

Social Progress Index Time Series

1990 to 2023



M E T H O D O L O G Y S U M M A R Y

Acknowledgements

Developing and updating the Social Progress Index Time Series was a major undertaking, involving extensive desk research, data collection and cleaning, methodological improvements, calculations, results verification, and data visualization. This work would not have been possible without the leadership of **Michael Green** and the support of our colleagues across the Social Progress Imperative. We are especially grateful to **Valeria Horton** for her thoughtful editorial guidance and sustained contribution to the development of our interactive dashboard visualizations. Through extensive consultation on their visual presentation, functionality, and user experience, she helped shape how the results are presented and explored, making the dashboards clearer, more intuitive, and more engaging. Her coordination of the broader communications and design process was equally invaluable.

Suggested Citation

Index and Data

Harmacek, J., and Khan, S. M. (2026): Social Progress Index Time Series: 1990–2023 Update. Social Progress Imperative. Washington, DC.

Methodology

Harmacek, J., and Khan, S. M. (2026): Social Progress Index Time Series: 1990–2023 Update. Methodology Summary. Social Progress Imperative. Washington, DC.

Contact

For methodological queries regarding the Index, please contact Jaromir Harmacek (jharmacek@socialprogress.org). For any other queries, please contact Valeria Horton (vhorton@socialprogress.org) or visit our website www.socialprogress.org.

Social Progress Index Time Series: 1990–2023 Update.

Methodology Summary

Introduction	3
Social Progress Principles	4
Dimensions of Social Progress	5
Components of Social Progress	6
Indicator Selection	6
Indicator Transformations	9
A. Capped Indicators	9
B. Transformed Indicators	9
C. Calculation of Indicators	9
Determining the Country Sample	10
Index Calculation	11
A. Missing Values	11
B. Standardization	12
C. Component Scores	13
D. Dimension Scores	14
E. Index Scores	14
F. World Score Calculation, Regional Aggregations	14
Structural Integrity of the Index	15
Limitations	16
Conclusion	16
Bibliography and Further Reading	17
Appendix A: Indicator Definitions and Sources	18
Appendix B: Indicator Boundaries and PCF-Derived Weights	24

Introduction

The Social Progress Index, published annually since 2013, is designed to support action by presenting social and environmental outcome data in a useful and reliable form. Its multidimensional framework provides a holistic and transparent measure of societal wellbeing, enabling policymakers, businesses, researchers, and citizens to benchmark performance, compare countries, and identify areas of strength and weakness.

The Social Progress Index Time Series extends this framework back to 1990, allowing users to examine how social progress has evolved over more than three decades. This first update of the original time series expands its coverage through 2023 and incorporates updated data using a consistent methodology across countries and years.

The updated Social Progress Index Time Series combines 52 social and environmental outcome indicators and fully ranks 171 countries throughout the 1990–2023 period. Two additional countries have a complete set of scores for at least some years. A further 22 countries have partial component or dimension scores, while one additional country has indicator-level coverage only. Overall, the Social Progress Index Time Series 1990–2023 covers at least some aspects of social progress in 196 countries, representing more than 99.9% of the world’s population.

This report describes the methodology used to update and calculate the Social Progress Index Time Series. It begins by presenting the principles underpinning the conceptual architecture of the Index and providing an overview of its framework. It then describes the processes used to select and prepare the data and calculate the Index. The report concludes with a discussion of the limitations of the time-series calculations.

Social Progress Principles

We define ‘social progress’ as *the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential.* This definition, established in consultation with a group of academic and policy experts, drives the framework of the Social Progress Index. It alludes to three broad elements of social progress, which we refer to as dimensions: Basic Needs, Foundations of Wellbeing, and Opportunity. Each dimension comprises four components, guided by questions we seek to answer using the available data (see Figure 1). Each component is further defined by a set of outcome indicators that respond to the conceptual questions posed.

Figure 1 / Social Progress Index Component-Level Framework



Together, these interrelated elements combine to produce a given level of social progress. The Social Progress Index methodology allows measurement of each component and each dimension, yielding an overall score and ranking.

Our approach builds on a long line of work constructing country indexes to measure and assess various facets of economic and social performance. However, the Social Progress Index is distinct in its core methodological choices:

- A focus on non-economic dimensions of national performance.
- A measurement approach based on outcome indicators, rather than input measures.
- A holistic framework consisting of three broad dimensions of social progress, each of which is the average of four equally weighted components.
- Calculation of each component as the weighted sum of a set of measures, with the weights determined through the principal component factor (PCF) method.

The Social Progress Index is explicitly focused on non-economic aspects of national performance. Unlike most other national measurement efforts, we treat social progress as distinct though associated with more traditional economic measures such as GDP per capita. In contrast, other indices such as the Human Development Index or OECD Better Life Index combine economic and social indicators. Our objective is to utilize a clear yet rigorous methodology that isolates the non-economic dimensions of social performance.

The Social Progress Index aims to be as outcome-based as possible. Both input and outcome-based indexes can help countries benchmark their progress, but in very different ways. Input indexes measure a country's policy choices or investments believed (or known) to lead to an important outcome, while outcome indexes directly measure the outcomes of these decisions or investments. Input indexes also require a degree of consensus about how inputs lead to outcomes, as well as a process to calibrate the relative importance of different input factors against outcome measures. In the field of social progress, this would mean a clear consensus and understanding of which inputs lead to better social outcomes—a field of research that is still growing and to which the Social Progress Index continues to contribute.

When there are multiple output measures or a lack of consensus on all the inputs that matter, or when data related to inputs are highly incomplete, an outcome-oriented index may be more appropriate (Fleurbaey and Blanchet, 2013). Following this logic, we designed the Social Progress Index to aggregate and synthesize multiple outcome measures in a conceptually consistent and transparent way that supports decision-makers in benchmarking progress. The Social Progress Imperative continues to explore the role of input measures and policies in determining a country's performance.

Dimensions of Social Progress

At the topmost level of the framework, we synthesize three distinct though related questions that, taken together, offer insight into the level of social progress:

- 1) Does a country provide for its people's most essential needs?
- 2) Are the building blocks in place for individuals and communities to enhance and sustain wellbeing?
- 3) Is there opportunity for all individuals to reach their full potential?

Each of these questions describes a dimension of social progress, respectively: Basic Needs, Foundations of Wellbeing and Opportunity. The first dimension, Basic Needs, assesses a population's capacity to survive with adequate nourishment and basic medical care, clean water, sanitation, adequate shelter, and personal safety. These needs remain unmet in many developing countries and are not fully met in some more prosperous countries.

Basic needs have been the predominant focus of research in development economics, but the second dimension of social progress, Foundations of Wellbeing, deserves equal attention. It highlights the extent to which a country's residents can gain a basic education, obtain information and communicate freely, benefit from a modern healthcare system, and live in a healthy

environment conducive to a long life. Nearly all countries struggle with at least one of these aspects.

Finally, any discussion of social progress must also include whether people in a country have the freedom and opportunity to make their own choices and pursue higher education. Rights, freedom and choice, inclusiveness, and access to advanced education all contribute to the level of opportunity within a given society. This dimension of the Social Progress Index is perhaps the most controversial and most difficult to measure. Nonetheless, it is important to highlight that societies, high-income or low-income, developed or developing, still struggle to meet the moral imperative to guarantee equality of opportunity for all citizens.

The multidimensional construction of the Social Progress Index should not be interpreted as a step-by-step movement toward progress from one dimension to the next. Rather, the three dimensions are interrelated and, in fact, statistically correlated. While we distinguish between these three aspects of social progress, many issues they encompass interact with one another to drive more meaningful change.

