

The Empirics of Social Progress: The Interplay between Subjective Well-Being and Societal Performance[†]

By DANIEL FEHDER, MICHAEL PORTER, AND SCOTT STERN*

I. The Measurement of Societal Performance

Since the development of the national income accounts in the 1930s, the difference between measures of national income and societal performance has been recognized. Kuznets himself cautioned that “the welfare of a nation can, therefore, scarcely be inferred from a measurement of national income” (Kuznets 1934). But, despite this warning and calls for amending GDP to more accurately reflect the full range of societal experience, GDP itself has become an ever more important and standardized economic statistic for economics research and policy.

Even though GDP remains a central economic statistic, its use as a measure of national performance has come under increasing scrutiny. Economists have paid increasing attention to the measurement and causes of economic inequality, with a focus on income and wealth. But, beyond economic inequality, Sen (1985) pioneered the construction of measures of aggregate performance that meaningfully incorporate noneconomic factors, including health, education, safety, civil freedoms, and environmental integrity. Sen focused on the importance of measuring human capabilities affecting the functioning of individuals within a society. This work inspired the Human Development Index, the most

well-known “beyond GDP” measure, which includes GDP together with two noneconomic factors (educational attainment and life expectancy).

The last three decades has witnessed a proliferation of efforts to incorporate a wider range of measurable factors reflecting societal performance, and a variety of synthetic “beyond GDP” indices have been developed with varying levels of rigor and impact (Fleurbaey 2009). A subtle but important conceptual challenge underlies these efforts. On the one hand, most attempts to develop an overall measure of societal performance to replace GDP acknowledge the central role of economic prosperity in social welfare. Some version of GDP or economic activity is thus usually included as a central component of societal performance. As a result, attempts to move beyond GDP by amending GDP to include noneconomic factors end up with a statistic that incorporates (and is therefore correlated by construction with) GDP. Indeed, a common critique of the Human Development Index is that the index masks a lack of social advancement in many countries that perform well, such as Saudi Arabia, due to their strong economic performance. Similarly, measures that focus on a single dimension of noneconomic performance (e.g., environmental integrity) are inherently partial and therefore allow only a balkanized view. Overall, synthetic indices combining noneconomic factors along with GDP are by construction conflated with GDP, then, while domain-specific indicators that might be extremely informative about a particular area lack generality or the ability to make systematic contrasts (other than with GDP itself).

We address these challenges through a novel empirical approach in which we first construct a synthetic composite index, the Social Progress Index (SPI), that focuses exclusively

*Fehder: Marshall School, University of Southern California (email: fehder@marshall.usc.edu); Porter: Harvard Business School (email: mporter@hbs.edu); Stern: MIT Sloan and NBER (email: sstern@mit.edu). We thank Betsey Stevenson for very constructive comments, as well as Michael Green, Amy Wares, and Tamar Epner of the Social Progress Imperative for feedback and suggestions.

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on noneconomic factors.¹ Building on a range of prior work emphasizing the conditions giving rise to improving human capability and functioning, SPI measures three core dimensions of social progress: basic human needs, foundations of well-being, and opportunity. Each dimension is constructed using publicly available social output measures for a wide range of countries. We then examine the relationship between SPI and economic performance, documenting that GDP per capita and SPI are correlated but distinct. But, while basic human needs is highly correlated with GDP per capita, opportunity has a noisier relationship.

We then extend the analysis by considering the interplay between SPI, GDP per capita, and a more holistic measure of subjective well-being (SWB, i.e., happiness or life satisfaction). Economists have long sought to clarify the conceptual and empirical relationship between traditional economic measures, such as GDP and personal income, and SWB. The Easterlin Paradox (1974) highlighted the empirical possibility that while SWB was increasing in relative income within a country, the relationship between country-level GDP per capita and average country-level SWB might be positive only up to a threshold level of economic development. The Easterlin Paradox was not simply an empirical puzzle: the absence of a relationship between GDP and life satisfaction would pose a challenge to the (often implicit) Benthamite utilitarian assumptions undergirding a considerable body of applied economic analysis.

Over the last several years, a systematic body of rigorous empirical evidence has clarified that debate: Stevenson and Wolfers (2013) document a robust positive association between SWB and the absolute level of income, within countries, across countries, and across time. However, the explanatory power of GDP (and personal income) on SWB is modest, compared

to transitory impacts of important life events such as marriage (Deaton 2008).

