine.	World Health Organisation	1.5	0	100	Immunisation against infectious diseases measures a country's healthcare system coverage and performance; how well it is keeping its population healthy. Measles is of particular relevance since immunisation has slowed and declined in recent years.
Health	Improved Sanitation Facilities	The percentage of population with access to private or shared waste disposal facilities that can effectively prevent human, animal and insect contact with excreta.	World Bank Development Indicators	1.5	0	100	Having access to sanitation facilities is a central component of a functioning public health system and an important determinant of citizens' health.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Health	Joy	Composite of Gallup questions: Did you smile or laugh a lot yesterday?, Did you feel well-rested yesterday?, Did you experience enjoyment during a lot of the day yesterday?	Gallup World Poll	1	0	1	Mental health is an integral part of overall health and individual well being. Here we measure its positive aspect.
Health	Life Expectancy at Birth	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	World Bank Development Indicators	2	18	90	Life expectancy at birth is the most commonly used metric to assess the health status of a population.
Health	Mortality Rate	Age-Standardized total deaths for all causes, per 100, 000 people, both sexes.	World Health Organisation	2	50	2000	A country's mortality rate is a health outcome measure that is closely related to the effectiveness of the healthcare system.
Health	Obesity Prevalence	Percentage of defined population with a body mass index (BMI) of 30 kg/m2 or higher.	World Health Organisation	0.5	0	50	Being overweight or obese is an important risk factor for a range of ailments.
Health	Sadness	Composite of Gallup questions: Did you experience sadness during a lot of the day yesterday?, Did you experience worry during a lot of the day yesterday?	Gallup World Poll	1	0	1	Mental health is an integral part of overall health and individual well being. Here we measure its negative aspect.
Health	Satisfaction with Healthcare	Survey question: "In city/area, satisfied with the availability of quality healthcare?"	Gallup World Poll	1	0.03	1	Citizens' satisfaction with healthcare is related to the quality of healthcare received, and offers a window on how good citizens perceive their healthcare to be.
Health	TB deaths	Quality-adjusted life years lost due to tuberculosis per 100,000 people. Logged value.	World Health Organisation	0.5	0	400	Infectious diseases incidence measures a country's healthcare system coverage and performance; how well it is keeping its population healthy. While TB has been in decline over recent years, its global incidence remains high.
Personal Freedom	Civil Liberties	Freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state.	Freedom House	2	1	7	A high degree of civil liberty is associated with higher levels of democracy and social well being.
Personal Freedom	Conscription	Legal status and use of conscription.	Fraser Institute	0.5	0	12	The ability of a state to coerce its citizens into military employment erodes personal freedom and well being.
Personal Freedom	Death penalty	Legal status of death penalty.	Death Penalty Information Center	1	0	1	Support for the death penalty is associated with low levels of social and governmental trust and individualist and authoritarian values, none of which are associated with prosperity.
Personal Freedom	Ethnic minorities tolerance	Is your city/area a good place to live for ethnic minorities?	Gallup World Poll	1	0	1	A prosperous society recognises, respects, and benefits from a diversity of ethnicities.
Personal Freedom	Governmental Religious Restrictions	Governmental restrictions on religion, efforts by governments to ban particular faiths, prohibit conversions, limit preaching or give preferential treatment to one or more religious groups.	Pew Research Centre	1	0	10	A prosperous society recognises, respects, and benefits from a diversity of religions. Here we measure restrictions from the government.
Personal Freedom	Immigrants tolerance	Is your city/area a good place to live for immigrants?	Gallup World Poll	1	0	1	A prosperous society recognises, respects, and benefits from peoples' talents and values not citizenship.
Personal Freedom	LGBT groups tolerance	Survey question: "Is your city/area a good place to live for gay/lesbian people?"	Gallup World Poll	1	0	1	A prosperous society recognises, respects, and benefits from a diversity of sexualities. Here we measure how LGBT-friendly citizens perceive their societies to be.
Personal Freedom	LGBT Rights	Proxy for the legal status of LGBT individuals. An ordinal scale that takes 0 if homosexuality is illegal, 1 if legal, 2 if civil unions between homosexual individuals are allowed, and 3 if marriage is allowed.	International LGBTI Association	1	0	3	A prosperous society recognises, respects, and benefits from a diversity of sexualities. Here we measure formal, legal constraints on peoples' sexuality.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Personal Freedom	Press Freedom	Legal, political, and economic restrictions on press freedom.	Freedom House	1.5	0	100	Citizens are not truly free if the are restrictions on what information they can publish and consume. A free press also an essential part of a functioning democracy.
Personal Freedom	Property rights between genders	Property rights and inheritance rights for both genders in the legal system.	World Bank Development Indicators	1	0	1	Property rights provide the basis on which to grow prosperity, but can damage prosperity when they are not applied equally across genders.
Personal Freedom	Satisfaction with freedom	Survey question: "Are you satisfied with your freedom to choose what you do with your life?"	Gallup World Poll	1.5	0.14	1	When people perceive that they have the opportunity and capability to do what they choose, they enjoy higher levels of well being.
Personal Freedom	Social Religious restrictions	The degree to which there are social barriers to freedom of religion in a country, acts of religious hostility by private individuals, organizations and social groups.	Pew Research Centre	1	0	10	A prosperous society recognises, respects, and benefits from a diversity of religions. Here we measure informal social restrictions.
Safety & Security	Availability of adequate food	Survey question: "Have there been times in the past 12 months when you did not have enough money to buy food that you or your family needed?"	Gallup World Poll	1.5	0	1	Food security is a central component of human security. An insecure food supply has a detrimental effect on a person's well being.
Safety & Security	Availability of adequate shelter	Survey question: "Have there been times in the past 12 months when you did not have enough money to provide adequate shelter or housing for you and your family?"	Gallup World Poll	1.5	0	1	Shelter/housing security is a central component of human security. Insecure housing has a detrimental effect on a person's well being.
Safety & Security	Battlefield Deaths	The number of battle-related deaths per million population. Logged value.	UCDP Battle-Related Deaths Dataset	1	0	22000	Battlefield-related deaths measure how unsafe populations are from large scale conflict.
Safety & Security	Civil and Ethnic War Casualties	Magnitude score of episode(s) of civil violence, ethnic warfare and ethnic violence involving that state in that year. Scaled from 0 to 9.	Center for Systemic Peace	2	0	9	Civil and ethnic war casualties measure how unsafe citizens are within their own borders.
Safety & Security	Intentional Homicides	Intentional homicides are estimates of unlawful homicides per 100 000 population purposely inflicted as a result of domestic disputes, interpersonal violence, violent conflicts over land resources, intergang violence over turf or control, and predatory violence and killing by armed groups. Logged value.	World Bank Development Indicators	2	0	120	High homicide rates indicate high insecurity at both a social and individual level, and are associated with lower levels of national prosperity.
Safety & Security	Political Terror Scale	This is a measure of state-sponsored political violence and repression within a country. Countries reporting a higher level of disappearances, torture and political violence are rated as more insecure according to this variable. Scaled from 1 to 5.	Amnesty International & US State Department Political Terror Scale	1	1	5	State-sanctioned killings, torture, disappearances and political imprisonment erode both individual and social security and safety.
Safety & Security	Property Stolen	Survey question: "Within the last 12 months, have you had money or property stolen from you or another household member?"	Gallup World Poll	1.5	0	0.7	High levels of theft imply low levels of social trust and high levels of individual insecurity - for thieves (as a cause) and victims (as an effect).
Safety & Security	Refugees (Origin country)	The number of people in refugee-like situations per million population, by country of origin. Logged value.	UNHCR	1	0	268300	When people's food and shelter situation is insecure and when institutions cannot support them, they flee.
Safety & Security	Road Deaths	Estimated road traffic fatal injury deaths per 100 000 population. Logged value.	World Health Organisation	0.5	0	55	Road deaths measure how safe a country's infrastructure and transport network is.
Safety & Security	Safe Walking Alone at Night	Survey question: "Do you feel safe walking alone at night in the city or area where you live?"	Gallup World Poll	1	0	1	Peoples' perception of how safe they feel in their home environment is a central component of their overall safety & security.
Safety & Security	Terrorist Attack Casualties in last five years	The average number in the last five years of confirmed fatalities for terrorist incidents, per million population. The number includes all victims and attackers who died as a direct result of the incident. Logged value.	Global Terrorism Database and Own Calculation	1.5	0	110	Terrorism-related deaths measure how unsafe populations are from terrorism and how well their governments protect them from terrorism.
Social Capital	Donations	Survey question: "Have you donated money to a charity in past month?"	Gallup World Poll	1	0	1	There is a strong link between pro-social spending, which includes donations to charity, and well being.