Components of Social Progress

Under each dimension are four components. Components, like dimensions, are categories of outcomes, rather than specific outcomes themselves. Each component highlights a separate aspect of the overall set of outcomes that make up a dimension, building on both academic and policy literature. For example, the Opportunity dimension includes the components Rights and Voice, Freedom and Choice, Inclusive Society, and Advanced Education. Each of these components describes a related but distinct aspect of what it means for a society to guarantee opportunity among its population. The Rights and Voice and Advanced Education components describe the extent to which individuals can pursue their own objectives to the best of their ability. Freedom and Choice and Inclusive Society, on the other hand, describe the extent of limits on individuals. Together, the four components offer a conceptually coherent way of capturing how societies can empower (or limit) an individual's autonomy, freedom, and ability to progress.

The twelve components represent what we believe to be the most complete set of outcome categories given our current understanding of social progress from diverse literature and given the current availability of data. The Social Progress Imperative Advisory Board provided input into selecting the dimensions and defining the components within each dimension, along with an iterative review of relevant literature.

The framework was established in 2013, and we continue to ensure its relevance each year. We consult extensively with experts across disciplines on the twelve-component structure of the Social Progress Index, ensuring it continues to capture the principal aspects of human wellbeing and that the issues measured are comprehensive and apply to all societies, regardless of their country's level of economic development, political stature, or geography.

Indicator Selection

At the most granular level of the Social Progress Index framework, we identify multiple individual outcome measures – indicators – related to each component. Each set of indicators, grouped by component, defines and measures the same aspect of social progress. The Social Progress Index Time Series includes 52 social and environmental indicators, with 3–6 indicators per component (see Figure 2).

Figure 2 / Social Progress Index Time Series: Indicator-Level Framework

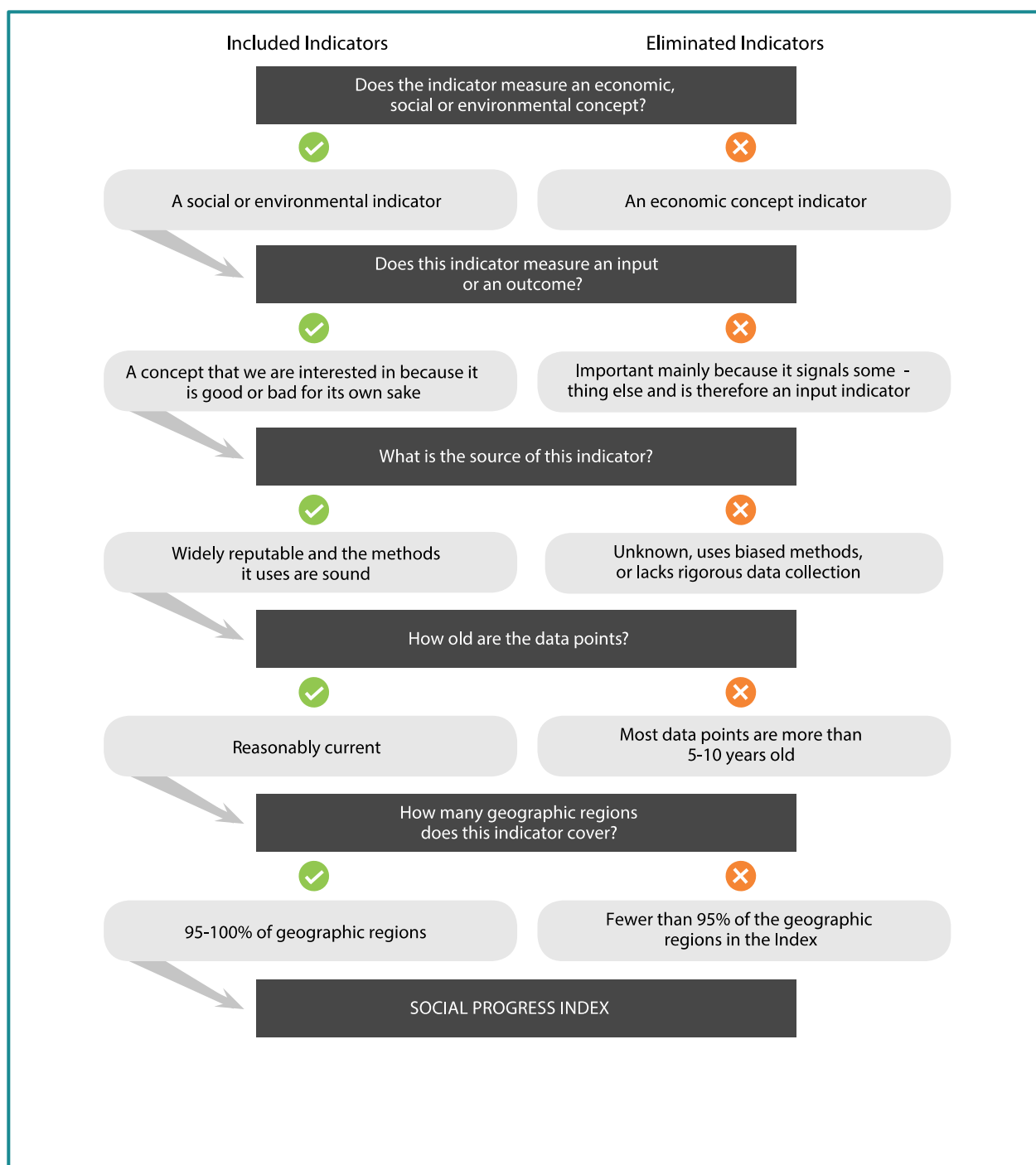


We only include indicators that are measured well, with consistent methodology, by the same organization and across all (or essentially all) countries in our sample. We evaluate each indicator to ensure that the procedures used to produce the measure are sound and that it captures what it purports to capture. Data for each indicator must come from the same source to ensure consistency in measurement across countries. Data sources range from large international institutions like the United Nations or the World Bank to research organizations such as Varieties of Democracy and the Institute for Health Metrics and Evaluation.

For each indicator, we evaluate the data sources available and consider tradeoffs between the quality and precision of a social indicator and the comprehensiveness of its country coverage. For the Social Progress Index Time Series, one of the most significant selection criteria was temporal coverage. Figure 3 below depicts our decision tree for indicator selection. Geographic coverage tends to exclude many high-quality indicators from consideration because they only cover a subset of countries, such as OECD countries, or a particular region, such as the European Union.

Data for each selected indicator are collected on the basis of the above-mentioned criteria and are aligned precisely to match the 1990–2023 period. A final important criterion for indicator data included in the Index is that they are publicly available. We strive for transparency in both the data we use to inform the Social Progress Index and our calculation methodology. All raw indicator values used to calculate the Index, together with all calculated scores, are included in the Social Progress Index Time Series dataset. For details on accessing the data, visit www.socialprogress.org.

Figure 3 / Indicator Selection Tree



Indicator Transformations

When comparing country-level data, we encounter issues that require us to transform the data for certain indicators. Our two main techniques are capping an indicator at a defined upper or lower limit and applying a square root transformation.

A. Capped Indicators

We impose a top and bottom boundary on a number of indicators across the 1990–2023 data. *Nutritional deficiencies burden*, *Maternal mortality*, *Population with no education*, *Particulate matter (PM2.5) pollution*, *Exposure to high temperature*, *Outdoor air pollution burden*, *Lead exposure*, and *Early marriage* are capped at the 99th percentile. Additional indicators are winsorized to reduce the influence of a handful of significant outliers – these are *Non-communicable diseases burden* and *Life expectancy at 65* (the latter was winsorized at the bottom of its distribution). Several other indicators are capped to meet the boundaries set by the indicator definitions: we set a floor for the gender parity in education indicators, and the *Telephone subscriptions* indicator is capped at 100 subscriptions per 100 people. Additionally, the *Expected years of tertiary schooling* indicator is capped at 5.5 years to avoid the influence of a few outliers and to roughly reflect the Bologna system of tertiary education. In a similar manner, we cap the *Advanced educational attainment* indicator.

