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A Recent Assessment Tool and Further
Reflections on the Way Forward

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ABSTRACT

Country Statistical Capacity: A Recent Assessment Tool and Further Reflections on the Way Forward*

A country's statistical capacity takes an indispensable part in its development. We offer a comprehensive comparison between the World Bank's Statistical Performance Indicators and Index (SPI) and its predecessor, the Statistical Capacity Index (SCI) regarding different conceptual and empirical aspects. We further examine the relationships of the two indexes with some agriculture development indicators such as food security, food sustainability and productivity as well as other key indicators including headcount poverty, GDP per capita, and an SDG progress index. Our analysis employs the latest SPI data update in 2022, which were not available in previous studies. We also propose clear guidelines on how the SPI can be maintained and updated in the future to ensure that this process is transparent, replicable, safeguarded with high quality, and provides comparable data over time.

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"If you can't measure it, you can't improve it."

(Peter Drucker, management guru)

1. Introduction

A country's statistical capacity takes a central role in its development. Strong statistical capacity results in accurate measurement of economic activities (which provides timely inputs for policy response) and better information flows among various stakeholders (which enhances governance and efficiency). For poorer countries that often have weaker capacity, strong statistical capacity is particularly important, since it helps with monitoring poverty reduction and transparent uses of international aid.

The Statistical Capacity Index (SCI) is a tool developed by the World Bank in 2004 to assess improvements in country statistical capacity (World Bank, 2020). The SCI has been widely employed by different international and national agencies to measure progress with various development indicators including development trends (United Nations, 2016), or areas of statistical improvement in member countries (OIC, 2012), or tracking the Sustainable Development Goal (SDG) for child development (UNICEF, 2018). It also strongly contributes to the academic literature. We offer in Table 1 a brief overview of some selected academic studies in the past decade that employ the SCI. These studies highlight the importance of statistical capacity building (Sanga *et al.*, 2011; Tapsoba *et al.*, 2017) and its useful values for measuring economic growth and government institutions and governance (Henderson *et al.*, 2012; Sanderfur and Glassman, 2015; Angrist *et al.*, 2021; Hanson and Sigman, 2021; Hu and Yao, 2022; Martinez,

2022; Oechslin and Steiner, 2022) as well as country potential success with achieving the Millennium Development Goals (MDGs) (Jacob, 2017).[1]

Yet, the SCI has several key limitations (Dang *et al.*, 2023). First, the various aspects of the capacity of a national statistical system (NSS) that the SCI measures have fast become outdated. Since its launch, the SCI's methodology and coverage have remained the same, while technological advances with computing and data storage capacity have enabled NSSs to make significant advancements with data collection methods and better dissemination practices. While the international community's adoption of the SDGs raised the bar for NSSs regarding their capacity to produce higher-quality and more (frequent) data, the SCI includes no indicators of some important surveys (including the labor force surveys and establishment surveys). Second, the SCI focuses on poorer countries, which limits its relevance and application in an increasingly globalized world. Third, the conceptual principles and mathematical properties of the SCI leave much room for improvement. For example, key concepts underlying data production and data usage are not clearly defined, which may contribute to the misconceptions that all the stakeholders use similar standards in safe-guarding data quality and make similar efforts to ensure open data access. Technical concerns were also raised over the lack of a solid foundation behind the index's aggregation method (Ngaruko, 2008). These concerns have practical relevance. For example, the overall SCI scores of Cameroon and Sudan rose from 55.6 and 51.1 in 2015 to 68.9 and 63.3 in 2016, respectively, indicating a 24-percent improvement of statistical capacity over one year. This stands in sharp contrast with the common knowledge that a country's statistical capacity often improves incrementally.

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[1] The SCI was also used to study other topics such as country technological development (Anderson and Whitford, 2017) and the impacts of institutions (i.e., the slave trade) on development (Goren and Winkler, 2022). The selected studies in Table 1 cover a range of journals, which are generally considered to be top general interest economic journals and leading field journals in development, political science, and econometrics/ statistics.

The Statistical Performance Indicators and Index (SPI) represents an effort to address these limitations. While it was just recently introduced (World Bank, 2021; Dang *et al.*, 2023), the SPI has been adopted for measuring country statistical capacity in various policy reports on progress with the Sustainable Development Goals (SDGs) (Sachs *et al.*, 2021, 2022, and 2023). SPI indicators have been formally employed to measure country statistical capacity under the SDG monitoring framework (SDG indicator 17.18.1). Researchers have also started employing the SPI to study country statistical capacity, ranging from assessing and improving data openness and accessibility, the quality of NSSs, government use of data, and future official statistics (Radermacher, 2021; Asher *et al.*, 2022; Bersales, 2022; Ekhator-Mobayode and Hoogeveen, 2022) to better understanding national statistical offices' (NSOs) response to the Covid-19 pandemic (Wollburg *et al.*, 2022). The SPI was also used to study sector-specific topics such as food and agriculture statistics (Bizier *et al.*, 2022) and forecasting GDP growth (Gatti *et al.*, 2023).

We make several new contributions in this paper. First, we offer detailed comparison for the SPI with its predecessor, the SCI, regarding different conceptual and empirical aspects between the two indexes, including their coverage for the years, countries, indicators, data sources and dimensions (categories), conceptual framework, and development focus. Second, we further examine the relationships of the SPI and the SCI with some key agriculture development indicators such as food security, food sustainability and productivity as well as headcount poverty, GDP per capita, and an SDG progress index (Sachs *et al.*, 2023). To our knowledge, while previous studies briefly compare these two indexes (Lokshin, 2022; Dang *et al.*, 2023 and 2024), we offer the most comprehensive comparison between the SPI and the SCI in this paper.[2] Our analysis employs the

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[2] In particular, Lokshin (2022) only examines the SPI data in 2016. Cameron *et al.* (2021) compare an early version of the SPI with the SCI. Dang *et al.* (2023 and 2024) briefly examine a few features of the two indexes. These include the number of countries and time periods covered for 2020, the pillars, the aggregation methods, operational relevance,

latest SPI data update in 2022, which were not available in previous studies. Finally, moving forward we propose clear guidelines on how the SPI can be maintained and updated to ensure that the process is transparent, replicable, safeguarded with high quality, and provides data consistency over time.

We find that the SPI is built on clear conceptual and mathematical foundations, which distinguishes it from the SCI. The method used to aggregate the SPI is based on three-level nested weighting approach, compared to simple arithmetic weighting for the SCI. It is supported with data on up to 186 countries, for both poorer and richer countries, while the SCI covers only 145 poorer countries. The SPI offers a shorter time series but more recent data for the period 2016-2022, while the SCI covers the period 2004-2020. The SPI offers more than twice the number of indicators as that of the SCI, covers more data dimensions (including more agricultural data), and is more closely linked to the SDGs. The SPI also has a stronger correlation with most agricultural development indicators as well as other key indicators.

This paper consists of six sections. We provide in the next section an overview of the SPI, including its conceptual framework (Section 2.1) and a description of country SPI scores (Section 2.3). We subsequently compare the SPI and the SCI in Section 3 before further examining their relationships with key (agriculture) development indicators, such as undernourishment, food insecurity, food sustainability, agricultural productivity, headcount poverty, GDP per capita, and an SDG progress index. We offer some reflections on guidelines for maintaining and updating the SPI in policy discussion Section 5 and finally conclude in Section 6. Supplementary materials for further analysis is provided in Appendix A.

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some weaknesses, and volatility of the two indexes over 2016-2020. The comparison offers qualitatively similar findings but has a much more limited scope than what we offer in this paper.

2. Overview of SPI

2.1. Conceptual Framework

The SPI measures both less mature statistical systems and advanced systems, covers a country's entire NSS (rather than just the NSO as with some previous index), and provides countries with incentives to build modern statistical system. The SPI also takes a much broader view of statistics and places emphasis on the data system underpinning the statistical system. It is built on standard *desiderata* for a statistical index (i.e., simple, coherent, motivated, rigorous, implementable, replicable, incentive consistent), as well as clear conceptual and mathematical foundations. Importantly, the SPI is also open-data and open-code where users can freely access data and experiment with different adjustments to the index on the World Bank's website.[3]

Figure 1 shows five key pillars of a country's statistical performance. These are data use, data services, data products, data sources, and data infrastructure, which can be further disaggregated into 22 dimensions. This figure shows these pillars and dimensions in the form of a dashboard, which can help countries identify areas for development in their statistical system. We briefly describe these pillars below and provide more details on the dimensions of the SPI, including ongoing data work, in Dang *et al.* (2023).

Since the ultimate value of statistics is their use, the first pillar of the SPI is data use. The second pillar of the SPI is data services, which connect data users and producers and facilitate dialogue between them to meet user needs. The dialogue between users and suppliers in turn drives the design of statistical products, resulting in data products as the third pillar of the SPI. To create the products required, the statistical system needs to make use of a variety of sources from both

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[3] While measuring a country's statistical *capacity* is our ultimate goal, this task is difficult, if not impossible to implement at scale for all countries, given the typically unobserved inherent characteristics with an NSS. It is, however, relatively more straightforward to measure a country's statistical *performance* through objective and comparable indicators. This challenge is highlighted by a large number of indicators with missing data that we discuss later. Also see Cameron *et al.* (2021) for further discussion on this and the *desiderata*.

inside and outside the government, including both typical data collection methods like censuses and surveys, and also newer data sources such as administrative data, geospatial data, and citizen-generated data. The fourth pillar of the SPI is therefore data sources. For the cycle to be complete, capability needs continuous review and improvement to ensure that the required products, services and ultimately data are delivered. The fifth pillar of the SPI is therefore data infrastructure.

In summary, a successful statistical system offers highly valued and well-used statistical services, generates high quality statistical indicators that can also track progress for the SDGs, draws on all types of data sources relevant to the indicators that are to be produced, develops both hard infrastructure (including legislation, governance, standards) and soft infrastructure (including skills, partnerships), and has the financial resources to deliver.[4]

The SPI overall score is constructed using Cameron *et al.*'s (2021) nested weighting structure. Compared to other weighting schemes, this weighting structure offers properties such as symmetry, monotonicity, and subgroup decomposability.[5] Our statistical performance indicators have a three-level structure, and the SPI overall score is formed by sequentially aggregating the indicators at each level.

In particular, a score for each dimension within a given pillar, which, unless otherwise stated, is an unweighted average of the indicators within that dimension. A score for each pillar is subsequently computed as the average score of the dimensions in that pillar. The SPI overall score ($SPI.INDEX_{ct}$) for country c in time t is derived by taking the average across the five pillars as follows

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[4] Figure A.1 (Dang et al., 2023) offers an alternative visual description of the beneficial interactions of the different data pillars, which reinforce each other through stakeholders' partnership, joint accountability, better capacity, and meeting user needs. Improvements in performance can be represented as a virtuous data cycle that can become self-sustaining.

[5] It is based on Atkinson's (2003) counting method, which was employed to construct a social exclusion index (Chakravarty and D'Ambrosio, 2006) and to measure adjusted multi-dimensional poverty (Alkire and Foster, 2011).

$$SPI.INDEX_{ct} = \sum_{p=1}^{N_p} \frac{SPI.PIL_{ctp}}{N_p} \qquad (1)$$

where $SPI.PIL_{ctp}$ is the SPI pillar scores for country c in time t for the five pillars discussed above, and N_p is the number of pillars. The SPI overall score has a maximum score of 100 and a minimum of 0, with the maximum score indicating that a country has every single element that we measure in place and the minimum score indicating that none is in place. More detailed on constructing the SPI is offered in Dang *et al.* (2023).

2.2. SPI Country Scores

We map in Figure 2, Panel A the SPI scores in 2022 for all countries. To provide a visual aid with interpretations, the countries are color-coded into five groups based on their performance. Figure 2 shows much heterogeneity for countries in different geographical regions or at different income levels.

Consequently, we examine the SPI in more detail by region and income levels in Table 2.[6] Panel A of this table shows that there are large differences across regions. North America is the region with the strongest average SPI (93), which is followed by Europe and Central Asia (85), South Asia (67), Latin America and the Caribbean (65), East Asia and the Pacific (64), Middle East and North Africa (64), and Sub-Saharan Africa (58).

While Panel A notes the countries with the minimum and maximum scores for each region in parentheses, significant variation in the SPI overall score exists within regions. For instance, Figure A.1, Panel A (Appendix A) shows that in the Latin America and Caribbean region, Costa Rica is the country with the highest SPI score of 89, while Haiti, one of the lowest-scoring country

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[6] The regional and income group averages are unweighted country averages since we considered the unit of analysis to be the statistical system of a country.

in the region, earns a far lower score of 39.6. In Sub-Saharan Africa, the highest-scoring country is South Africa with a score of 82.4, while the lowest-scoring country is South Sudan with a score of 33.8. In the East Asia and Pacific region, the top-scoring country is Australia with a score of 89.9, while the lowest-scoring country is Nauru with a score of 32.6.