Pillar	Variable Label	Description	Source	Weight	Min Value	Max Value	Rationale
Social Capital	Help in troubles	Survey question: "If you were in trouble, do you have relatives or friends you can count on to help?"	Gallup World Poll	2	0	1	There are strong well being effects of the social support networks that families and friends provide.
Social Capital	Help Stranger	Survey question: "Have you helped a stranger or someone you didn't know who needed help in past month?"	Gallup World Poll	1	0	1	There are strong well being effects of the social support networks that people can provide each other beyond their friends and families.
Social Capital	Informal Help	Survey question: "Has your household sent financial help to another household in last year?" (same country)	Gallup World Poll	1	0	1	People are able to help each other beyond formal donations. Here we capture another, more informal aspect of giving that the more formal variables do not reflect.
Social Capital	Opportunity to make Friends	Survey question: "Satisfied with opportunities to meet people and make friends?"	Gallup World Poll	1	0	1	Frequent interaction with friends is both associated with systematically higher assessments of subjective wellbeing. This networking opportunity has also been tied to better economic performance.
Social Capital	Respect	Survey question: "Were you treated with respect all day yesterday?"	Gallup World Poll	1	0	1	Civic norms are a core element of social capital and are correlates with economic wealth.
Social Capital	Trust in Local Police	Survey question: "Do you have confidence in the local police force?"	Gallup World Poll	1	0	1	There is a strong link between institutional trust, particularly trust in the police, and economic growth and well being.
Social Capital	Voice Opinion	Survey question: "In the past month, have you voiced your opinion to a public official?"	Gallup World Poll	1	0	1	Political engagement, and its decline, is identified as an important part of civic engagement and social capital more broadly.
Social Capital	Volunteering	Survey question: "Have you volunteered time to an organisation in past month?"	Gallup World Poll	1.5	0	1	Volunteering has a strong positive effect on well being, particularly life satisfaction and a sense of control over life.
Social Capital	Voter Turnout	Turnout in most recent national legislative election (% registered electors) in seven years, else zero. Adjusted by democracy level.	IDEA	0.5	0	100	Turnout is a key measure of political participation identified as important for social capital. Turnout matters most when it translates into real political participation, which is in more democratic countries.

II

Appendix II

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Economic Quality

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