Lastly, the *Female journalists* indicator was capped at 60 percent rather than at gender parity of 50 percent. This allows modest representation above parity to be recognized, acknowledging that addressing persistent historical underrepresentation may temporarily require women to account for more than half of journalists. At the same time, limiting the cap to 60 percent prevents disproportionate weight being given to female overrepresentation and avoids unduly disadvantaging countries close to parity.

B. Transformed Indicators

Five indicators – *Infectious diseases burden*, *Child mortality*, *Unsafe water, sanitation and hygiene burden*, *Interpersonal violence burden*, and *Transport-related injuries* – are highly skewed (coefficient of skewness >2) compared with the other indicators. We apply a square root transformation to these indicators to reduce skewness while transforming the data less strongly than a logarithmic transformation.

C. Calculation of Indicators

Nine indicators are created for the Social Progress Index Time Series. These are:

- *Diet low in fruits and vegetables*, calculated as a simple average of two individual indicators measuring (on the same scale) diet low in fruits and diet low in vegetables.
- *Population with no education*, *Advanced educational attainment*, and *Secondary educational attainment*, each calculated as an arithmetic average of the corresponding indicators for males and females.
- *Gender parity in secondary educational attainment* and *Gender parity in advanced educational attainment*, each calculated as the lower of the female and male attainment rates divided by the higher rate. A value of 1 indicates full gender parity; lower values indicate greater disparity, regardless of which group has the higher attainment rate.
- *Telephone subscriptions*, created as an aggregation of both fixed-line and mobile subscriptions (each per 100 population) to reflect the technological evolution over 1990–2023. It is calculated as a weighted average using complementary, time-varying weights to reflect the transition from fixed-line to mobile telephony over the measurement period.

Fixed-line subscriptions receive greater weight in earlier years, when fixed lines were the predominant form of telephone connectivity, while the weight assigned to mobile subscriptions increases progressively over time. The two weights always sum to 100%; fixed-line subscriptions receive full weight in 1990–1994, and mobile subscriptions receive full weight from 2019 onwards.

- *Infectious diseases burden*, calculated by aggregating age-standardized rates of disability-adjusted life years (DALYs) per 100,000 people across the following cause groups: HIV/AIDS and sexually transmitted infections; neglected tropical diseases and malaria; enteric infections; respiratory infections and tuberculosis; and other infectious diseases.
- *Equal access to public services*, created as a composite measure of the extent to which basic public services (including public order and security, primary education, clean water, and healthcare) are distributed equally across social groups, genders, socioeconomic positions, political groups, and urban and rural populations. It is calculated using the PCF method to aggregate five underlying indicators. Higher values indicate more equal access to public services across these population groups.

Determining the Country Sample

The Social Progress Index Time Series provides a full index score over 1990–2023 for 171 countries¹, with two additional countries having full index scores for only parts of the period.² We have selected these countries by collecting all data available across all indicators, and by determining which countries have sufficient observed or imputed data to calculate a Social Progress Index score. Generally, a country cannot have more than one missing indicator per component to be included in the final Social Progress Index score rankings. We make exceptions to this rule for Basic Education and Advanced Education. These exceptions are discussed in the next section.

Alongside the 171–173 ranked countries, we also include in our country sample two ‘partial’ countries.³ These countries have enough data to calculate between nine and eleven of the twelve components, but not enough data to calculate an overall Social Progress Index score. As with ranked countries, within those nine to eleven components for which enough data are available there cannot be more than one indicator missing per component.

Additionally, we exclude 22–24 countries with limited data availability from the original calculation sample. However, where sufficient data are available, we use the PCF-derived weights (described below) to calculate scores for these countries. For 21–22 of them, the available data are sufficient to calculate at least one component score, but fewer than nine. These countries are also included in the imputation procedures conducted both prior to and during the Index calculation (see below). Their available raw indicator values and calculated scores are included in the published results.⁴ For the remaining two country-period cases, data availability is insufficient to calculate any component score; for these countries, the published results include only the available raw indicator values.⁵

¹ We refer to [World Population Review](#) regarding country recognition, while also taking into account the above-mentioned data availability.

² Montenegro (2004–2023) and South Sudan (2011–2023) have full scores calculated.

³ Seychelles (1990–2023) and Montenegro (1998–2003) are the only ‘partial’ countries, with between nine and eleven component scores calculated.

⁴ This group includes 20 countries covering the full 1990–2023 period, as well as Montenegro (1990–1997), South Sudan (1990–2010), and Kosovo (1999–2023).

⁵ Liechtenstein (1990–2023) and Kosovo (1990–1998) are the only country-period cases for which only indicator-level data are available, and therefore no component scores can be calculated.

The Social Progress Index Time Series includes a full index score and ranks for the West Bank and Gaza. In order to do so, we implement a different approach from that used for other countries, since some indicator sources provide data for the West Bank and Gaza, while several others provide data separately for the West Bank and for Gaza. In these cases, we calculate a population-weighted average to obtain one data point for the whole entity, which is then used in the overall index calculation.

Index Calculation

The Social Progress Index Time Series calculation procedure consists of the following core steps. We first address missing values, then invert and standardize indicators so that they are comparable in scale. We then use the PCF method to aggregate indicators into a component score. Finally, we calculate dimension and overall Social Progress Index scores by averaging components and dimensions, respectively. Each of these steps is described in more detail below.

A. Missing Values

We ensure that all indicators included in the Social Progress Index Time Series are missing as few observations as possible to avoid jeopardizing the statistical quality of the Index. Missing values can stem from the lack of coverage by the data source, as well as incomplete reporting by the country to international organizations. In cases where an indicator is missing data points for a specific country and a time period, we assess our imputation methodology both before and during calculation. Values imputed prior to calculation are included and marked in the dataset, whereas values imputed during calculation are not included. See our website for details on accessing the data.

Imputations prior to calculation:

We impute missing data prior to calculation of the Index when a country lacks some, not all, indicator data within the examined period, under two scenarios: when a country has missing data at the beginning or at the end of the 1990–2023 period; and when there are gaps between observed values within indicators. In the first case, a future or a historical value is carried back or forward if a data point is missing at the beginning or at the end of the time series. In cases where more than five data points at the beginning or at the end of an indicator's time series are missing, we rely on imputations during calculation. Under the second scenario, we impute gaps between years by applying linear interpolation. We do so to ensure smooth year-to-year estimates based on the observed values on either side of a gap, assuming linear change for a maximum of 14 consecutive years. For gaps exceeding 14 consecutive years between observed values, we rely on imputations during calculation.

Imputations during calculation:

After constructing the dataset with the imputations described above, we assess the number of missing indicator values within each component for each country-year. Using regression imputation, we generally impute missing values for country-years with no more than one missing indicator value in each of the twelve components (classified as 'ranked'), and for country-years meeting this criterion in nine to eleven components (classified as 'partial'). We use data for these 'ranked' and 'partial' country-years over 1990–2023 to regress each indicator on the other indicators within the same component. By constraining the regression to within-component indicators, we can preserve the signal that the indicator provides to PCF.

There are, however, some exceptions to this rule related to the following indicators: *Access to electricity*, *Expected years of tertiary schooling*, *Secondary educational attainment*, and *Gender parity in secondary educational attainment*. For these indicators within their respective components, we apply a regression pre-imputation methodology to increase the number of countries with full Index scores. All four pre-imputed indicators are then used again in the standard regression imputations described above.