We further examine the SPI score by income levels in Table 2, Panel B. This panel shows that countries with a higher income level have a higher SPI score. In particular, high income countries have an average SPI of 81, which is followed by upper middle income countries (69), lower middle income countries (63), and low income countries (54). In terms of relative differences, the SPI score for high income countries is 19 percent higher than that of upper middle income, 29 percent higher than that of lower middle income countries, and 50 percent higher than that of low income countries. Overall, the Pearson correlation in 2022 between (logged) GDP per capita and the SPI overall score is 0.58.[7]

Figure 2, Panel B further plots the changes in the SPI scores over the period 2016-2022. Most countries improved their score over this period. Countries that improve the most (more than 10 points) spread across different regions and include Chile, India, Indonesia, and Russia. On the other hand, certain countries such as Yemen perform worse, perhaps due to its ongoing conflicts. More details on changes in the SPI scores by region and income levels are shown in Appendix A, Table A.2.

We provide full overall scores and pillar scores for all countries in 2022 in Table A.1 (Appendix A). Further analysis shows that all the SPI pillar scores are positively correlated with

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[7] We examine a related ranking of the SPI by World Bank's country lending status, which shows a similar positive correlation between country income level and its SPI score. In particular, the SPI scores are lowest for IDA (poorest) countries and highest for unclassified (high-income) countries. Similarly, dividing countries into FCS (Fragile and Conflict) status versus non-FCS status respectively yields the scores of 73 and 51 for the former and latter groups of countries (results are available upon request).

one another, but no perfect correlation exists, suggesting that each pillar provides additional information on a country's statistical performance. Compared to richer countries, low-income countries perform worse regarding data infrastructure and data sources (Dang *et al.*, 2023).[8] The SPI is publicly available at www.worldbank.org/spi.[9]

3. SPI and SCI

We turn next to comparing the SPI and the SCI. The SPI has several advantages over the SCI on both the conceptual and empirical fronts. In general, it better responds to the modern data landscape as well as countries' current operational needs to monitor and improve their statistical capacity. In particular, the SPI explicitly offers standard *desiderata* for a statistical index (i.e., simple, coherent, motivated, rigorous, implementable, replicable, incentive consistent) (Cameron *et al.*, 2021).

Table 3 compares various features of the SPI against those of the SCI. The SPI offers data from 2016 onwards, while the SCI covers the period 2004-2020 (row 1). Further examining the overlap period 2016-2020 for the two indexes, Table 3 shows that the SPI covers between 167 and 186 countries (which include both low-income and high-income countries and more countries over time due to better data sources), while the SCI focuses on 145 non-high-income countries only (row 2). The importance of the new addition of high-income countries should not be underemphasized, since for the first time, the SPI allows for comparison of the strengths of well-regarded NSSs with the less-developed institutions in lower- and middle-income countries as well

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[8] Lokshin (2022) provides further multivariate regression analysis on other determinants of SPI scores using the SPI score in 2016, which suggests that the SPI is positively and significantly correlated with the economic complexity index, more educated populations and more developed civil society (as measured by the voice and accountability index). Using similar control variables, we estimate richer panel data models, which show that these results largely do not hold when the country fixed effects are included (Appendix A, Tables A.5 and A.6). While further analysis is necessary, this highlights the importance of analyzing panel data models for more rigorous results.

[9] The associated code and underlying raw data are available at our project site https://github.com/worldbank/SPI.

as measurement of the differences between low- and high-income countries regarding their capability to produce and disseminate statistical products and services (Lokshin, 2022).[10]

Besides more country coverage, the SPI has better measurement power over distinguishing country scores. The SPI offers unique scores for all the countries (numbers in parentheses in row 2) during 2016-2020, which implies that the SPI can distinguish each and every country's statistical performance. In contrast, the SCI offers a unique value for just more than half of the countries it covers in the same period, implying that it can distinguish only around half of these countries regarding their statistical capacity.[11] Furthermore, the SPI offers 51 indicators, which is more than twice the 25 indicators provided by the SCI (row 3). The majority of the SPI indicators are collected on an annual basis (44 out of 51 indicators) and the SPI has a greater number of such indicators (44 indicators collected annually in the SPI versus 25 for the SCI), although as a percentage the SCI had a higher share collected annually (86% for the SPI versus 100% for the SCI).

The SPI and the SCI both follow the guiding principles that the source data should be publicly available and meet certain quality standards (e.g., as provided by the curators of the international databases). Consequently, the two indexes largely collected data from publicly available, international databases (around 80 percent) and collect the remaining data from NSO websites (row 4).

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[10] This is further seen in Figure A.2 (Appendix A), which plots the standardized distributions of the two indexes for each overlapping year and all the overlapping years. The SPI has bi-modal distributions since it covers both low-income and high-income countries. Its distributions also have longer tails than those of the SCI due to the more countries it covers.

[11] While the SPI offers complete data on all the indicators (and the index) for up to 186 countries, it also provides data on some indicators for 218 countries. Of the 51 indicators, 44 indicators are used to construct the SPI overall score. For each specific pillar of the SPI, there are 18 unique scores for Pillar 1 on data use. The data use indicator is coming solely from pillar 1.5 on data use by international organizations. For Pillar 2, there are 163 unique scores, whereas for Pillars 3 and 4 there are 172 unique scores. Lastly, there are 20 unique scores for pillar 5.

Conceptually, the SPI has much clearer conceptual framework and it is built on a clear mathematical foundation with three-level nested weighting structure that offers desirable properties for an index such as symmetry, monotonicity, and subgroup decomposability (Cameron *et al.,* 2021). These features are not available with the SCI (rows 5-7). Specifically, the SPI consists of five pillars of data use, data services, data products, data sources, and data infrastructure, which provide an updated characterization of a modern NSS. In contrast, the SCI offers zero coverage for the first two dimension (i.e., data use, data services) and only covers the three latter dimensions of the SPI (i.e., data products, data sources, and data infrastructure) (row 8; also see Dang *et al.* (2024) for more discussion).

Regarding agricultural data, the SPI has more indicators related to agriculture than the SCI. In particular, the SCI only looks at the availability of an agriculture census and the availability of child stunting indicators. The SPI includes those, but also covers the availability of agricultural surveys. Furthermore, it additionally covers all the indicators related to agriculture, food, and nutrition under SDG number 2 (row 9).

Finally, the SPI cover indicators related to the SDGs, while the SCI cover indicators related to the (older) MDGs (row 10). Specifically, the SPI offers 22 indicators related to the SDGs, with two indicators provided by the World Bank. We provide a mapping of the SPI indicators to the SDG indicators in Table A.3 (Appendix A).

As a further check, we compare the volatility of the SPI and the SCI over time. Since country statistical capacity typically takes time to build up and so tends to change gradually, rather than abruptly (Ngaruko, 2008; Cameron *et al.*, 2021), an index is generally preferable if it has less volatility.[12] For the overlapping years, 2016 to 2020, the SCI has slightly more volatility during

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[12] This can be compared to the slow evolution of state capacity over time (see, e.g., Glaeser et al. (2004) and Savoia and Sen (2019)).

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this period with an average standard deviation of 4.2, while the corresponding figure for the SPI is 3.9. For a visual illustration, Figure 3 plots the relationship between the overall scores in 2016 and 2020 for the two indexes and some randomly selected countries. Regressing the 2020 SPI scores on the 2016 SPI scores provides an R^2 of 0.88, which is stronger than that of 0.73 for the SCI (top left corner panel). Some countries are shown to have more fluctuations with their SCI scores than the SPI scores in this period. In particular, El Salvador, Ethiopia, Mexico, Mongolia, and Tunisia stand out. Some countries including Chile, Kazakhstan, Mexico, Nicaragua, and Senegal even show opposite trends for the two indexes.

While in-depth analysis is necessary to offer further insights into these countries, Mexico offers an illustrative case study. The country's National Institute of Statistics and Geography (INEGI) offers high-quality data and statistics, contributing to the country's maximal score on data use and excellent SPI scores on data services, data products and data sources (Appendix A, Table A.1). Various factors are regarded as conducive to INEGI's success, such as its full technical and management autonomy from the government, democratic political environment, and the willingness to adopt international standards (Dargent *et al.*, 2018; SDSN TReNDS and Open Data Watch, 2023). This is consistent with the finding that an NSO's independence has a positive correlation with its SPI score (World Bank, 2021).

4. Relationship with Key Agricultural Development Indexes

Development practitioners are typically interested in how well the statistical tools can help them evaluate a country's performance in specific sectors. We thus examine the correlations between the SPI, the SCI and five common agriculture-related indexes produced by different organizations. The aim in this section is to examine whether the indicators of statistical capacity and performance are correlated with important agricultural development outcomes. And, if both

are correlated, to examine if one is consistently more correlated with outcomes of interest. The outcomes include Food and Agriculture Organization's prevalence rates of undernourishment and severe food insecurity (FAOStat, 2023), the Economist's global food security index (Economist, 2022) and food sustainability index (Economist, 2021), and the United States Department of Agriculture's international agricultural productivity index (USDA, 2022). We also add three other key development indicators, including the headcount poverty rate (using the daily $2.15 poverty line), GDP per capita, and an SDG progress index (Sachs *et al.*, 2023).

The results, plotted in Figure 4, show that the SPI has a stronger Pearson correlation with all the indexes except for the USDA's agricultural productivity index where its correlation is almost the same as that of the SCI. Notably, the SPI's correlations with six indexes are statistically significant different from those of the SCI (Appendix A, Table A.4).

5. Further Reflections on the Way Forward

We propose a set of rules that will be followed by the World Bank's SPI team to update the SPI over time. These rules cover the quality control of new releases, the frequency and timing of data releases, the processes regarding updating and adding of indicators, versions of the SPI, and countries' recourse. While these rules could be further improved in the future, setting up these rules can offer both transparency (regarding how the overall index scores can be expected to evolve as new data becomes available) and data comparability over time.

We also follow the guiding principle that data gaps affecting various dimensions of the SPI framework will be addressed in partnership with the international community. This will also involve developing new methodologies and constructing new data sets for measuring areas not yet measured. The result will be to produce a new set of indicators to include as part of the SPI, including in the SPI overall score, pillar scores, and dimension scores.

The adaptable and dynamic nature of the SPI framework is one of key features and innovations over existing approaches. However, any changes to or additions of the indicators is expected to affect the comparability of the SPI overall score, pillar scores, and dimension scores from one vintage of the data to the next. If these changes are not implemented well, this could potentially diminish the utility of the index scores.

We discuss next the governance of the SPI and the proposed rules to update the SPI over time.

Governance of the SPI

A new SPI Working Group (SPIWG), headed by the Chief Statistician of the World Bank and comprised of experts at the World Bank, will be established to provide an annual review of SPI data, to provide guidance on methodology, and to ensure that the data quality assurance practices discussed in this document are followed.

The composition of the SPIWG will be as follows. The Chief Statistician of the World Bank chairs the SPIWG. Staff from the World Bank Practice Groups and Regions will participate as members on a rotating basis, as follows: Practice Group and Regional Chief Economists and Operations Directors will be invited to become members or to nominate staff to represent them. Because the Poverty GP manages statistical capacity building operations at the World Bank, the Poverty Global Director or a representative designated by this Global Director will be a permanent member of SPIWG. Three external (ex officio) observers will be invited to attend SPIWG meetings as needed and appropriate, from whom advice or input may be solicited by SPIWG members. These ex officio observers may be invited, for example, from academia, other international agencies, the International Association of Official Statistics (IAOS), or a current or former chief statistician of a national statistical office.

The SPIWG's scope of responsibilities includes, but is not limited to, the following:

- Reviewing and approving SPI data and the index before each release.

- Reviewing and approving:

  o Changes to the SPI pillars and dimensions.

  o Changes to the methodology for scoring indicators.

  o The inclusion of new indicators in the SPI.

  o Updated methodologies or data sources.

The SPIWG does not address issues related to how World Bank operational teams may utilize SPI data for operational or research purposes. Rather, an SPI focal point will be named by the World Bank Chief Statistician to liaise with World Bank operational teams.