We offer new insight into the factors shaping SWB by considering the distinct role that SPI has on SWB, and how the inclusion of SPI influences the measured relationship between SWB and traditional economic measures. While SPI and its dimensions each have a univariate correlation with SWB, the opportunity dimension (with the lowest correlation with GDP) has the most robust relationship to country-level SWB. Within countries, the relationship between social progress and well-being is stronger for individuals at lower levels of income and educational attainment. Together the results highlight the joint role of traditional economic measures and noneconomic dimensions in shaping SWB. Though exploratory, the measurement and analysis of a social progress index highlights the potential importance of accounting for the two-way interaction between economic fundamentals and social institutions in shaping overall societal performance.

II. Constructing a Social Progress Index²

The novelty of our analysis results from the use of a social progress index that excludes factors directly incorporated into the traditional economic measurement of GDP. As emphasized by, among others, Nardo et al. (2005) and Fleurbaey and Blanchet (2013), synthetic index construction is inherently problematic, with a wide scope for theoretical or empirical alternatives with equal claim of a potential relationship (or lack of relationship) to social welfare. Importantly, one of the strengths of GDP as an economic statistic is that, despite its other limitations, its construction is disciplined through the use of prices as relative weights which are themselves determined through the revealed preference choices of consumers and firms.³ Measures that directly seek to integrate noneconomic dimensions into GDP (such as the Human Development Index) inherently combine a GDP component weighted by price with other

¹The Social Progress Index was developed by the authors in collaboration with the Social Progress Imperative. Two authors (Porter and Stern) serve on the Advisory Board. See www.socialprogressimperative.org for detailed background and policy objectives discussion of the Social Progress Imperative, and the construction of the Social Progress Index. From inception, the Social Progress Imperative has focused on developing a synthetic noneconomic social progress index to exist alongside GDP and traditional metrics to assess overall societal performance.

²This section draws on earlier discussions in Porter, Stern, and Green (2017) and Stern, Wares, and Epner (2017).

³This discussion abstracts away from the challenges of the measurement of traditional economic activity, and constructing GDP in a consistent way across time and space (among many others, Fleurbaey and Blanchet 2013).

factors, and so must inevitably (implicitly if not explicitly) specify the ways in which components that are not easily measured through prices (e.g., environmental or health quality) influence the relative weight assigned to GDP itself.

Rather than conflating the role of economic and noneconomic factors in a single index, we propose an alternative index to exist alongside GDP in assessing societal performance. Separating GDP from noneconomic social progress does not by itself overcome the inherent challenges of calculating a composite index such as selection of potential components and determination of their relative weights (Nardo et al. 2005). But, by focusing specifically on social progress, we aim to address these issues directly without explicit reference to the welfare contribution or relative role of GDP itself. As a result, we can focus on developing a consistent and robust index of social progress outputs to examine the role of social progress in overall societal performance.

Our analysis utilizes the Social Progress Index, first developed by the authors in conjunction with the Social Progress Imperative. Synthesizing a rich multidisciplinary literature following Sen (1985), including critical contributions such as Stiglitz, Sen, and Fitoussi (2010) and Fleurbaey (2009), the Index is premised on a holistic yet concrete definition for social progress amenable to measurement: social progress is the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential. To translate this definition into a concrete measurement tool, the index aggregates social and environmental output-oriented measures available across a wide range of countries or regions with a high level of consistency and specificity.

SPI is based on a framework in which overall social progress is decomposed into three distinct dimensions, basic human needs (BHN, “Does a country provide for its people’s most essential needs?”), foundations of well-being (FOW, “Are the building blocks in place for individuals and communities to enhance and sustain well-being?”), and opportunity (“Is there opportunity for all individuals to reach their full potential?”) (see the online Appendix for further description). Whereas BHN centers on

noneconomic conditions that a society provides (e.g., achieving a high level of sanitation, shelter, and personal safety), FOW asks if a society offers individuals an opportunity to invest in themselves and their communities to advance their well-being (e.g., allowing individuals to achieve a basic level of education, gain access to information, and maintain lifelong health and local environmental quality). Finally, opportunity focuses on those components of social progress that affect the ability of individuals to achieve their own personal objectives, including their degree of personal rights and freedom in the context of an inclusive society with higher educational opportunities.