To impute missing values for *Expected years of tertiary schooling* within the *Advanced Education* component, we use *Advanced educational attainment* and *Gender parity in advanced educational attainment* as predictors. *Academic freedom* is excluded from the imputation model because of its more limited data coverage. To estimate missing *Access to electricity* values for a number of countries in the early 1990s, we supplement the standard predictors with an additional electricity-access series (*Access to electricity, 1990–2016*, sourced from Our World in Data) which is not itself included in the Housing component.

Secondary educational attainment and *Gender parity in secondary educational attainment* are calculated from the corresponding male and female attainment series. Before these indicators are calculated, missing values in the sex-specific series are imputed using the corresponding male and female estimates from the IHME GBD Covariate *Age-standardized level of educational attainment* as predictors. These covariates are not directly included in the Index framework.

We review each imputation to ensure accuracy. In some cases, we combine the regression trend with observed data. For example, when the last observed value for a country is in 2012, we have eleven missing values (until 2023) that we impute by regression predictions. If the predicted data do not match the observed values, we take the regression trend from the predictions and apply it to the observed data. The same approach is employed when regression imputations are used to predict missing data between two observed values (for gaps of more than 14 consecutive years). If there are no observed values for a country, we apply standard regression imputations as described above. In cases where these imputations do not match expectations or qualitative research, we use regional cohort estimates⁶ or carry values consistently across time to minimize bias.

The estimation of missing values for ‘ranked’ and ‘partial’ countries is necessary prior to undertaking PCF, which requires a complete dataset for the results to be sound. We do not impute values for countries that do not meet the criteria of the ‘ranked’ or ‘partial’ countries noted above; these countries are excluded from the main calculation process by which PCF weights are determined.

B. Standardization

We convert indicators to the same scale in a three-step process. First, we set best- and worst-case scenarios to provide concrete boundaries on both ends of the scale that are based on theoretical or historical values. We then invert indicators for which increasing values reflect lower social progress. Finally, we standardize the indicators into z-scores prior to applying PCF.

While the best- and worst-case scenarios are defined at the indicator level, we strive to follow the same method for similar metrics. For indicators with pre-defined boundaries, we use these to establish the upper and lower scenarios. We use natural boundaries for indicators that have a

⁶ Such imputations were used before calculation in the case of Serbia. To have a full index score for this country, raw values of *Internet users* (1990–2003) and both mobile and fixed-line telephone subscriptions (1990–2003) were imputed as averages of other countries of the former Yugoslavia with available data (i.e., Slovenia, Croatia, North Macedonia, and Bosnia and Herzegovina).

natural best-case scenario. For indicators that do not have a clear worst case or where reaching the worst-case scenario is extremely unlikely, the boundary is based on the worst observed value over 1990–2023. Caps constitute the boundaries for capped indicators. Best- and worst-case indicator values are added to the country dataset as two reference observations before PCF is applied. These reference observations are excluded from the estimation of PCF weights.

Once we establish a full dataset with indicator values for 1990 through 2023 and the best- and worst-case scenarios, we invert indicators for which a higher value denotes lower social progress. There are 26 inverted indicators in the Social Progress Index Time Series: *Nutritional deficiencies burden, Infectious diseases burden, Maternal mortality, Diet low in fruits and vegetables, Child mortality, Child stunting, Unsafe water exposure, Unsafe water, sanitation and hygiene burden, Unsafe sanitation exposure, Unsafe hygiene exposure, Prevalence of cooking with coal/biomass, Household air pollution burden, Transport-related injuries, Intimate partner violence exposure (female), Interpersonal violence burden, Political violence by non-state actors, Population with no education, Non-communicable diseases burden, Particulate matter (PM2.5) pollution, Outdoor air pollution burden, Exposure to high temperature, Lead exposure, Political rights, Vulnerable employment, Early marriage, Public sector corruption.*

As a final step prior to applying PCF, we standardize the indicators into z-scores. Doing so produces scores with a mean of 0 and standard deviation of 1, placing indicators on a comparable scale.

C. Component Scores

To calculate component scores, we aggregate the set of indicators within each component into a factor using PCF and all 34 years of data. PCF combines indicators in a way that captures the maximum amount of variance in the data while reducing redundancy between indicators. It essentially assigns each indicator a weight, a method we select over equal weighting to ensure that indicators contribute meaningfully to a component score, while accounting for similarities between them.

Within many of the twelve components, PCF generates similar weights for the indicators we include because we ensure a fair level of correlation between them (e.g., not too high or low) prior to finalizing our framework. However, for those cases in which indicators are less correlated with other indicators within their component, we consider PCF a good statistical approach for determining these indicators' contribution to the component scores while remaining objective.

The formula below reflects indicator aggregation into a principal component, where c = Social Progress Index component and i = indicator.

Formula 1
$$\text{Component value}_c = \sum_i (w_i * \text{indicator}_i)$$

Our choice of PCF as the basis for aggregation at the component level was also influenced by the quality and quantity of data available on social progress. For PCF to be valid, each indicator must be relatively free of measurement error (Dunteman, 1989). Thus, it should precisely measure what it was intended to measure and do so consistently across countries and over time. Our design principles and the data we use aim to meet this requirement.

To convert each principal component into a component score on a scale of 0 to 100, we use a simple min-max formula, where X = component value and j = country.

Formula 2

$$\text{Component score}_c = \frac{(X_j - \text{Worst Case})}{(\text{Best Case} - \text{Worst Case})} * 100$$

As noted in the previous section, only countries that are ‘ranked’ or ‘partial’ are included in the country sample that determines PCF-generated weights. For countries that do not have enough data to calculate at least nine components, we use the weights generated by the original country sample to calculate component scores when possible. If a country outside the ‘ranked’ and ‘partial’ country sample has enough data to calculate all four components within a dimension, we proceed to calculate dimension scores as well.

D. Dimension Scores

Each dimension is the arithmetic average of the four components that make up that dimension. Countries that do not have scores in all four components of a given dimension do not have a dimension score. The formula for calculating a dimension score is below, where d = dimension and c = component.

Formula 3

$$\text{Dimension}_d = \frac{1}{4} \sum_c \text{Component score}_c$$

E. Index Scores

The overall Social Progress Index score is calculated as the arithmetic average of the three dimensions. Countries that do not have scores in all three dimensions do not have a Social Progress Index score. The formula for calculating a Social Progress Index score is below, where d = dimension.

Formula 4

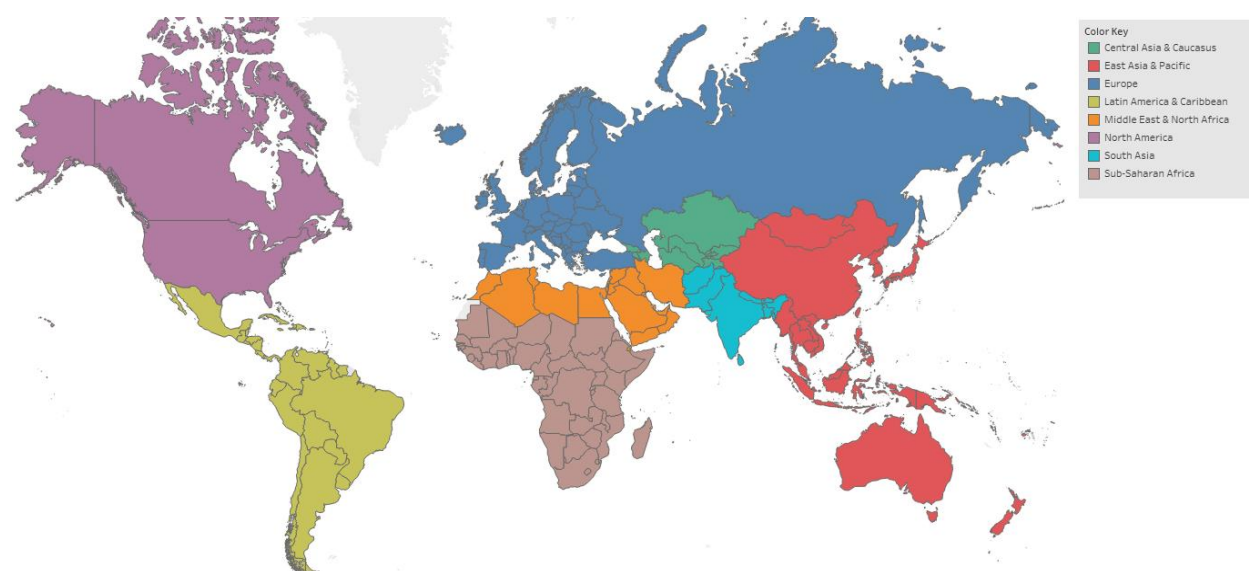
$$\text{Social Progress Index score} = \frac{1}{3} \sum_d \text{Dimension}_d$$