Prior to each release of the SPI, the SPI team will disseminate data to World Bank country poverty economists who will be given a window of at least 2 weeks to comment on the data before release. Following this review and at least one month prior to the annual release of SPI data and the index, the SPIWG will ensure that any concerns about the data have been satisfactorily addressed before publication. This will typically take place in March or April. At least one week before the meeting, provisional SPI data and index values along with feedback from the country economist consultation process will be circulated to SPIWG members for review. During the meeting, working group members can provide any feedback or reflections about the data and its collection process. Once the SPI team has addressed this input, the SPIWG will approve the release of the updated data. The discussions and decision process will be documented in meeting minutes. The annual review of the SPI data by these staff and the SPIWG will be done in lieu of an annual Bank wide review.

Methodological reviews may occur on an as-needed basis, and may involve, for example, adjustments to SPI dimensions, scoring of indicators, inclusion of new indicators, or updated

methodologies or data sources. Materials will be circulated at least one week before any methodological review meeting. SPIWG members will have an opportunity to ask questions and provide feedback related to the proposed changes. The final decision about any SPI methodological adjustments rests with the chair of the SPIWG, the World Bank Chief Statistician. The discussion and decision process will be documented in meeting minutes.

Rule 1. Data releases will follow a consistent quality control process.

SPI updates will follow a review process to ensure quality. The SPI team in DECDG will perform a set of rigorous data quality checks that are described in greater detail in Dang et al. (2023). Additionally, World Bank country poverty economists will have an opportunity to review and comment on the SPI data prior to its release. The SPI data will then be submitted to a SPI Working Group (SPIWG) for review and approval prior to release. If data fail these quality checks, they will not be included in the SPI.

Country scores will be sent to the regional directors and country directors for information before each release. Regional reports will be produced for each World Bank region, which include the regional aggregate scores, the scores for countries within each region, and time trends.

Rule 2. The data series and indices will be updated annually.

To enable users to use the data and indices in a predictable way, the SPI will be updated annually on a consistent timetable. As a first step in updating the indicators, the Bank team will begin collecting all input data for the SPI in January in each calendar year. This includes capturing information such as censuses and surveys that have become available since the last update, as well as all other information needed to produce indicators in the SPI. The appendix contains a table, which provides details about the source and point of contact for each of the 51 indicators in the SPI.

The input data will then be processed, the SPI Working Group will be consulted, and changes will be documented in a "What's new in the SPI" document. The publication will summarize the newly released data and contain a table showing changes between the current release and the previous release. The data release will typically be by May/June. As such, a typical data release will take around 4 months to complete from data collection in January and publication in May/June of the same year.

Rule 3. The pillars and dimensions of the SPI are expected to remain stable and only change with approval from the SPI Working Group.

There are five pillars of the SPI: data use, data services, data products, data sources, and data infrastructure. These five pillars are defining features of the SPI and are highly unlikely to change during the life of the project. Changes will only be made in coordination with the SPIWG.

Within the 5 pillars, there are 22 dimensions in the SPI. These dimensions are unlikely to change soon because the SPI was built on a forward-looking framework. When developments to statistical systems require an update to the dimensions of the SPI for it to remain relevant, such an update will be introduced with the approval of the SPI Working Group.

Rule 4. New indicators will be added after meeting quality and coverage factors.

The underlying indicators measuring the SPI dimensions are based on the information that is currently available. Currently, 8 of the 22 dimensions could not be measured. The ambition going forward is to fill these data gaps.

As such, new indicators are expected to be introduced over time. Before adding new indicators to the SPI, the methodology will be presented to the SPI Working Group for their approval. This is intended to ensure that any new indicators added to the SPI are of high quality and add value. The key criteria for inclusion will be its relevance for measuring the performance of statistical systems.

Apart from deciding whether an indicator should be included as part of the SPI, another issue is whether it should be part of the SPI index. Additional criteria will be used to judge whether an indicator will be included in the index. The indicator's country coverage and time coverage will be important factors. Complexities can arise if new indicators do not cover the same number of years or countries as the existing indicators in the index, affecting comparability. The SPI Working Group will review whether an indicator meets the bar for inclusion in the index before approval.

In circumstances where the SPI team suggests that an existing indicator should be modified or removed, it will be done in consultation with the SPIWG. The SPI expects that all indicators will be reviewed on an approximately three-year cycle. Additionally, indicators may be reviewed on an *ad hoc* basis. If existing indicators are modified, the changes will be applied to data points in all years of the new vintage, so that the SPI data are backwards comparable. Additionally, the SPI team continues to maintain the SPI *github* repository, so users can track changes to the input information collected in detail through the version control tools of *Github*.

Rule 5: All versions of the SPI data series will remain available to users.

The SPI is built on a dynamic framework, which means that new indicators are expected to be introduced as new data sources become available. Changing the number of indicators within a dimension comes with a tradeoff between comparability with prior vintages of the SPI and improved measurement. While introducing new indicators will improve the measurement of statistical performance, the overall SPI score and dimension sub-scores can change and no longer be comparable to prior vintages.

This can have implications for users of the SPI who are tracking progress according to the initial set of indicators. Each time new indicators are introduced, older versions of the SPI index (that do not contain the new indicators) will be archived. An older vintage will be maintained by

the SPI team if approved by the SPI Working Group. The archived series will be made available in the SPI *github* repository and in the World Bank's data catalog for the public to access. All changes to methodology will be tracked through a publicly available [github repository](#) and all code and underlying data to produce the indicators will be published. The *github* repository documents every change in the data and code of the entire project dating back to July 2020. Any user can view how an indicator was constructed, and any change to the code or data that took place back to July 2020. Using the *github* repository, users will be able to recreate and continue an old vintage of the SPI data series into the future as their needs may require.

Rule 6: Countries will have a process for correcting/updating data.

The data for the SPI are collected from established public and open sources. The SPI team makes every effort to ensure that the data presented in the SPI are accurate, but it is possible that data from the sources for constructing the SPI are occasionally not up to date or accurate despite these efforts. Countries and all other users can inquire about the values that make up the indicators through contacting the Bank directly or via SPI@worldbank.org.

The SPI relies primarily on databases maintained by specialized international organizations. These organizations, such as the IMF, ILO, FAO, and UNSD, are in the best position to determine whether certain data methodologies are being followed, such as whether international standards of classification of employment, or if data sources are available, such as whether a country has a complete civil registration and vital statistics system (CRVS). A country or organization looking to update data used for the SPI from one of these sources are encouraged to get in touch with the respective organizations about updating the relevant information or submitting new data to their repositories. The SPI team will facilitate such communication when

requested. Table A.9 in the appendix provides details about the data source and point of contact for each of the 51 indicators in the SPI.

The SPI data represents a snapshot in time of what can be found in public data sources. Data that is not updated in the databases of these public sources by the end of December, when the SPI team begins data collection for that calendar year, will not be reflected in the SPI scores for that year. Data updated after the December cut-off point will be reflected in the subsequent SPI releases.

6. Conclusion

We provide a comprehensive comparison between the World Bank's recently launched Statistical Performance Indicators and Index (SPI) and its predecessor, the Statistical Capacity Index (SCI). We find that the SPI is built on clear conceptual and mathematical foundations, with more sophisticated aggregation method than that of the SCI. We find that the SPI is more strongly correlated with several measures of food security, sustainability of food systems, and a broader measure of health linked in part to food systems and food security (i.e., undernourishment).

The SPI offers a shorter time series but more recent data for the period 2016-2022, while the SCI covers the period 2004-2020. The SPI provides data on up to 186 countries, covering both poorer and richer countries, while the SCI covers only 145 poorer countries. It offers more than twice the number of indicators as that of the SCI, covers more (agriculture) data dimensions, and is more relevant to the SDGs. The SPI also has a stronger correlation with most agricultural development indicators as well as other key indicators. We also propose a set of rules for maintaining and updating the SPI.

Beyond its contributions to monitoring and building country statistical capacity, the SPI offers various promising research directions. One potential venue is to better understand how it compares with other (open) data indexes that are also used to gauge country statistical capacity. Another is

to further study whether, and the extent to which, it helps countries improve their progress with the SDGs.

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Table 1. An Overview of the World Bank's Statistical Capacity Index (SCI) in Selected Recent Studies

1	Angrist, Goldberg & Jolliffe (2021)	*Journal of Economic Perspective*	Global analysis	Measuring economic growth in developing countries	Poorer countries have lower statistical capacity, which can severely bias their reported measurements of economic growth.
2	Anderson & Whitford (2017)	*Review of Policy Research*	100 countries	Technological attainment and statistical capacity	Countries with greater levels of technological attainment have greater national statistical capacity.
3	Goren & Winkler (2022)	*Journal of African Economies*	57 African countries	Low-quality statistics, slave trades and development	Replacing mismeasured GDP per capita by nighttime light intensity per capita significantly reduces the impact of the slave trade on economic development by a factor of 2 to 4.
4	Hanson & Sigman (2021)	*Journal of Politics*	139 countries	Measuring state capacity in political science research	The SCI is most strongly correlated with state capacity compared to other indicators in bureaucratic quality, public administration, law and order ratings, or state fiscal capacity.
5	Henderson, Storeygard & Weil (2012)	*American Economic Review*	113 countries	Better measuring income growth with night lights data	SCI can help provide more accurate estimates of country income growth.
6	Hu & Yao (2022)	*Journal of Econometrics*	162 countries	Estimating the relationship between nighttime light growth and GDP growth	SCI can help provide more accurate estimates of country GDP growth.
7	Jacob (2017)	*World Development*	145 countries	Impact of data gaps on Millennium Development Goals achievement (MDG)	Stronger country statistical capacity increases the probability of MDG success.
8	Martinez (2022)	*Journal of Political Economy*	137 countries	Autocracies overstate yearly GDP growth	Limitations in country statistical capacity do not significantly affect autocracies' exaggeration of GDP growth.

9	Oechslin & Steiner (2022)	*Review of International Organization*	146 countries	Statistical capacity and corrupt bureaucracies	A positive relationship between the growth rate of real GDP per capita and statistical capacity exists for countries with low corruption, but not for countries with high corruption.
10	Sanderfur & Glassman (2015)	*Journal of Development Studies*	Sub-Saharan African countries	Political economy of bad data	Sub-Saharan African countries as a whole have a lower SCI score (i.e., 58) than the global average (i.e., 64), but much heterogeneity exists with country scores ranging from the bottom to more than the 75th global percentile.
11	Sanga *et al.* (2011)	*International Statistical Review*	43 African countries	Proposing an index to measure statistical capacity for African countries	The SCI does not cover certain aspects of an NSO such as organization, human development, and funding. There is a weak correlation between the SCI and the proposed index.
12	Tapsoba *et al.* (2017)	*Journal of International Development*	62 developing countries	Statistical capacity building impacts on reducing procyclical fiscal policy	IMF-supported technical analysis to countries improves their statistical capacity during 1990-2012.

Note: SCI stands for statistical capacity index.

Table 2. SPI Overall Score by Region and Income Level

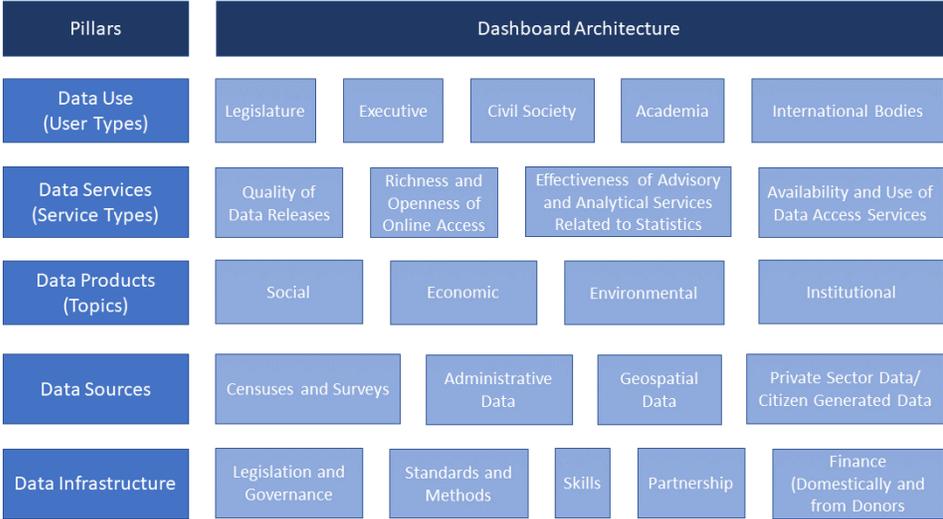| Group	Mean	Min	Max
Panel A: By region			
East Asia & Pacific	64.3	32.6 (Nauru)	89.9 (Australia)
Europe & Central Asia	84.6	31.4 (Turkmenistan)	93.6 (Finland)
Latin America & Caribbean	65.5	39.6 (Haiti)	89.9 (Costa Rica)
Middle East & North Africa	64.3	24.4 (Libya)	83.4 (West Bank and Gaza)
North America	92.9	92.8 (United States)	92.9 (Canada)
South Asia	66.9	58 (Afghanistan)	79.1 (Sri Lanka)
Sub-Saharan Africa	58.4	33.8 (South Sudan)	82.4 (South Africa)
Panel B: By income level			
Low income	54.4	31.9 (Syrian Arab Republic)	70.7 (Uganda)
Lower middle income	62.6	35.3 (Micronesia, Fed. Sts.)	84 (Mongolia)
Upper middle income	68.5	24.4 (Libya)	90.7 (Georgia)
High income	81.1	32.6 (Nauru)	93.6 (Finland)
Not classified	52.3	52.3 (Venezuela, RB)	52.3 (Venezuela, RB)

Note: countries with the minimum and maximum scores are shown in parentheses next to their scores.

