The Empirics of Social Progress:

The Interplay between Subjective Well-Being and Societal Performance

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Abstract: Though economists have long recognized and emphasized that GDP by itself is not a measure of societal well-being, most alternatives and adjustments to GDP incorporate direct measures of economic performance. We propose instead an independently constructed measure, a social progress index, that focuses exclusively on non-economic dimensions that are well established as fundamental to societal performance. The construction of a social progress index allows for direct comparison between measures of subjective well-being and economic performance with social performance, both across and within countries. Building on a diverse range of prior work emphasizing the conditions giving rise to improving human capability and functioning, we focus on measuring three core dimensions of social progress: basic human needs, foundations of well-being, and opportunity. Each of these dimensions can be constructed using publicly available measures for a wide range of countries. Our analysis focuses on the interplay between these dimensions of social progress, holistic measures of subjective well-being, and economic metrics such as personal income and GDP. GDP and social progress are correlated but distinct. The dimension of social progress least related to GDP, Opportunity, is strongly related to subjective well-being. The relationship between social progress and well-being is greater for individuals at a lower level of income and educational attainment, but does not depend on gender.

I.   Introduction

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 development, both in the United States and abroad.

Even though GDP remains a central economic statistic, however, its use as a measure of national performance has come under increasing scrutiny. Economists have payed increasing attention to the measurement and causes of economic inequality, with focus on the concentration of income and wealth in upper tail of the distribution (Piketty and Saez 2006). But, beyond inequality, Sen (1985) pioneered the focus constructing meaningful and actionable measures of aggregate performance that meaningfully incorporates non-economic factors, including health, education, safety, civil freedoms, inclusion, and environmental integrity. In particular, Sen focused on the importance of measuring human capabilities affecting the functioning of individuals within a society. The Human Development Index is the most well-known "beyond GDP" measure that directly incorporates both economic and non-economic factors into a single measure of societal performance. It has proved useful for research and has been perhaps even more influential on policy. However, HDI includes only a limited number of non-economic factors such as educational attainment and life expectancy. This has led to proliferation of efforts to incorporate a wider range of measurable factors reflecting societal performance over the last three

decades; a variety of synthetic "beyond GDP" indices have been developed with varying levels of rigor and impact (Fleurbaey, 2009).

At the same time, research has sought to clarify the conceptual and empirical relationship between traditional economic measures, such as GDP and personal income, and overall measures of subjective well-being. The Easterlin Paradox (1974) highlighted the empirical possibility that while subjective well-being was increasing in the relative income within a country, the relationship between country-level GDP per capita and average country-level subjective well-being might be positive only up to a threshold level of economic development and uncorrelated beyond this. To be clear, the challenge laid out by 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 Benthamite utilitarian assumptions (often implicit) undergirding a considerable body of applied economic analysis.

Over the last several years, a systematic body of rigorous evidence has clarified the relationship between subjective well-being and income. Stevenson and Wolfers (2013) document a robust positive association between subjective well-being and the absolute level of income, within countries, across countries, and across time. However, it is important to note that the explanatory power of GDP (and even personal income) in subjective well-being is modest, particularly compared to social or important life events such as marriage (Deaton, 2008). Together, these empirical findings raise another key question: what shapes the interplay between subjective well-being and direct measures of societal performance (DiTella, et al. 2001; Kahneman and Krueger 2006)?

At the core of this question lies a subtle but important conceptual challenge facing efforts to move measurement beyond GDP. 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. This has led these efforts to include some version of GDP or economic activity as a central component of societal performance. Put another way, attempts to move beyond GDP by amending GDP to include non-economic factors will, by construction, result in a statistic that itself incorporates (and is highly correlated with) GDP. Indeed, a common critique of the Human Development Index is that many countries that perform well, such as Saudia Arabia, mask a lack of societal advancement with their strong economic performance. Yet measures that focus on a single dimension of non-economic performance (e.g., any one of safety, health, education, civil rights, social inclusion, or environmental integrity) are inherently partial and not an overall measure of societal performance.

A consequence of this problem is that most non-economic measures are balkanized. Such measures are made by researchers focused on a particular area, but with few comparisons to indicators or measures (other than GDP) that reflect other aspects of societal performance. Putting these ideas together, the key challenge is that to date synthetic indices that incorporate non-economic factors into a statistic that includes GDP are by construction conflated with GDP, while domain-specific indicators can be extremely informative about a particular area but lack generality or the ability to make systematic contrasts.

We address this challenge through a novel empirical approach in which we first construct a synthetic social progress index that incorporates only non-economic factors and then consider the interplay between economic circumstance and this social progress index in shaping subjective well-being. Separating GDP (or any measure of economic performance) and social progress into separate empirical constructs enables clarity about the relationship between economic and social factors, and also the role that each place in shaping subjective well-being.

Our analysis here proceeds in three steps. First, we describe the construction of a synthetic measure of non-economic performance, the Social Progress Index (SPI).[1] Building on a wide range of prior literature, it incorporates more than 50 indicators into 12 components that are then aggregated into three primary dimensions of non-economic societal performance: Basic Human Needs, Foundations of Wellbeing, and Opportunity. Second, we consider the relationship between SPI (and its three dimensions) and economic measures such as GDP per capita. Third, we examine how SPI and economic measures together relate to country-level measures of subjective well-being drawn from the World Values Survey.