F. World Score Calculation, Regional Aggregations

In order to provide the most accurate assessment of world performance on social progress, we account for countries’ populations as well as the statistical interaction between indicators. Therefore, to calculate the world Social Progress Index score, we first aggregate indicators into population-weighted values using data from all ‘ranked’ and ‘partial’ countries. We then apply the PCF weights generated by the original ‘ranked’ and ‘partial’ country sample to derive component scores and proceed, as noted above, to calculate dimension scores and the overall Social Progress Index score. It is important to note that this method differs from calculating a population-weighted average of country scores and, in effect, treats the world as a country.

We use the same approach to calculate social progress scores for regions and blocs. We do so by aggregating indicators into population-weighted values using data from all ‘ranked’ and ‘partial’ countries belonging to the respective regions or blocs. In addition to the eight regions shown in Figure 4, we calculate scores for the European Union (27) and the African Union. Country membership of these regions and blocs is held constant throughout 1990–2023.

Figure 4 / Regional classification



Structural Integrity of the Index

Throughout the indicator assessment and calculation process, we conduct statistical tests to ensure the structural integrity of the Social Progress Index Time Series. Our goal is that no single indicator disproportionately influences a country's component, dimension, or overall score, and that the indicators within each component are statistically related and compatible. To achieve this, within a component, we look at correlations between indicators, Cronbach's alpha, and the Kaiser-Meyer-Olkin measure of sampling adequacy.

In understanding the correlations between indicators, we strive for indicators within components to show correlations between $r=0.25$ and $r=0.92$ (absolute values). Indicators with correlations below 0.25 generally show little statistical relation to other indicators. Likewise, if two indicators are too highly correlated (i.e., $r>0.92$), we find that the indicators overlap too much in concept and become statistically redundant, which would place too much weight on the concepts they are capturing within the component; we generally remove one of these indicators as well. For the Social Progress Index Time Series, correlation coefficients range from 0.20 to 0.92, and all correlations are statistically significant at the 1% level.

We assess the internal consistency of indicators within each component using Cronbach's alpha, calculated after transforming the indicators and imputing missing values. Higher alpha values generally indicate greater internal consistency among the indicators. An alpha of at least 0.7 is commonly used as a guideline for acceptable internal consistency (Bland and Altman, 1997). As shown in Figure 5, all twelve components meet this threshold.

We also calculate the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy to assess whether the pattern of correlations among indicators is suitable for factor analysis (Manly, 2004). KMO values range from 0 to 1, with higher values indicating greater sampling adequacy; 0.5 is commonly used as a minimum threshold. As shown in Figure 5, the KMO value for every component exceeds this threshold. Together, these diagnostics support the internal consistency of the indicator groupings and their suitability for factor analysis.

Figure 5 / Cronbach's Alpha and Mean KMO values for Each Component

		Cronbach's Alpha	Mean KMO
Basic Needs	Nutrition & Medical Care	0.96	0.91
	Water & Sanitation	0.97	0.87
	Housing	0.96	0.76
	Safety	0.71	0.65
Foundations of Wellbeing	Basic Education	0.89	0.80
	Information and Communications	0.76	0.65
	Health	0.90	0.79
	Environmental Quality	0.76	0.66
Opportunity	Rights & Voice	0.95	0.88
	Freedom & Choice	0.83	0.77
	Inclusive Society	0.89	0.79
	Advanced Education	0.82	0.71

Limitations

The Social Progress Index Time Series measures countries' performance at the national level over the 1990–2023 period on a certain set of indicators that meet the standards and concepts represented by the Social Progress Index framework. It is an important tool that can be used to compare countries' performance on social progress over a longer period of time to identify best practices and to target areas which need improvement or from which other countries can learn. While the Index framework captures the multidimensional concepts underlying social progress, we are limited in how we measure these concepts by the data available from public sources. Country performance is dependent upon the data published by other sources, and we defer to these sources to respond to country inquiries about the different aspects of social progress.

We also recognize that the indicators in many of the topics we measure are not perfect. We strive to ensure each indicator meets our standards of quality; however, some issues are much more complex than the numbers we use to communicate them. This challenge is greater for a time series, for which historical data availability is an additional essential consideration. It is also important to note that the Social Progress Index Time Series is different from the annual global Social Progress Index, particularly with respect to the selected indicators and data treatments. Therefore, the results of these two indexes are not directly comparable in terms of scores and rankings.

Conclusion

The Social Progress Index Time Series provides an updated account of countries' social and environmental outcomes from 1990 to 2023. It can be used as a tool to compare countries' development over time across the Social Progress Index and its dimensions and components. The 0–100 scale gives countries a realistic benchmark rather than an abstract measure, which allows us to track absolute, not just relative, performance of countries over time within each component, dimension, and the overall Index.

The Social Progress Index Time Series results are a starting point for many different avenues of research into how countries have progressed over time and whether conclusions can be drawn about the overall relationships between social progress and economic growth. We plan to update the Index regularly to provide data that will support many research efforts leading to a greater understanding of the interplay between social progress, economic development, and environmental sustainability.

Bibliography and Further Reading

- Bland, J. M., and D. G. Altman. "Cronbach's Alpha." *BMJ (Clinical Research Ed.)* 314, no. 7080 (1997): 572.
- Dunteman, George H. *Principal Components Analysis*. SAGE, 1989.
- Fleurbaey, M. and D. Blanchet. *Beyond GDP: Measuring Welfare and Assessing Sustainability*, Oxford University Press, 2013.
- Manly, Bryan F. J. *Multivariate Statistical Methods: A Primer*. Third Edition. Chapman and Hall/CRC, 2004.

For further reading on social progress, development, and composite indices, we recommend:

- Bishop, Matthew, and Michael Green. *The Road from Ruin: How to Revive Capitalism and Put America Back on Top*. New York: Crown Business, 2011.
- Delgado, Mercedes, Christian Ketels, Michael E. Porter, and Scott Stern. *The Determinants of National Competitiveness*. Working Paper. National Bureau of Economic Research, July 2012. <http://www.nber.org/papers/w18249>.
- Fehder, Daniel, Michael E. Porter, and Scott Stern. "The Empirics of Social Progress: The Interplay between Subjective Well-Being and Societal Performance." *AEA Papers and Proceedings*, 108 (2018): 477-482.
- Furman, Jeffrey L., Michael E. Porter, and Scott Stern. "The Determinants of National Innovative Capacity." *Research Policy* 31, no. 6 (2002): 899-933.
- Gehl, Katherine M., and Michael E. Porter. "Why Competition in the Politics Industry is Failing America." Harvard Business School, 2017.
<https://www.hbs.edu/competitiveness/Documents/why-competition-in-the-politics-industry-is-failing-america.pdf>
- Joint Research Centre-European Commission. Handbook on constructing composite indicators: methodology and user guide. OECD Publishing, 2008.
- Kuznets, Simon. "Economic Growth and Income Inequality." *The American Economic Review* 45, no. 1 (1955): 1-28.
- Porter, Michael E. *Competitive Advantage of Nations: Creating and Sustaining Superior Performance*. Simon and Schuster, 2011.
- Porter, Michael E. *Competition in Global Industries*. Harvard Business Press, 1986.
- Sen, Amartya Kumar. *Commodities and Capabilities*. North-Holland Publ., 1985.
- Sen, Amartya Kumar. *Development as Freedom*. Oxford University Press, 1999.
- Stevenson, Betsey, and Justin Wolfers. *Economic growth and subjective well-being: Reassessing the Easterlin paradox*. No. w14282. National Bureau of Economic Research, 2008.
- Stiglitz, Joseph, Amartya Sen, and Jean-Paul Fitoussi. "The measurement of economic performance and social progress revisited." *Reflections and overview. Commission on the Measurement of Economic Performance and Social Progress, Paris* (2009).

Appendix A: Indicator Definitions and Sources

All data used to calculate the Social Progress Index Time Series reflect the most recent data available as of July 31, 2026.

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Basic Needs				
Nutrition and Medical Care	Infectious diseases burden	DALYs/100,000 people	Age-standardized rate of disability-adjusted life years (DALYs) per 100,000 people, calculated by aggregating DALYs across the following cause groups: HIV/AIDS and sexually transmitted infections; neglected tropical diseases and malaria; enteric infections; respiratory infections and tuberculosis; and other infectious diseases.	Institute for Health Metrics and Evaluation, GBD 2023 ; SPI calculations.
	Child mortality	Deaths/1,000 live births	Probability of dying between birth and exactly 5 years of age, expressed per 1,000 live births.	UN Inter-agency Group for Child Mortality Estimation
	Child stunting	% of children under 5 years of age	Stunting prevalence among children under 5 years of age.	Institute of Health Metrics and Evaluation, SDG dataset*
	Diet low in fruits and vegetables	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of exposure to a diet low in fruits and vegetables, as measured by the summary exposure value (SEV). Calculated as an arithmetic average of two indicators, Diet low in fruits, and Diet low in vegetables.	Institute for Health Metrics and Evaluation, GBD 2023 ; SPI calculations.
	Maternal mortality	Deaths/100,000 live births	Maternal mortality ratio (maternal deaths among women aged 15–49 years per 100,000 live births).	Institute of Health Metrics and Evaluation, SDG dataset*
	Nutritional deficiencies burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) due to nutritional deficiencies per 100,000 people.	Institute for Health Metrics and Evaluation, GBD 2023
Water and Sanitation	Unsafe water exposure	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of unsafe basic water services as measured by the summary exposure value (SEV).	Institute for Health Metrics and Evaluation, GBD 2023
	Unsafe sanitation exposure	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of unsafe basic sanitation services as measured by the summary exposure value (SEV).	Institute for Health Metrics and Evaluation, GBD 2023
	Unsafe water, sanitation and hygiene burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) rate attributable to unsafe water, sanitation, and hygiene per 100,000 people.	Institute for Health Metrics and Evaluation, GBD 2023
	Unsafe hygiene exposure	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of no access to a handwashing facility, as measured by the summary exposure value (SEV).	Institute for Health Metrics and Evaluation, GBD 2023
Housing	Household air pollution burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) rate caused by household air pollution from solid fuels per 100,000 people. Household air pollution includes exposure to particulate matter less than 2.5 microns in diameter (PM2.5) due to the use of solid fuels for cooking, including coal, charcoal, wood, agricultural residue, and animal dung.	Institute for Health Metrics and Evaluation, GBD 2023
	Access to electricity	% of population	The percentage of the population with access to electricity.	World Bank, World Development Indicators
	Prevalence of cooking with coal/biomass	% of households	Household prevalence (%) of cooking with coal or biomass.	Institute for Health Metrics and Evaluation, GBD 2023 Covariates

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Safety	Interpersonal violence burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) per 100,000 people from interpersonal violence. Interpersonal violence is defined as death or disability from intentional use of physical force or power, threatened or actual, from another person or group not including military or police forces.	Institute for Health Metrics and Evaluation, GBD 2023
	Transport-related injuries	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) due to transport injuries (per 100,000 people).	Institute for Health Metrics and Evaluation, GBD 2023
	Intimate partner violence exposure, female	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of intimate partner violence against females as measured by the summary exposure value (SEV).	Institute for Health Metrics and Evaluation, GBD 2023
	Political killings and torture by governments	0 = high violence; 1 = low violence	Indicator termed "Physical violence index" focuses on the extent to which physical integrity is respected. It understands physical integrity as freedom from political killings and torture by the government. Among the set of civil liberties, these liberal rights are the most relevant for political competition and accountability. The index is based on indicators that reflect violence committed by government agents and that are not directly referring to elections.	Varieties of Democracy (V-Dem), Dataset Version 16
	Political violence by non-state actors	0 = no violence; 4 = high violence	Indicator termed "Political violence" responds to the question of how often have non-state actors used political violence against persons in a particular year. Political violence is understood as the use of physical force to achieve political objectives by non-state actors. The restriction to political objectives excludes profit-driven crime-related violence, for instance. Non-state actors refer to individuals or entities that are not formally part of the state.	Varieties of Democracy (V-Dem), Dataset Version 16
Foundations of Wellbeing				
Basic Education	Equal access to quality education	0 = unequal; 4 = equal	Country experts' aggregated evaluation of the question, "To what extent is high quality basic education guaranteed to all, sufficient to enable them to exercise their basic rights as adult citizens?"	Varieties of Democracy (V-Dem), Dataset Version 16
	Gender parity in secondary educational attainment	Parity ratio (0 = maximum disparity; 1 = full parity)	Ratio of the lower to the higher secondary educational attainment rate among women and men aged 25 and older. The attainment rate is the share of each group with at least some secondary education. It is calculated as the lower of the female and male attainment rates divided by the higher rate. A value of 1 indicates full gender parity; lower values indicate greater disparity, regardless of which group has the higher attainment rate.	United Nations Development Programme (UNDP) Human Development Data ; SPI calculations.
	Secondary educational attainment	% of population aged 25+	Percentage of people aged 25 and older who have attained at least some secondary education. The indicator is calculated as the arithmetic mean of the corresponding female and male attainment rates.	United Nations Development Programme (UNDP) Human Development Data ; SPI calculations.
	Population with no education	Proportion of population aged 25–29	Proportion of population (aged 25–29) with 0 years of education. The indicator is calculated as the arithmetic mean of the corresponding female and male values.	Institute for Health Metrics and Evaluation, Educational Attainment 1970–2030 ; SPI calculations.