Table 3. Comparing the SPI and the SCI

No.	Characteristics	SPI	SCI
1	Years covered	2016-2022	2004-2020
2	Number of covered countries for overlapping years (unique scores)		
	2016	167 (167)	145 (83)
	2017	174 (174)	145 (87)
	2018	174 (174)	145 (86)
	2019	174 (174)	145 (83)
	2020	181 (181)	145 (83)
	2021	181 (181)	N/A
	2022	186 (186)	N/A
3	Number of indicators	51	25
	Annually collected	44	25
	Non-annually collected	7	0
4	Data sources (%)		
	Public International Databases	86	80
	NSO website	14	20
	Total	100	100
5	Aggregation method	3-level nested weight	Simple arithmetic weight
6	Conceptual framework	Yes	Not clear
7	Mathematical foundation	Yes	No
8	Dimensions	Covers 5 data dimensions (data use, data services, data products, data sources, and data infrastructure)	Covers 3 data dimensions (data products, data sources, and data infrastructure)
9	Agricultural data	More	Less
10	Focus	Sustainable Development Goals	Millennium Development Goals

Note: All the numbers are for the latest overlap year (2020) between the two indexes, unless otherwise noted. The numbers of unique scores are shown in parentheses next to the number of covered countries in each year. "N/A" denotes "not available". All indicators are annually collected in the SPI, except for indicators produced by Open Data Watch, which are collected on a two-year cycle (indicators in dimension 2.2 and 4.3).
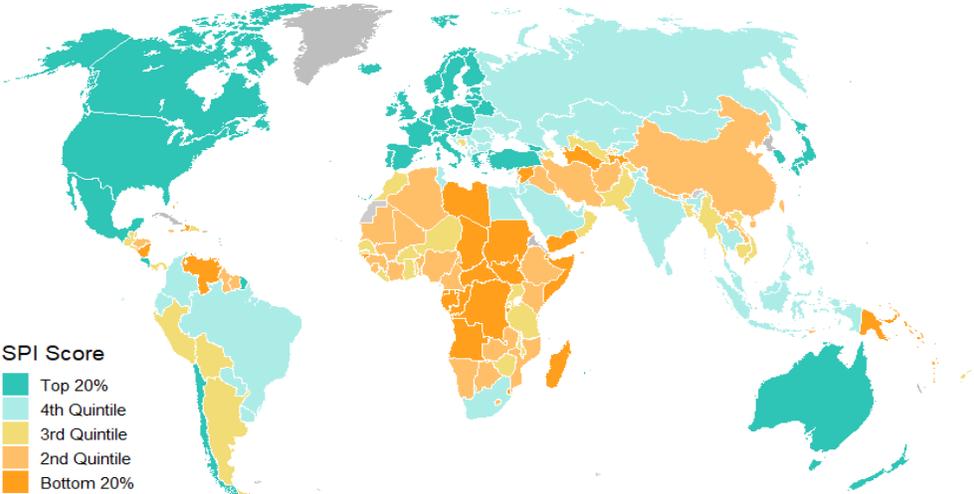
Figure 1. The Pillars and Dimensions that Construct the New SPI

| Pillars	Dashboard Architecture				
Data Use (User Types)	Legislature	Executive	Civil Society	Academia	International Bodies
Data Services (Service Types)	Quality of Data Releases	Richness and Openness of Online Access	Effectiveness of Advisory and Analytical Services Related to Statistics		Availability and Use of Data Access Services
Data Products (Topics)	Social	Economic	Environmental		Institutional
Data Sources	Censuses and Surveys	Administrative Data	Geospatial Data		Private Sector Data/ Citizen Generated Data
Data Infrastructure	Legislation and Governance	Standards and Methods	Skills	Partnership	Finance (Domestically and from Donors

Source: Dang *et al.* (2023).

Figure 2. Country SPI Score

Panel A. SPI Overall Score, 2022

Source: World Bank. Statistical Performance Indicators

Panel B. Changes in SPI Overall Score, 2016- 2022
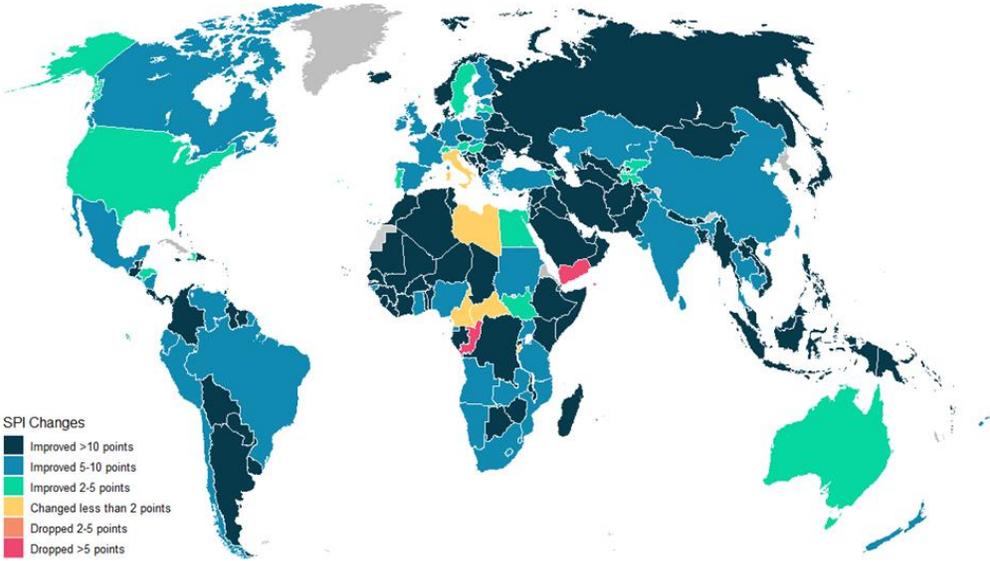
Source: World Bank. Statistical Performance Indicators

Figure 3. Scatter plot and Trends of SPI and SCI Overall Scores for 2016-2020
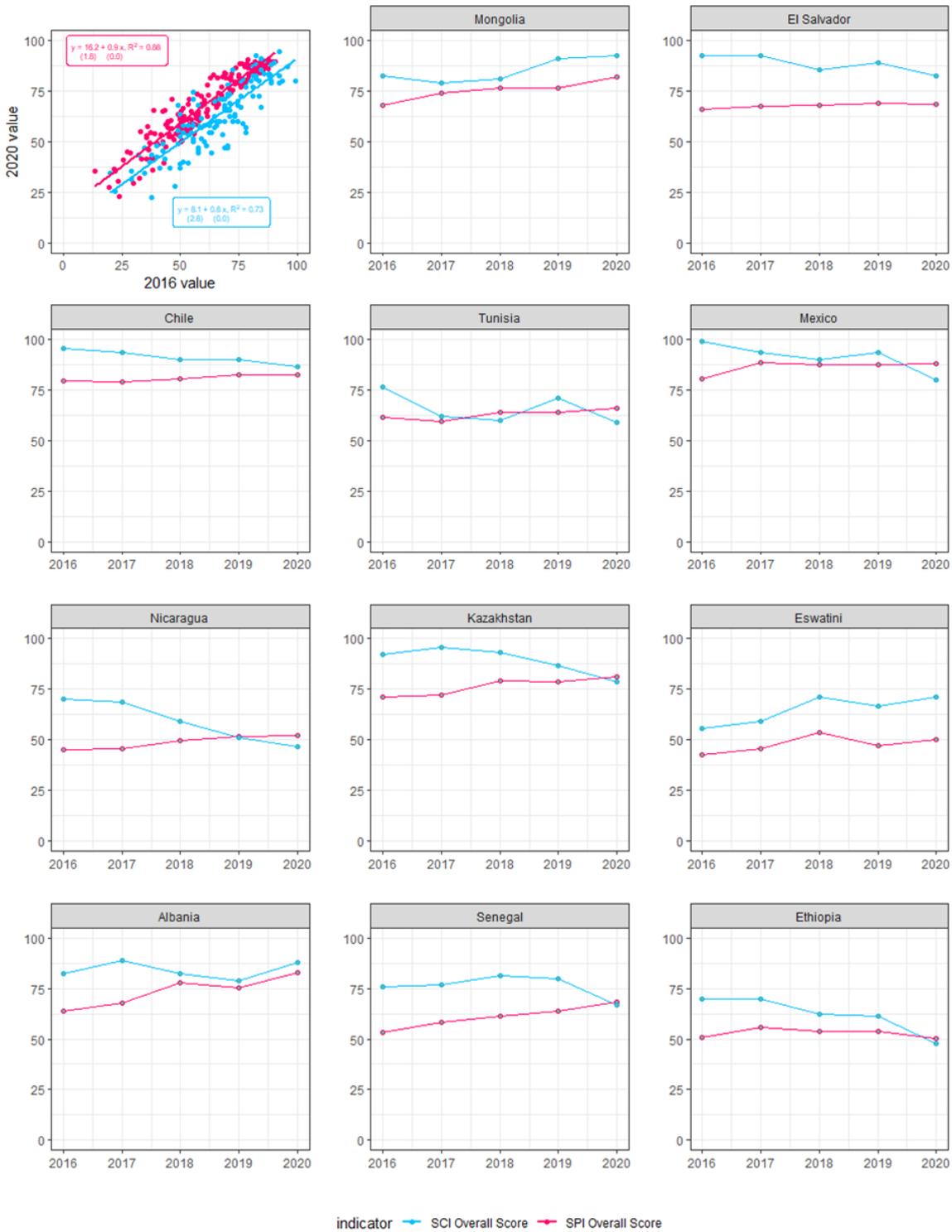
Figure 4. Absolute Value of Pearson Correlations between the SPI and the SCI and Key Agriculture Indexes

Note: The Pearson correlation coefficients are fully shown with the statistically significant levels in Table A.7. The correlations are shown for the averaged value of the index over the most recent two consecutive years (to reduce volatility). The years used for the indicators are: $2.15 poverty headcount rate (2021-2022 or latest two years available), GDP per capita (2021-2022 or latest two years available), SDR: SDG Index Score (2021-2022), Prevalence of Undernourishment (2019-2020 or latest two years available), Prevalence of Severe Food Insecurity (2020-2021 or latest two years available), EIU: Global Food Security Index (2021-2022), EIU: Food Sustainability Index (2021), USDA International Agriculture Productivity Index (2019-2020).

Appendix A. Additional Tables and Figures

Table A.1. Indicators of the Statistical Capacity Indicator (SCI)

	Indicator Name	Short definition
1	Access to water (access to an improved water source)	Basic drinking water services is defined as drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, and packaged or delivered water.
2	Agricultural census	Agricultural censuses collect information on agricultural activities, such as agricultural land use, employment and production, and provide basic structural data and sampling frames for agricultural surveys.
3	Balance of payments manual in use	The Balance of Payments Manual serves as an international standard for the compilation of balance of payments statistics.
4	Child malnutrition (prevalence of underweight children under five)	Prevalence of underweight children under-five years of age, also known as prevalence of child malnutrition (weight for age), is the percentage of children under-five whose weight for age is less than minus two standard deviations from the median for the international reference population ages 0 to 59 months.
5	Child mortality (under-five mortality rate)	Under-five mortality rate is the probability that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates. The probability is expressed as a rate per 1,000. The indicator measures child survival.
6	Consumer Price Index Base year	The CPI is a statistical estimate constructed using the prices of a sample of representative items whose prices are collected periodically. The annual percentage change in a CPI is used as a measure of inflation.
7	External debt reporting	The principal sources of external debt statistics are reports submitted to the World Bank through its Debtor Reporting System by reporting countries. Data quality and coverage vary among countries and from year to year. The reporting status shows, for the latest series, whether data were used as reported (actual), data were preliminary and included an element of staff estimation (preliminary), or data are staff estimates (estimate).
8	Gender equality in education (gross enrollment rate of girls to boys in primary and secondary education)	The indicator is defined as the ratio of the gross enrollment rate of girls to boys in primary and secondary education levels in both public and private schools.
9	Government Finance accounting concept	Government finance accounting concept describes the accounting basis for reporting central government financial data.
10	Health surveys	Health surveys collect information on various aspects of health of populations, such as health expenditure, access, utilization, and outcomes.
11	HIV/AIDS (prevalence of HIV, total [% of population ages 15-49])	HIV prevalence at any given age is the difference between the cumulative numbers of people who have become affected with HIV up to this age and the number who died, expressed as a percentage of the total number alive at this age. The basis of measuring infection is the incidence of HIV among people aged 15-49.
12	Child immunization (proportion of one-year-old children immunized	The proportion of one-year-old children immunized against measles is the proportion of children aged one who received one dose of measles vaccine. A child is considered adequately immunized against measles after receiving one dose of vaccine

	against measles)	
13	Import and Export Price Indexes	Import and export price indexes measure changes in the price of goods and services in international trade. They are used to deflate the value of imports and exports.
14	Income Poverty	Proportion of population below US$1.90 a day is the percentage of the population living on less than $1.90 a day at 2011 international prices.
15	Industrial Production Index	Industrial production index measures changes in industrial production and is widely used for the observation and analysis of the current economic activity.
16	Maternal health (births attended by skilled health staff)	Births attended by skilled health staff are the percentage of deliveries attended by personnel trained to give the necessary supervision, care, and advice to women during pregnancy, labor, and the postpartum period, to conduct deliveries on their own, and to care for the newborns.
17	National Accounts Base Year	National accounts base year is the year used as the base period for constant price calculations in the country's national accounts.
18	National immunization coverage	WHO and UNICEF collect and review data available on national immunization coverage. Then estimates on the level of immunization coverage are made by using officially reported data, survey results, scientific literature, and by taking account of potential biases and consultation with local experts. The gap between the international estimates and the government official estimates therefore suggests that the estimation method adopted by the country differs from the internationally recommended practice.
19	GDP growth (GDP per capita growth)	GDP per capita is the sum of gross value added by all resident producers in the economy plus any product taxes (less subsidies) not included in the valuation of output, divided by mid-year population.
20	Population Census	Population censuses collect data on the size, distribution and composition of population and information on a broad range of social and economic characteristics of the population.
21	Poverty surveys	Poverty surveys collect data on household income, consumption and expenditure, including income in kind. They typically include income, expenditure, and consumption surveys, household budget surveys, Integrated Surveys, Living Standard Measuring Surveys, and other poverty related surveys. It is recommended that poverty surveys be conducted at least every 3 to 5 years.
22	Primary completion (primary completion rate)	Primary completion rate (PCR) is the number of students successfully completing the last year of (or graduating from) primary school in a given year, divided by the number of children of official graduation age in the population.
23	Special Data Dissemination Standard (SDDS)	The Special Data Dissemination Standard (SDDS) was established by the IMF for member countries that have or that might seek access to international capital markets, to guide them in providing their economic and financial data to the public. Although subscription is voluntary, the subscribing member needs to be committed to observing the standard and provide information about its data and data dissemination practices (metadata).
24	Enrolment reporting to UNESCO	UNESCO Institute of Statistics compiles data on education based on official responses to surveys and from reports provided by education authorities in each country.
25	Vital Registration	Vital registration systems record the occurrence and characteristics of vital events pertaining to the population and serve as a main source of vital statistics.

Table A.2. Indicators of the Statistical Performance Indicators (SPI)

	Dimension	Indicator Name	Short definition
1	Dimension 1.5	Availability of Mortality rate, under-5 (per 1,000 live births) data meeting quality standards according to UN IGME (5 year moving average)	Child Mortality Metadata from UN IGME
2	Dimension 1.5	Quality of Debt service data according to World Bank	Debt Reporting Metadata from World Bank
3	Dimension 1.5	Labor force participation rate by sex and age (%)	Labor force participation data for use by ILO
4	Dimension 1.5	Availability of Comparable Poverty headcount ratio at $1.90 a day (5 year moving average)	Comparability data from World Bank's Povcalnet
5	Dimension 1.5	Safely Managed Drinking Water	Availability of Safely Managed Drinking Water data for use by JMP
6	Dimension 2.1	SDDS/e-GDDS subscription	The Special Data Dissemination Standard (SDDS) and electronic General Data Dissemination Standard (e-GDDS) were established by the International Monetary Fund (IMF) for member countries that have or that might seek access to international capital markets, to guide them in providing their economic and financial data to the public.
7	Dimension 2.2	ODIN Open Data Openness score	ODW Openness score
8	Dimension 2.2	Online access - Machine Readability Score	This openness element measures whether data are made available in machine readable formats. Machine readable file formats allow users to easily process data using a computer. Common machine readable formats include XLS, XLSX, CSV, and JSON files.
9	Dimension 2.2	Online access - Non-Proprietary format Score	This openness element measures whether data are made available in nonproprietary formats. Nonproprietary file formats are important because they allow users to access data without requiring the use of a costly, proprietary software that may prevent some users from accessing the data. Common nonproprietary formats include PDF, HTML, XLSX, DOCX, CSV, and JSON files.
10	Dimension 2.2	Online access - Download Options Score	This openness element measures whether download options are available. ODIN looks for three download options: (1) bulk download (at the indicator level), (2) API, and (3) user-select download (custom downloads). Options 2 and 3 are interchangeable for scoring purposes.
11	Dimension 2.2	Online access - Metadata Available Score	This openness element measures whether metadata are available for the published indicators. Metadata must be located in or near the data file or on a designated metadata section of the website. ODIN looks for three aspects of metadata: (1) definition of indicator; (2) date of upload; and (3) Source agency.
12	Dimension 2.2	Online access - Terms of Use Score	This openness element measures whether data are made available under an open license. Open licenses must allow the use, reuse, and sharing or adaption of data for commercial and noncommercial use without any obligation other than attribution, per the Open Definition. Licenses prohibiting commercial use or having two or more additional stipulations are classified as "Not Open". Licenses with no more than one additional stipulation are classified as "Some Restrictions." Licenses that do not explicitly state all allowed uses under the Open Definition and do not include restrictive language are also classified as "Some Restrictions."
13	Dimension 2.4	NADA metadata	NADA/NSO websites.
14	Dimension 3.1	GOAL 1: No Poverty (5 year moving average)	SDG Goal 1 data availability.
15	Dimension 3.2	GOAL 2: Zero Hunger (5 year moving average)	SDG Goal 2 data availability.

16	Dimension 3.3	GOAL 3: Good Health and Well-being (5 year moving average)	SDG Goal 3 data availability.
17	Dimension 3.4	GOAL 4: Quality Education (5 year moving average)	SDG Goal 4 data availability.
18	Dimension 3.5	GOAL 5: Gender Equality (5 year moving average)	SDG Goal 5 data availability.
19	Dimension 3.6	GOAL 6: Clean Water and Sanitation (5 year moving average)	SDG Goal 6 data availability.
20	Dimension 3.7	GOAL 7: Affordable and Clean Energy (5 year moving average)	SDG Goal 7 data availability.
21	Dimension 3.8	GOAL 8: Decent Work and Economic Growth (5 year moving average)	SDG Goal 8 data availability.
22	Dimension 3.9	GOAL 9: Industry, Innovation and Infrastructure (5 year moving average)	SDG Goal 9 data availability.
23	Dimension 3.10	GOAL 10: Reduced Inequality (5 year moving average)	SDG Goal 10 data availability.
24	Dimension 3.11	GOAL 11: Sustainable Cities and Communities (5 year moving average)	SDG Goal 11 data availability.
25	Dimension 3.12	GOAL 12: Responsible Consumption and Production (5 year moving average)	SDG Goal 12 data availability.
26	Dimension 3.13	GOAL 13: Climate Action (5 year moving average)	SDG Goal 13 data availability.
27	Dimension 3.15	GOAL 15: Life on Land (5 year moving average)	SDG Goal 15 data availability.
28	Dimension 3.16	GOAL 16: Peace and Justice Strong Institutions (5 year moving average)	SDG Goal 16 data availability.
29	Dimension 3.17	GOAL 17: Partnerships to achieve the Goal (5 year moving average)	SDG Goal 17 data availability.
30	Dimension 4.1	Population & Housing census (Availability score over 20 years)	Population censuses collect data on the size, distribution and composition of population and information on a broad range of social and economic characteristics of the population.
31	Dimension 4.1	Agriculture census (Availability score over 20 years)	Agriculture censuses collect information on agricultural activities, such as size of holding, land tenure, land use, employment and production, and provide basic structural data and sampling frames for agricultural surveys.
32	Dimension 4.1	Business/establishment census (Availability score over 20 years)	Business/establishment censuses provide valuable information on all economic activities, number of employed and size of establishments in the economy.
33	Dimension 4.1	Household Survey on income, etc (Availability score over 10 years)	These surveys collect data on household income (including income in kind), consumption and expenditure.
34	Dimension 4.1	Agriculture survey (Availability score over 10 years)	Agricultural surveys refer to surveys of agricultural holdings based on the sampling frames established by the agricultural census.
35	Dimension 4.1	Labor Force Survey (Availability score over 10 years)	Labor force survey is a standard household-based survey of work-related statistics at the national and sub-national employment or unemployment levels, rates or trends.
36	Dimension 4.1	Health/Demographic survey (Availability score over 10 years)	Health surveys collect information on various aspects of health of populations, such as health expenditure, access, utilization, and outcomes.

37	Dimension 4.1	Business/establishment survey (Availability score over 10 years)	The business/establishment survey provides information on employment, hours, and earnings of employees from a sample of business establishments including private and public, entities that are classified based on an establishment's principal activity from the business or establishment census.
38	Dimension 4.2	CRVS (WDI)	Civil Registration and Vital Statistics (CRVS) complete
39	Dimension 4.3	Geospatial data available at 1st Admin Level	Indicator data availability at sub-national levels
40	Dimension 5.1	Legislation Indicator based on PARIS21 indicators on SDG 17.18.2	Based on PARIS21 indicators on SDG 17.18.2 (national statistical legislation compliance with UN Fundamental Principles of Official Statistics), existence of National Statistical Council, national statistical strategy generation, national statistical plan.
41	Dimension 5.2	System of national accounts in use	The national accounts data are compiled using the concepts, definitions, framework, and methodology of the System of National Account 2008 (SNA2008) or European System of National and Regional Accounts (ESA 2010).
42	Dimension 5.2	Business process	The Generic Statistical Business Process Model (GSBPM) aims to describe statistics production in a general and process-oriented way.
43	Dimension 5.2	National Accounts base year	National accounts base year is the year used as the base period for constant price calculations in the country's national accounts.
44	Dimension 5.2	Classification of national industry	The industrial production data are compiled using the International Standard Industrial Classification of All Economic Activities (ISIC) Rev.4 and Statistical Classification of Economic Activities in the European Community (NACE) Rev.2.
45	Dimension 5.2	CPI base year	Consumer Price Index serves as indicators of inflation and reflects changes in the cost of acquiring a fixed basket of goods and services by the average consumer.
46	Dimension 5.2	Classification of household consumption	Classification of Individual Consumption According to Purpose (COICOP) is used in household budget surveys, consumer price indices and international comparisons of gross domestic product (GDP) and its component expenditures.
47	Dimension 5.2	Classification of status of employment	Classification of status of employment refers to employment data that are compiled using the current international standard International Classification of Status in Employment (ISCE-93).
48	Dimension 5.2	Central government accounting status	Government finance accounting status refers to the accounting basis for reporting central government financial data.
49	Dimension 5.2	Compilation of government finance statistics	Compilation of government finance statistics refers to the Government Finance Statistics Manual (GFSM) in use for compiling the data.
50	Dimension 5.2	Compilation of monetary and financial statistics	Compilation of monetary and financial statistics refers to the Monetary and Financial Statistics Manual (MFSM) in use.
51	Dimension 5.5	Finance Indicator based on PARIS21 indicators on SDG 17.18.3 & SDG 17.19.1	Indicator based on PARIS21 SDG indicators (SDG 17.18.3 (national statistical plan that is fully funded and under implementation) and SDG 17.19.1 (value of resources made available to strengthen statistical capacity)).

Table A.3. SPI overall score and Pillar Scores in 2022

Below, the full list of countries by their SPI overall score in 2022 is presented. The first column is the country name and the following columns are the overall SPI overall score, and then the sub-scores for pillars 1, 2, 3, 4, and 5.

The purpose of the SPI is to help countries assess and improve the performance of their statistical systems. The presentation of SPI overall scores is designed to reflect that aim. Small differences between countries should not be stressed since they can reflect imprecision arising from the currently available indicators rather than meaningful differences in performance. Instead, the presentation of overall SPI scores focuses on larger groupings of countries reflecting broad categories of performance as measured by the indicator framework. In total there are 186 countries with sufficient data to compute an index value. This set of countries covers 99.3 percent of the world population.

Countries shaded in dark orange are the lowest performing, countries in dark green are the highest performing. Countries are grouped into five groups:

1. **Top Quintile**: Countries in the top 20% are classified in this group. Shading in dark green.
2. **4th Quintile**: Countries in the 4th quantile, or those above the 60th percentile but below the 80th percentile are in this group. Shading in light green.
3. **3rd Quintile**: Countries in the 3rd quantile, or those between the 40th and 60th percentile, are classified in this group. Shading in yellow.
4. **2nd Quintile**: Countries in the 2nd quantile, or those above the 20th percentile but below the 40th percentile, are in this group. Shading in light orange.
5. **Bottom 20%**: Countries in the bottom 20% are classified in this group. Shading in dark orange.

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Finland	93.6	100.0	96.4	88.5	83.3	100
Norway	93.5	100.0	97.1	87.2	83.1	100
Canada	92.9	100.0	92.6	83.7	88.3	100
Netherlands	92.8	100.0	96.9	87.8	79.5	100
United States	92.8	100.0	93.6	86.0	84.4	100
Slovenia	92.5	100.0	97.5	87.1	78.1	100
Sweden	92.2	100.0	96.0	86.4	78.7	100
Italy	91.9	100.0	93.0	88.7	77.8	100
Denmark	91.6	90.0	98.7	86.5	82.9	100

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Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Poland	91.6	90.0	97.1	86.8	84.0	100
Spain	91.4	100.0	91.1	82.9	83.1	100
Ireland	91.3	100.0	96.4	87.2	72.9	100
Germany	91.0	100.0	94.9	85.0	80.1	95
Czechia	90.9	100.0	88.8	84.4	81.2	100
France	90.8	100.0	92.1	86.2	75.6	100
Georgia	90.7	100.0	92.0	91.5	79.9	90
Austria	90.0	100.0	89.5	88.6	76.8	95
Australia	89.9	90.0	92.9	83.0	83.9	100
Costa Rica	89.9	100.0	86.3	93.1	80.2	90
Japan	89.9	100.0	90.3	84.9	79.2	95
Estonia	89.6	90.0	96.9	83.9	77.0	100
Portugal	89.3	90.0	93.1	87.4	76.1	100
Slovak Republic	89.1	90.0	94.5	85.3	76.0	100
Belgium	88.9	100.0	86.9	81.3	76.4	100
Latvia	88.8	100.0	97.1	76.1	70.9	100
Switzerland	88.8	100.0	88.4	85.6	80.0	90
Greece	88.7	100.0	88.1	78.6	77.0	100
New Zealand	88.7	100.0	92.4	82.9	78.4	90
Mexico	88.6	100.0	93.4	93.0	81.5	75
Lithuania	88.1	90.0	91.1	82.3	77.2	100
Hungary	87.9	100.0	89.0	88.2	72.3	90
Korea, Rep.	87.8	100.0	92.1	83.0	79.2	85
Luxembourg	87.8	100.0	93.4	81.7	64.1	100
Turkiye	87.7	100.0	86.8	94.2	57.6	100
Chile	87.4	100.0	85.6	87.2	69.4	95
United Kingdom	87.1	100.0	88.0	85.2	72.6	90
Iceland	86.9	100.0	86.3	76.3	71.8	100

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Belarus	86.7	100.0	85.4	87.5	65.4	95
Singapore	86.6	100.0	99.7	64.1	88.9	80
Colombia	85.9	100.0	82.9	92.3	74.2	80
Cyprus	85.1	100.0	88.8	70.5	71.0	95
Romania	84.3	90.0	94.2	76.5	75.9	85
Russian Federation	84.1	93.4	87.6	76.5	72.8	90
Mongolia	84.0	100.0	97.2	89.7	73.4	60
Bulgaria	83.9	90.0	91.3	75.7	72.4	90
North Macedonia	83.5	100.0	87.5	74.6	75.3	80
Albania	83.4	90.0	69.8	87.2	70.1	100
Philippines	83.4	100.0	90.6	89.8	81.4	55
West Bank and Gaza	83.4	100.0	92.1	73.1	66.7	85
Israel	83.3	100.0	91.1	70.9	59.3	95
Croatia	83.1	90.0	87.5	72.3	71.0	95
Armenia	82.8	90.0	85.4	86.6	61.9	90
Moldova	82.8	90.0	95.4	75.5	68.0	85
Thailand	82.5	100.0	81.3	91.5	54.8	85
South Africa	82.4	80.0	86.0	87.6	73.4	85
Kyrgyz Republic	81.5	100.0	81.0	91.8	54.4	80
Serbia	80.8	100.0	74.5	86.1	73.6	70
Saudi Arabia	80.8	100.0	88.2	71.6	79.1	65
Brazil	80.5	90.0	87.2	80.2	75.3	70
Malta	80.3	100.0	86.1	65.6	74.6	75
Egypt, Arab Rep.	79.6	100.0	77.1	83.9	67.0	70
United Arab Emirates	79.5	100.0	79.6	71.2	67.0	80
Ecuador	79.2	100.0	89.1	89.8	56.9	60

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Sri Lanka	79.1	100.0	81.8	78.0	80.4	55
Indonesia	79.0	100.0	91.1	90.2	53.5	60
Ukraine	78.9	100.0	53.8	87.1	58.5	95
Kazakhstan	78.2	90.0	89.3	89.4	62.3	60
Jordan	78.2	80.0	90.4	87.6	62.9	70
Montenegro	78.1	100.0	69.9	83.2	57.2	80
Uruguay	77.7	100.0	87.9	89.1	56.7	55
Mauritius	77.3	90.0	85.5	80.9	60.1	70
Malaysia	76.6	80.0	87.6	85.1	75.4	55
Paraguay	75.8	90.0	69.4	87.7	57.1	75
Tunisia	75.1	90.0	89.5	82.8	58.4	55
India	74.2	80.0	87.7	86.3	62.0	55
El Salvador	73.8	90.0	78.8	78.3	51.7	70
Azerbaijan	73.5	80.0	68.8	82.5	66.1	70
Peru	73.3	90.0	87.3	90.9	53.1	45
Dominican Republic	72.4	100.0	68.0	77.1	42.0	75
Morocco	72.3	80.0	89.6	85.9	60.8	45
Senegal	72.2	80.0	82.0	78.5	45.6	75
Viet Nam	72.2	100.0	69.3	77.2	74.2	40
Guatemala	72.0	80.0	62.0	85.9	62.1	70
Myanmar	72.0	100.0	67.4	85.3	42.1	65
Argentina	71.8	70.0	78.9	90.2	59.8	60
Bolivia	71.2	100.0	66.9	82.0	62.0	45
Pakistan	71.1	100.0	61.9	86.8	46.9	60
Uganda	70.7	100.0	65.4	81.6	36.8	70
Qatar	70.6	100.0	62.1	67.4	58.8	65
Bosnia and Herzegovina	70.6	70.0	63.8	77.5	61.8	80

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Rwanda	70.6	90.0	70.6	79.5	52.8	60
Uzbekistan	70.6	80.0	74.7	78.7	44.4	75
Panama	70.5	80.0	66.0	87.4	64.1	55
Zimbabwe	70.2	100.0	67.0	88.0	36.1	60
Bangladesh	69.7	90.0	61.9	85.8	51.0	60
Kuwait	69.2	100.0	63.2	66.2	61.5	55
Tanzania	67.3	90.0	70.7	76.6	44.4	55
Togo	66.7	90.0	63.7	87.0	32.7	60
Kenya	66.3	90.0	60.1	76.6	34.9	70
Oman	66.1	100.0	46.6	61.2	67.8	55
St. Lucia	66.0	70.0	69.6	68.6	66.8	55
Seychelles	66.0	90.0	44.2	68.4	57.3	70
Cabo Verde	65.7	80.0	64.4	76.1	63.0	45
Niger	65.3	90.0	60.8	84.8	30.8	60
Liberia	64.9	90.0	65.7	82.3	26.5	60
Burkina Faso	64.8	80.0	68.9	81.5	33.8	60
Malawi	64.8	90.0	62.0	80.6	46.5	45
Barbados	64.6	100.0	57.6	62.2	48.3	55
Gambia, The	64.4	80.0	65.5	89.4	32.3	55
Brunei Darussalam	64.4	90.0	71.0	57.7	53.2	50
Cambodia	64.3	80.0	63.6	81.0	42.0	55
Ghana	64.2	66.6	61.8	88.8	44.0	60
Fiji	63.2	80.0	63.1	75.4	37.3	60
Algeria	63.2	80.0	57.8	82.0	46.0	50
Benin	62.6	80.0	69.7	83.6	29.5	50
Samoa	62.4	70.0	63.0	78.8	40.5	60
Cote d'Ivoire	62.2	80.0	57.7	79.1	29.4	65

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Zambia	62.1	90.0	60.4	86.7	28.5	45
Nepal	62.0	80.0	62.8	85.5	36.6	45
Belize	61.9	70.0	64.6	67.2	62.5	45
Maldives	61.8	70.0	63.9	82.5	57.7	35
Jamaica	61.6	60.0	72.6	77.8	57.9	40
Suriname	61.5	50.0	69.2	69.6	58.9	60
Botswana	61.2	50.0	68.8	77.8	64.4	45
Ethiopia	61.1	90.0	64.5	81.5	29.5	40
Honduras	61.0	90.0	62.1	84.1	38.5	30
Lao PDR	60.4	76.6	65.5	79.2	40.7	40
Tonga	59.9	70.0	63.2	75.9	45.4	45
Timor-Leste	59.9	80.0	61.0	64.5	28.8	65
China	59.6	83.4	43.8	77.5	43.3	50
Bhutan	59.6	80.0	63.9	75.2	38.8	40
Bahrain	59.4	80.0	72.8	52.3	61.7	30
Sierra Leone	59.2	80.0	65.3	79.0	31.7	40
Mali	59.1	80.0	60.7	82.6	27.4	45
Mauritania	58.9	80.0	63.2	66.6	24.5	60
Iran, Islamic Rep.	58.7	80.0	29.3	70.7	68.6	45
Mozambique	58.7	70.0	59.7	76.5	32.2	55
Nigeria	58.6	80.0	63.8	77.8	31.5	40
Lebanon	58.5	60.0	61.6	79.6	51.3	40
Afghanistan	58.0	80.0	59.4	78.6	17.0	55
Guinea	57.9	80.0	62.8	76.6	20.2	50
Lesotho	57.5	80.0	29.4	76.3	41.7	60
Guyana	56.5	70.0	62.7	71.5	33.0	45
Iraq	56.3	60.0	64.5	78.3	33.8	45
Namibia	55.8	60.0	62.7	77.6	23.6	55

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Trinidad and Tobago	55.4	60.0	61.2	64.2	36.9	55
St. Vincent and the Grenadines	55.3	60.0	67.4	60.9	48.1	40
Sao Tome and Principe	54.8	60.0	60.9	69.2	49.0	35
Cameroon	54.5	60.0	64.2	82.1	21.2	45
Bahamas, The	54.1	80.0	27.7	49.5	38.5	75
Madagascar	53.7	60.0	60.6	78.2	25.0	45
Angola	53.5	60.0	60.8	71.3	35.2	40
Tajikistan	53.4	80.0	29.2	81.7	46.2	30
Nicaragua	52.7	60.0	61.1	64.2	23.3	55
Venezuela, RB	52.3	80.0	59.9	62.2	34.1	25
Eswatini	51.7	80.0	22.3	71.7	24.3	60
Vanuatu	51.2	56.6	59.1	72.2	33.2	35
Congo, Dem. Rep.	51.1	70.0	62.4	67.5	15.5	40
Burundi	50.7	60.0	62.9	79.7	15.8	35
St. Kitts and Nevis	50.0	60.0	66.7	44.8	43.6	35
Chad	49.2	63.4	59.2	75.8	17.8	30
Somalia	48.4	80.0	47.9	69.7	4.4	40
Palau	48.3	40.0	59.6	56.4	45.7	40
Solomon Islands	48.2	50.0	59.3	65.8	15.9	50
Antigua and Barbuda	48.2	60.0	26.9	64.6	49.3	40
Djibouti	46.6	50.0	59.5	63.8	14.5	45
Papua New Guinea	46.0	60.0	59.2	70.6	10.1	30
Dominica	44.2	60.0	28.3	59.3	43.4	30
Kiribati	43.8	40.0	59.5	75.4	18.9	25

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Sudan	43.6	53.4	57.9	67.8	18.8	20
Gabon	42.8	60.0	29.8	66.1	13.2	45
Central African Republic	42.6	50.0	58.6	68.8	10.7	25
Grenada	41.1	40.0	22.1	68.7	45.0	30
Guinea-Bissau	40.0	70.0	23.7	71.7	14.6	20
Haiti	39.6	50.0	18.0	71.6	13.3	45
Equatorial Guinea	39.0	30.0	59.6	58.7	21.8	25
Tuvalu	38.1	40.0	59.4	60.8	15.5	15
Congo, Rep.	37.5	50.0	29.4	62.6	20.2	25
Marshall Islands	35.5	10.0	58.3	64.0	25.3	20
Micronesia, Fed. Sts.	35.3	20.0	59.1	58.6	13.7	25
South Sudan	33.8	40.0	37.8	53.9	7.5	30
Yemen, Rep.	33.2	46.6	28.0	55.6	16.0	20
Nauru	32.6	30.0	37.6	55.4	35.0	5
Syrian Arab Republic	31.9	36.6	23.1	55.0	15.0	30
Turkmenistan	31.4	60.0	0.5	69.6	11.7	15
Libya	24.4	20.0	25.6	53.6	7.6	15
American Samoa		40.0		22.6		
Andorra		80.0		38.6		15
Aruba		60.0		28.5		
Bermuda		60.0		27.1		
British Virgin Islands		60.0		27.2		
Cayman Islands		50.0		28.6		
Channel Islands		60.0				
Comoros		50.0		68.2		40

Country	SPI overall score	Pillar 1: Data Use	Pillar 2: Data Services	Pillar 3: Data Products	Pillar 4: Data Sources	Pillar 5: Data Infrastructure
Cuba		60.0		69.7		
Curacao		80.0		28.5		
Eritrea		36.6		51.7		10
Faroe Islands		60.0		14.7		
French Polynesia		60.0		24.0		
Gibraltar		60.0		18.1		
Greenland		50.0		21.0		
Guam		60.0		22.1		
Hong Kong SAR, China		80.0		43.8		
Isle of Man		70.0		12.3		
Korea, Dem. People's Rep.		30.0		51.6		
Kosovo		40.0	66.5		50.3	80
Liechtenstein		70.0		38.3		
Macao SAR, China		80.0		37.7		
Monaco		90.0		41.6		
New Caledonia		80.0		31.6		
Northern Mariana Islands		60.0		16.0		
Puerto Rico		60.0		35.4		
San Marino		90.0	60.7	38.1		55
Sint Maarten (Dutch part)		50.0		19.7		
St. Martin (French part)		40.0		13.6		
Turks and Caicos Islands		60.0		31.5		
Virgin Islands (U.S.)		60.0		19.0		

Table A.4. Changes in SPI Overall Score during 2016-2022 by Region and Income Level

Group	Mean	Least change	Most change
Panel A: By region			
East Asia & Pacific	11.4	-3.6 (Palau)	28.5 (Myanmar)
Europe & Central Asia	10.8	1.6 (Italy)	31.8 (Uzbekistan)
Latin America & Caribbean	11.3	-0.3 (Dominica)	25.7 (Suriname)
Middle East & North Africa	15.6	-5 (Yemen, Rep.)	34.4 (Saudi Arabia)
North America	4.9	3.2 (United States)	6.6 (Canada)
South Asia	12.4	6.8 (India)	20.8 (Afghanistan)
Sub-Saharan Africa	11.6	-5.2 (Congo, Rep.)	36.6 (Somalia)
Panel B: By income level			
Low income	12.1	-5 (Yemen, Rep.)	36.6 (Somalia)
Lower middle income	12.7	-5.2 (Congo, Rep.)	31.8 (Uzbekistan)
Upper middle income	11.5	-3.6 (Palau)	25.7 (Suriname)
High income	11.0	0 (Barbados)	34.4 (Saudi Arabia)
Not classified	7.1	7.1 (Venezuela, RB)	7.1 (Venezuela, RB)

Note: countries with the minimum and maximum scores are shown in parentheses next to their scores. Regional and income group averages are the unweighted average of countries in the group.

Table A.5. Mapping of SPI Indicators to SDG Indicators

	SPI Indicator	SPI Dimension	SDG	Data Source
1	Availability of Comparable Poverty headcount ratio at $1.90 a day (5 year moving average of availability)	Dimension 1.5: Data use by international organizations	SDG 1.1.1	World Bank's PIP
2	Availability of Mortality rate, under-5 (per 1,000 live births) data meeting quality standards according to UN IGME (5 year moving average of availability)	Dimension 1.5: Data use by international organizations	SDG 3.2.1	Child Mortality Metadata from UN IGME
3	Quality of Debt service data according to World Bank	Dimension 1.5: Data use by international organizations	SDG 17.4.1	Debt Reporting Metadata from World Bank
4	Safely Managed Drinking Water	Dimension 1.5: Data use by international organizations	SDG 6.1.1	Availability of Safely Managed Drinking Water data for use by JMP
5	GOAL 1: No Poverty (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 1	UN Global SDG Indicators Database
6	GOAL 2: Zero Hunger (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 2	UN Global SDG Indicators Database
7	GOAL 3: Good Health and Well-being (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 3	UN Global SDG Indicators Database
8	GOAL 4: Quality Education (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 4	UN Global SDG Indicators Database
9	GOAL 5: Gender Equality (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 5	UN Global SDG Indicators Database
10	GOAL 6: Clean Water and Sanitation (5 year moving average of availability)	Dimension 3.1: Social (SDG 1-6)	SDG 6	UN Global SDG Indicators Database
11	GOAL 7: Affordable and Clean Energy (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 7	UN Global SDG Indicators Database
12	GOAL 8: Decent Work and Economic Growth (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 8	UN Global SDG Indicators Database
13	GOAL 9: Industry, Innovation and Infrastructure (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 9	UN Global SDG Indicators Database
14	GOAL 10: Reduced Inequality (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 10	UN Global SDG Indicators Database

15	GOAL 11: Sustainable Cities and Communities (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 11	UN Global SDG Indicators Database
16	GOAL 12: Responsible Consumption and Production (5 year moving average of availability)	Dimension 3.2: Economic (SDG 7-12)	SDG 12	UN Global SDG Indicators Database
17	GOAL 13: Climate Action (5 year moving average of availability)	Dimension 3.3: Environmental (SDG 13,15)	SDG 13	UN Global SDG Indicators Database
18	GOAL 15: Life on Land (5 year moving average of availability)	Dimension 3.3: Environmental (SDG 13,15)	SDG 15	UN Global SDG Indicators Database
19	GOAL 16: Peace and Justice Strong Institutions (5 year moving average of availability)	Dimension 3.4: Institutional (SDG 16-17)	SDG 16	UN Global SDG Indicators Database
20	GOAL 17: Partnerships to achieve the Goal (5 year moving average of availability)	Dimension 3.4: Institutional (SDG 16-17)	SDG 17	UN Global SDG Indicators Database
21	Legislation and governance	Dimension 5.1: Legislation and governance	SDG 17.18.2	UN Global SDG Indicators Database
22	Finance	Dimension 5.5: Finance	SDG indicators 17.18.3 and 17.19.1	UN Global SDG Indicators Database
		Notes: SDG 14 not included due to inapplicability to landlocked countries		

Table A.6. OLS Estimation of the Components of the Statistical Performance Indicators (SPI)

	SPI Overall Score	Data Use	Data Services	Data Products	Data Sources	Data Infrastructure
Log GDP per capita (constant 2015 US$)	-0.973	-0.860	-3.260	-4.564***	1.531	2.291
	(1.47)	(1.88)	(2.21)	(1.24)	(1.94)	(2.82)
Log Population, Total	0.915	-0.021	2.062**	1.792***	1.461*	-0.719
	(0.56)	(0.65)	(0.90)	(0.55)	(0.84)	(1.04)
Economic complexity index	5.165***	4.738***	4.765***	1.396	5.263***	9.661***
	(1.11)	(1.44)	(1.77)	(0.95)	(1.38)	(2.24)
Urban population (% of total population)	-0.070	-0.062	-0.003	-0.027	-0.089	-0.171
	(0.06)	(0.08)	(0.10)	(0.05)	(0.09)	(0.11)
School enrollment, secondary (% gross)	0.216***	0.187***	0.212***	0.158***	0.234***	0.290***
	(0.04)	(0.05)	(0.07)	(0.04)	(0.05)	(0.08)
WGI: Political Stability and Absence of Violence/Terrorism: Estimate	-0.821	-1.877	-1.211	-0.096	2.111	-3.032
	(1.25)	(1.64)	(2.30)	(1.45)	(1.76)	(2.42)
WGI: Voice and Accountability: Estimate	6.758***	2.303	12.746***	5.233***	4.335**	9.176***
	(1.23)	(1.68)	(1.94)	(0.91)	(1.68)	(2.07)
Year 2017	2.136***	-0.185	8.368***	2.576***	-1.527***	1.449***
	(0.27)	(0.72)	(0.83)	(0.39)	(0.36)	(0.54)
Year 2018	4.669***	0.013	19.631***	2.562***	-0.844*	1.985***
	(0.42)	(0.68)	(1.73)	(0.46)	(0.44)	(0.69)
Year 2019	5.370***	0.158	19.833***	1.514***	-0.626	5.972***
	(0.44)	(0.73)	(1.71)	(0.53)	(0.48)	(0.78)
Year 2020	7.608***	-0.762	21.450***	7.874***	2.432***	7.044***
	(0.51)	(0.78)	(1.75)	(0.54)	(0.68)	(0.97)
Year 2021	11.334***	-1.773*	22.675***	17.398***	4.744***	13.624***
	(0.60)	(1.04)	(1.80)	(0.66)	(0.87)	(1.36)
Year 2022	11.641***	-1.082	23.231***	17.528***	4.207***	14.320***
	(0.62)	(1.04)	(1.77)	(0.66)	(0.86)	(1.43)
Constant	42.631***	85.030***	29.697	62.571***	2.473	33.385
	(13.18)	(15.48)	(22.11)	(11.04)	(16.76)	(26.19)
R2	0.756	0.345	0.599	0.585	0.699	0.665
No of countries	126	126	126	126	126	126
No of observations	859	859	859	859	859	859

Note: * p<0.10, ** p<0.05, *** p<0.01. Standard errors are clustered at the country level. Data are from the World Bank's World Development Indicators (WDI) and SPI. Economic complexity data are from the Harvard Growth Lab. In cases where data are missing for a particular covariate, the data are imputed forward using the nearest available value.

Table A.7. Comparison of Statistical Indices to Key Development Indices

Index	SCI		SPI	
$2.15 poverty headcount rate	-0.36***		-0.51***	
GDP per capita	0.23***		0.53***	
SDR: SDG Index Score	0.65***		0.82***	
Prevalence of Undernourishment	-0.57***	SPI	-0.62***	SCI
Prevalence of Severe Food Insecurity	-0.55***		-0.64***	
EIU: Global Food Security Index	0.74***		0.86***	
EIU: Food Sustainability Index	0.7***		0.85***	
USDA International Agriculture Productivity Index	0.23***	SPI	0.22***	SCI

Note: The Pearson correlations are shown for the averaged value of the index over the most recent two consecutive years (to reduce volatility). The years used for the indicators are: $2.15 poverty headcount rate (2021-2022 or latest two years available), GDP per capita (2021-2022 or latest two years available), SDR: SDG Index Score (2021-2022), Prevalence of Undernourishment (2019-2020 or latest two years available), Prevalence of Severe Food Insecurity (2020-2021 or latest two years available), EIU: Global Food Security Index (2021-2022), EIU: Food Sustainability Index (2021), USDA International Agriculture Productivity Index (2019-2020). The indices listed in the right column under each heading do not have a statistically distinguishable correlation coefficient with the index in the heading and the specific index in the row. For instance, for Prevalence of Undernourishment (the fourth row), the SPI index does not have a statically significantly different correlation from those of the SCI. We use the R package "cocor" (Diedenhofen and Much, 2015) to test for the correlations with overlapping samples.

Table A.8. Comparison of Statistical Indices to Key Development Indices using Alternative Time Periods

Index	5-year average		2-year average (2019-2020)	
	SCI	SPI	SCI	SPI
$2.15 poverty headcount rate	-0.37***	-0.49***	-0.34***	-0.49***
GDP per capita	0.22***	0.53***	0.21**	0.53***
SDR: SDG Index Score	0.69***	0.82***	0.66***	0.81***
Prevalence of Undernourishment	-0.6*** SPI	-0.62*** SCI	-0.57*** SPI	-0.62*** SCI
Prevalence of Severe Food Insecurity	-0.56***	-0.64***	-0.55***	-0.64***
EIU: Global Food Security Index	0.75***	0.86***	0.74***	0.85***
EIU: Food Sustainability Index	0.7***	0.86***	0.7***	0.86***
USDA International Agriculture Productivity Index	0.28*** SPI	0.21*** SCI	0.23*** SPI	0.2*** SCI

Note: The Pearson correlations are shown for the averaged value of the index over the most recent consecutive years (to reduce volatility). Two alternates are presented: a 5-year average and a 2-year average from 2019-2020 (coinciding with the latest years available for the SCI). The years used for the indicators are: $2.15 poverty headcount rate (2016-2020 or latest 5 years available); 2019-2020 or latest two years available), GDP per capita (2018-2022 or latest 5 years available); 2019-2020 or latest two years available), SDR: SDG Index Score (2018-2022 or latest 5 years available); 2019-2020), Prevalence of Undernourishment (2019-2020 or latest two years available), Prevalence of Severe Food Insecurity (2018-2022 or latest 5 years available); 2019-2020 or latest two years available), EIU: Global Food Security Index (2018-2022 or latest 5 years available); 2019-2020), EIU: Food Sustainability Index (2021), USDA International Agriculture Productivity Index (2016-2020 or latest 5 years available); 2019-2020). The indices listed in the right column under each heading do not have a statistically distinguishable correlation coefficient with the index in the heading and the specific index in the row. For instance, for Prevalence of Undernourishment (the fourth row), the SPI index does not have a statically significantly different correlation from those of the SCI. We use the R package "cocor" (Diedenhofen and Much, 2015) to test for the correlations with overlapping samples.

Table A.9. SPI Indicator Point of Contact

Dimension	Indicator Name	Short Description	Contact
Dimension 1.5	Availability of Comparable Poverty headcount ratio at $2.15 a day	Availability of Comparable Poverty headcount ratio at $2.15 a day	Contact World Bank PIP team here: https://pip.worldbank.org/home
Dimension 1.5	Availability of Mortality rate, under-5 (per 1,000 live births) data meeting quality standards according to UN IGME	Availability of Mortality rate, under-5 (per 1,000 live births) data meeting quality standards according to UN IGME	childmortality@unicef.org
Dimension 1.5	Quality of Debt service data according to World Bank	Quality of Debt service data according to World Bank	data@worldbank.org
Dimension 1.5	Safely Managed Drinking Water	Safely Managed Drinking Water	info@washdata.org
Dimension 1.5	Labor force participation rate by sex and age (%)	Labor force participation rate by sex and age (%)	https://ilostat.ilo.org/about/contact/
Dimension 2.1	SDDS/e-GDDS subscription	SDDS/e-GDDS subscription	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 2.2	ODIN Open Data Openness score	ODIN Open Data Openness score	https://odin.opendatawatch.com/Contact/index
Dimension 2.2	Machine Readability Score	Machine Readability Score	https://odin.opendatawatch.com/Contact/index
Dimension 2.2	Non-Proprietary format Score	Non-Proprietary format Score	https://odin.opendatawatch.com/Contact/index

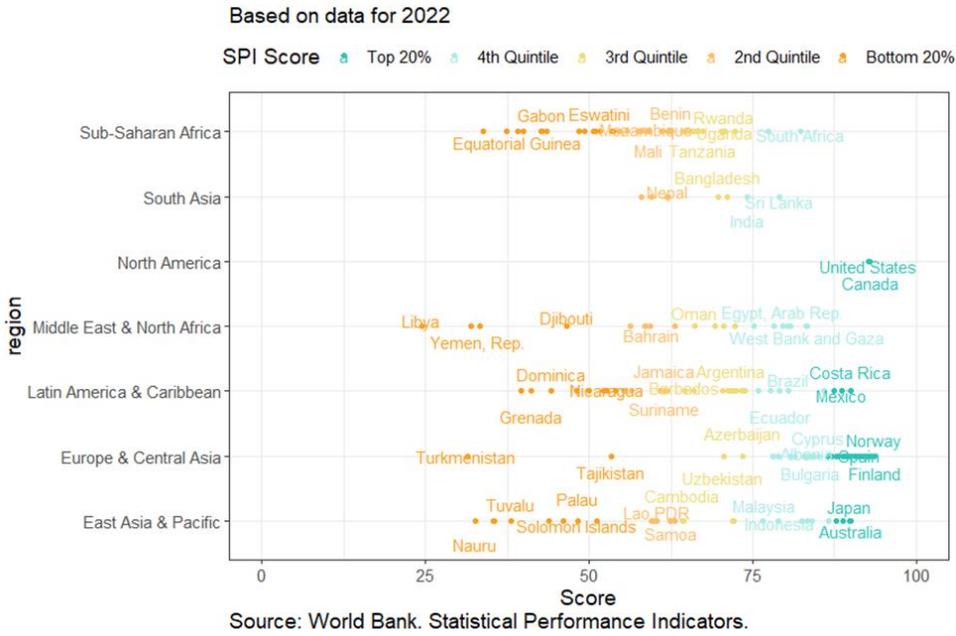| Dimension 2.2	Download Options Score	Download Options Score	https://odin.opendatawatch.com/Contact/index
Dimension 2.2	Metadata Available Score	Metadata Available Score	https://odin.opendatawatch.com/Contact/index
Dimension 2.2	Terms of Use Score	Terms of Use Score	https://odin.opendatawatch.com/Contact/index
Dimension 2.4	survey metadata	survey metadata	data@worldbank.org
Dimension 3.1	GOAL 1: No Poverty	GOAL 1: No Poverty	statistics@un.org
Dimension 3.2	GOAL 2: Zero Hunger	GOAL 2: Zero Hunger	statistics@un.org
Dimension 3.3	GOAL 3: Good Health and Well-being	GOAL 3: Good Health and Well-being	statistics@un.org
Dimension 3.4	GOAL 4: Quality Education	GOAL 4: Quality Education	statistics@un.org
Dimension 3.5	GOAL 5: Gender Equality	GOAL 5: Gender Equality	statistics@un.org
Dimension 3.6	GOAL 6: Clean Water and Sanitation	GOAL 6: Clean Water and Sanitation	statistics@un.org
Dimension 3.7	GOAL 7: Affordable and Clean Energy	GOAL 7: Affordable and Clean Energy	statistics@un.org
Dimension 3.8	GOAL 8: Decent Work and Economic Growth	GOAL 8: Decent Work and Economic Growth	statistics@un.org
Dimension 3.9	GOAL 9: Industry, Innovation and Infrastructure	GOAL 9: Industry, Innovation and Infrastructure	statistics@un.org
Dimension 3.10	GOAL 10: Reduced Inequality	GOAL 10: Reduced Inequality	statistics@un.org

Dimension 3.11	GOAL 11: Sustainable Cities and Communities	GOAL 11: Sustainable Cities and Communities	statistics@un.org
Dimension 3.12	GOAL 12: Responsible Consumption and Production	GOAL 12: Responsible Consumption and Production	statistics@un.org
Dimension 3.13	GOAL 13: Climate Action	GOAL 13: Climate Action	statistics@un.org
Dimension 3.15	GOAL 15: Life on Land	GOAL 15: Life on Land	statistics@un.org
Dimension 3.16	GOAL 16: Peace and Justice Strong Institutions	GOAL 16: Peace and Justice Strong Institutions	statistics@un.org
Dimension 3.17	GOAL 17: Partnerships to achieve the Goal	GOAL 17: Partnerships to achieve the Goal	statistics@un.org
Dimension 4.1	Population & Housing census	Population & Housing census	statistics@un.org
Dimension 4.1	Agriculture census	Agriculture census	FAO-HQ@fao.org
Dimension 4.1	Business/establishment census	Business/establishment census	data@worldbank.org
Dimension 4.1	Household Survey on income, etc.	Household Survey on income, etc.	data@worldbank.org
Dimension 4.1	Agriculture survey	Agriculture survey	data@worldbank.org
Dimension 4.1	Labor Force Survey	Labor Force Survey	https://ilostat.ilo.org/about/contact/
Dimension 4.1	Health/Demographic survey	Health/Demographic survey	info@dhsprogram.com; https://mics.unicef.org/contact-us
Dimension 4.1	Business/establishment survey	Business/establishment survey	data@worldbank.org

Dimension 4.2	CRVS (WDI)	CRVS (WDI)	data@worldbank.org
Dimension 4.3	Geospatial data available at 1st Admin Level	Geospatial data available at 1st Admin Level	https://odin.opendatawatch.com/Contact/index
Dimension 5.1	Legislation Indicator based on PARIS21 indicators on SDG 17.18.2	Legislation Indicator based on PARIS21 indicators on SDG 17.18.2	statistics@un.org
Dimension 5.2	System of national accounts in use	System of national accounts in use	data@worldbank.org
Dimension 5.2	National Accounts base year	National Accounts base year	data@worldbank.org
Dimension 5.2	Classification of national industry	Classification of national industry	statistics@un.org
Dimension 5.2	CPI base year	CPI base year	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 5.2	Classification of household consumption	Classification of household consumption	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 5.2	Classification of status of employment	Classification of status of employment	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 5.2	Central government accounting status	Central government accounting status	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 5.2	Compilation of government finance statistics	Compilation of government finance statistics	https://www.imf.org/external/np/exr/contacts/contacts.aspx
Dimension 5.2	Compilation of monetary and financial statistics	Compilation of monetary and financial statistics	https://www.imf.org/external/np/exr/contacts/contacts.aspx

Dimension 5.2	Business process	Business process	https://unece.org/statistics/contact-us-form
Dimension 5.5	Finance Indicator based on PARIS21 indicators on SDG 17.18.3 & SDG 17.19.1	Finance Indicator based on PARIS21 indicators on SDG 17.18.3 & SDG 17.19.1	statistics@un.org

Figure A.1 SPI Overall Score within Each Region and Income Level

Panel A. By Region

Source: World Bank. Statistical Performance Indicators.

Panel B. By Income Level

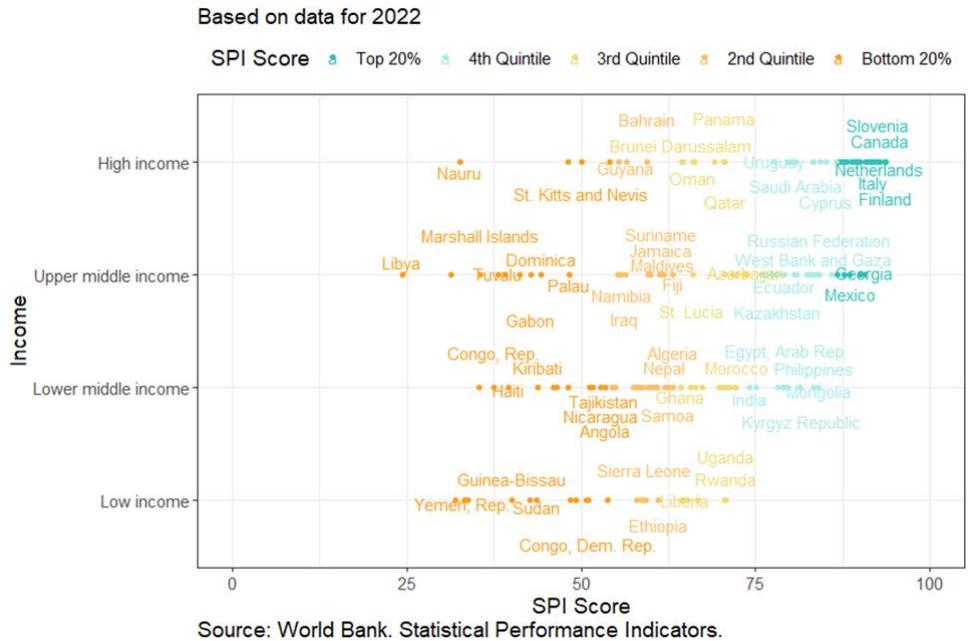Source: World Bank. Statistical Performance Indicators.

Figure A.2. The Standardized Distribution of the SPI vs. the Standardized Distribution of the SCI for the Same Countries, 2016-2020

Kernel=gaussian, bandwidth=0.2167. Dotted line shows a normal distribution