Two empirical findings stand out: GDP and SPI are correlated but distinct. While each is correlated with subjective well-being, the Opportunity dimension has the lowest correlation with GDP, yet the most robust relationship with country-level subjective well-being. Within countries, the relationship between social progress and well-being is similar by gender but larger for individuals at a lower levels of income and educational attainment. Together the results highlight the relationship between traditional economic metrics and non-economic dimensions of societal performance in shaping subjective wellbeing. More generally, though our results here are 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 the performance of each both across the population and over time.

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[1] The Social Progress Index was developed by the authors in collaboration with the Social Progress Imperative, of which two of the authors (Porter and Stern) serve on the Advisory Board. A detailed discussion of the background and policy objectives of the Social Progress Imperative, as well as the details of the construction of the Social Progress Index can be found at www.socialprogressimperative.org/. From its inception, a central objective of the Social Progress Imperative has been the development of a synthetic index of non-economic social progress that could exist alongside GDP and traditional economic metrics in assessing overall societal performance.

II.   Constructing a Social Progress Index[2]

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 (2014), synthetic index construction is inherently problematic, with enormous 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 non-economic dimensions into GDP (in the tradition of Nordhaus and Tobin, 1972, or the Human Development Index) inherently combine a GDP component weighted by price with other 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.[4]

Rather than integrate non-economic factors into GDP, we propose instead an alternative conceptualization in which we develop a synthetic index capturing a broad range of non-economic social performance outcomes and then consider the relationship between that index and GDP and subjective well-being.   In other words, rather than conflating the role of economic and non-economic factors in a single index, we propose to develop an alternative index that exists alongside

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[2] This section draws on earlier discussion in Porter, Stern, and Green (2017) and Stern, Wares, and Tepner (2017).
[3] This discussion abstracts away from the also important issues of the measurement of traditional economic activity, and the challenges of constructing GDP itself in a consistent way across time and space (see among many others, Fleurbaey and Blanchet, 2014 (particularly Chapter 3) and Coyle, 2014).
[4] Jones and Klenow (2016) and Fleurbaey and Gaulier (2009) make significant headway on this weighting challenge by developing a consumption-equivalent welfare index calibrated from micro-data that allow for the incorporation of some broad non-priced elements of welfare (e.g., in Jones and Klenow, these include mortality, leisure, and economic inequality).

GDP in assessments of societal performance. Separating GDP from non-economic social progress does not by itself overcome the inherent challenges of calculating a composite index. Any composite index must justify the inclusion or exclusion of its different potential components, determine the relative weights (and relationships) of those components within the index, and consider how particular measures are combined to capture components in a systematic and consistent way (Nardo et al, 2005). But, by focusing specifically on social progress, we aim to address these issues without explicit reference to the welfare contribution or relative role of GDP itself. As a result, we are able to focus on the development of a well-constructed, consistent and robust index that offers a concrete empirical lens into the role of different facets of social progress across places and potentially over time.

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 focuses exclusively on the aggregation of social and environmental output-oriented measures available across a wide range of countries or regions with a high level of consistency and specificity.

Building on this definition, SPI is based on a framework (See Figure 1) in which overall social progress is decomposed into three distinct dimensions, Basic Human Needs ("Does a country provide for its people's most essential needs?"), Foundations of Well-Being ("Are the building

blocks in place for individuals and communities to enhance and sustain wellbeing?), and Opportunity ("Is there opportunity for all individuals to reach their full potential?"). Whereas Basic Human Needs centers on non-economic conditions that a society provides (e.g., achieving a low child mortality rate and a high level of sanitation, shelter, and personal safety), Foundations of Wellbeing focuses on whether a society offers individual an opportunity to invest in themselves and their communities to advance their wellbeing (e.g., allowing individuals to achieve a basic level of education, gain access to information, and maintain strong lifelong health and local environmental quality). Finally, Opportunity focuses on those components of social progress that concern the ability of individuals to achieve their own personal objectives, including their degree of personal rights and freedom in the context of an inclusive and educated society.

SPI is thus based of three dimensions, each of which consists of four component constructs. As such, calculating SPI first requires calculating component-level scores, and then aggregating across components and dimensions. Each component is based on an aggregation of three to five indicators publicly available with a transparent and consistent methodology across a wide range of countries (the Index includes a total of 50 measures). Each measure is scaled on an absolute scale ranging from zero for the worst possible performance, and 100 for maximal performance feasibly achievable by a society, and principal components analysis is used to develop weights for each measure within the components in order 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. Overall, the global average of SPI across countries 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 is an alternative metric attempting to incorporate dimensions of societal performance not directly captured by traditional economic metrics such as GDP. At one level, the Social Progress Index can offer insight into differences in non-economic societal performance across countries and over time, as well as allow for analysis of contrasts across dimensions and components of social progress within a country at a given moment in time. For example, relative to the strength in social progress across Northern European countries in areas such as Foundations of Wellbeing, the United States scores relatively strongly in the area of Opportunity relative to its performance in terms of Basic Human Needs and Foundations of Wellbeing.