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Information and Communications	Internet users	% of population	The estimated number of Internet users out of the total population, using the Internet from any device in the last three months.	International Telecommunication Union
	Telephone subscriptions	Subscriptions/100 people	Combined measure of fixed-line and mobile telephone subscriptions per 100 people. It is calculated as a weighted average using complementary, time-varying weights to reflect the transition from fixed-line to mobile telephony over the measurement period. Fixed-line subscriptions receive greater weight in earlier years, when landlines were the predominant form of telephone connectivity, while the weight assigned to mobile subscriptions increases progressively over time. The two weights always sum to 100%; fixed-line subscriptions receive full weight in 1990–1994, and mobile subscriptions receive full weight from 2019 onwards.	International Telecommunication Union ; SPI calculations.
	Government censorship of the media	0 = full censorship; 4 = no censorship	Indicator termed "Government censorship effort - Media" is country experts' aggregated evaluation of the question, "Does the government directly or indirectly attempt to censor the print or broadcast media?" Indirect forms of censorship might include politically motivated awarding of broadcast frequencies, withdrawal of financial support, influence over printing facilities and distribution networks, selected distribution of advertising, onerous registration requirements, prohibitive tariffs, and bribery. The question does not focus on censorship of non-political topics such as child pornography, statements offensive to a particular religion, or defamatory speech unless this sort of censorship is used as a pretext for censoring political speech.	Varieties of Democracy (V-Dem), Dataset Version 16
	Female journalists	% of journalists	Estimated percentage (%) of journalists in the print and broadcast media who are women.	Varieties of Democracy (V-Dem), Dataset Version 16
Health	Life expectancy at 65	years	The average number of years that a person of 65 years of age could expect to live.	United Nations, Department of Economic and Social Affairs, Population Division
	Non-communicable diseases burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) attributable to non-communicable diseases per 100,000 people.	Institute for Health Metrics and Evaluation, GBD 2023
	Equal access to quality healthcare	0 = unequal; 4 = equal	Country experts' aggregated evaluation of the question, "To what extent is high quality basic healthcare guaranteed to all, sufficient to enable them to exercise their basic political rights as adult citizens?"	Varieties of Democracy (V-Dem), Dataset Version 16
	Access to essential health services	0 = low; 100 = high	Coverage of essential health services, as defined by the Universal Health Coverage (UHC) service coverage index which is based on effective coverage of 23 indicators that cover population-age groups across the entire life course.	Institute of Health Metrics and Evaluation, SDG dataset*
Environmental Quality	Outdoor air pollution burden	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) resulting from ambient particulate matter pollution (including emissions from industrial activity, households, cars and trucks) per 100,000 people.	Institute for Health Metrics and Evaluation, GBD 2023
	Lead exposure	DALYs/100,000 people	Age-standardized Disability-Adjusted Life Years (DALYs) attributable to lead exposure per 100,000 people. Lead exposure is defined as acute exposure, measured by micrograms of lead per deciliter of blood, and chronic exposure, measured by micrograms of lead per gram of bone.	Institute for Health Metrics and Evaluation, GBD 2023
	Particulate matter (PM2.5) pollution	Mean annual exposure (µg/m³)	Population-weighted mean levels of fine particulate matter smaller than 2.5 microns in aerodynamic diameter (PM2.5), which are capable of penetrating deep into the respiratory tract and causing severe health damage.	World Bank, World Development Indicators
	Exposure to high temperature	Risk-weighted prevalence (0 = low; 100 = high)	Risk-weighted, age-standardized prevalence of population exposure to temperatures above the theoretical minimum-risk exposure level (the temperature associated with the lowest mortality risk), as measured by the summary exposure value (SEV).	Institute for Health Metrics and Evaluation, GBD 2023

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Opportunity				
Rights and Voice	Political rights	1 = high degree; 7 = low degree	Aggregate rating of the degree of political rights enjoyed by individuals on a scale from 1 (greatest degree of political rights) to 7 (smallest degree of political rights). It is derived from assessments of the electoral process, political pluralism and participation, and the functioning of government.	Freedom House
	Freedom of peaceful assembly	0 = low; 4 = high	Country experts' aggregated evaluation of the question, "To what extent do state authorities respect and protect the right of peaceful assembly?". This question focuses on the ability to assemble publicly in practice. An assembly is understood as an intentional and temporary presence of a number of individuals in a public place, for a common expressive purpose.	Varieties of Democracy (V-Dem), Dataset Version 16
	Freedom of discussion	0 = low; 1 = high	Country experts' aggregated evaluation of the question, "Are citizens able to openly discuss political issues in private homes and in public spaces?". This indicator specifies the extent to which citizens are able to engage in private discussions, particularly on political issues, in private homes and public spaces (restaurants, public transportation, sports events, workplaces etc.) without fear of harassment by other members of the polity or the public authorities. The indicator focuses on restrictions by the government and its agents but also cultural restrictions or customary laws that are enforced by other members of the polity, sometimes in informal ways.	Varieties of Democracy (V-Dem), Dataset Version 16
	Women's rights and liberties	0 = low; 1 = high	Country experts' aggregated evaluation of the question, "Do women have the ability to make meaningful decisions in key areas of their lives?". The indicator is originally termed "Women civil liberties index", and it understands women's civil liberties to include freedom of domestic movement, the right to private property, freedom from forced labor, and access to justice.	Varieties of Democracy (V-Dem), Dataset Version 16
	Freedom of religion	0 = low; 4 = high	Country experts' aggregated evaluation of the question, "Is there freedom of religion?". The indicator specifies the extent to which individuals and groups have the right to choose a religion, change their religion, and practice that religion in private or in public as well as to proselytize peacefully without being subject to restrictions by public authorities.	Varieties of Democracy (V-Dem), Dataset Version 16
Freedom and Choice	Satisfied demand for contraception	% demand satisfied by any modern method	The percentage of total demand for family planning among married or in-union women aged 15 to 49 that is satisfied with any modern method.	United Nations Population Division, Family Planning Indicators
	Early marriage	% of women aged 15–19	The percentage of women aged 15–19 years who are married or in-union.	United Nations Population Division, Family Planning Indicators
	Public sector corruption	0 = low corruption; 1 = high corruption	The indicator is termed "Public sector corruption index", and it responds to the question, "To what extent do public sector employees grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?"	Varieties of Democracy (V-Dem), Dataset Version 16
	Vulnerable employment	% of total employment	Contributing family workers and own-account workers as a percentage of total employment.	World Bank, World Development Indicators
	CSOs repression	0 = high repression; 4 = low repression	Country experts' aggregated evaluation of the question, "Does the government attempt to repress civil society organizations (CSOs)?"	Varieties of Democracy (V-Dem), Dataset Version 16

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Inclusive Society	Equal protection of rights across social groups	0 = unequal; 1 = equal	Indicator termed "Equal protection index", it focuses on the question, "How equal is the protection of rights and freedoms across social groups by the state?"	Varieties of Democracy (V-Dem), Dataset Version 16
	Equal access to power	0 = unequal; 1 = equal	Indicator termed "Equal access index", it focuses on the question, "How equal is access to power?"	Varieties of Democracy (V-Dem), Dataset Version 16
	Equal access to public services	0 = unequal; 1 = equal	Composite measure of the extent to which basic public services (including public order and security, primary education, clean water, and healthcare) are distributed equally across social groups, genders, socioeconomic positions, political groups, and urban and rural populations. It is calculated using principal component factor analysis to aggregate five underlying indicators. Higher values indicate more equal access to public services across these population groups.	Varieties of Democracy (V-Dem), Dataset Version 16 ; SPI calculations.
	Power distributed by sexual orientation	0 = unequal distribution; 3 = equal distribution	Country experts' aggregated evaluation of the question, "To what extent is political power distributed according to sexual orientation?". This indicator contrasts (A) the political power of heterosexuals and lesbian, gay, bisexual, and transgender (LGBT) members of the polity who are not open about their sexuality with (B) the political power of LGBT members of the polity who are open about their sexuality: (A) is referred to as "heterosexual" while (B) as "LGBT". The political power of these two groups is compared per person, i.e. relative to their share of the population (as near as this can be estimated).	Varieties of Democracy (V-Dem), Dataset Version 16
Advanced Education	Academic freedom	0 = low; 1 = high	Country experts' aggregated evaluation of the question, "To what extent is academic freedom respected?" Academic freedom is understood as the right of academics, without restriction by prescribed doctrine, to freedom of teaching and discussion, freedom in carrying out research and disseminating and publishing the results thereof, freedom to express freely their opinion about the institution or system in which they work, freedom from institutional censorship and freedom to participate in professional or representative academic bodies. The indicator is designed to provide an aggregated measure that captures the de facto realization of academic freedom, including the degree to which higher-education institutions are autonomous.	Varieties of Democracy (V-Dem), Dataset Version 16
	Advanced educational attainment	Proportion of population aged 25–29	Proportion of population (aged 25–29) with 12–18 years of education. The indicator is calculated as the arithmetic mean of the corresponding female and male values.	Institute for Health Metrics and Evaluation, Educational Attainment 1970–2030 ; SPI calculations.
	Gender parity in advanced educational attainment	Parity ratio (0 = maximum disparity; 1 = full parity)	Ratio of the lower to the higher advanced educational attainment rate among women and men aged 25–29. Advanced educational attainment is defined as the proportion of each group with 12–18 years of education. The indicator is calculated by dividing the lower of the female and male attainment rates by the higher rate. A value of 1 indicates full gender parity; lower values indicate greater disparity, regardless of which group has the higher attainment rate.	Institute for Health Metrics and Evaluation, Educational Attainment 1970–2030 ; SPI calculations.
	Expected years of tertiary schooling	years	Number of years a person of tertiary school entrance age can expect to spend within tertiary education. For a child of a certain age, the school life expectancy is calculated as the sum of the age specific enrolment rates for the levels of education specified. The part of the enrolment that is not distributed by age is divided by the school-age population for the level of education they are enrolled in, and multiplied by the duration of that level of education. The result is then added to the sum of the age-specific enrolment rates. The indicator seeks to show the overall level of development of an educational system in terms of the average number of years of schooling that the system offers to the eligible population, including those who never enter school.	UN Educational, Scientific, and Cultural Organization Institute for Statistics

Dimension/ Component	Indicator name	Unit of measurement	Definition	Source
Contextual indicator	Gross Domestic Product (GDP) per capita	International dollars per capita	GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2021 international dollars.	World Bank, World Development Indicators

* Note: The IHME SDG dataset is no longer available on-line.

Appendix B: Indicator Boundaries and PCF-Derived Weights

Component	Indicator name	Best case	Best case note	Worst case	Worst case note	Unscaled weights	Scaled weights
Basic Needs							
Nutrition and Medical Care	Infectious diseases burden	0	theoretical best	96505.53	worst recorded	0.191	0.174
	Child mortality	0	theoretical best	489.29096	worst recorded	0.194	0.176
	Child stunting	0	theoretical best	65.775326	worst recorded	0.181	0.164
	Diet low in fruits and vegetables	0	theoretical best	74.12689	worst recorded	0.159	0.145
	Maternal mortality	0	theoretical best	673.6763	99 th percentile cap	0.187	0.169
	Nutritional deficiencies burden	0	theoretical best	3661.078	99 th percentile cap	0.189	0.172
Water and Sanitation	Unsafe water exposure	0	theoretical best	88.26601	worst recorded	0.260	0.250
	Unsafe sanitation exposure	0	set by data source	95.4902	worst recorded	0.260	0.250
	Unsafe water, sanitation and hygiene burden	0	theoretical best	23884.44	worst recorded	0.257	0.247
	Unsafe hygiene exposure	0	set by data source	91.93117	worst recorded	0.263	0.253
Housing	Household air pollution burden	0	theoretical best	11235.632	worst recorded	0.348	0.335
	Access to electricity	100	theoretical best	0.53389853	worst recorded	0.342	0.329
	Prevalence of cooking with coal/biomass	0	theoretical best	0.9999949	worst recorded	0.350	0.337
Safety	Interpersonal violence burden	0	theoretical best	7492.997	worst recorded	0.267	0.183
	Transport-related injuries	0	theoretical best	6617.014	worst recorded	0.326	0.223
	Intimate partner violence exposure, female	0	theoretical best	45.76904	worst recorded	0.244	0.167
	Political killings and torture by governments	1	set by data source	0	set by data source	0.318	0.218
	Political violence by non-state actors	0	set by data source	4	set by data source	0.305	0.209
Foundations of Wellbeing							
Basic Education	Equal access to quality education	4	set by data source	0	set by data source	0.256	0.223
	Gender parity in secondary educational attainment	0.995	theoretical cap	0.1264474	worst recorded	0.298	0.259
	Secondary educational attainment	100	theoretical best	2.758101	worst recorded	0.303	0.264
	Population with no education	0	theoretical best	0.7767155	99 th percentile cap	0.292	0.254
Information and Communications	Internet users	100	theoretical best	0	worst recorded	0.374	0.295
	Telephone subscriptions	100	theoretical best	0.0197077	worst recorded	0.377	0.297
	Government censorship of the media	4	set by data source	0	set by data source	0.215	0.170
	Female journalists	60	theoretical cap	4	worst recorded	0.302	0.238
Health	Life expectancy at 65	24.3747	best recorded + 5% buffer	7.919	cap – winsorized outliers	0.308	0.270
	Non-communicable diseases burden	11621	best recorded + 5% buffer	41444.27	cap – winsorized outliers	0.267	0.234
	Equal access to quality healthcare	4	set by data source	0	set by data source	0.258	0.227
	Access to essential health services	100	theoretical best	12.25225	worst recorded	0.307	0.269
Environmental Quality	Outdoor air pollution burden	0	theoretical best	4660.205	99 th percentile cap	0.345	0.271
	Lead exposure	0	theoretical best	3001.77	99 th percentile cap	0.263	0.207
	Particulate matter (PM2.5) pollution	0	theoretical best	72.02703	99 th percentile cap	0.332	0.261
	Exposure to high temperature	0	theoretical best	88.85033	99 th percentile cap	0.331	0.261
Opportunity							
Rights and Voice	Political rights	1	set by data source	7	set by data source	0.224	0.203
	Freedom of peaceful assembly	4	set by data source	0	set by data source	0.227	0.206
	Freedom of discussion	1	set by data source	0	set by data source	0.229	0.208
	Women's rights and liberties	1	set by data source	0	set by data source	0.221	0.200
	Freedom of religion	4	set by data source	0	set by data source	0.200	0.182

Component	Indicator name	Best case	Best case note	Worst case	Worst case note	Unscaled weights	Scaled weights
Freedom and Choice	Satisfied demand for contraception	100	theoretical best	0.1	worst recorded	0.257	0.200
	Early marriage	0	theoretical best	45.917	99 th percentile cap	0.274	0.214
	Public sector corruption	0	set by data source	1	set by data source	0.279	0.217
	Vulnerable employment	0	theoretical best	95.52983	worst recorded	0.279	0.217
	CSOs repression	4	set by data source	0	set by data source	0.194	0.151
Inclusive Society	Equal protection of rights across social groups	1	set by data source	0	set by data source	0.293	0.255
	Equal access to power	1	set by data source	0	set by data source	0.295	0.257
	Equal access to public services	1	based on the data source	0	based on the data source	0.280	0.244
	Power distributed by sexual orientation	3	based on the data source	0	set by data source	0.282	0.245
Advanced Education	Academic freedom	1	set by data source	0	set by data source	0.206	0.170
	Advanced educational attainment	0.9	theoretical cap	0.0178185	worst recorded	0.346	0.286
	Gender parity in advanced educational attainment	0.995	theoretical cap	0.0872033	worst recorded	0.317	0.263
	Expected years of tertiary schooling	5.5	theoretical cap	0.00429	worst recorded	0.340	0.281