Each of the three dimensions of SPI are divided into four components suggested by the literature. Each component is based on an aggregation of three to five publicly-available indicators which are determined using a transparent and consistent methodology across a wide range of countries (the Index includes a total of 50 measures). Each measure is scaled from zero to 100, ranging from zero for the worst possible performance and 100 for maximal performance feasibly achievable by a society (either on an absolute basis or as achieved by the best-performing country in any year since 2004). Principal components analysis is used to develop weights for each measure within the components to ensure adequate balance among measures and avoid overweighting measures that are themselves highly correlated with each other. To calculate the dimension and overall SPI score, each component is weighted equally within dimension, and each dimension is weighted equally in the calculation of the overall SPI. The average of SPI for 2014 is 66.27, with a range from 30.32 (Central African Republic) to 90.02 (the Netherlands).

III. Social Progress, GDP, and Subjective Well-Being

SPI aims to incorporate a broad array of dimensions of societal performance not directly captured by traditional economic metrics such as GDP. A major objective is first to offer insights into differences in noneconomic societal performance across countries and over time as a foundation for benchmarking and understanding what leads to effective policy. For example, Northern European countries show

strength in areas such as FOW while the United States registers strong performance in the area of opportunity relative to the other two dimensions. Beyond comparisons of social progress dimensions, however, SPI offers a novel tool for assessing the interplay between social indicators, traditional economic metrics such as GDP per capita, and more holistic measures of human fulfillment such as SWB. SPI, then, incorporates the noneconomic factors that are needed in any “beyond GDP” statistic, and thus offers a way to evaluate the relationship between these dimensions and GDP itself.

Figure 1 documents the relationship between GDP and SPI for 52 countries for which we also have SWB data.⁴ Notable differences exist for some country groupings relative to others. Scandinavia tends to perform more strongly on SPI relative to measured GDP per capita, while resource-dependent economies realize a low level of SPI relative to their economic output. In terms of the relationship between GDP per capita and the three dimensions of SPI, there is a tight connection between GDP per capita and BHN (a dimension that covers many aspects of social progress that have been the focus of the development literature), a flatter relationship between GDP per capita and FOW, and a noisier relationship between GDP per capita and opportunity. The dimensions of SPI most closely related to public investment and infrastructure are more closely connected to GDP per capita than those related to individual choice and social norms.

These distinctions between GDP per capita, and SPI and its dimensions, motivate an analysis of how these social and economic performance metrics relate to average SWB (as measured by World Values Survey Wave 6, covering 52 countries between 2012–2014).⁵ In the online Appendix, we report the univariate correlation between subjective well-being and the log of GDP per capita, as well as SPI and each of its dimensions. Each of these correlations are

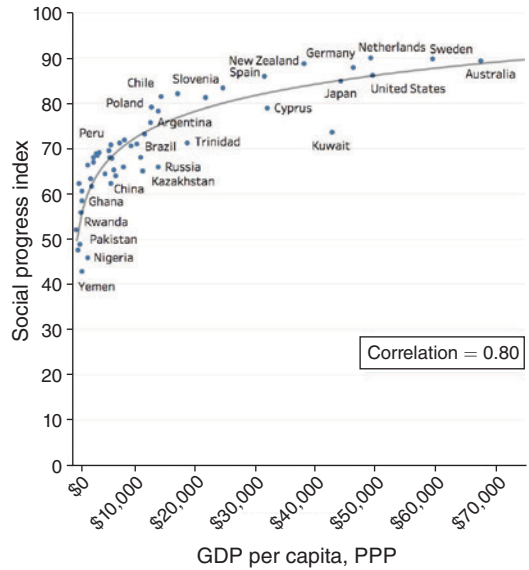


FIGURE 1. RELATIONSHIP BETWEEN GDP PER CAPITA AND SPI

positive and significant raising the question of the joint interplay between economic and noneconomic societal performance and SWB. Table 1 reports three regressions including GDP per capita and measures of social progress. Model 1-1 first includes GDP per capita and SPI together. Both are positively associated with SWB; while neither is statistically significant, together they are jointly significant ($F = 9.56$). Given the baseline correlation between GDP and SPI, we cannot separately disentangle the individual impact on SWB. Model 1-2 furthers this investigation by considering the impact of each dimension of SPI controlling for GDP. Interestingly, the dimension of SPI least correlated with GDP, opportunity, has a statistically significant relationship with SWB. Put together, these exploratory findings suggest the utility of separating GDP and SPI (and its dimensions); similar to GDP, SPI has a strong univariate relationship to SWB, but the bivariate correlation between GDP and SPI does not allow for separate cross-sectional identification of each on average SWB.