Beyond comparisons internal to the Index, however, SPI offers a novel window into assessing the interplay between SPI, traditional economic metrics such as GDP per capita, and more holistic measures of human fulfillment such as subjective well-being. Put another way, as SPI incorporates the non-economic factors that would shape any "beyond GDP" statistic, SPI offers a way to evaluate the relationship between these dimensions and GDP itself. As well, this approach allows us to assess the role that economic and non-economic dimensions of societal performance plays in shaping individuals' assessment of their own subjective well-being.

We begin our analysis in Figure 2 simply comparing GDP per capita and SPI in 2014 for 130 countries covered by the Index. Overall, GDP per capita and SPI are correlated (r = 0.7) but distinct. There are notable differences for some groups of countries relative to others; while Scandanavian (and Northern European countries tend to perform more strongly on SPI relative to measured GDP per capita), resource-dependent economics such as Russia and Middle Eastern states such as Kuwait and Saudia Arabia realize a low level of SPI relative to their measured

economic output.[5]   However, the relationship between GDP per capita differs across the three dimensions of SPI (Figure 3). Whereas there is a tight connection between GDP per capita and Basic Human Needs (this dimension covers many aspects of social progress that have been the focus of the development literature), there is a flatter relationship between GDP per capita and Foundations of Wellbeing and the noisiest relationship is between GDP per capita and Opportunity. In other words, the closest relationship between SPI and traditional economic metrics is in the dimension closely related to public investment in institutions and infrastructure, with a more variable relationship between those dimensions and SPI in dimensions related to areas subject to individual choices and freedom.

These distinctions between GDP per capita and SPI and its dimensions motivates the next step of our analysis relating each of these societal performance metrics to average subjective well-being. To do so, we utilize the measure of subjective well-being available through the World Values Survey Wave 6, covering 52 countries between 2012-2014.[6] Table 1 and Figure 4 simply reports the univariate correlation between subjective well-being and the log of GDP per capita, SPI and each of its dimensions.[7] Each of these correlations are positive and significant. Both GDP per capita and SPI explain a similar fraction of the total variance (the highest r-squared is actually with the Opportunity dimension), and are associated with similar implied magnitudes. A one standard deviation change in log GDP per capita and SPI are associated with a 0.31 and 0.32

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[5] These broad differences do not disappear if we examine GNI (which excludes foreign income), or directly account for income inequality.

[6] Our analysis focuses on item V23 from the WVS, which is the most common subjective well-being metric from this survey employed by researchers. Though the broad results we report here are consistent with using alternative measures of subjective well-being (e.g., those available through the Gallup Survey), we focus on the WVS to be consistent with the next step in our analysis, which incorporates household income and other individual demographics.

[7] We implement a simple linear specification for ease of comparison; however, we are not ascribing causality to the implied cardinal change in subjective well-being that would be associated with a change in GDP, SPI or its dimensions.

change in average subjective well-being, respectively (equivalent to 0.4 of the standard deviation of subjective well-being itself).

These univariate correlations immediately raise the question of the joint interplay between economic and non-economic societal performance and subjective well-being. Table 2 reports three regressions including GDP per capita and measures of social progress. Model 2-1 simply includes GDP per capita and SPI together; both are positively associated with subjective well-being, neither is individually statistically significant, but together they are jointly significant (F = 9.56). Put simply, given the baseline correlation between GDP and SPI, we cannot separately disentangle the individual impact of each on subjective well-being. Model 2-2 furthers this investigation by considering the impact of each dimension of SPI controlling for GDP per capita. Similar to Model 2-1, GDP per capita is not statistically significant; however, the dimension of SPI least correlated with GDP, Opportunity, has a statistically and quantitatively significant relationship with average subjective well-being (the impact of a one standard-deviation in Opportunity is larger than that associated with the implied quantities from a similar change in GDP per capita or overall SPI discussed above). Put together, these exploratory findings suggest the utility of disentangling GDP and SPI (and its dimensions); similar to GDP, SPI has a strong univariate relationship to subjective well-being, but the bivariate correlation between GDP and SPI does not allow for separate cross-sectional identification of each on average subjective well-being.

IV.   Individual Attributes and Social Progress

The role of non-economic social progress performance is not simply a tool for cross-national comparisons but also provides a window into understanding the impact of individual circumstances within countries on subjective well-being. While SPI is measured at the national

level, it is possible to evaluate how the relationship between SPI and subjective well-being is mediated by key vectors of social and economic inequality.

To do so, we take advantage of the individualized data available through the World Values Survey to construct the average subjective well-being within each country for particular categories of individuals. We focus on key differences among individuals that impact the potential role of a stronger social progress environment on their subjective well-being, in particular income, education, and gender.

We begin by evaluating the relationship between subjective well-being, personal income, and the broader economic and non-economic environment. The World Values Survey measures self-reported income by within-country decile, and so we construct a dataset that is composed of ten "bins" per country, with a measure of average subjective well-being for that country-income decile.[8] This structure allows us to perform our main analysis, exploring the impact of GDP per capita, SPI, and income (and their interaction) on subjective well-being (SWB):

$$SWB_{c,d} = \ln(GDP)_c + SPI_c + INC_d + INC_{c,d} * SPI_c + \varepsilon_{c,d} \qquad (2)$$

Our results are reported in Table 3 and Figures 4 and 5. Similar to earlier research such as Stevenson and Wolfers (2013), Model 3-1 highlights that subjective well-being is increasing in both the level of economic performance and relative personal income decile within a country. At the same time, subjective well-being is increasing in SPI even after controlling for personal income (Model 3-2), but, similar to Table 2, we cannot separately disentangle the impact of GDP versus SPI when both are included in the same specification (personal relative income remains strongly positive and significant). However, when we include interactions between SPI and personal

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[8] Recent studies focusing directly on the impact of absolute and relative income, most notably Stevenson and Wolfers (2013), undertake the careful work of recalibrating these income deciles into absolute income levels for each country. Given that we are focusing here on within-country effects (i.e., we are either controlling for the level of GDP, or including country-specific fixed effects), we use the raw data and weights from the World Values Survey itself.

relative income (controlling for GDP (as in Model 3-4) or with country-level fixed effects (as in Model 3-5)), we find that the relationship between SPI and subjective well-being is significantly higher for those at a lower level of relative income. This is seen most sharply in Figure 5, where we estimate a separate impact of SPI for each income decile in a specification with country-level fixed effects. The impact of SPI on subjective well-being is statistically significant for the first seven income deciles (relative to the top decile), the point estimate is monotonically decreasing by decile. As well, the estimates are large relative to the average effect of SPI estimated earlier: for individuals in the lowest income decile, a standard deviation increase in SPI above the mean level in our sample would be associated with more than a half a standard deviation change in average life satisfaction.

We extend these findings in Figure 5, where we examine the interaction between each dimension of SPI and income decile (each of these three specifications includes country-level fixed effects as well as a full set of dummies for income decile). Overall, the pattern for each dimension is similar to the overall results for SPI, with a monotonically declining level of sensitivity of subjective well-being to SPI with relative income. However, there is interesting variation across these dimensions. While the magnitude of variation in the sensitivity to relative income level is relatively low for Basic Human Needs, there is a higher level of sensitivity for Foundations of Wellbeing or Opportunity. Together, the results suggest that the relationship between SPI and subjective-wellbeing varies by economic circumstance, but that this variation differs for the different dimensions of social progress.

Finally, in Table 4, we consider the role of educational and gender inequalities on subjective well-being. Similar to our earlier analysis, we consider the average level of subjective well-being within particular country-groups (in the context of regressions including country-level fixed

effects). We focus first in Models 4-1 and 4-2 on the impact of gender, where we find no direct effect of gender nor any interaction between gender and the level of social progress in shaping subjective well-being. We then turn in Models 4-3 and 4-4 to the interplay with educational attainment. We divide education into three bins, including less than high school, a high school degree, and those with education above a high school degree (i.e., some university). As well, in addition to country-level fixed effects, we include the proportion of individuals with greater than median income within each country-education level group as a control. While there is no direct effect of education level on subjective well-being (the coefficients are small and noisy), individual educational attainment seems to have an important role in moderating the relationship between SPI and life satisfaction. In particular, Model 4-4 shows that SPI has a stronger association with life satisfaction for individuals with lower educational attainment. Together, these results suggest that the role of non-economic social progress on individuals depends on their individual circumstance, and that social and economic inequalities not only influence economic opportunity but may influence the ability to benefit or not from social progress itself.

V.   Concluding Thoughts

Most discussions in economics and policy have treated the role of social relations and the provision of strong non-economic 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. Often, the role of non-economic factors in shaping wellbeing has 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 wellbeing. Our goal in this

exploratory study has been to reorient analysis towards a dual conception of the role of economic and non-economic dimensions in shaping societal progress. That social progress and economic development are correlated is a positive and important finding, but of equal interest are the important patterns of deviation between these two concepts, both across countries and across different dimensions of social progress. Importantly, it is the dimension of social progress least correlated with GDP, Opportunity, that exhibits the most robust relationship with subjective wellbeing.

Our analysis also raises the possibility that an understanding of social progress will be crucial for understanding the factors shaping economic performance and the reverse. Over the past several years, economists have begun to grapple more systematically with on the two-way relationship between political institutions and economic performance, with particular focus on the role of economic inequality in distorting policy and institutions. Our analysis suggests the potential for a broader synthesis of the two-way relationship between economic and non-economic factors in shaping aggregate societal performance. Investigating the drivers and consequences of social progress opens up an important agenda going forward.

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Figures and Tables

Table 1: Determinants of Life Satisfaction

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction	(4) Life Satisfaction	(5) Life Satisfaction
Logged GDP per Capita	0.284*** (0.072)				
SPI		0.028*** (0.006)			
Basic Human Needs			0.017* (0.009)		
Foundations of Wellbeing				0.029*** (0.011)	
Opportunity					0.025*** (0.006)
Constant	4.289*** (0.712)	4.862*** (0.488)	5.462*** (0.733)	4.699*** (0.794)	5.437*** (0.371)
Observations	52	52	52	52	52
R-squared	0.177	0.168	0.068	0.130	0.237

Note: These are linear regression models at the country level. Robust standard errors in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2:
SPI and Its Components Role in Life Satisfaction

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction
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 Wellbeing		-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-squared	0.182	0.274	0.238

Note: These are linear regression models at the country level. Robust standard errors in parentheses. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 3:
SPI and Individual Income on Life Satisfaction

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction	(4) Life Satisfaction	(5) Life Satisfaction
Log GDP	0.203*** (0.053)		0.072 (0.120)	0.072 (0.120)	
Income Decile	0.275*** (0.017)	0.275*** (0.017)	0.275*** (0.017)	0.275*** (0.016)	0.430*** (0.123)
SPI		0.022*** (0.005)	0.015 (0.011)	0.015 (0.011)	
Income Decile X SPI				-0.005*** (0.001)	
Income Decile X Log GDP					-0.017 (0.013)
Income Decile X Opportunity					-0.003** (0.001)
Constant	7.012*** (0.085)	7.012*** (0.085)	7.012*** (0.085)	7.012*** (0.085)	7.013*** (0.024)
Observations	516	516	516	516	516
R-squared	0.503	0.507	0.508	0.525	0.797

Note: These regressions are at the country level. For regressions 3-1 through 3-4, the models are cross-sectional linear models at the income-decile level with robust standard errors clustered at the country level. Model 3-4 is a fixed effect regression with robust standard errors $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 4:
Dimensions of SPI and Income with Interactions

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction	(4) Life Satisfaction
female	0.035 (0.035)	0.065 (0.402)		
Female X spi		-0.000 (0.005)		
Above Median Income			1.413*** (0.529)	1.722*** (0.521)
Secondary Education			0.175 (0.105)	0.132 (0.107)
Some Uni. Education			0.247 (0.191)	0.151 (0.195)
No Secondary Education X SPI				0.014*** (0.005)
Secondary Education X SPI				0.006* (0.004)
Constant	6.843*** (0.025)	6.843*** (0.025)	6.177*** (0.120)	6.108*** (0.113)
Observations	104	104	156	156
R-square	0.975	0.975	0.918	0.923

Each of these regressions include country-level fixed effects. Robust standard errors in parentheses.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure 1
Social Progress Index Framework

Social Progress Index

Basic Human Needs	Foundations of Wellbeing	Opportunity
Nutrition and Basic Medical Care	Access to Basic Knowledge	Personal Rights
Water and Sanitation	Access to Information and Communications	Personal Freedom and Choice
Shelter	Health and Wellness	Tolerance and Inclusion
Personal Safety	Environmental Quality	Access to Advanced Education

Figure 2:
Relationship between GDP per capita and SPI
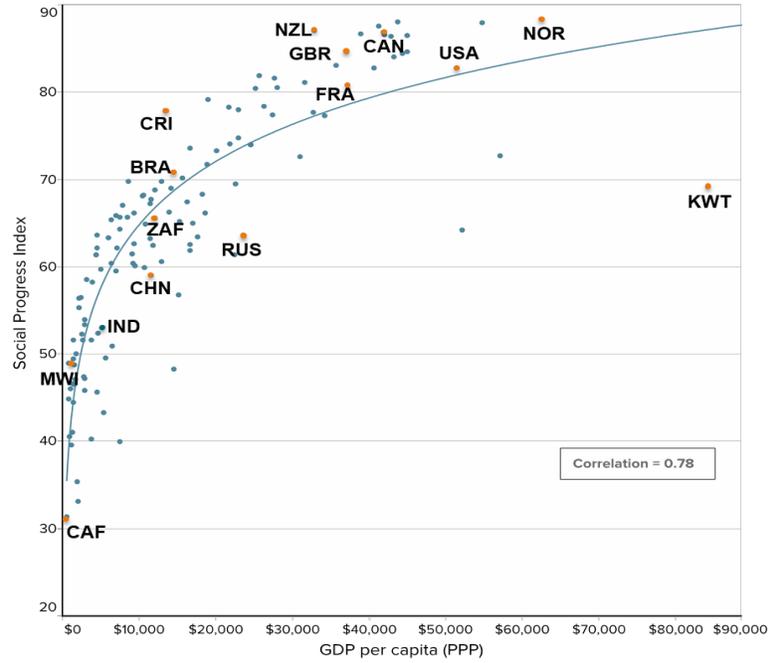
Figure 3

GDP Per Capita and Basic Human Needs
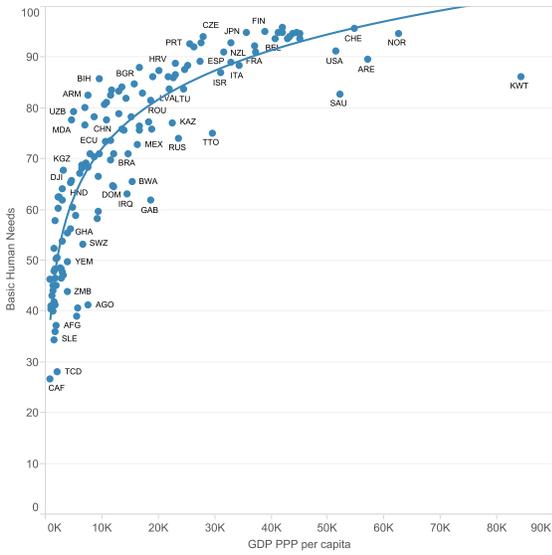
GDP Per Capita and Foundations of Wellbeing
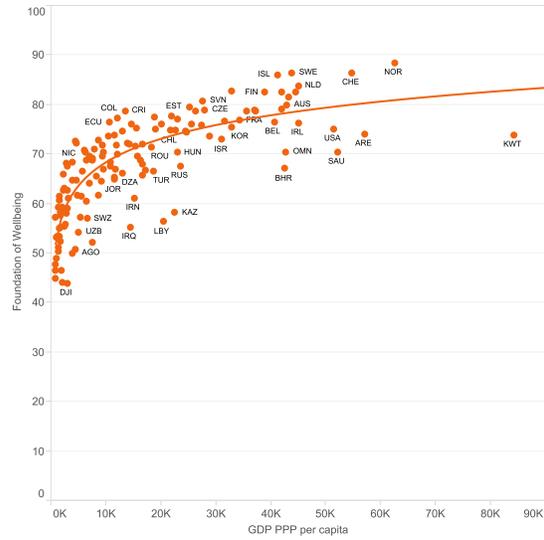
GDP Per Capita and Opportunity
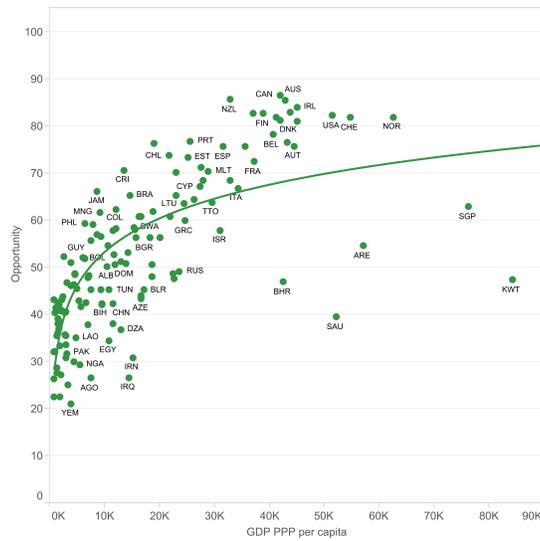
Figure 4a:
Relationship between GDP and Life Satisfaction
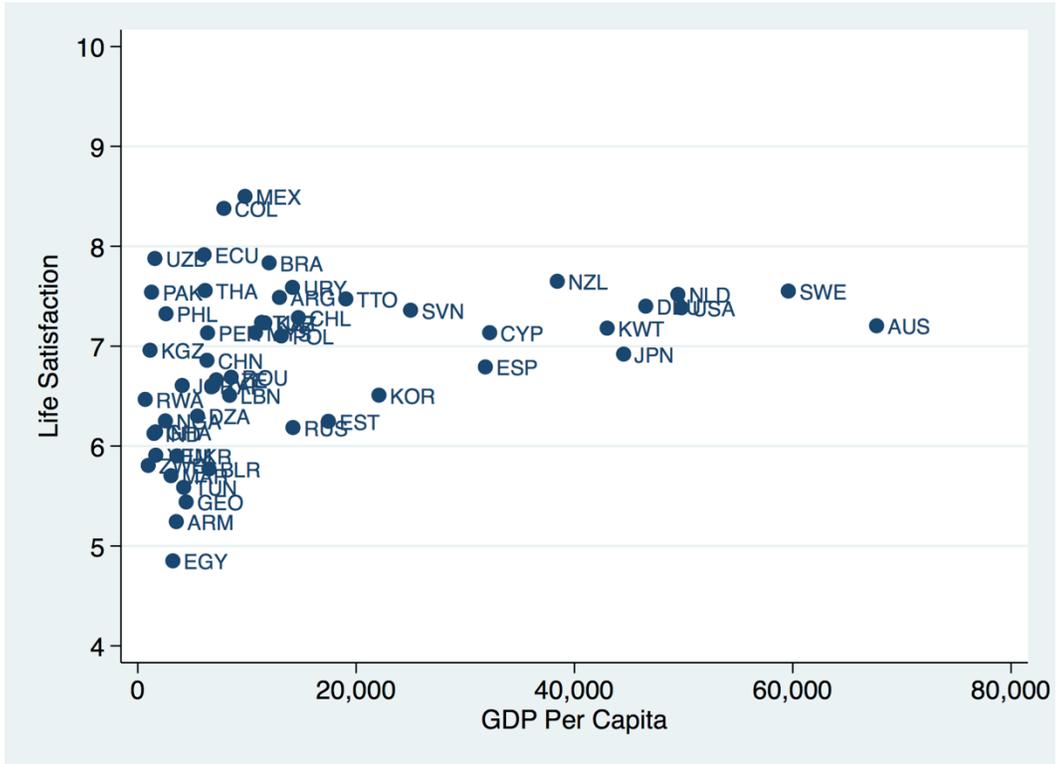
Figure 4b:
Relationship between SPI and Life Satisfaction
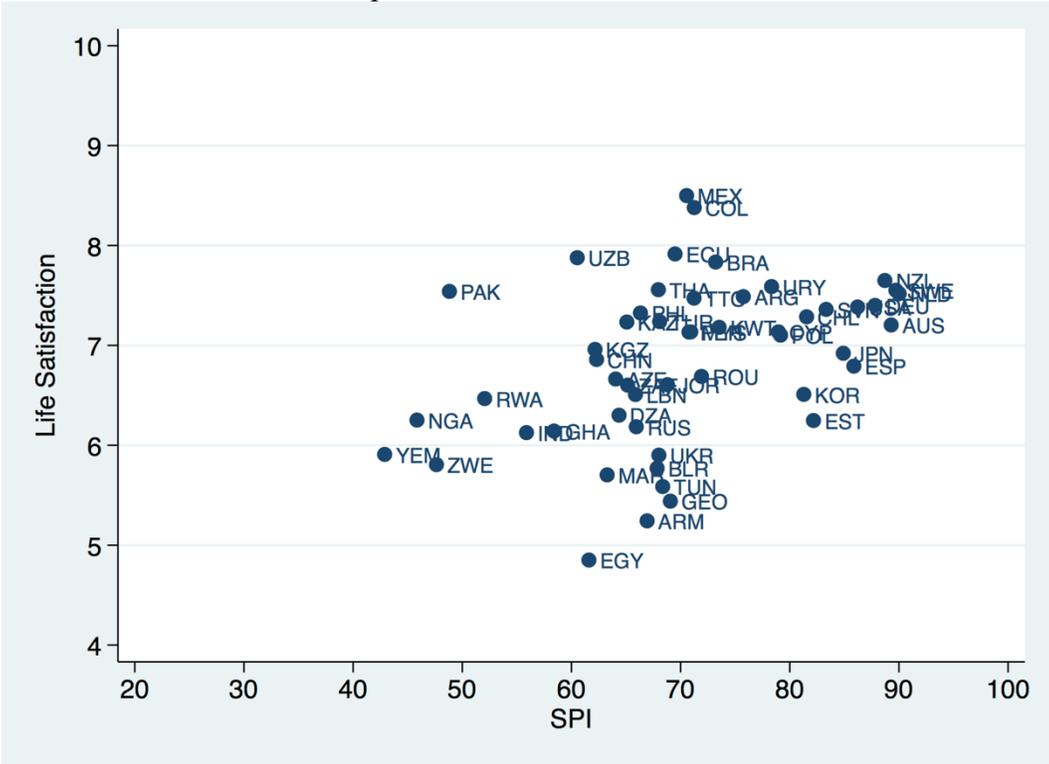
Figure 4c: Variation in Life Satisfaction by SPI and its Components
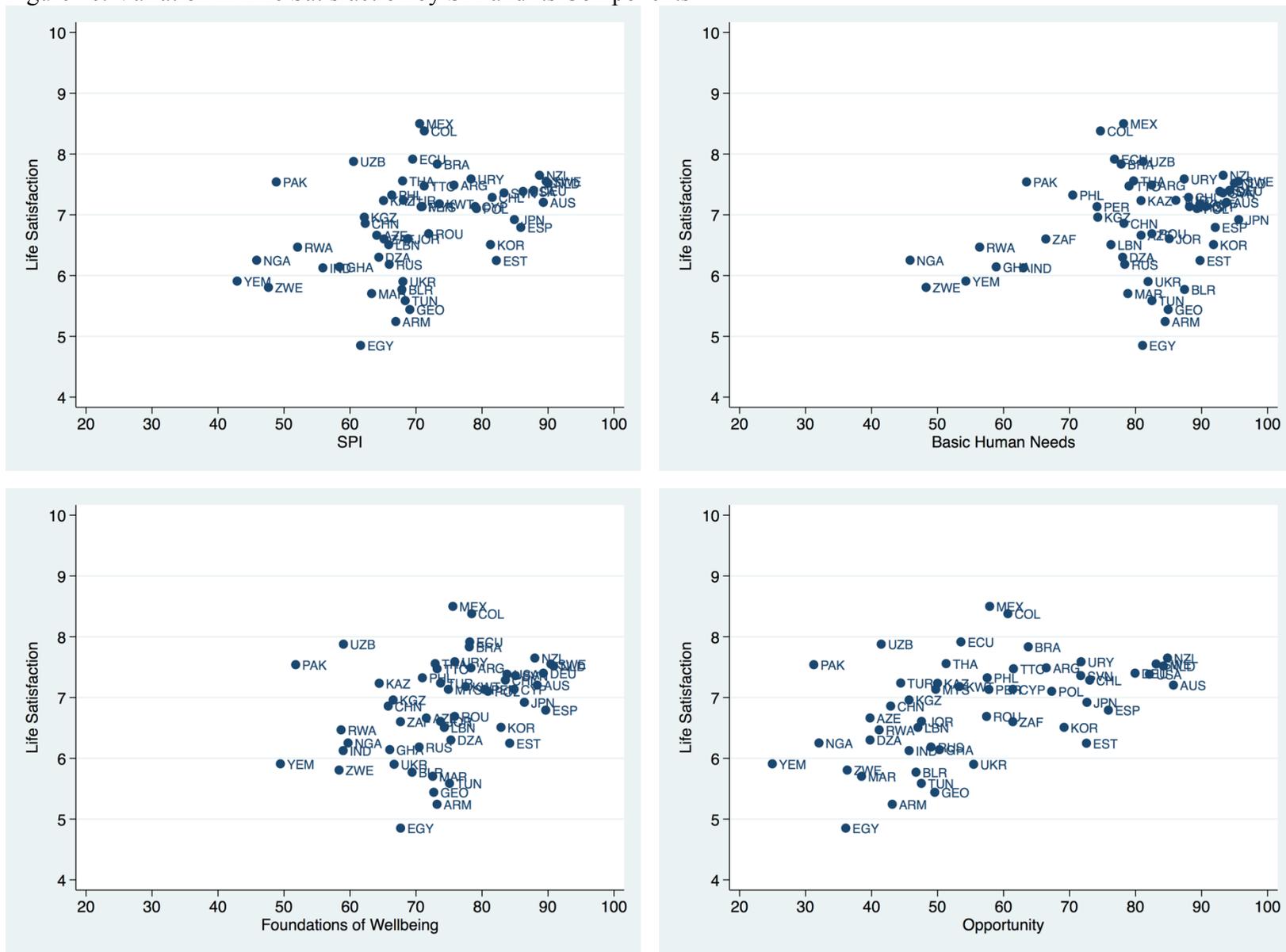
Figure 5:
Variation in SPI's relationship to Life Satisfaction by Income Decile
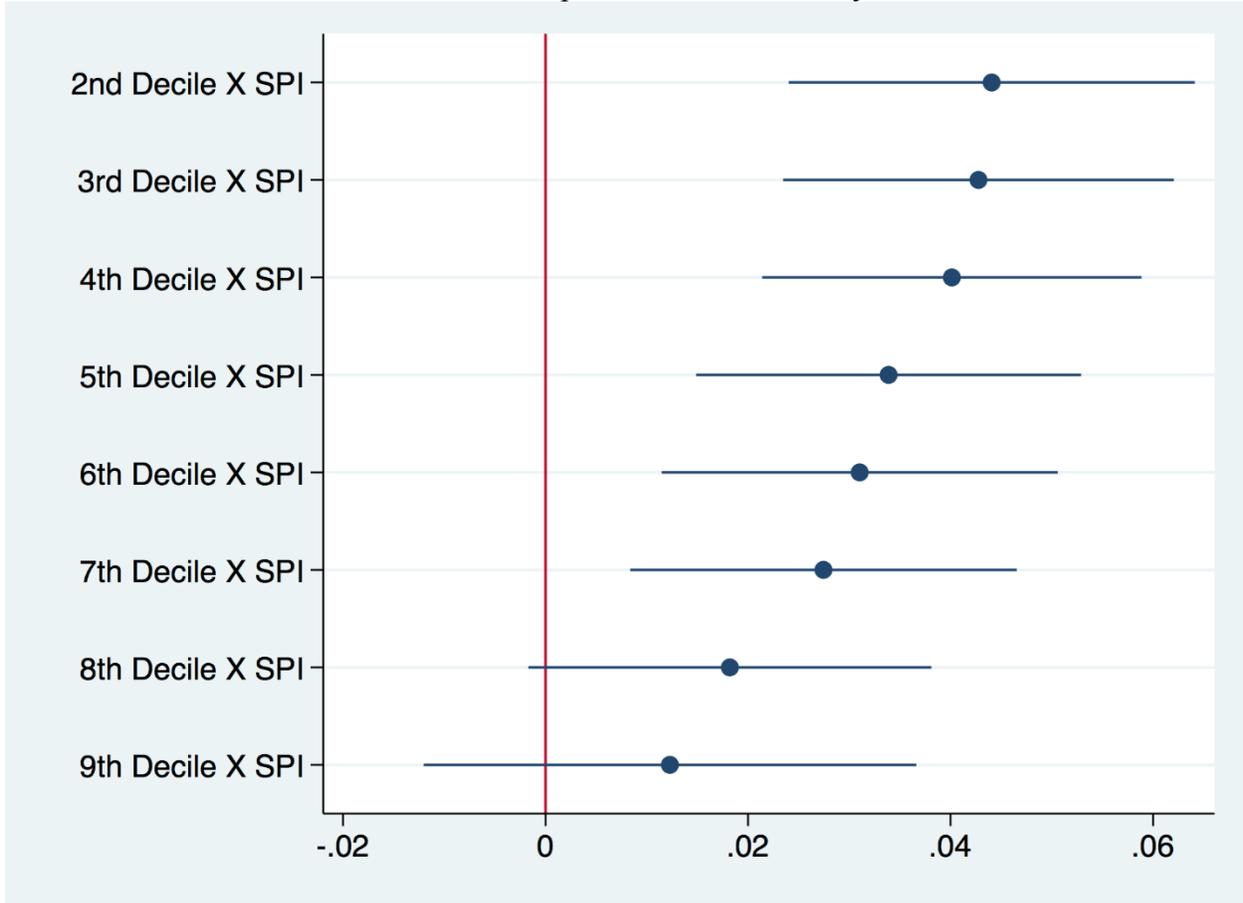
Note: This figure provides a plot of the regression coefficients and standard errors for the interaction terms from a fixed effects regression

Figure 6: Variation in SPI Dimensions' relationship to Life Satisfaction by Income Decile