In the online Appendix, we extend this analysis to focus on the interplay between individual attributes and social progress. Briefly, we utilize the detailed individual data available from the

⁴Our broad findings persist if we examine instead GNI (excluding foreign income), or control for income inequality. The online Appendix illustrates the empirical relationship between SPI and its dimensions and GDP per capita.

⁵Our analysis focuses on item V23 from the WVS, a commonly used SWB metric used from this survey. The results are robust to alternative SWB measures such as those from the Gallup Survey.

TABLE 1—THE RELATIONSHIP BETWEEN LIFE SATISFACTION AND SPI, AND BY DIMENSION

	Life satisfaction (1)	Life satisfaction (2)	Life satisfaction (3)
Logged GDP per capita	0.183 (0.166)	0.222 (0.168)	0.038 (0.108)
SPI	0.012 (0.015)		
Basic human needs		-0.012 (0.020)	
Foundations of well-being		-0.023 (0.030)	
Opportunity		0.031 (0.012)	0.023 (0.008)
Constant	4.392 (0.754)	5.822 (1.064)	5.229 (0.736)
Observations	52	52	52
R ²	0.182	0.274	0.238

Notes: These are linear regression models at the country level. Robust standard errors in parentheses.

World Values Survey to consider a regression where we include country-level fixed effects and focus on the interaction between SPI and relative income, educational attainment, and gender. After controlling for country-level fixed effects and interaction terms between GDP per capita and individual attributes, our results suggest that the relationship between SPI and SWB is more important at lower levels of relative income and educational attainment.

IV. Concluding Thoughts

Most discussions in economics and policy have treated the role of social conditions and the provision of effective noneconomic social institutions (e.g., those that allow for a greater level of personal freedom) as potentially important but difficult to integrate into a traditional economic measurement framework. The role of noneconomic factors in shaping well-being has often been treated as a confounding influence rather than as a direct area of study, despite the fact that individual life circumstances play an important role in shaping well-being.

Our goal has been to reorient analysis toward the dual role of economic and noneconomic dimensions in shaping overall societal progress.

That social progress and economic development are correlated is a positive and important finding. Of equal interest is the important linkages between these two concepts, both across countries and across different dimensions of social progress. An important finding is that the dimension of social progress least correlated with GDP, opportunity, exhibits the most robust positive relationship with SWB. Understanding social progress across multiple dimensions can enhance understanding of the factors shaping economic performance, and the reverse. Our analysis suggests the potential for a constructive empirical agenda exploring the two-way relationship between economic and noneconomic factors in shaping aggregate societal performance.

REFERENCES

- Deaton, Angus.** 2008. "Income, Health, and Well-Being around the World: Evidence from the Gallup World Poll." *Journal of Economic Perspectives* 22 (2): 53–72.
- Easterlin, Richard A.** 1974. "Does Human Growth Improve the Human Lot? Some Empirical Evidence." In *Nations and Households in Economic Growth*, edited by Paul A. David and Melvin W. Reder, 89–125. New York: Academic Press.
- Fleurbaey, Marc.** 2009. "Beyond GDP: The Quest for a Measure of Social Welfare." *Journal of Economic Literature* 47 (4): 1029–75.
- Fleurbaey, Marc, and Didier Blanchet.** 2013. "Beyond GDP: Measuring Welfare and Assessing Sustainability." New York: Oxford University Press.
- Kuznets, Simon.** 1934. "National Income, 1929–1932." In *National Income, 1929–1932*, edited by Simon Kuznets, 1–12. National Bureau of Economic Research.
- Nardo, Michela, Michaela Saisana, Andrea Saltelli, Stefano Tarantola, Anders Hoffman, and Enrico Giovannini.** 2005. *Handbook on Constructing Composite Indicators: Methodology and User Guide*. Paris: Organisation for Economic Development.
- Porter, Michael E., Scott Stern, and Michael Green.** 2017. *Social Progress Index 2017*. Washington, DC: Social Progress Imperative.
- Sen, Amartya.** 1985. *Commodities and Capabilities*. Amsterdam: North-Holland.

Stern, Scott, Amy Wares, and Tamar Epner. 2017. *Social Progress Index 2017: Methodology Report*. Washington, DC: Social Progress Imperative.

Stevenson, Betsey, and Justin Wolfers. 2013. "Subjective Well-Being and Income: Is There Any Evidence of Satiation?" *American Economic*

Review 103 (3): 598–604.

Stiglitz, Joseph E., Amartya Sen, and Jean-Paul Fitoussi. 2010. *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress.