National Development Delivers:

And How! And How?

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Abstract.   Core dual ideas of early development economics and practice were that (a) *national development* was a four-fold transformation of countries towards: (i) a more productive economy, (ii) a more responsive state, (iii) more capable administration, and (iv) a shared identity and equal treatment of citizens and (b) this four-fold transformation of national development would lead to higher levels of human wellbeing. The second idea is strikingly correct: development delivers. *National development* is empirically *necessary* for high wellbeing (no country with low levels of national development has high human wellbeing) and also empirically *sufficient* (no country with high national development has low levels of human wellbeing). Three measures of national development: productive economy, capable administration, and responsive state, explain (essentially) *all* of the observed variation in an omnibus indicator of wellbeing, the Social Progress Index, which is based on 58 distinct non-economic indicators. *How* national development delivers on wellbeing varies, in three ways. One, economic growth is much more important for achieving wellbeing at low versus high levels of income. Two, economic growth matters more for "basic needs" than for other dimensions of wellbeing (like social inclusiveness or environmental quality). Three, state capability matters more for wellbeing outcomes that depend on public production than on private goods (and for some wellbeing indicators, like physical safety, for which growth doesn't matter at all). While these findings may seem too common sense to be worth a paper, *national development*--and particularly economic growth—is, strangely, under severe challenge as an important and legitimate objective of action within the development industry.

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National Development Delivers: And How! And How?[2]

The most replicated empirical regularity in economics is the Engel curve: the share of food expenditures in a household's consumption basket declines as the household's income/consumption increases. The *conceptual* lesson from the Engel curve is that *preferences do not determine priorities*. An average Indian household spent 54 percent of their budget on food (in 2004/05) and the average American household spent 13 percent. One does not have invoke any differences in tastes, preferences, values, normative ordering or "utility function" or even relative prices to explain this difference, it could just be that as total budget expanded and the range of consumption possibilities expanded their *priorities* shift from food to non-food spending. It would be absurd to conclude from the Engel curve from that households in poor countries should follow the example of rich country households and put less "emphasis" or "focus" or "priority" on food spending.

Many richer nations are putting less emphasis on economic growth and paying more attention to direct measures of human wellbeing, life satisfaction, or happiness. In 2019 New Zealand's Prime Minister Jacinda Ardern announced a budget based explicitly on "wellbeing" as opposed to GDP. The OECD has developed a Better Life Index based on 11 indicators[3], only one of which is income, saying: "There is more to life than the cold numbers of GDP and economic statistics – This Index allows you to compare well-being across countries, based on 11 topics the OECD has identified as essential, in the areas of material living conditions and quality of life."

The mission statement of the Social Progress Imperative is:

We dream of a world in which people come first. A world where families are safe, healthy and free. Economic development is important, but strong economies alone do not guarantee strong societies. If people lack the most basic human necessities, the building blocks to improve their quality of life, a healthy environment and the opportunity to reach their full potential, a society is failing no matter what the economic numbers say.
*The **Social Progress Index** is a new way to define the success of our societies. It is a comprehensive measure of real quality of life, independent of economic indicators.*

This debate in rich countries can extend into discussions of development and create a critique that "mainstream" development has placed too much priority placed on economic growth and not enough on other dimensions of human well-being. In development organizations these days one rarely sees the word "growth"—and never without adjectival modifiers like "sustainable" and "inclusive." Many development agencies have shifted from promoting the larger goal of the four-fold transition of national development to a focus on redistribution and

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[3] The 11 indicators are: Housing, Income, Jobs, Community, Education, Environment, Civic Engagement, Health, Life Satisfaction, Safety, and Work-Life Balance.

targeted efforts to mitigate the consequences of the lack of development on specific indicators or targeted groups[4].

I argue that this de-emphasis on national development is wrong. National development (including economic growth) does powerfully deliver on human wellbeing for low-income countries—and much more so than for richer countries. The development debate is largely a confusion of preference and priority and the powerful human tendency to project our immediate concerns onto others: to look in a mirror and describe what we see out a window. Suppose one ignores the "cold" economic numbers and takes the Social Progress Index (SPI) and its three major components Basic Human Needs, Foundations of Wellbeing, and Opportunity as the "true" normative goals to be pursued. National development, measured by proxies for three of its components GDP per capita, State Capability, and Democracy[5] is a strongly necessary and sufficient condition for achieving high levels of human wellbeing measured on these indicators. There are no countries with high levels of the SPI with low national development and there are no countries with high levels of national development with low levels of SPI.

In addition, a flexible examination of the connections between the different physical indicators of wellbeing and three components of national development (GDPPC, State Capability, and Democracy) reveals three interesting, and sensible, findings.

First, if one allows the impact of GDPPC on wellbeing indicators to vary flexibly across the level of GDPC the data shows that growth is tremendously more important for improving well being in developing than in developed economies.

Second, for developing countries GDPPC is much more important for elements the SPI regards as "Basic Needs" (like nutrition and basic health, access to water and sanitation, improved shelter) than it is for those classified as "Opportunity."

Third, if one separates the components of national development into "economic" (GDPPC) and "governance" (state capability and democracy) the data suggests that growth has a larger impact on elements of wellbeing that are "private" goods (like nutrition) whereas "governance" is more important for "public" goods—like the environment.

The empirical data suggest that Prime Minister Arden and the OECD might be right, that at their high levels of national development, to emphasize as their *priorities* direct measures of wellbeing over GDP (or national development). But developing country politicians—*even with the exact same preferences*—cannot reach the levels of human wellbeing enjoyed by those living New Zealand without much higher levels of GDP per capita and state capability. They need development.

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[4] This paper was provoked in part by the recent statement of a colleague that: "These days if you even mention economic growth as a policy objective you are accused of being a fascist."

[5] I do not include a measure of the fourth element of national development as I have yet to find a suitably reliable and general measure of the concept that does not lead to circularity in explaining wellbeing outcomes. It is not because I think it is less important.

This creates a difficult political dynamic for national and multi-national development agencies. They need their rich-country taxpayer stakeholders to understand that their own *national* priorities are going to be very different than the priorities that development agencies should promote and to understand that projecting their current domestic priorities on people in other countries who face radically different possibilities is wrong, in every way.

I) *National Development and Human wellbeing: Concepts and Data*

Suppose I order countries by three measures of national development: productive economy, capable administration, and responsive government. And suppose I care about those indicators of national development only instrumentally as my normative orderings of country well-being are based on physical units (like fraction of children malnourished, extent of violent crime, outdoor air pollution, fraction of women with schooling)[6] that are then aggregated[7] into various indices (and sub-indices) of country wellbeing.

My overall question is: "How strongly are country measures of *national development* related to aggregated direct physical measures of *human wellbeing* of people living in that country?" And then there are more detailed questions like: which elements of *national development* are related most strongly to which dimensions of human well-being? And how do these relationships vary across levels of national development?

This section describes the particular empirical measures of three elements national development[8] (productive economy (section I.a), state capability (section I.b) and responsive

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[6] *Physical* units means I am bracketing (for now) the question of the relationship between either income or physical conditions on "psychic" or "psychological" wellbeing like individual's self-reported measures of wellbeing like "happiness" or "life satisfaction."

[7] The aggregation of measures of physical units into aggregates raises of course deep conceptual and practical problems of the weights for the individual indicators. Picking important indicators and given them equal weights has only the modest benefit of *seeming* sensible as a focal point but cannot be given any firm foundation and linear weights impose the very strong (and not very sensible) assumptions that elements of the index are infinitely substitutable at all levels. One of the benefits of monetized aggregates like consumption is that prices as weights can at least under some very idealized conditions be foundationally justified. While can imagine a choice theoretic foundation for aggregating various conditions of countries by imagining a quasi-Rawlsian "original condition" where you exist as an individual before being born and you know in this pre-birth condition what your normative ordering over life outcomes will be after you are born (or at least the probability distribution of orderings you might have) but assume you will experience the typical life outcomes of the place in which you are born. One could then ask questions like "would I rather be born into a country with percent without sanitation of X and homicide rate of Y?" and recover normative weights for indicators (Pritchett 2010). But this remains entirely hypothetical. Practically, the intractable problem of weights is often avoided (rather than "solved") by presenting a "dashboard" of indicators and allowing the users to specify their own weights, as the OECD Better Life Index does.

[8] Measures of *national* development are not even on the same *ontological* basis as national measures of human wellbeing. For the latter the individual is the *ontological* unit and aggregation is secondary. As a simple example, one can measure each person's height. One could then aggregate individual heights into the average height of people in Nepal and the average height of people in Kenya, but one could also talk

government (section I.c)) and the empirical measures of social progress I use (section I.d) that I use.

I.a) Productive Economy: PPP GDP per capita

The productivity of a national economy is (crudely) captured by estimates of Gross Domestic Product per person.   I use the Penn World Tables 10.0 data (Feenstra, Inklaar and Timmer 2015) which provide estimates of GDP in purchasing power exchange rates so that, at least in principle, a "dollar" of GDP represents similar purchasing power across countries. Despite assertions otherwise (even sometimes by people who should know better) economists have never confused GDP per capita with a direct measure of human wellbeing[9].

I.b)   Capable Administration: WGI State capability

The modern state takes on a wide range of functions that create the legal, regulatory and policy realities and scope for action by people and organizations within a country. This includes both the *imposition of obligations* (e.g. collection of taxes, definition and prevention of crime, enforcement of contracts, regulation (health, environmental, safety, land-use, economic)) and the *provision of services* (e.g. health care, schooling, utilities, infrastructure)[10]. By "state capability" I mean the extent to which the organizations tasked with these obligations are able in practice to carry out and implement their duties and functions in ways that promote the organization's stated objectives. Overall state capability is an aggregation of organizational capabilities, which may vary strongly across organizations within a country (Andrews, Pritchett, and Woolcock 2016).

My primary empirical indicator of state capability is the simple average of four indicators reported by the World Governance Indicators (WGI) (Kaufmann, Kraay and Mastruzzi 2005): *Rule of Law*, *Government Effectiveness, Regulatory Quality,* and *Control of Corruption.* These four are are very highly correlated amongst themselves (the bivariate correlations are all above .9) but conceptually and empirically distinct from the other two indicators in the WGI: *Voice and Accountability* and *Political Stability/Absence of Violence/Terrorism*.   Factor analysis of the huge array of "governance" indicators suggests that "state capability" can be distinguished from other elements of "governance"--like democracy or human rights or political instability (Drumm 2015).

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equally well of all kinds of aggregations: average height of left-handed versus right-handed, average height of people born on a Tuesday versus people born on Wednesday, average height of people whose names start with A-K versus L-Z. Height is ontologically individualized and aggregation is secondary. In contrast, countries have characteristics that are not the simple aggregation of ontologically individualizable characteristics of its citizens/residents.

[9] Simon Kuznets, the pioneer of national accounting, said in 1934: "The welfare of a nation can scarcely be inferred from a measure of national income."

[10] The provision of services via the state can be carried out through direct production by state organizations or through contracting with private firms, or through the regulation of private organizations, but in any of these modalities of provision it is still the case the state takes on responsibilities that require capabilities.

I re-scale the WGI SC average to range from 1 for the worst rated country to 100 for the best country.

I.C) Responsive Government: POLITY(K) cumulated democracy/autocracy

I don't really want to conflate the conceptually broad historical political transformation to a "responsive government" with the much narrower notion of "democracy" but I am going to. The POLITY ranking typically gives each country in each year a score on autocracy from 0 to 10 and on democracy from 0 to 10 and the Democracy score minus the Autocracy score provides a score that ranges from -10 to 10. In addition, the POLITY provides special codes when countries are dominated by a foreign power or in a civil war or conflict of -66, -77, or -88.

I do two non-standard transformations to create a variable that represents "stock" rather than a "flow" of democracy which I call POLITY(K). First, I transform all years of -66, -77, and -88 into a -10, assuming these contribute to a country's "stock" of democracy the same as a year of complete autocracy. Second, I take a weighted average of all available POLITY2 scores using a discount factor of $\delta=.05$ so that weight of the contribution to the cumulated "stock" of POLITY in year T of POLITY observed in year t is $w_t=(1-\delta)^{(T-t)}/sum(w_t)$.

I do this because the POLITY measure represents only current conditions and hence is volatile over time so that coups or elections in a given year are reflected immediately. For instance, Pakistan's POLITY2 scores falls from 8 to -7 from 1976 to 1977 after Zia-ul-Haq declared martial law and became president. It then rose from -4 in 1987 to 8 in 1988 with the election of Benazir Bhutto. It then fell again to -6 in 1999 when the military again took power then rose from -5 in 2006 to 5 in 2007 and to 7 by 2018. If we took just the conditions in a given year then in 2018 (the latest data) Pakistan's democracy would be a 7, India's a 9 and Denmark's a 10. Even if we assume the POLITY accurately represents current conditions, I prefer the time weighted average for two reasons. One, I think the time-weighted average better represents a measure of the conditions of the "institutions" of democracy as the longer they last the more "heft" in determining outcomes these institutions have[11]. Two, in assessing the impact of a "responsive government" on outcomes the effects are likely to have very long lags and there is little reason to expect that, say, the proportion of people with sanitation or gender parity in secondary education are going to respond fully and instantaneously to an election or a coup.

I rescale POLITY(K) in 2018 to a minimum of 1 and maximum of 100. On this scale, for instance, POLITY(K) in 2018 for Pakistan is 52, India 85 and Denmark 100, as the stock measure reflects Pakistan's more volatile political past.

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[11] For instance, a review of the literature on political instability between 1955 and 2002 by a task force of a dozen scholars (Goldstone and Ulfedler 2004) found that "the key to maintaining stability appears to lie in the development of democratic institutions that promote fair and open competition, avoid political polarization and factionalism, and impose substantial constraints on executive authority."

I.D) The relationships among the components of national development

Figures 1a,1b and 1c show the relationships amongst productive economy (GDPPC), state capability (WGI SC), and responsiveness of the state (POLITY(K)), which are essential to understanding the empirical results below.

GDPPC and WGI SC are strongly correlated, ρ=.794, though with notable exceptions (Figure 1a). Countries dependent on "point source" natural resources tend to have low levels of state capability for their income[12]. Along the 'southeast' edge of the relationship one sees United Arab Emirates (ARE), Bahrain (BHR), Saudi Arabia (SAU), Kuwait (KWT), Russia (RUS), Gabon (GAB), Iraq (IRQ), and two countries with very low WGI SC even at high GDPPC: Equatorial Guinea (GNQ) and Turkmenistan (TKM) (in the graph these two overlap). Along the "northwest" of the relationship there are countries with exceptional strong WGI SC for their income: Rwanda (RWA), Georgia (GEO), and Chile (CHL).

POLITY(K) is much less highly correlated with GDPPC, ρ=.494, with three distinct patterns (Figure 1b). One, as is well attested in the literature, at very low levels of income there are few *stable* democracies as many poorer countries have had periods of democratic and non-democratic politics (Goldstone and Ulfelder 2004). Two, in the middle range of GDPPC there is an extremely wide variation in POLITY(K) with countries at high levels (e.g. India (IND) 85.4 and Jamaica (JAM) 99), middle levels (e.g. the Philippines (PHL) at 56.7) and low (e.g. Morocco (MAR) 12.5). Three, at the high levels of income there are two clear groups, with 17 high income countries at or near POLITY(K) of 100--in the graph these country names are one blur along the top edge—and high-income oil countries and Singapore (SGP) with high GDPPC and low POLITY(K). There are no countries very high GDPPC and middling POLITY(K).

WGI SC and POLITY(K) are moderately strongly correlated, ρ=.669, with a similar pattern that in the middle range of state capability one sees the entire range of possible ratings of POLITY(K), and vice versa, at the middle range of democracy there are countries with both very low and very high WGI SC (Figure 1c). Singapore has WGI SC of 100 and POLITY(K) of 33 whereas Sudan (SDN) has WGI SC of 4.4 with a POLITY(K) of 31.

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[12] This distinguishes between countries/economies dependent on "diffuse" natural resources (like stable crop agriculture or livestock) versus those dependent on "point source" natural resources that are not geographically dispersed (like oil, gold or diamonds) on the conjecture that these two types of natural resources create very different political dynamics as the potential for extracting rents is entirely different (Isham, Pritchett, Woolcock and Busby 2005).

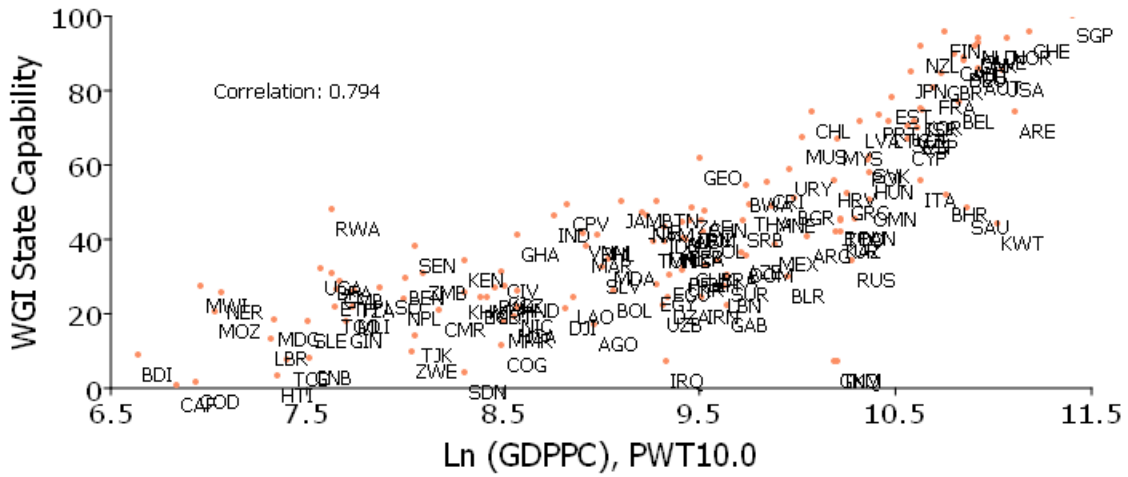Figure 1a: WGI State Capability and GDP per capita

Correlation: 0.794

Figure 1b: POLITY, cumulated and GDP per capita
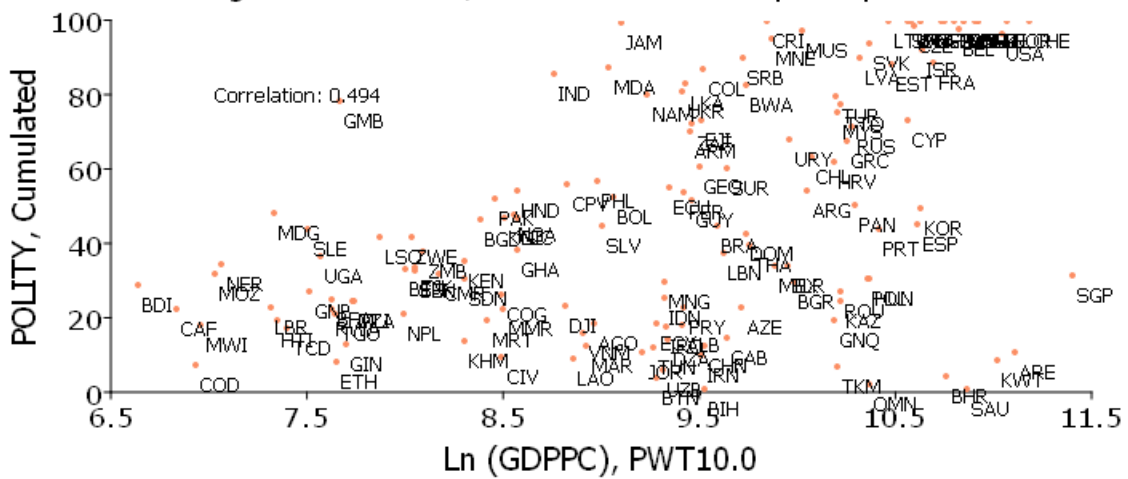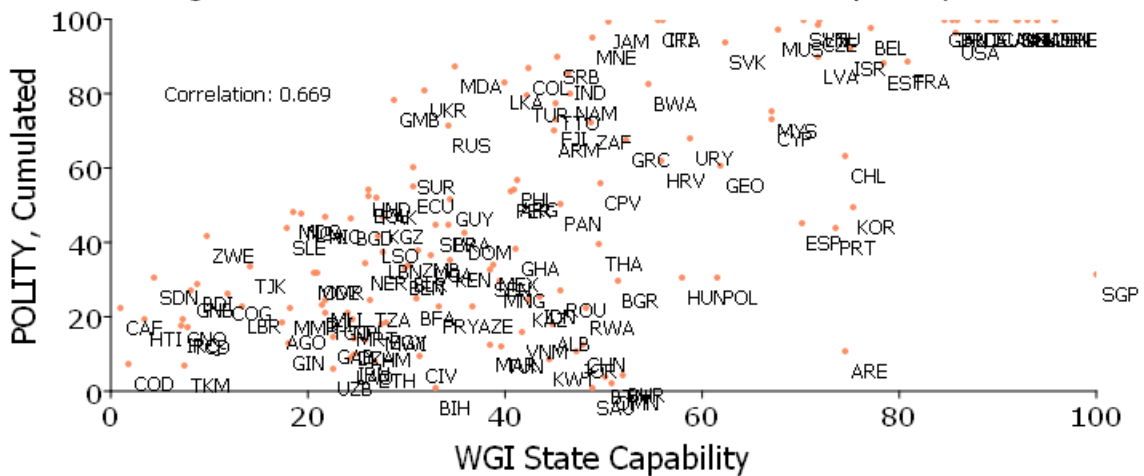
Correlation: 0.494

Figure 1c: POLITY, cumulated and WGI State Capability

Correlation: 0.669

This array of correlations in Figure 1 is an almost ideal setting for the use of multi-variate regression techniques. The correlations amongst these three variables are high enough that bivariate correlations could be highly misleading. Yet the correlations are not so high that multi-collinearity makes it in principle impossible to distinguish with any precision amongst the three distinct elements of national development.

Before the reader gets caught up in articulating the very many ways in which these three empirical measures are weak counter-parts of their concepts, keep in mind the basic empirical finding below is that these three indicators explain essentially *all* of the variation in aggregates human wellbeing. As measurement error generally attenuates results and weakens goodness of fit, better indicators would almost certainly make the findings even stronger than they are.

I.E) Human wellbeing: Social Progress Index and Indicators

In an examination of the empirical association of national development and measures of human wellbeing the Social Progress Index, its sub-indices, and its component indicators, have two major advantages.

First, their *stated purpose* is to displace traditional economic measures. The Social Progress Initiative has put forward a set of *normative* and *evaluative* measures as *alternatives* to economic performance. Not only do the SPI not use GDP per capita, they don't use any measure based on income or consumption[13]: not headcount poverty measures, not average/median consumption, not consumption adjusted for inequality. This makes it clear that the question here is not about the relationship of overall GDP growth to the *distribution* of income or consumption[14] but rather the question of whether GDPPC across countries is related to physical measures of well-being.

Second, the SPI has a much broader array of indicators than have been previously examined. The UN Human Development Index (HDI) incorporated health and education measures since the 1990s. The connection between specific indicators of well-being (especially measures of country health outcomes like under 5 child mortality and life expectancy and education measures) and GDP per capita has been extensively studied[15]. The present paper is an

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[13] For instance, the OECD Better Life Index says "While money may not buy happiness, it is an important means to achieving higher living standards and thus greater well-being" and includes a country income measure among its 11 elements based on two indicators: household net wealth and household net adjusted disposable income.

[14] The question of the impact of growth on poverty and the association of growth and changes in "inequality adjusted" measures of income has been studied extensively. Pritchett (2020) shows that median income/consumption and headcount poverty rates are almost perfectly correlated across countries, both in levels and in long-spells, so that *all* that "explains" poverty rates is the country median. Dollar et al (2015) and Dollar, Kleineberg, Kraay (2016) shows that, while countries have very different levels of income/consumption inequality the changes over time in measures like the Atkinson "equality equivalent" income or the income of the bottom 10/20/40 percent and GDPPC changes are very highly correlated. As Birdsall and Meyer (2015) argue median consumption is a "good enough" indicator of country aggregate consumption and further detail on distribution adds little.

[15] The "Preston curve" (1975) relationship between health and GDPPC has inspired a massive literature to which I have occasionally contributed in ways that both inspire and amplify the points in this paper.

extension of Pritchett and Kenny (2013) which explored the relationship of national development and measures of wellbeing, but was limited to poverty, health (under 5 mortality), and education (years of schooling).

Table 1 shows that SPI is an average of three components, which are themselves the average of four subcomponents each, which are themselves constructed from multiple elements.

Basic Human Needs is the average of (i) *Nutrition and Basic Medical Care, (ii) Water and Sanitation, (iii) Shelter,* and (iv) *Personal Safety*

Foundations of Wellbeing is the average of (i) *Access to Knowledge, (ii) Access to Information and Communications, (ii) Health and Wellness,* and (iv) *Environmental Quality*

Opportunity is the average of: (i) P*ersonal Rights, (ii) Personal Freedom of Choice, (iii) Inclusiveness,* and (iv) *Access of Advanced Education.*

Each of the 12 sub-components is built from 50 objective and subjective indicators such as: percent of population undernourished, homicide rate (deaths per 100,000), and perceived criminality on a 1 to 5 scale.

To make the regression results easy to compare I re-norm all of the SPI variables to a 1 (lowest country on that particular index) to 100 (highest country on that particular index) scale.

Filmer and Pritchett (1999) show that essentially all of the variation in child mortality are explained by a few country-level factors, far and away the most important being GDPPC. This other work also addresses technical issues this paper does not like causality (Pritchett and Summers 1996) and the dynamics of the relationship (Pritchett and Viarengo 2010).

Table 1: The structure of the Social Progress Index and its components			
1	3	12	58
Social Progress Index	Basic Human Needs	Nutrition and Basic Medical Care (NB)	Undernourishment (% of pop.), Deaths from infectious diseases (deaths/100,000), Child stunting (% of children), Maternal mortality rate (deaths/100,000 live births), Child mortality rate (deaths/1,000 live births)
		Water and Sanitation (WS)	Unsafe water, sanitation and hygiene attributable deaths (per 100,000 pop.), Populations using unsafe or unimproved water sources (%), Populations using unsafe or unimproved sanitation (%)
		Shelter (HS)	Usage of clean fuels and technology for cooking (% of pop.), Access to electricity (% of pop.), Household air pollution attributable deaths (deaths/100,000)
		Personal Safety (SF)	Traffic deaths (deaths/100,000), Political killings and torture (0=low freedom; 1=high freedom), Perceived criminality (1=low; 5=high), Homicide rate (deaths/100,000)
	Foundations of Wellbeing	Access to Basic Knowledge (BK)	Access to quality education (0=unequal; 4=equal), Women with no schooling, Gender parity in secondary attainment (distance from parity), Primary school enrollment (% of children), Secondary school attainment (% of population)
		Access to Information and Communications (IC)	Access to online governance (0=low; 1=high), Media censorship (0=frequent; 4=rare), Internet users (% of pop.), Mobile telephone subscriptions (subscriptions/100 people)
		Health and Wellness (HW)	Access to quality healthcare (0=unequal; 4=equal), Access to essential services (0=none; 100=full coverage), Premature deaths from non-communicable diseases (deaths/100,000), Life expectancy at 60 (years)
		Environmental Quality (EQ)	Greenhouse gas emissions (total CO_2 equivalents), Particulate matter, Biome protection, Outdoor air pollution attributable deaths (deaths/100,000)
	Opportunity	Personal Rights (RP)	Political rights (0=no rights; 40=full rights), Freedom of expression (0=no freedom; 1=full freedom), Freedom of religion (0=no freedom; 4=full freedom), Access to justice (0=non-existent; 1=observed)
		Personal Freedom and Choice (FP)	Property rights for women (0=no right; 5=full rights), Vulnerable employment (% of employees), Corruption (0=high; 100=low), Early marriage (% of women), Satisfied demand for contraception (% of women)
		Inclusiveness (IV)	Equality of political power by socioeconomic position (0=unequal power; 4=equal power), Equality of political power by social group (0=unequal power; 4=equal power), Equality of political power by gender (0=unequal power; 4=equal power), Discrimination and violence against minorities (0=low; 10=high), Acceptance of gays and lesbians (0=low; 100=high)
		Access to Advanced Education (AE)	Quality weighted universities (points), Citable documents, Women with advanced education (%), Years of tertiary schooling
Source: https://www.socialprogress.org/			

Any aggregate index built from multiple indicators in physical units suffers from the challenge that weights are difficult to justify. In "comparing apples and oranges" economics has a sophisticated and coherent rationale for why the aggregation "total value of fruit" adds apples and oranges using that uses prices as weights. This approach has its strengths and weaknesses and generally works well—or at least is well understood--for ordinary private goods but economics has long acknowledged the difficulty of valuation of public goods/bads (non-rival and non-excludable) and externalities (which are public goods/bads bundled with private goods) which lack markets in which prices are determined[16].

But there is no consensus resolution to questions like: "A one unit decrease in 'outdoor air pollution' produces the same increase in a country's overall wellbeing as an X unit increase in 'access to electricity', a Y unit reduction in 'maternal mortality' or a Z unit increase in 'property rights for women', what are right/correct weights X, Y, and Z?" This intractability typically leads to a "focal point" solution like equal weights. But using equal weights is based on the *lack* of a justification of any other set of weights, *not* that equal weights has a justification. Equal weights has zero chance of being correct[17]. However, for omnibus indicators, like the overall SPI, the weights question is not empirically that important (for theoretical reasons I return to in Section IV.C)[18].

The SPI and the three components; Basic Human Needs, Fundamentals of Wellbeing and Opportunity, are also quite highly correlated amongst themselves (see Graph A.1 in the Graphical Appendix). On the other hand, the correlations are, naturally, lower amongst the 12 sub-components and lower still among the 50 underlying indicators (even when all are scaled so that "up" is good). This lack of perfect correlation is potentially productive as it means that the different measures of wellbeing can have different patterns of association with national development and with its components and that variation can be revealing, as we will see in Section IV.

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[16] The many justified criticisms of GDP and the many "corrections" to it for, say, the environment, via correcting the undercounting of the depletion of goods (for genuine savings rates (Clemens and Hamilton 1999) or the production of bads (e.g. air pollution) or both (there are many efforts into green national accounts and reviews of those efforts, see, *inter alia* Narloch et al 2016, Lofgren and Li 2011) adjust the distortions in "true" concepts from using market prices for GDP.

[17] Suppose there were an agreement on some procedure for producing weights on components of a country wellbeing index from an idealized choice theoretic or empirical procedure, equal weights has zero chance of emerging as optimal weights. And I mean "zero chance" in the technical sense that, in choosing the weights for four components, the set of four equal real numbers which sum to 1 is a set of measure zero.

[18] As an illustration, principal components is a data reduction technique commonly used for creating an index from multiple elements as this procedure creates weights for an ordered set of principal components that (intuitively if not precisely) maximize the common variation among a set of variables. The correlation between the first principal component of the 12 sub-components and the SPI is .999 and the fraction of variance among the 12 sub-components explained by the first principal component is .96 and the deviation from equal weights is not that large.

II) *National Development Delivers: And How!*

The first empirical finding, reported in Table 2 and illustrated Figures 2 and 3 is that the SPI and each of the three main components are very strongly associated with all three components of national development. The graphs in the Graphical Appendix, GA.2, GA.3 and GA.4 show the partial scatter plots for each of the three national development variables for SPI and the three components. There has been justifiable attention in the social sciences to the "replication crisis" that results from relying on low statistical power results and the use of standard hypothesis test significance levels in spite of the risks of data-mining, multiple tests, publication bias, etc. It is thus reassuring that the results for WGI SC and GDPPC for each SPI and each component are in the "six sigma" range with p-levels many orders of magnitude lower than the standard 1/5/10 percent levels. The results for POLITY(K) are much weaker, and while they reject a zero coefficient (except for Basic Human Needs) they do so at more modest p-levels. Also, the F-tests of non-linear terms in GDPPC have p-levels that decisively reject linearity.

Table 2: OLS regressions Social Progress Index and its three components on measures of national development					
Variable	Regression Statistic	SPI	Basic Human Needs	Fundamentals of Well-Being	Opportunity
WGI SC	Coefficient	0.547	0.360	0.544	0.694
	Std Error	0.061	0.065	0.077	0.078
	p-level	1.42E-15	1.30E-07	5.82E-11	3.58E-15
POLITY(K)	Coefficient	0.081	-0.022	0.092	0.187
	Std Error	0.029	0.031	0.037	0.038
	p-level	0.0062	0.4807	0.0136	0.0000
GDPPC (1 to 100 scale)	Coefficient	3.227	5.247	2.129	1.188
	Std Error	0.376	0.401	0.474	0.485
	p-level	1.69E-14	6.81E-26	1.51E-05	1.56E-02
GDPPC Squared	Coefficient	-0.102	-0.176	-0.054	-0.037
	Std Error	0.018	0.020	0.023	0.024
	p-level	1.46E-07	1.79E-15	2.25E-02	1.23E-01
GDPPC Cubed	Coefficient	1.26E-03	2.32E-03	5.25E-04	4.28E-04
	Std Error	3.18E-04	3.40E-04	4.02E-04	4.11E-04
	p-level	0.0001	0.0000	0.1942	0.2996
GDPPC Quartic	Coefficient	-5.51E-06	-1.04E-05	-1.87E-06	-1.88E-06
	Std Error	1.73E-06	1.85E-06	2.19E-06	2.24E-06
	p-level	0.0019	0.0000	0.3957	0.4036
Number of countries		145	145	145	145
R-Squared		0.905	0.874	0.846	0.859
Std. Dev. Residual		7.9	8.5	10.0	10.3
F test GDPPC linear		4.93E-21	4.84E-32	2.41E-10	4.93E-04
F test WGI SC linear		0.1214	0.0824	0.4243	0.3565
F test PK linear		0.0024	0.2641	0.0082	0.0001

The R2 shows that 90 percent of the variation across countries in the SPI, is associated with three elements of national development: GDPPC, WGI SC, and POLITY(K). Similarly, for each component of the SPI the R2 is .846 or above. Figure 2 illustrates what the association of SPI and national development (graphs for the other three SPI components are in Graphical Appendix, GA.5). I compute a national development index for each country which is the predicted value of SPI using the regression coefficients and the actual values of the three elements of national development: NDI(β_{SPI}^{OLS}). This is, of course, the index of national development that best predicts the SPI.

Increases in this NDI are strongly and reliably associated with improvements in the SPI. The arrows in Figure 2 are the predicted value of the SPI at the terciles of the NDI components plus/minus a residual standard deviation. So, at the average value of for the bottom third of countries in each of the WGI SC, POLITY(K) and GDPPC the NDI is 22.7 and the predicted SPI is 31.7. The standard deviation of the residual is 7.8 so most countries at that NDI would be expected to have a SPI between 23.9 (Ethiopia (ETH) is 25.8) and 39.5 (Tajikistan is 41.1).

Figure 2 shows the expected SPI gains across levels of the NDI. If a country moves from the mean of the bottom third to the mean of the second third of countries on each of NDI elements its predicted SPI increases from 31.7 to 63.7—an increase of 32 points, nearly doubling. With the same residual standard deviation of 7.8 the expected range of SPI at that NDI would run from 55.9 Azerbaijan (AZE) is 53.2) to 71.5 (Kuwait (KWT) is 73.7). Even a country with low SPI outcomes at the middle of the second tercile on NDI components would be expected to have much higher SPI than a country with high performance at a the bottom third NDI (55.9 versus 39.5). And the same is true of moving from the second to top third, which again produces a very large gain in SPI.

Figure 2: Social Progress Index and National Development Index, at terciles
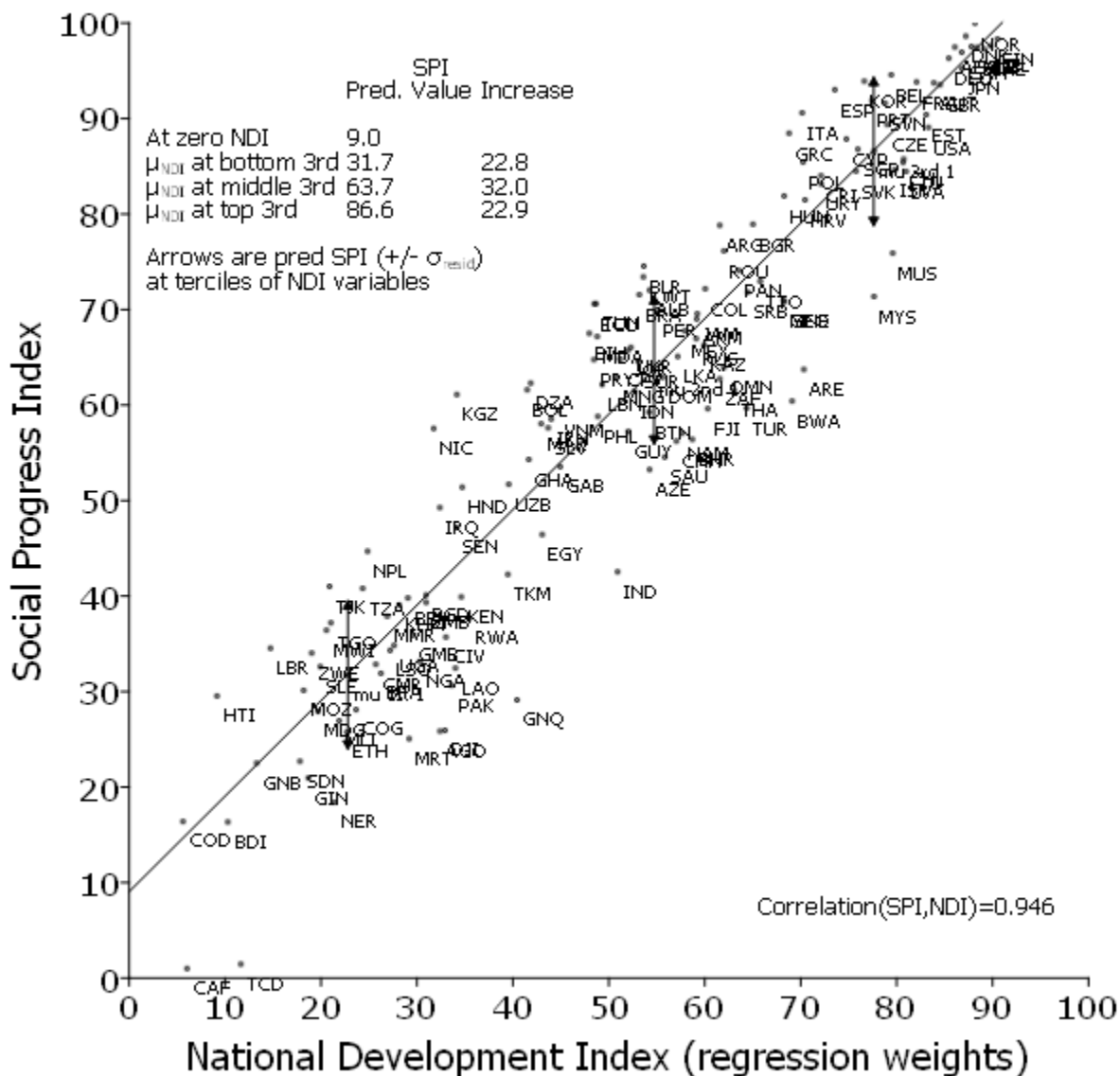
Source: Author's calculations.

Figure 3 is a unique way of illustrating the implications of the tight association between national development (NDI) and human wellbeing (SPI), which is that national development is an empirically necessary and sufficient condition for high levels of human wellbeing. By empirically necessary I mean that no country with low NDI has a high level of SPI. The upper line in Figure 3 is the upper envelope of SPI achievement for any country at a given level of NDI or lower. For illustration take Nepal (NPL), which has an NDI of 24.9 and SPI of 44.7. No country with an NDI less than 24.9 achieves a higher SPI. This stays unchanged until at NDI of 31.7 Nicaragua (NIC) has an SPI of 57.5.

In the "envelope" of SPI-NDI outcomes in Figure 3 the "white space" in the graph is meaningful. The blank portion in the "northwest" of the graph are combinations of low NDI and high SPI that haven't happened. This shows national development is an *empirically necessary* condition for high overall levels of human wellbeing. Suppose a country aspired to the level of human wellbeing achieved by Argentina (ARG) of 78.8 (which is the high end of "developing" countries but lower than all (old) OECD countries). No country has ever achieved that level of SPI without getting to a level of national development of at least than of Argentina, 61.6.

Figure 3: National Development and SPI, necessary and sufficient
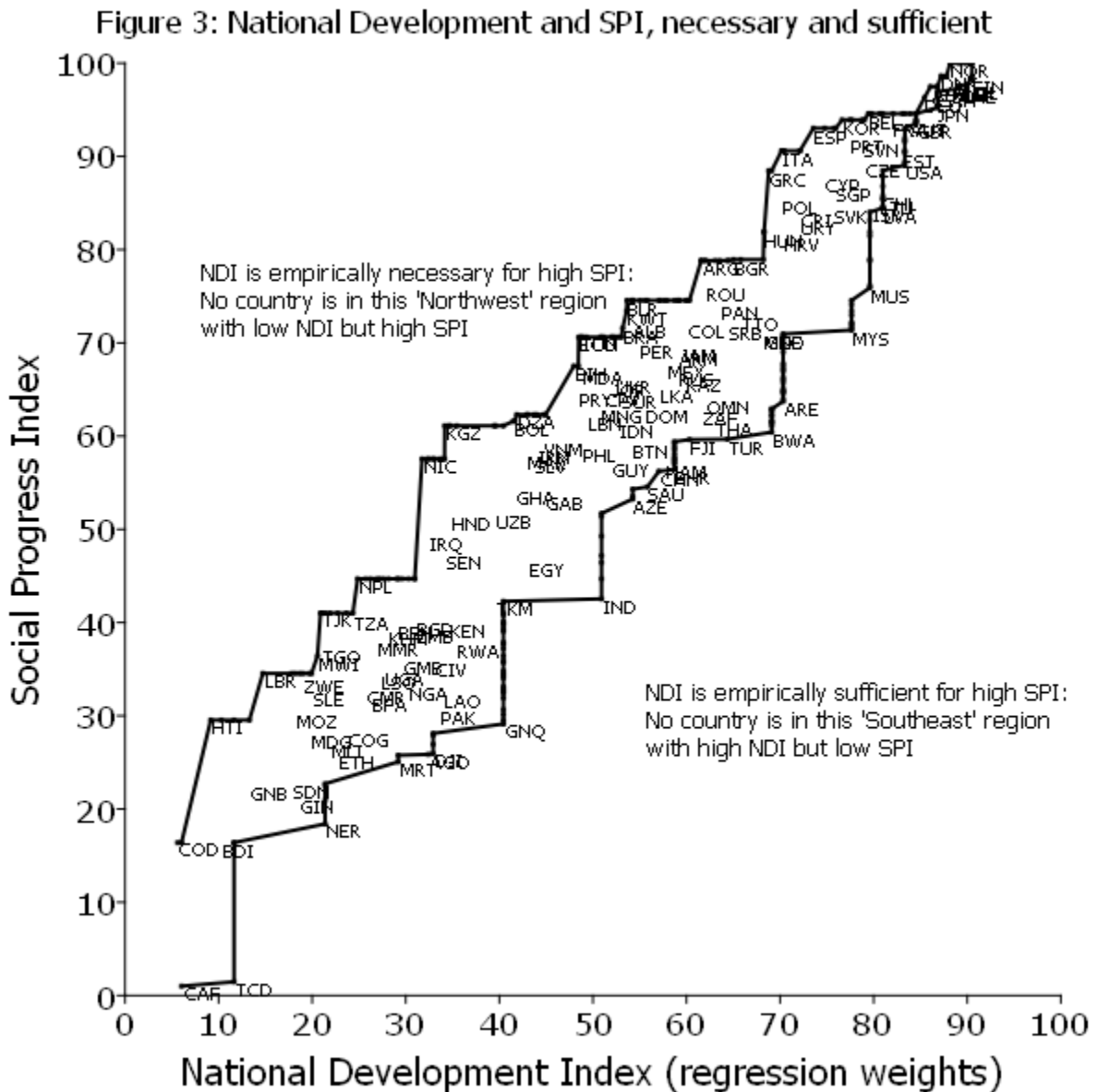
Conversely, achieving high levels of national development is an empirically sufficient condition for achieving high SPI. The lower line in Figure 3 is the lowest SPI for any country with that level of NDI or lower. India (IND) illustrates the lower line with an NDI of 50.9 but a

SPI of 42.5 as every country with a higher NDI has a higher SPI. Again, there is no country with a high NDI who does not also achieve a high SPI.

Figure 4 shows the predicted impact of national development gains on the SPI, its 3 components, each of the 12 sub-components (bars) and the 50 constituent indicators (blue circles) from increasing the three elements of national development index (GDPPC, WGI SC, POLITY(K)) from the mean of the first tercile to the mean of the second tercile based on a separate regression estimate for each variable.

Overall, the SPI indicator increases by 32 points, which given that all variables are on a scale of 1 to 100 means that there is roughly a one-to-one relationship between national development gains and gains in the overall Social Progress Index.

For some components the gains are very much larger, particularly for three items in the *Basic Needs* component. For Shelter (B:HS), Water and Sanitation (B:WS), and Nutrition and Basic Health (B:NB) the gains are more than one for one from national development.

The gains are also large for the two indicators related to education: *Foundations of Wellbeing,* Basic Knowledge (F:BK) and *Opportunity*, Access to Advanced Education (O:AE).

There are four indicators that are particularly low, both in terms of predicted impact and R2 (which are, of course, intimately related): Political Rights (RP) (Opportunity), Personal Safety (SF) (Basic Human Needs), Inclusiveness (IV) (Opportunity), and Environmental Quality (EQ) (Foundations of Wellbeing). We return to these findings below.

This is the "and how!" section of "development delivers. It shows that countries that achieve higher levels of national development, in any of, and therefore, even more so in all of, its three elements, strongly and reliably achieve much higher levels of human wellbeing than countries which do not.

Figure 4: Predicted increased in SPI, its three components, 12 sub-components and 50 indicators from an increase from the 1st to 2nd terciles on each element of national development
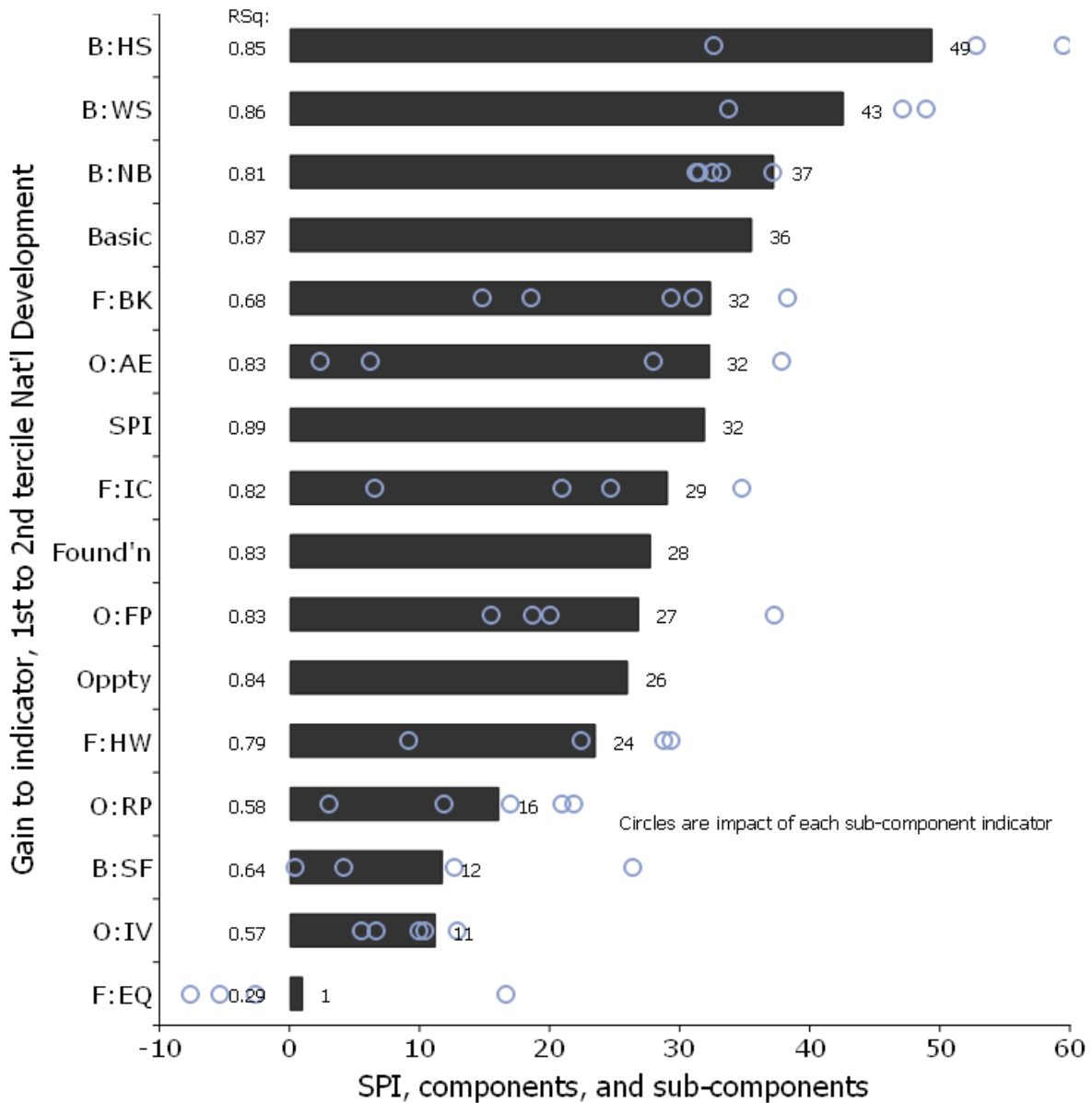
Source: Author's calculations.

III)   *National Development Delivers: And How? Economic Growth*

The regressions in Table 2 include polynomial terms for GDPPC up to a quartic to allow for the responsiveness of wellbeing (and of various components of wellbeing, which we explore

more in Section IV) to vary across levels of income[19]. As with the Engel curve, one can easily imagine that at low levels of income increases in GDPPC are very important to wellbeing but, as the more pressing material needs are met and "necessities" fulfilled, other components of well-being (like the "work-life balance" or "civic engagement" in the OECD Better Living index) become more important. In World Values surveys that elicit people's relative priorities there is a strong positive association between the proportion of people who are "post-materialist" versus "materialist" (e.g. respond that economic growth is less of a priority) and the level of GDPPC (Inglehart 2008, Pritchett 2015, OWID).

This quartic functional form implies that the partial derivative of SPI wrt GDPPC varies as a cubic (equation 1) and hence in order to compare the "impact" across levels of GDPPC I calculate the elasticity of SPI wrt GDPPC (equation 2) for each level of GDPPC.

$$1) \ \frac{\partial SPI}{\partial GDPPC} = \beta_1 + 2\beta_2 GDPPC + 3\beta_3 * GDPPC^2 + 4\beta_4 * GDPPC^3$$

$$2) \ \epsilon_{SPI,GDPPC} = \frac{\partial SPI}{\partial GDPPC} * \frac{GDPPC}{SPI}$$

The line labeled "quartic" in Figure 5 shows this elasticity, which first rises as GDPPC increases, reaches a maximum of .255 when GDPPC is around P\$7,500, about the GDPPC level of Morocco or the Philippines, and then falls, reaching zero at about P\$25,000 (just above Chile) then goes further negative and then recovers. The shape of the upper tail of negative then positive at very high levels is almost certainly an artefact of functional form: even a quartic polynomial can only be so squiggly.

As an alternative to the quartic polynomial I estimated a functional form that allow splines, which estimates a continuous piecewise linear function but with "kinks" (discontinuous first derivatives) at the specified nodes. I allowed splines at the quartiles of GDPPC (P\$4,868, P\$12,850, P\$29,420) and then calculated the elasticity at the average GDPPC within each of those ranges (P\$2,508, P\$9,035, P\$20,340, P\$47,110). These elasticities, illustrated by "Spline" in Figure 5 show a very similar pattern with the quartic polynomial elasticity at the lowest quartile of .26, rising to .32 for the second quartile, falling to .054 for the third and negative .097 for the highest quartile (the highest quartile are all "developed" countries).

The population weighted average elasticity for countries with GDPPC less then P\$28,000 with either the quartic or spline functional form is almost identical, .205 (quartic) and .207 (spline).[20]

The simpler form for regression estimates of elasticities is to use double (natural) log functional form, and in Figure 5 I estimate two completely separate regressions, divided at

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[19] I have seen higher order polynomial term regressions justified by allusions to the Weierstrass approximation theorem, but I don't know that much math.

[20] This changes if China is included or excluded only for the spline (as China is just above the threshold into the third quartile by GDPPC) whereas with the quartic the weighted average is the same with or without China.

GDPPC of than P$28,000 (which puts Greece just above the threshold). As expected, the results for the two sets of countries are completely different, with an elasticity of SPI wrt GDPPC (controlling for WGI SC and POLITY(K)) of .31 for countries less than P$28,000 and a negative elasticity for those above.

Figure 5: The elasticity of SPI wrt to GDPPC, various functional forms
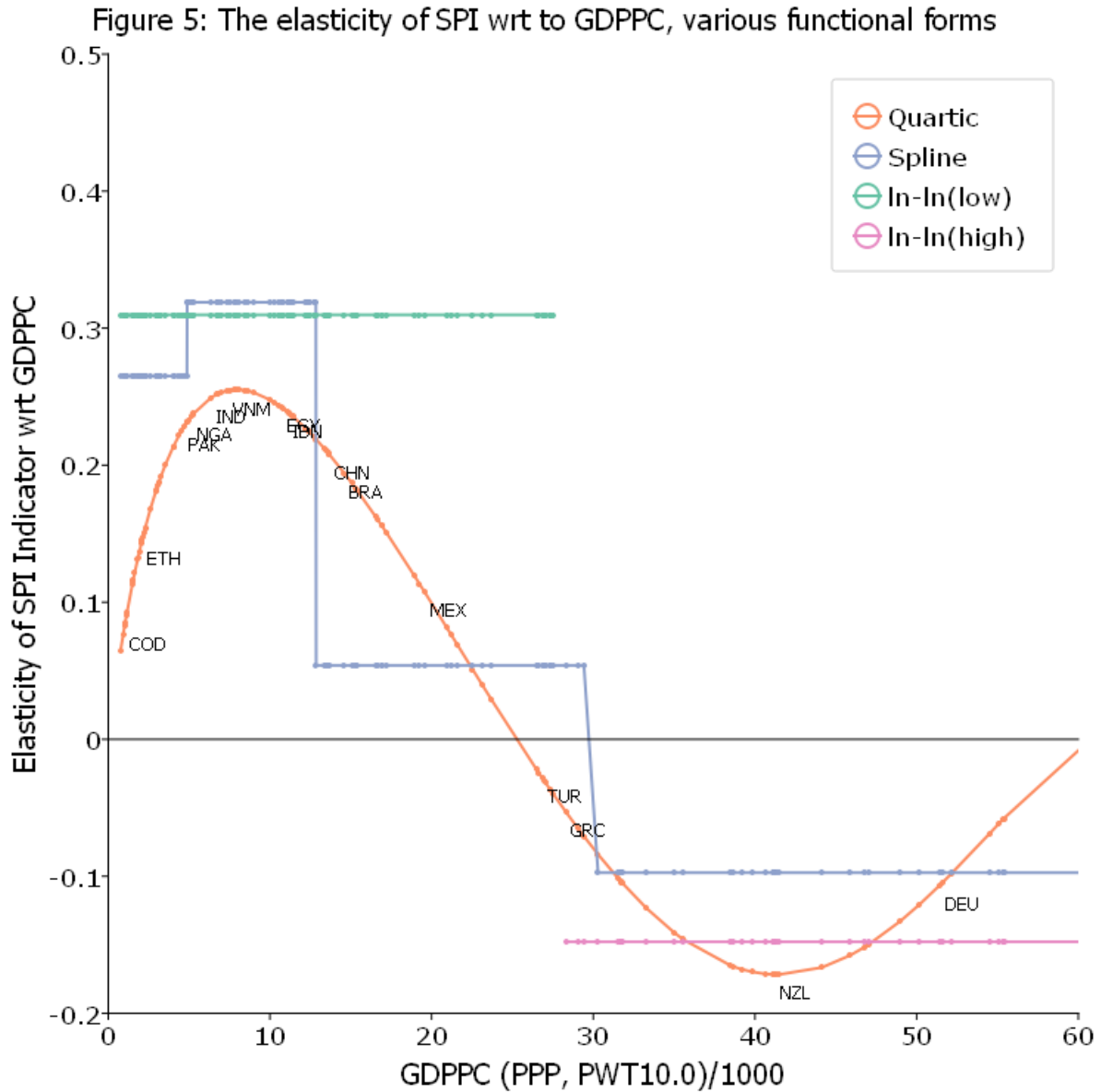
It is clear from Figure 5 that a "global" conversation about the importance of GDPPC gains for human wellbeing is as meaningless as asking what the "right" share of spending on food should be compared across households with very different income levels. Whatever New Zealand or the OECD or the EU or other high-income countries are deciding are their *own* national priorities through their *own* democratic and deliberative mechanisms is driven by their

own circumstances and is their *own* business. The same of course is true for developing countries: their priority on GDPPC is based on their own priorities given their own circumstances and is their own business.

The very real danger is, however, that much of the global development discourse is driven by organizations based in rich countries and headed by individuals from rich countries. The World Bank is headed by an American banker. The UNDP by a German environmentalist. Funding of these multi-lateral agencies (bilateral and multilateral) and of think tanks is overwhelmingly from rich country sources. A very large portion of academic articles about development countries are published by authors based in rich countries (Subramanian and Kapur 2021). The very real risk is that, in spite of all of the rhetoric about "country ownership," the development industry will confuse the priorities of their rich country patrons with the priorities of their intended beneficiaries (Leo 2013).

III.B)   *Impact of GDPPC on the different SPI components*

Figure 6 shows the same pattern of impact of GDPPC across levels of GDPPC separately for each of the three components of the SPI: *Basic Human Needs* (Nutrition and basic health, Water and Sanitation, Shelter, Personal Safety), *Foundations of Wellbeing* (Access to Basic Knowledge, Access to Information and Communication, Health and Wellness, and Environmental Quality), and *Opportunity* (Personal Freedom, Personal Freedom and Choice, Inclusiveness, and Access to Higher Education).

The pattern is revealing and intuitive. As income increases from very low levels of income (in the bottom quartile of countries) the gains are primarily in Basic Needs (an elasticity of .45) and some in *Foundations* and little or no impact (estimate is slightly negative) on *Opportunity*. In the next quartile of countries by GDPPC the impact of increases are roughly equally balanced, with high elasticities for all three components. In the third quartile the elasticity wrt GDPPC is highest for *Foundations of Wellbeing,* less so for *Basics* (which have already at these levels of income reached higher levels) and again the income impact on *Opportunity* falls to about zero.

This pattern of responsiveness to GDPPC makes good common sense. In *Basic Human Needs* are measures like percent of children malnourished and child mortality, households with sanitation, access to electricity whereas in the *Foundations of Wellbeing* are measures like primary school enrollment, percent using the internet and life expectancy at age 60. While all of these are clearly in household's preferences and we should expect that as people's income increases they will consume more of each of them, at the same time, one can see where a household without an indoor toilet would prioritize getting a toilet and a household with a malnourished child or one at risk of dying might prioritize that over extending the life span of the elderly. The goal of national development is to create conditions where more and more households don't have to make either of these choices. So a stronger response of *Basic Human Needs* than *Foundations of Wellbeing* to expansions in GDPPC from very low levels of income, followed by a large responsive of both *Basics* and *Foundations* at the next level (second

quartile), and then *Foundations* more than *Basics* (especially keeping in mind these are *elasticities* and hence are percentage changes, not absolute changes).

Figure 6: Elasticity of indicator SPI and three components wrt GDPPC
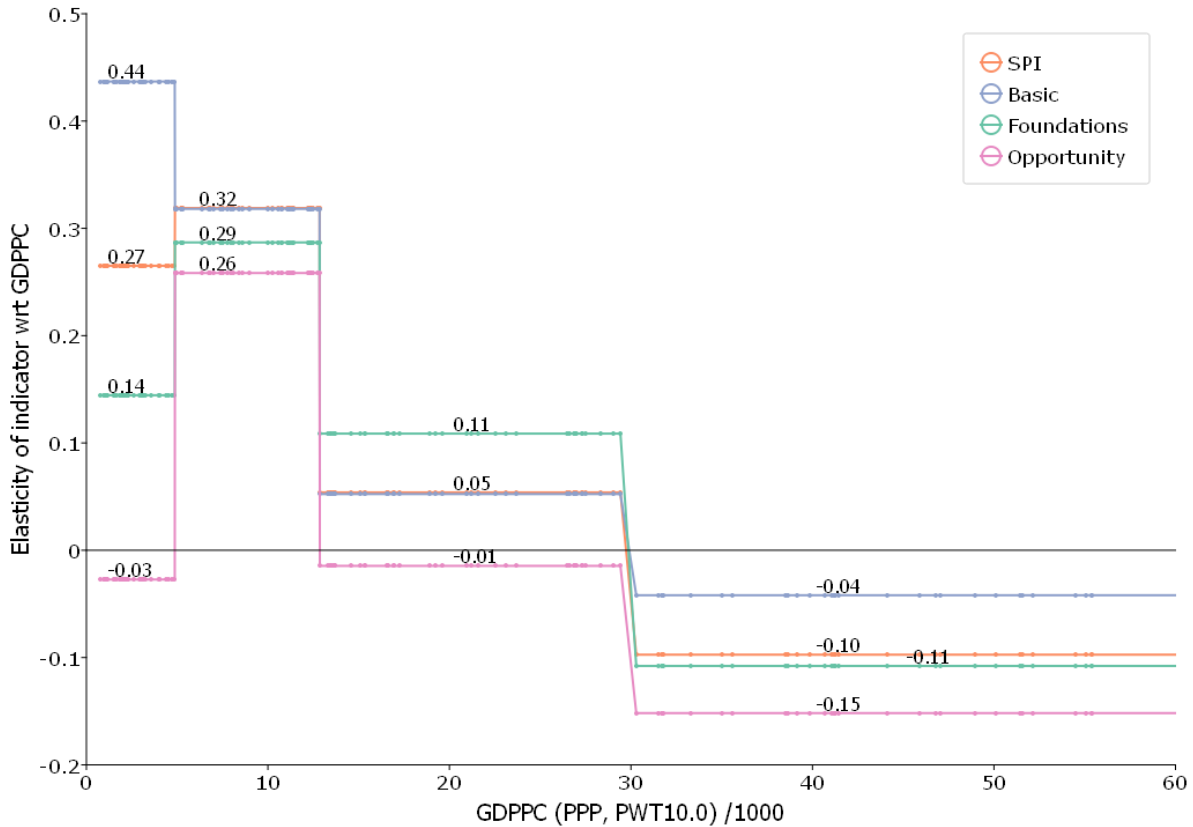
IV) *National Development Delivers: And How? Components of National Devleopment*

While human wellbeing, especially in basics, rises strongly with GDPPC there is of course much more to national development than economic productivity as it also includes increases in state capability and in responsiveness of government. This section examines how each of the three indicators of national development is associated with improvements in SPI and its components.

IV.A) Differential impacts on different outcomes of components of national development

Given that the impacts of growth on these indicators is highly non-linear in order to compare the relative impacts of the elements of national development I compute the gains to SPI or its components from an increase across the terciles of the elements of national development. Figure 6 shows the expected gains from moving each of the three components of national development from the minimum possible value (normed to 1) to the average of the lst tercile, then the gain from the increase from the mean of the 1st tercile to the mean of the 2nd tercile, and from mean of the 2nd tercile to the mean of the 3rd tercile.
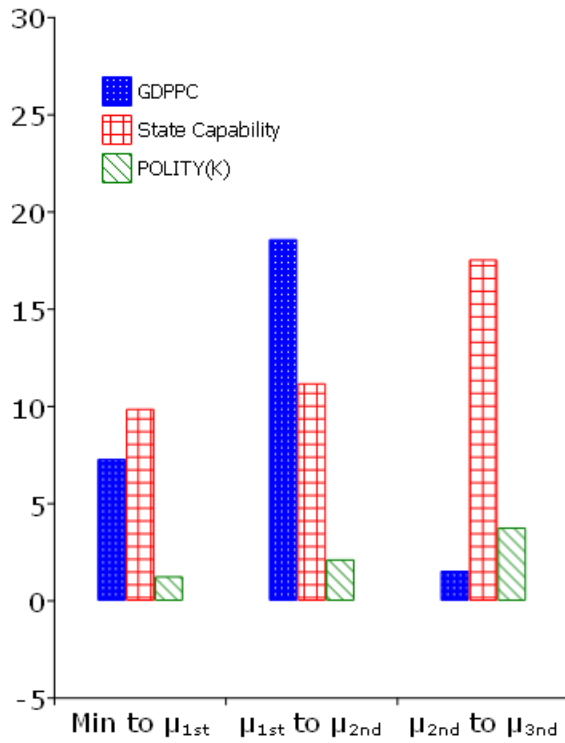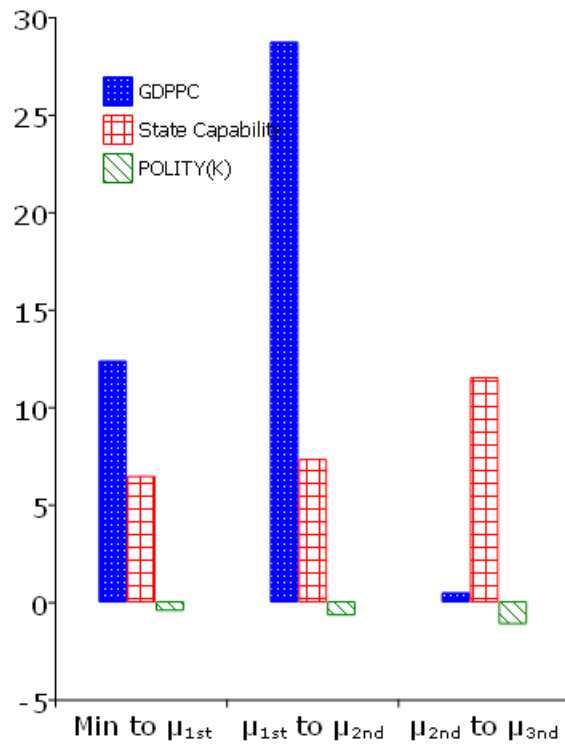
Figure 7a: SPI

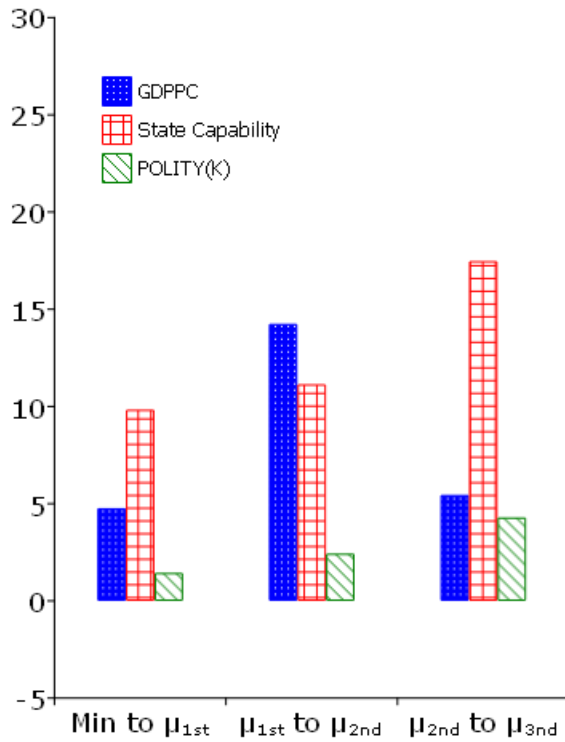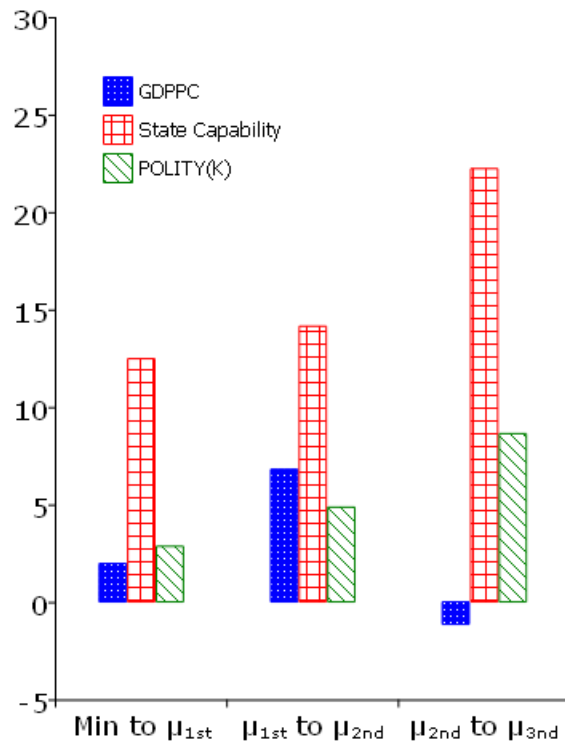Figure 7b: Basic Human Needs

Figure 7c: Foundations of Wellbeing

Figure 7d: Opportunity

Figure 8 extends Figure 4 (showing the totals) and Figure 7 (showing the decomposition) to show the relative contributions of growth (GDPPC) and governance (sum of WGI SC and POLITY(K)) to SPI, its three components and its 12 subcomponents.

Figure 8: Most of the improvement in wellbeing indicators measuring basics comes from growth, most of the gains in opportunity come from state capability
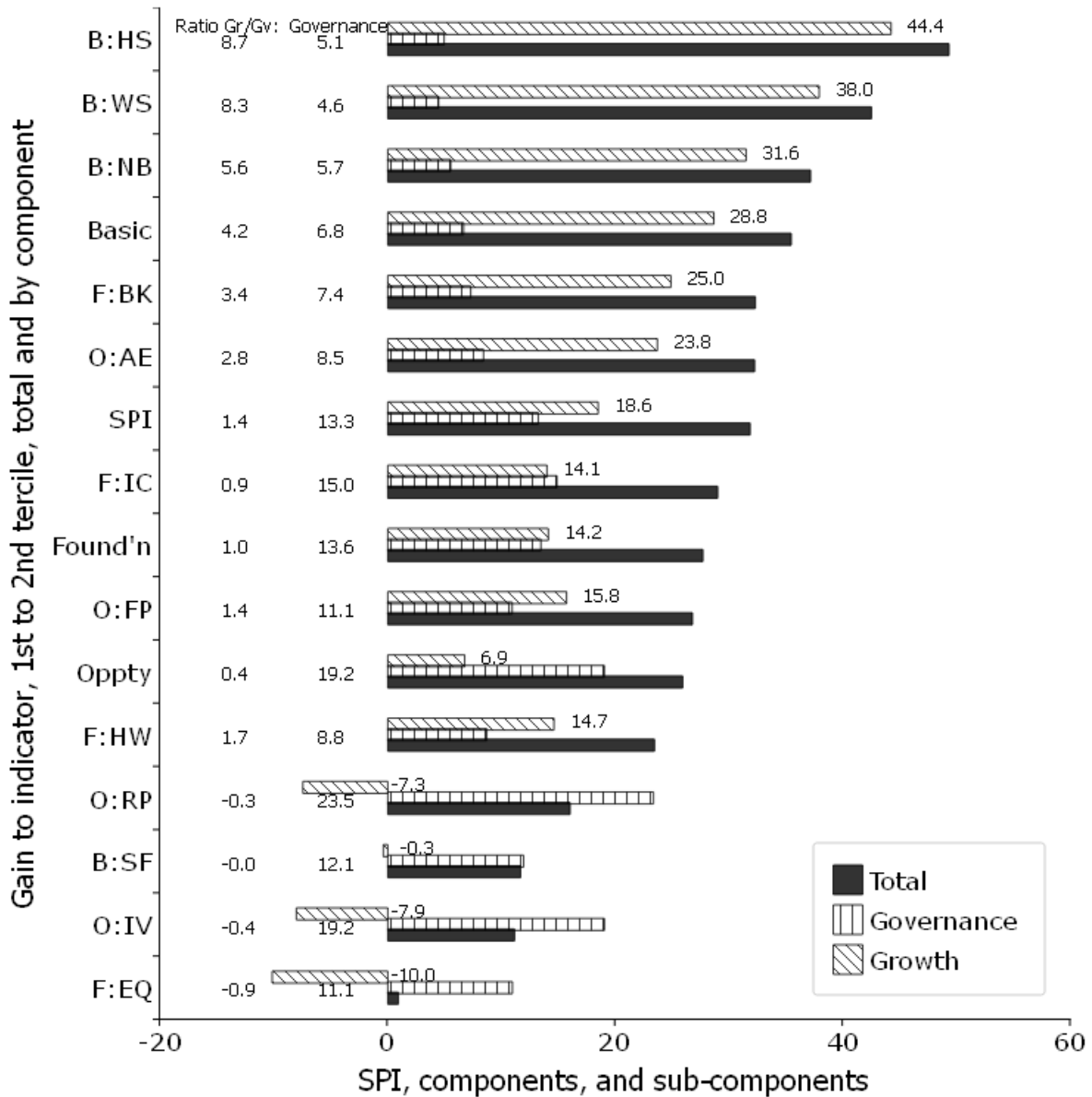
The first and most obvious finding in Figure 8 is that the large gains in the three elements of basics (Shelter (B:HS), Water and Sanitation (B:WS), and Nutrition and Basic Health (B:NB)) from increased national development from 1st to 2nd tercile are due to gains in GDPPC.

The second finding is that indicators of expansion in education, which is Foundations of Wellbeing, Access to Knowledge (F:BK) and Opportunity, Access to Advanced Education (O:AE) over this range of development is also primarily driven in GDPPC, but with an important contribution of governance (the ratios of growth to governance gains are (3.8 and 2.4, respectively).

Then there are three indicators where growth and governance both play important and roughly equal roles: F:IC (Access to Information), F:HW (Health and Wellness), O:FP (Personal Freedom).

Finally, we see that the reason for the relatively small contribution of national development to progress on the four indicators in Figure 4 above is that for these four the contribution of growth is either zero (Basics, Personal Safety (B:SF)) or negative Opportunity, Political Rights (O:RP), Opportunity: Inclusiveness (O:IV), and Foundations of Wellbeing, Environmental quality (EQ).

V)   *Why the strong connection between human wellbeing and national development (including economic growth) makes sense—and nothing else really does*

Suppose you accept the argument that there are physical outcomes that nearly everyone wants--adequate nourishment, access to safe water, their children to survive, a quality education for their child (including girl), access to electricity--and hence these are useful as direct measures of the wellbeing of the citizens/residents of a country. I argue that it is nearly impossible to then believe that these indicators are not very tightly linked with national development and, within that, the level of GDPPC, for three reasons.

First, the variation across countries in GDPPC is massive so that any connection between these physical indicators of wellbeing and GDPPC has the potential to explain large variations in those indicators.

Second, while GDPPC is itself not an indicator of wellbeing, higher levels of GDPPC nearly always translate into *both* higher levels of consumption expenditures of the typical household and higher levels of government spending.

Third, the very belief that an indicator is an important element of wellbeing implies that is should be responsive to consumption and government expenditure—and to a capable and responsive state-and moreover, that it should be *inelastic* or *unresponsive* to other factors, like differences in relative prices.

V.A) Current differences across countries in GDPPC and state capability are massive

It is simple empirics that the larger the variation in an "explanatory" variable X the more precision in estimation and the larger the potential the variable has for "explaining" (in a proximate sense) variation in outcomes.

In absolute terms the cross-national variation in GDPPC is as large as it has even been in human history. The range of GDPPC across (nearly all) recorded human history is represented across countries today. Figure 9 uses the updated and rescaled Maddison data set (Bolt and van

Zanden 2020) to show the historical evolution since 1700 of the mean GDPPC of the three leading economies in the world at the time, arrayed against the 2018 GDPPC of countries today.

There are 29 countries that in 2018 have GDPPC less than the leading economies had in 1700 ($2,761). Many of those countries are only modestly higher (less than twice) the GDPPC of leading economies in year 1 CE. In addition, there are another 19 countries with GDPPC lower than the leading economies in 1870 and another 17 with GDPPC less than the leading economies in 1918 (100 years before the latest data in 2018).

Of the 112 "developing" economies the median country (which is Vietnam) has GDPPC of M$6,814 which is a factor of 10 lower than that of the leading economies of M$67,086 and the 25th percentile developing country (Nepal) is at M$2,727 a factor of 25 behind the leading countries.

If there is an empirical connection between a wellbeing outcome and GDPPC the massive variation in GDPPC makes it possible to explain very large parts of the variation in the outcome. (This is part of the confusion about the importance of "growth" in section IV.D below).

Figure 9: The differences in GDPPC across countries in the world today (2018) is absolutely larger than it has even been—and spans the range of human history
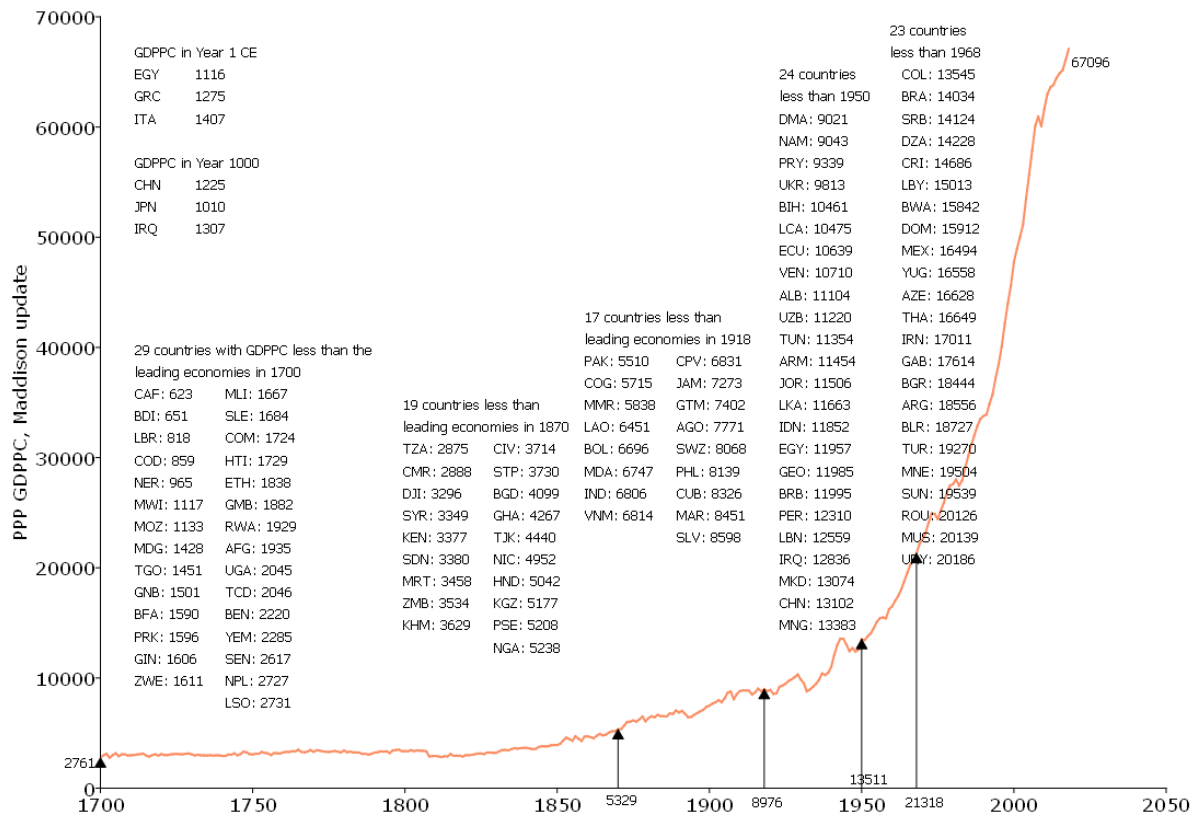
Source: Author's calculations with updated Maddison data Maddison Project Database, version 2020. Bolt and van Zanden (2020).

The same point about massive variation is also true of state capability which, since it does not have a cardinal measure like GDPPC is scaled to range from 1 to 100 and the difference in state capability between the top 5 (Norway, Netherlands, Finland, Switzerland, and Singapore) and the bottom five (in 2018), which barely even meet the Weberian definition of a state as maintaining a "monopoly of violence": Central African Republic, Democratic Republic of Congo, Haiti, Sudan, Iraq.

V.B) Differences in GDPPC produce expanded consumption and government spending

National accounting can be based on "sources" or "uses" and the identity for uses is that national product is used in consumption, government spending, investment (both private and public) and net exports (exports less imports).

$$GDP \equiv C + I + G + (X - M)$$

Given the differences in levels of GDP per capita across countries are so massive, nearly all the variation across countries in the per capita consumption and government spending per capita are driven by differences in GDPPC as, while countries may differ in the proportion that is C or G but these differences are bounded (and small) compared to variation in GDPC.

Table 2 shows the level of national accounts consumption and of government spending per person in PPP from the PWT 10.0 data for quartiles of country GDPPC and for selected countries, contrasted with estimates of US spending on specific categories.

Suppose outcomes wellbeing are driven by some combination of private good and public goods. Suppose nutrition outcomes are a function both of food intake and local prevalence of diseases that inhibit food intake leading to nourishment (e.g. diathermal diseases, helminths) then both private and public spending matters. The availability of safe water can be created through a combination of private expenditures (e.g. treatments) or public expenditure (e.g. safe water from municipal infrastructure). Then, to the extent that higher economic productivity leads to greater availability of consumption in the hands of households who allocate it to their priority uses and greater government spending (whose efficacy at raising priority outcomes is mediated by how capable and responsive the state is) then this is likely to be associated with better outcomes.

The stark fact of Table 3 is that countries with low levels of GDPPC just have very low levels of consumption per capita and government spending per capita. For instance, average government spending per person of countries in the bottom quartile of GDPPC is only P$322. This is in PPP so already takes into account that government services are much cheaper in poor countries (e.g. the price of G in Ethiopia is four times lower than in the USA so it takes four times as much spending at official exchanges rates in the USA to produce the same "quantity" of G as in Ethiopia) and hence is at least intended to be directly comparable across countries of the purchasing power of government spending. So the typical country in the bottom quintile has P$322 per person to devote to all uses: education, health, infrastructure (roads, power, water, sanitation), law and order, justice, regulation (safety, environment, economic). Just as a comparison the typical person in the USA spends twice that on their cell phone services and 50 percent more than that total on pets.

One could imagine raising wellbeing by allocating from private consumption expenditures to more government to create more and more effective public spending. But private spending per person across all uses is only P$1,746. As we see below, most of that private spending by the typical (median) household in a poor country is spent on necessities—like food. Even if 100 percent of their spending went to food they would be able to spend less than a third of what the average US person does. So, unlike in a rich country, reallocating from C to G in a poor country is exchanging necessary spending for necessary spending.

The average of the second quartile of counties by GDPPC is much higher, but still only P$1,675 per person. Even if that amount is spent according to the all and only highest priorities for raising wellbeing and even if that amount is spent with very high efficacy it still is a limited amount to address all of the pressing needs a government would like to be able to meet. It is still less than the typical US person spends on entertainment.

As with the relationship between wellbeing and national development, there is also a very tight relationship between G and GDPPC. One, the elasticity of G wrt GDPPC is greater than 1 (our estimate is 1.12) which implies that G rises more than proportionately with GDPPC so more growth tends to lead to not just more G but more G as a share of GDP. Second, the relationship is very tight (R2 of .913) so there is a "empirically necessary and sufficient" relationship between government spending and GDPPC in that "no government has G per capita higher than X without GPPC higher than Y."

country/aggregate	Consumption expenditures, 2017 (in PPP)	Government, 2017 (in PPP)
Table 3: Estimates of national accounts consumption expenditures and government, 2017		
DRC	$844	$64
Ethiopia	$1,303	$255
Average, quartile 1 GDPPC	**$1,746**	**$322**
Pakistan	$3,779	$430
India	$3,851	$432
Nigeria	$4,283	$312
Average, quartile 2 GDPPC	**$5,301**	**$1,675**
China	$5,533	$1,941
Indonesia	$5,889	$1,147
Egypt	$8,154	$1,194
Brazil	$9,082	$2,691
Average, quartile 3 GDPPC	**$11,274**	**$4,348**
Mexico	$12,446	$3,239
Malaysia	$15,885	$3,358
Average, quartile 4 GDPPC	**$23,584**	**$9,032**
Germany	$26,949	$9,017
USA	$42,786	$7,026
Per person spending in the USA, specific categories		
Food	$5,501	
Entertainment	$2,281	
Cellular phone service	$797	
Pets	$505	
Sources. Penn World Tables 10.0 (Feenstra, Inklaar, Timmer 2015). US consumption expenditures by category are based on multiplying the PWT10.0 estimate of consumption expenditures by the estimated consumption share from US Consumer Expenditure Survey 2017, Table 1203.		

V.C) At low levels of income necessities have a high budget share and low price elasticity (and hence the relationship with consumption is tight)—and how exceptions illustrate the rule

A working definition of a "necessity" is something for which the marginal utility (or incremental benefit per unit of consumption if one wants to avoid technical jargon) goes to infinity as consumption nears zero but then declines as consumption increases. If I am suffocating from a lack of oxygen more oxygen is worth life itself but adding oxygen to normal room air produces little or no gain. This simple mechanism produces the "diamond-water paradox" and the Engel curve and explains why even people with the same preferences will have different priorities at different overall budgets. At very low budgets this simple mechanism implies nearly all of the budget will be devoted to necessities and, while the marginal

expenditure on necessities will be less than the average (the share will be falling), the marginal budget share of consumption gains devoted to necessities will be very high whereas the marginal budget share to necessities at very high levels of income will be very low.

Figure 10 shows an estimated Engel curves (one standard share on natural log and one with quartic terms) relating the budget share of the median household to the per capita national accounts consumption[21]. At the mean of the bottom quartile of countries the predicted food share is 57 percent, falling to 45 percent at the average consumption per capita of the second quartile of countries by GDPPC and then falls to 18 percent for the richest quartile of countries. Of course, not all food expenditure is "necessary" and not all necessities are food, but the basic point is validated by any empirical approach to examining the connection between the average budget shares and marginal propensity to spend on necessities: it will be a very large share at low incomes and decline to a very small share at high incomes.

The second point is less appreciated, which is that we would expect *outcome* measures on important elements of wellbeing—necessities--to be very inelastic with respect to anything but income when those are low and at risk. Take water. If my income is high and water use is convenient and inexpensive then I will use lots of low value water (say, running the tap while shaving rather than filling the sink or showering longer) and, if the price of water increased (or was rationed) I could reduce my consumption of water by a substantial amount without reducing my wellbeing by much. But, if access to water is very costly (in time, price or convenience) then I will only be using water for high value uses and an increase in the price of water will primarily change my consumption of *other goods* as I will have to reallocate resources to maintain (roughly) the same water consumption.

Or take health. If I have a pressing condition for which there is an available and effective treatment (say a drug) then if that drug is more expensive the primary response will not be a reduction in drug use but a reduction on the consumption expenditures *on other goods* in order to be able to afford the needed treatments. This is why a large part of the literature of health is focused on the household *financial* risks from health shocks (not just health outcomes)—and hence why health *insurance* is so popular and needed.

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[21] The data on food share from household consumption surveys is from various sources for various years (see Spivack and Pritchett 2013 for details). I am not describing this particular regression in much detail as (i) the point is mainly illustrative of a well-known fact and (ii) the actual quantitative parameters of the Engel curve relationship are very robust across space and time and this estimated curve is pretty much exactly like all the others (Spivack and Pritchett 2013).

Figure 10: The share of household expenditures going to necessities (here, food) falls as overall consumption expands
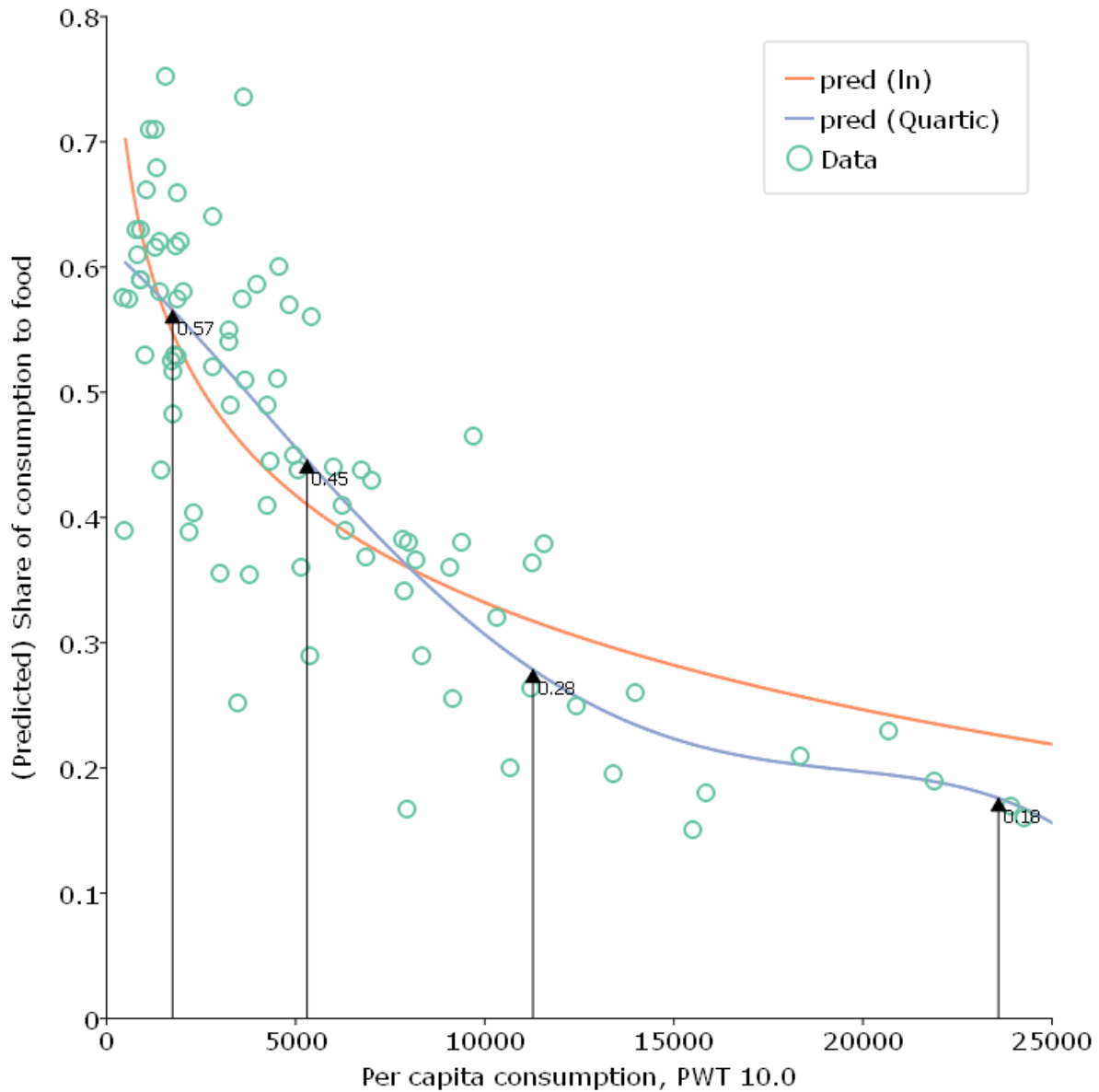
Sources: PWT 10.0 (Feenstra, Iklaar, Timmer 2015) and Pritchett and Spivack, 2013 for data on food shares.

This implies the basic logic of the argument that growth will not reliably produce gains in important and universally shared indicators of wellbeing—like nutrition, basic education, health, water and sanitation—has it *exactly backwards*. These elements of wellbeing that are "basic human needs" should have the *strongest* relationship to gains in consumption from low levels precisely because they are so important that (i) incremental budget shares to necessities will be

high and (ii) low "price" elasticities will translate into large variations in the sacrifice made to achieve gains, not as much in the actually indicators themselves.

One comparison that illustrates this is to compare for each component and indicator the R2 explained by national development and the correlation of that component or indicator with all other components or indicators. We should expect "necessities" to have very high correlation *both* with national development *and* with each other as the analog of the "budget expansion path"--the "national development expansion path"—should look similar for necessities. That is, on the simple conjecture that budget shares are high and elasticities low for necessities they should be highly correlated with each other and highly correlated with national development.

Figure 11 shows the scatter plot of the R2 of regressing each component or indicator on the three national development variables (on the y axis) and the median correlation of each component or indicator with all others at its same level of aggregation (e.g. the four (SPI and its three components), the 12 sub-components, and the 50 individual indicators. Table 4 shows the R2 and median correlation of the 50 individual indicators for the 10 highest correlation and the 10 lowest correlation indicators.

There are four facts illustrated in Figure 11 and Table 4.

First, as we have seen above, the four main aggregates, by their nature of being the sum of lots of correlated variables, are very highly correlated with each other and with national development.

Second, most of the 12 components (four each of the three main aggregates) are also very highly correlated with each other and with national development. Seven of the 12 indicators have both median correlations with each other and R2 above (about) .8[22]. This is true of three of the four components of Basic Needs (Nutrition and Basic Health, Water and Sanitation, and Shelter), two components of Foundations of Wellbeing (Health and Wellness, Access to Information and Communication) and two components of Opportunity (Personal Freedom and Choice and Access to Advanced Education). Access to Basic Knowledge also has a high median correlation (.771) and relatively high R2 (.683).

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[22] The "health and wellness" component of Foundations of wellbeing has an R2 of .791 as the only exception.

Figure 11: The strong connection between wellbeing measures that are strongly correlated with other and also correlated strongly correlated with national development

Third, Figure 11 and Table 3 shows that there are a set of individual indicators that are strongly correlated both with other indicators and strongly associated with national development. A high median correlation suggests that a country is unlikely to have high levels of wellbeing on many other indicators and not make significant progress on these indicators. The top 10 highest average of median correlation and R2 are (nearly all) indicators one could call "necessities": child mortality, child stunting, safe/improved water, safe/improved sanitation, using improved cooking fuels, fewer deaths from indoor air pollution, access to essential health services. The

two slightly puzzling entries are internet penetration and corruption (because it isn't a direct household consumption item).

Code	Name	R2 of national development (SC, PK, quartic GDPPC)	Median correlation with all other indicators	Average
Table 4: The indicators of wellbeing with the highest and lowest correlations with other indicators and R2 with national development				
Ten (of 50) indicators with the highest median correlation with other indicators				
F:HW:AE	Access to essential health services	0.839	0.659	0.749
F:IC:IP	Internet penetration	0.866	0.603	0.735
O:FP:CP	Corruption	0.912	0.549	0.730
B:WS:US	Population using unsafe or unimproved sanitation	0.841	0.604	0.722
B:HS:IA	Household deaths attributable to indoor air pollution	0.792	0.622	0.707
B:WS:UW	Population using unsafe or unimproved water sources	0.799	0.593	0.696
B:NB:CS	Child stunting	0.751	0.591	0.671
B:HS:CF	Usage of clean fuels and technology for cooking	0.776	0.553	0.664
O:FP:VE	Vulnerable employment (contributing family workers and own-account workers as % of total employment)	0.765	0.563	0.664
B:NB:CM	Child mortality	0.716	0.591	0.654
Ten (of 50) indicators with lowest median correlation with other indicators				
F:IC:MC	Media censorship	0.414	0.323	0.369
O:IV:PS	Equality of political power by social groups	0.356	0.337	0.346
F:BK:PE	Primary enrollment	0.268	0.415	0.342
O:IV:VM	Discrimination and violence against minorities	0.258	0.313	0.286
O:RP:FR	Freedom of religion	0.312	0.187	0.249
F:EQ:PD	Outdoor air pollution attributable deaths	0.329	0.165	0.247
O:AE:QU	Quality weighted universities	0.179	0.196	0.187
B:SF:HR	Homicide rate	0.167	0.140	0.153
F:EQ:BI	Biome protection	0.140	0.129	0.135
F:EQ:GG	Greenhouse gas emissions	0.044	-0.071	-0.013
Source: Author's calculations with Social Progress Index data.				

Fourth, there are also clearly a set of indicators that have both low correlation with other indicators and are not highly correlated with national development. These are the exceptions to a

general claim that "national development solves all ills." These exceptions are illustrative and fall into three types[23].

One, are indicators that may not command powerful action even in a rich country with a capable and responsive state because they fall on a minority—and perhaps on minorities that are unpopular: equality of political power across social groups, freedom of religion, and discrimination and violence against minorities are features of a society/government that are unattractive but the burden may fall only on a small—and disliked minority. This doesn't make these any less crucial as features of a just and fair society but one can understand that a country could have high levels of material wellbeing (and have met necessities for nearly all the population) and have a capable and democratic state and still face issues with discrimination against minorities (my native country the USA being an example).

Two, are environmental indicators, which themselves fall into two categories.

Outdoor air pollution attributable deaths is the result of negative environmental externalities that require high levels of state capability to regulate but which also, if unregulated, tend to grow with economic growth so that there is a non-linear relationship with growth (often called an "environmental Kuznets curve" (Grossman and Krueger 1995, Dasgupta et al 2002)) and hence the correlation with other indicators and national development is not simple. This is even though at very high levels of development national regulation caused by a political "internalization of the externality" will almost certainly be brought under control and be low.

The other type of environmental indicator are those whose impact is either completely or totally global. The obvious example is greenhouse gas emissions where a major challenge is precisely that the geographic scope of the externality is global so countries do not bear the full costs of their emissions. In this case effective control requires cooperation beyond national boundaries.

Three, are indicators that apparently are subject to very specific determinants that go beyond national development. The homicide rate and quality weighted universities are the examples.

In summary, for "necessities" that matter broadly for human wellbeing we should expect not only that national development matters but we should not be surprised that national development is essentially *all that matters*. This is because national development is a means of nominating and solving priority problems and hence if one has greater income (that can be used both privately and expands resources in the public sector), a capable state, and a responsive government it would be surprising, indeed astounding, if common, shared, priority problems did not improve.

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[23] I am bracketing for now the "primary enrollment rate" as my suspicion, driven by a quick visual inspection of the data, is that the low correlations and R2 for this indicator are that it is very near "top coded" at 100 percent for most of the countries so there is too little variation to establish robust associations.

This speaks to current debates over how much "policy" and in particular "rigorous evidence" about policy really matters as an even quasi-exogenous determinant of outcomes matters. One of the things that governments do is prioritize problems to be address and one of the things capable organizations do is figure out how to make progress on those problems. Therefore the quality of policy adopted and the quality of implementation of that policy and its impact via the scale of implementation (constrained by resources available) are, to some extent, endogenous outcomes of national development. When one can explain cross-national outcomes like headcount poverty (Pritchett 2020) and child mortality (Filmer and Pritchett 1999) completely (that is, essentially an R2 of 1) without any reference at all to any particular public policy or program the conclusion is not that "policy does not matter" but it might be that "policy is not exogenous w,r.t, to national development but rather national development is the causal driver of effective scaled policies."

V.D) Technical limitations of empirical that appear to produce opposite conclusions

Everything I have said so far about "growth" is based on empirical associations between *levels* of income and *levels* of wellbeing indicators. People often try and refute the strong and tight connection between growth and wellbeing by using data of *changes on changes* rather than data on levels. This leads to three common econometric mistakes (if you don't love econometrics you can skip this section).

First, this process of using "changes on changes" can change strong results into low powered failures to reject simply by throwing away most of the available variation in the independent variable, with the entirely predictable consequence of increasing both the attenuation bias from measurement error, which depends on the ratio of noise to signal, and standard errors[24] and hence can easily create "low powered failures to reject."

Second, "changes on changes" regressions nearly always mis-specify the dynamics. That is, suppose there is a stable long-run relationship between income and health and I examined that relationship using changes in income and changes in population health over five-year periods. Those changes would have two components: (i) the move along the long-run stable relationship and (ii) the adjustment dynamics towards the long-run relationship. Often when studies find that there is no relationship in the changes on changes data it is because they have not included any adjustment dynamics and the inclusion of those dynamics actually produces from short run data estimates of the long-run impact that are exactly the same as the levels on levels estimates.

Third, if the long-run relationship is non-linear then using changes on changes often loses the ability to estimate that relationship. Suppose the long-run relationship between Y and X was an "S" curve in levels. We can identify that in levels data if we have countries at all parts of the relationship. However, in changes on changes data each country is only moving over a quite

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[24] This is also of course a problem with techniques like instrumental variables that trade off consistency for efficiency as one can move from a "rejection" with OLS estimates to a *larger magnitude* coefficient estimated with IV but the larger standard errors from weak instruments also increase the standard errors so much so that one "fails to reject" a null of a zero coefficient.

small part of the S curve and without an interactive specification in levels and changes the econometrics with only changes could never estimate the true S shape.

Lots of the empirical "refutations" of the strong and tight relationship between wellbeing and growth using short to medium run "changes on changes" data have the flavor of denying that it is warmer in New York City in August than in October using data from October to January showing it got colder or using daily temperature change averaged over the whole year so show the daily trend was zero.

VI) Implications for development action of downplaying national development

Between the global "development industry"—the collection of official multi-lateral and bilateral development agencies, NGOs, "pracademics" and academics based mainly in the global "North" and the governments and policy think tanks in the global "South" there has been increasing tension and disagreement. The development industry has been retreating from a commitment to national development—including economic growth—into a set of narrower issues about the distribution of consumption, focus only on specific groups, and a focus on environmental issues, particularly climate change. This leads the "development industry" to have priorities quite different from the typical person and typical leader in developing countries (Pritchett 2015, Leo 2013). I argue there are four reasons for this divergence: (i) insufficient appreciation of different conditions people face and the confusion of preferences and priorities, (ii) a mood of national development fatalism, and (iii) the overwhelming challenge of climate change.

VI.A) Insufficient understanding of conditions faced by others

Too much and for too long, we seemed to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product, now, is over $800 billion dollars a year, but that Gross National Product - if we judge the United States of America by that - that Gross National Product counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children.

Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile. And it can tell us everything about America except why we are proud that we are Americans.

If this is true here at home, so it is true elsewhere in world.

Robert Kennedy, campaign speech, March 18, 1968

I include this extended version of this famous and oft repeated criticism of the excessive focus on GNP by Robert Kennedy during his 1968 campaign for president (tragically cut short by his assassination) to emphasize that one can agree with his stirring rhetoric. After all, who could not object that napalm is included in US GNP? That is, one can agree right up to: "so it is true elsewhere in the world." No. No. No. You cannot look in a mirror and pretend to see out a window.

The rest of the world is facing *radically* different material conditions than the USA (even in 1968) or New Zealand in 2019 or the OECD countries. And with different conditions come different priorities, even with exactly the same preferences.

It is very difficult for people in rich countries to understand the material challenges faced by people in the developing world, much less the underlying causes of those conditions. When a developing country government has to allocate total spending of less than half what a person in the US spends on their cell phone alone to meet all of the pressing needs of a country, they are going to have to make very hard choices. It is easy to imagine that a developing country government should put more "emphasis" or more "focus" on this or that thing that is important to rich country voters. But, without fully immersing oneself in the challenge people and governments in poor countries face of just very limited resources and capabilities to deploy, it is impossible to give "advice" about priorities.

Ultimately the development industry relies on the politics of the rich countries for resources and authorization for action. And what limited support that can be mustered is just easier to mobilize for visible, concrete, projects that benefit specific, popular, groups to help.

VI.B) The national development fatalists

The extent to which significant areas of development research have turned away from the larger questions of national development has reached almost tragi-comic levels. A prominent development economist suggested the higher priority research for poverty reduction would be RCTs to decide on whether transfers to poor households should be cash or chickens (Pritchett 2020). Eva Vivalt's (2020) massive cataloguing and review of RCT research finds a sufficient number of studies in many domains—but I argue, in what has become known as the "Pritchett test", that not one of those domains is even plausibly related to economic growth or national development.

Almost most certainly the most widely read popular book on development of the last decade is *Poor Economics* (Banerjee and Duflo 2011). Larousse (2020) discusses it rhetorical emphasis on the "small" and she provides a list of the topics not mentioned, or mentioned only briefly:

> The organization of production and business, innovation dynamics, meso-economic and territorial questions, local and international financial and commodity flows, macroeconomic dynamics and politics, the environment and inequalities are largely absent. As such, there are no instances in the body of the text for *inequal** and *unequal*, *Gini coefficient*, *income/wage disparity/ies*, *justice*, *ethics**, *dependency*, *terms of trade*, *import*, *comparative advantage*, *commodity/ies*, *stabilization*, *specialization*, *international relation**,

industrial revolution, capitalism, market economy, modernization, westernization, globalization, tariff*, reserves, foreign investment, capital flow*/flight*, brain-drain, volatility, instability, speculation/tive, deregulation, Dutch disease, monetary policy, fiscal/budgetary policy, redistribution*, protectionist*, lost decade, (Post)Washington consensus, IMF, structural adjustment, foreign debt, foreign investment, fair/free trade, regional development, value chain, production network, corporate governance/interests, innovation fund, technology gap, patent, license, intellectual property, agrarian reform, land grabbing, deforestation, commons/common pool, natural resources, climate change, greenhouse (gas), bio- diversity, public good. Industrial policy appears only once, which is the same for domination, dynamics (familial), inequity (intrafamilial), trade (the idea of trade credit), remittance, diversification (of risks), pollution ("pollution inspectors"), externalities ("treatment externalities"), global warming, carbon emission, liberalization ("early years of Chinese liberalization"), privatization ("privatization voucher" for school fees) or recession. Energy is used only in the psychological sense (3 uses); the same is true for 5 out of 7 instances of depression. The results were similar for structure and macro (cf. Section 8.5). This is revelatory of the fundamental difficulty of RCTs in tackling historical dynamics (including micro- economic dynamics), and meso and macro questions. These issues are not amenable to RCTs." (p 235).

This makes it clear that *Poor Economics* is not just Hamlet without the prince, but without the king, the queen, the ghost, or Denmark. This is in spite of the fact that both the level and long-term changes in levels of headcount poverty across countries are almost perfectly correlated with country levels of median income/consumption and there is zero evidence that the design or magnitude of anti-poverty programs play any demonstrable role in poverty rates conditional on the countries overall prosperity/productivity (Pritchett 2020).

I suspect this emphasis on the "small" and "micro" and a focus on specific interventions is not a result of optimism about the potential benefits of this interventions but rather a deep cynicism and pessimism about the possibility of doing anything that reliably promotes national development. That is, I suspect most development academics understand the empirical facts illustrate above, that progress on nearly every indicator (and especially basic needs) is driven almost entirely by national development and especially economic growth. But they might believe that the development industry has no ability to act effectively to promote national development. The example in *Poor Economics* of how "small" can be "large" is that the gains as adults to deworming kids in a rural district of Kenya reached 20 percent. Kenya's 2018 GDPPC was P$4000 so adding 20 percent would reach P$4800, which would leave Kenya's GDPPC behind Myanmar, Nigeria or Ghana and less than half of Egypt or Indonesia and less than a quarter of Mexico or Mauritius. Only a very deep pessimism could lead to seeing 20 percent gains to incomes in Kenya as the "large" gains Kenyans would like to have.

My conjecture is that some part of the "fatalism" about promoting national development is an over-reaction to the over-reach of economists in the 1980s and 1990s where the aggressive promotion of "structural adjustment" (in Latin America and Africa) and "shock therapy" (in many transition countries) led to decidedly varied and generally disappointing outcomes. I suspect some push back against "growth" as an objective is resistance to specific proposals for ways to promote growth. But a better reaction to the failure of a set of recommendations to produce an important outcome (higher, more sustained growth) is to improve recommendations, not abandon the objective.

But the position of the "national development fatalists" is an odd one as is somehow conjures up a situation in which an organization *could accomplish* something that it (and its authorizing actors and environment) *wants to accomplish* but it does not do so because it lacks "rigorous evidence" about how to do it. This is intuitively an odd situation for two reasons. First, countries are often lagging far behind other countries, even at the same or lower levels of resources which suggests that the general codifiable knowledge of how to accomplish the goal already exists in the world and needs to be adapted and adopted and it is not that "rigorous evidence" is the key constraint on performance. Second, the existence of "rigorous evidence" is itself endogenous and it seems odd to argue that (a) there is a method for producing reliable and useful knowledge to accomplish priority goals of an organization that is easier that other methods but that (b) organizations don't adopt these methods   I know of no persuasive evidence that suggests "knowledge" is an important binding constraint—versus resources, capability, or impetus—on outcomes.

VI.C)   Challenge of the natural environment (climate change)

There is a very attractive chain of motivated reasoning. Premise one is that the earth's ecological systems and natural resources (soils, air, oceans, ozone layer, atmospheric carbon, forests, minerals) have limited capacity. Premise two is that, at the given intensity of use/stress/load on the natural environment per unit of GDP raising the GDP per person of all seven billion on the planet to the level enjoyed by the roughly one billion in the OECD/high income countries would (far) exceed the capacity of many of the global environmental sub-systems. Therefore, that scenario, of OECD level of GDP at given ecological stress per unit of GDP is impossible and/or undesirable.

This creates a very powerful force for people, especially people who already enjoy—and will continue to enjoy—the benefits of very high incomes by historical or global standards (Americans and Europeans, for instance) to believe that high income is not really needed or desirable to attain high levels of wellbeing. I think the Western popular media's fawning attention to the tiny[25] Kingdom of Bhutan's emphasis on gross national happiness is because they are desperate to believe that, since the rest of the world just cannot have what Westerners have without collapsing the natural environment, it is not a global injustice and morally obscene to deny the six billion people who share the planet the prosperity that we Westerners enjoy because "they" (non-Westerners) don't really need or want material wellbeing and can be happy without it.

The dangers of motivated reasoning is especially stark with the problem of climate change. Because of the very long term persistence of carbon in the atmosphere it is the cumulative *stock* of carbon that matters. Most of the current stock of carbon from human sources is due to the emissions of the now prosperous countries. The gap between the current stock and estimates of the stock that leads to high risks of environmental catastrophes is small. The speed at which that remaining stock is filled is a simple product of carbon intensity per unit

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[25] Bhutan's 2020 population was 771,000, not even a single good sized city of the USA (Boise Idaho has 750,000 people) or district of India (the average district of India has 1.6 million people).

of GDP times total global GDP. The simple, scary, politically impossible, arithmetic of a both "sustainable" and globally just solution to carbon emissions creates a powerful demand for wishful thinking that the six billion people who don't now have material prosperity don't really want it. While "climate change denialism" is false and reprehensible, so too is "growth from low levels of income leads to wellbeing denialism."

Conclusion

There is a joke among econometricians that if one tortures the data long enough it will confess. I disapprove of torture, even of data, and I find that if you ask the data politely, and are patient and flexible in how you listen, the data will tell you things that, when you think them through, make a ton of sense. Combining the data on national development with data on human wellbeing and being flexible about learning how those are connected reveals three important things.

First, high levels of national development are empirically necessary and sufficient for high levels of overall human wellbeing. There are no countries with unproductive economies (low GDPPC), weak administration (low WGI SC) and unresponsive governments (low POLITY(K)) that achieve even above average human well being by the Social Progress Index--or in any of its three elements: Basic Human Needs, Foundations of Wellbeing or Opportunity. While there is scope for most countries to achieve higher levels of wellbeing at any given level of national development these gains are limited relative to the potential of national development.

Second, the absolute and relative importance of economic growth for improving human wellbeing depends on a country's current level of GDPPC. There can be no "global" conversation about the importance of growth for wellbeing. Most of current developing world is in the range of GDPPC in which the data say economic growth is at its *most* important for raising human wellbeing (especially on basic needs). On the other hand, there is little or no evidence that countries at USA or EU levels of GDPPC would benefit on the SPI indicators from economic growth. So it is not a contradiction, but rather common sense, that countries like New Zealand and regions like the EU would be discussing focusing their policies around alternative measures but that for countries like India, China, Pakistan, Nigeria, Ethiopia governments, even if they had *the very same preferences* about improving human wellbeing, would be focused on achieving and sustaining rapid economic growth as a *priority.*

Third, whether "growth" or "governance" matters most for any given indicator of wellbeing depends, not surprisingly, on the characteristics of that indicator. For some indicators, for which private incomes and the actions of households with their income are essential to improvements, like nutrition and basic health outcomes, water and sanitation, shelter, economic growth is far and away the most important element of national development for improvements. On the other hand, for indicators that require effective public action—like personal safety and political equality and environmental quality—it is governance improvements that matter most.

Figure GA.1.1.1

Figure GA.1.1.2

Figure GA.1.1.3

Figure GA.1.2.1

Figure GA.1.2.2
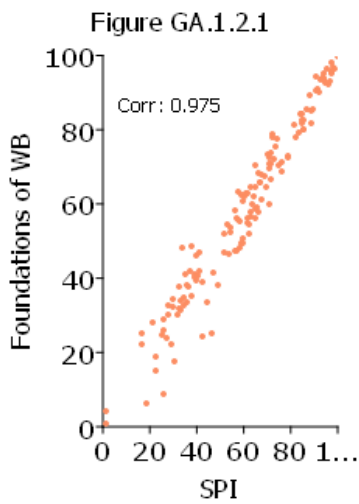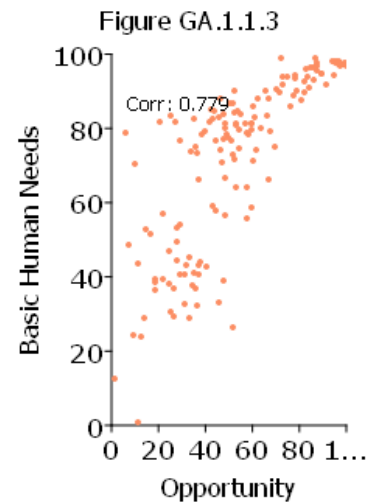
Figure GA.1.2.3

Figure GA.1.3.1
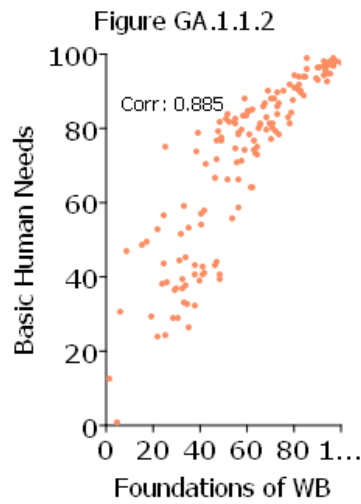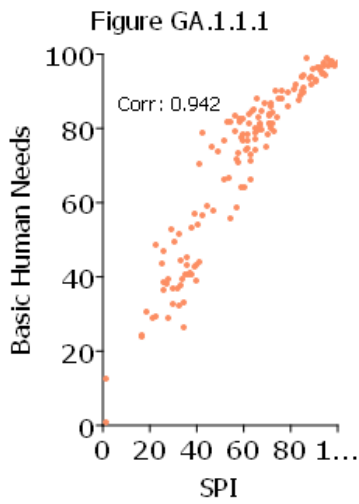
Figure GA.1.3.2
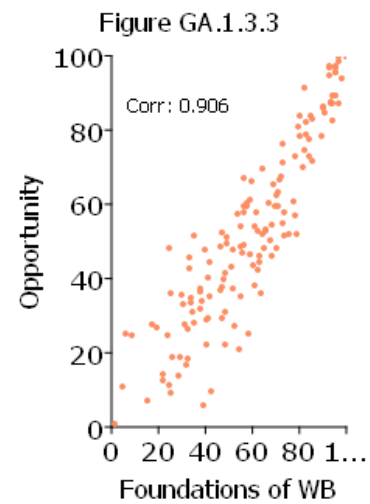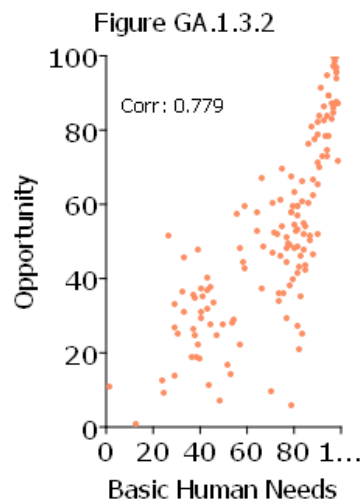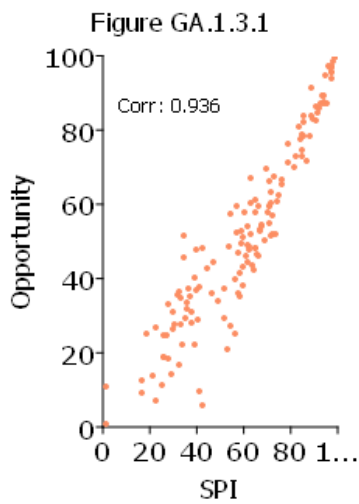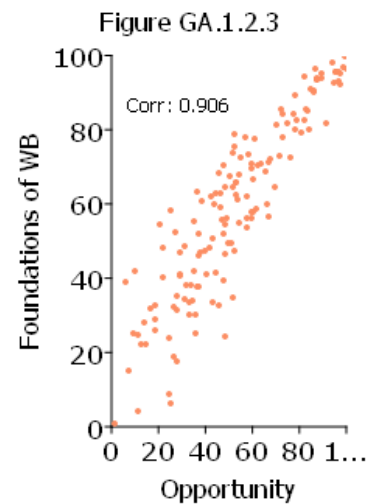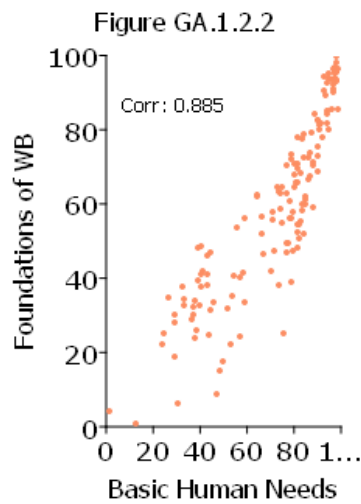
Figure GA.1.3.3

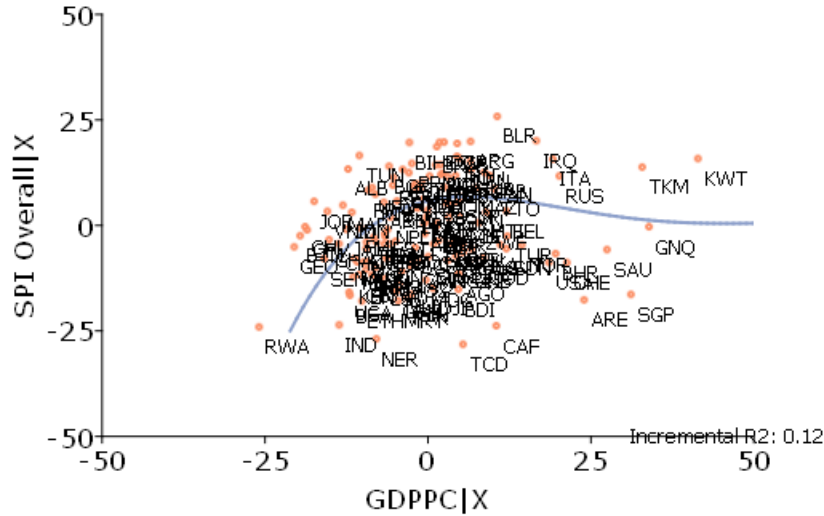Figure GA.2a: SPI Overall and GDPPC (partial)

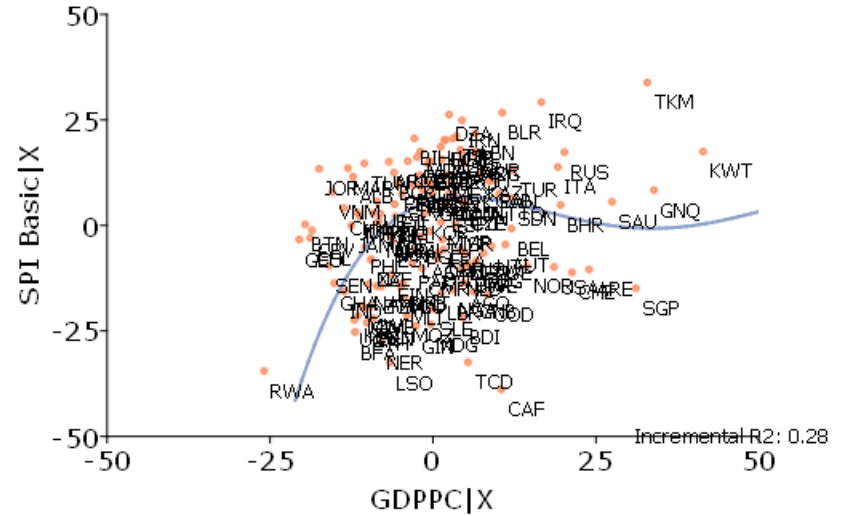Figure GA.2b: Basic and GDPPC (partial)

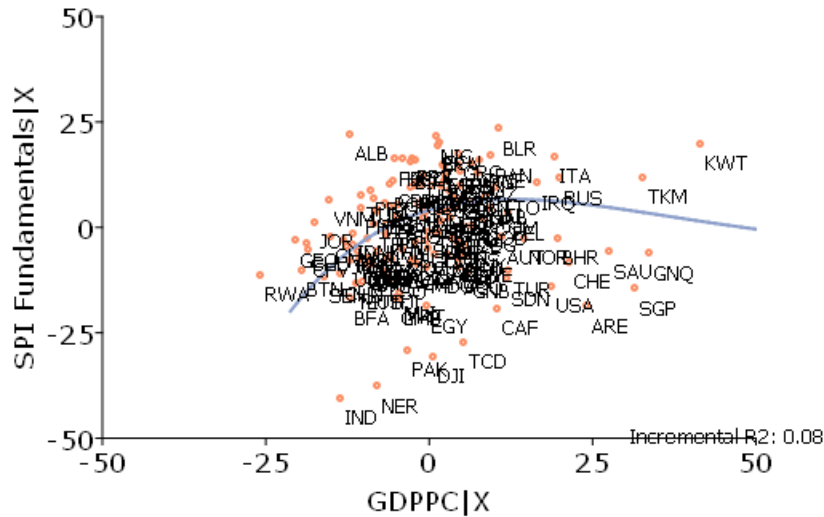Figure GA.2c: Fundamentals and GDPPC (partial)
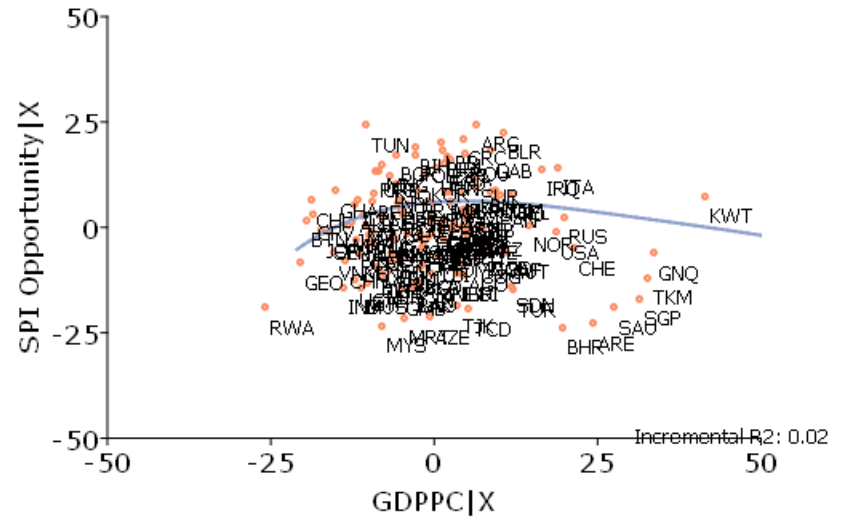

Figure GA.2d: Opportunity and GDPPC (partial)

Figure GA.3a: SPI and WGI SC (partial)

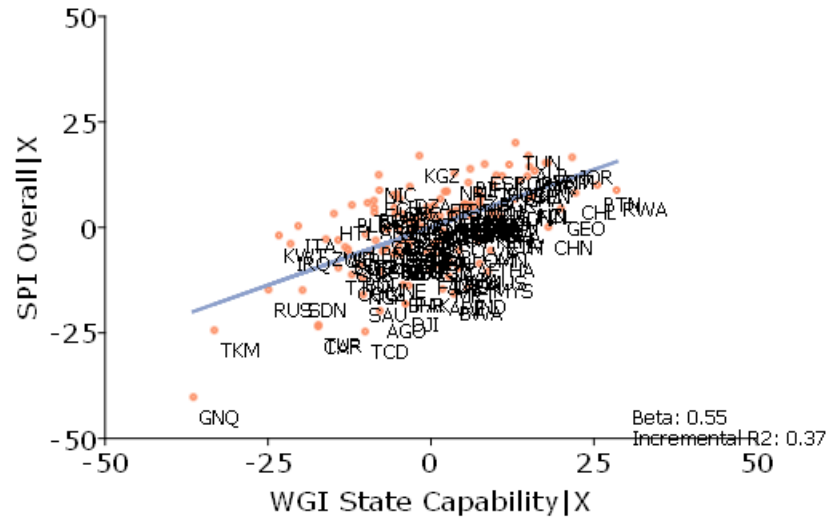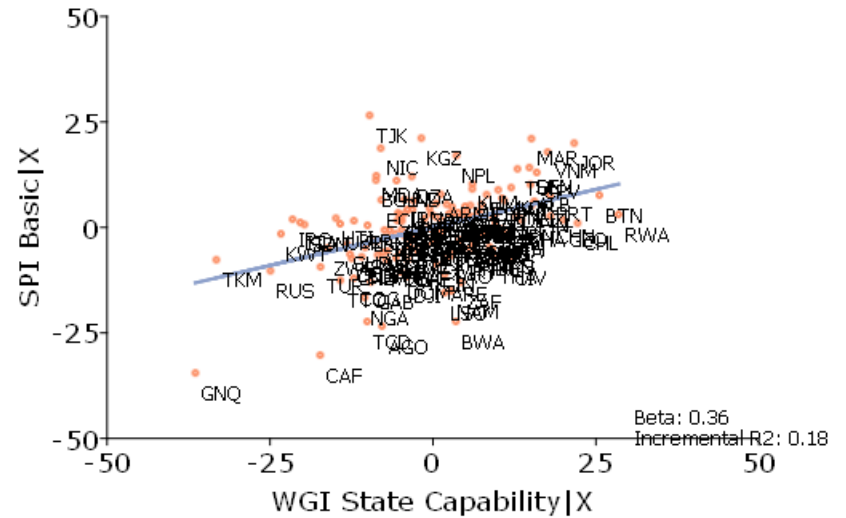Figure GA.3b: Basic and WGI SC (partial)
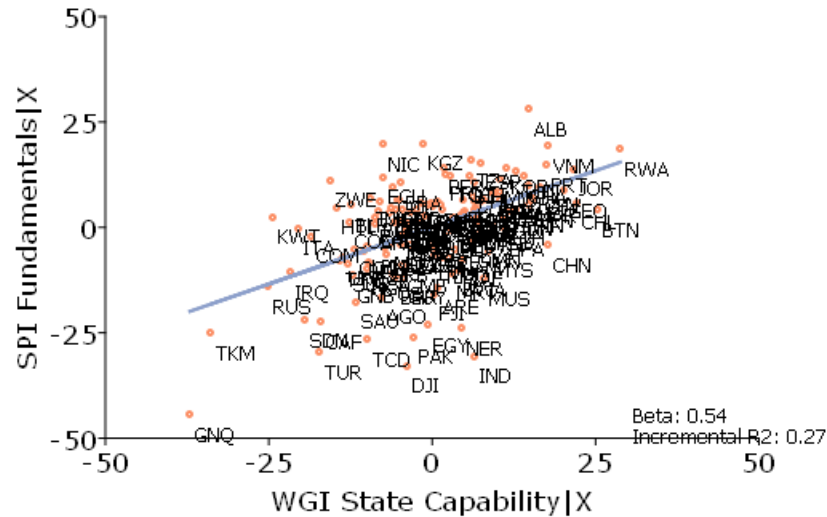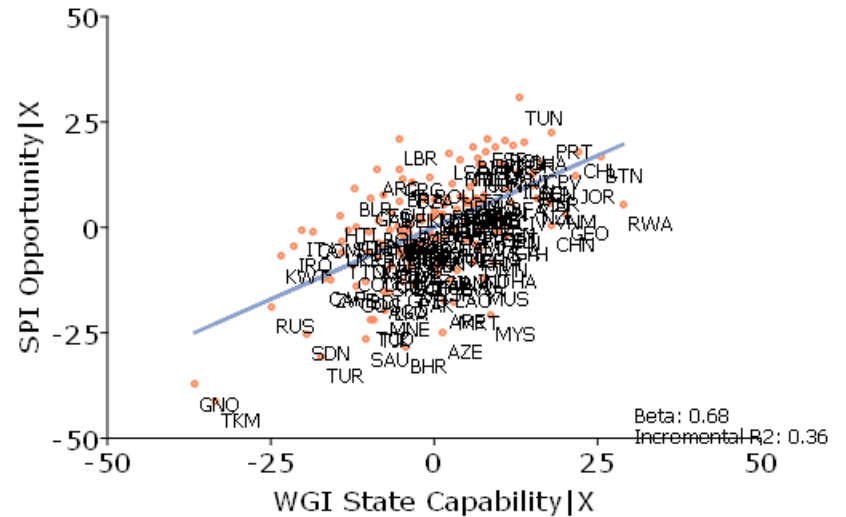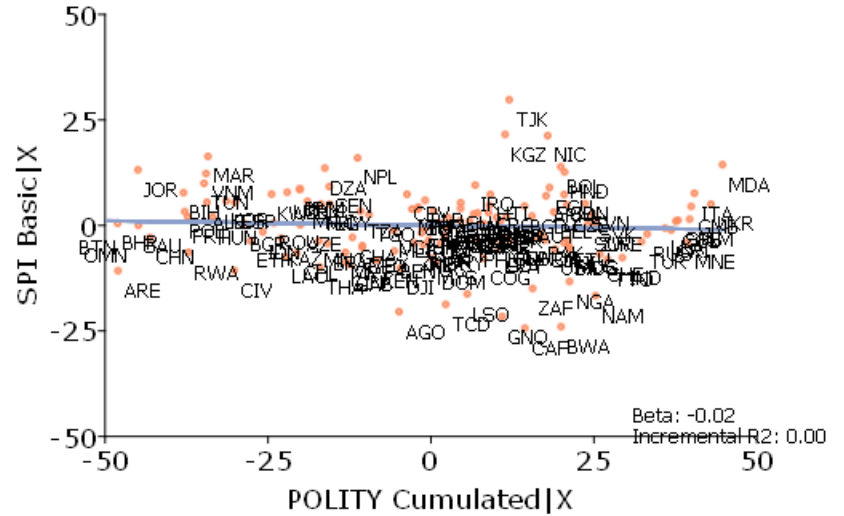
Figure GA.3c: Fundamentals and WGI SC (partial)

Figure GA,3d: Opportunity and WGI SC (partial)

Figure GA.4a: SPI and POLITY(K) (partial)
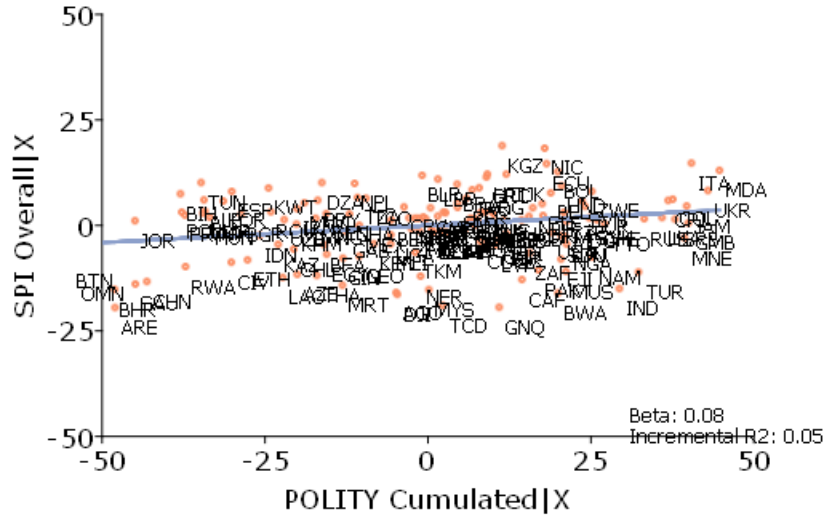
Figure GA.4b: Basic and POLITY(K)(partial)
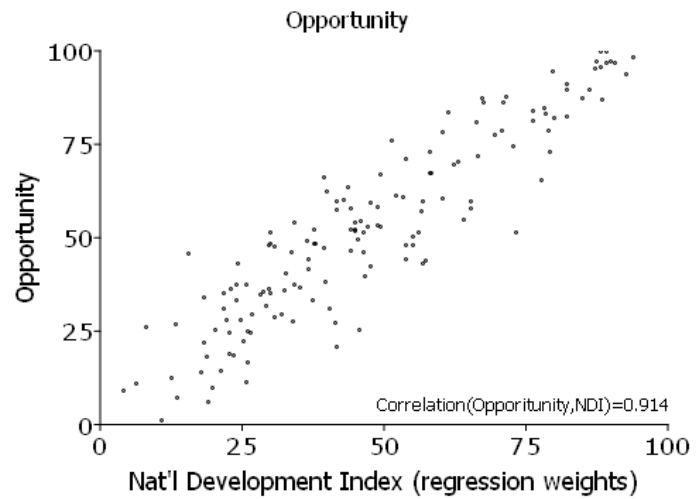

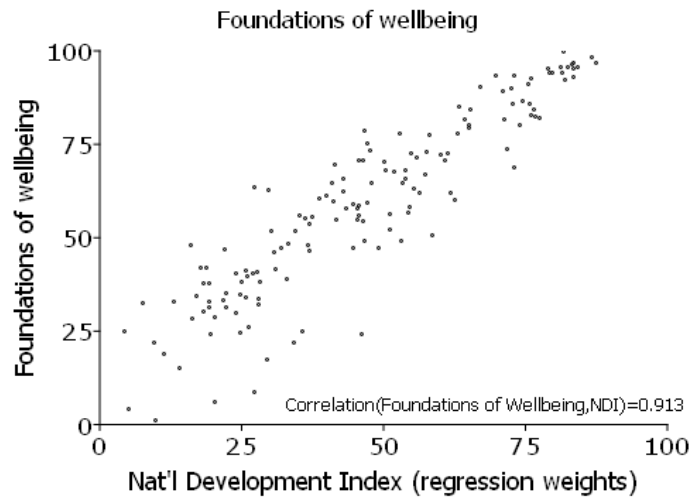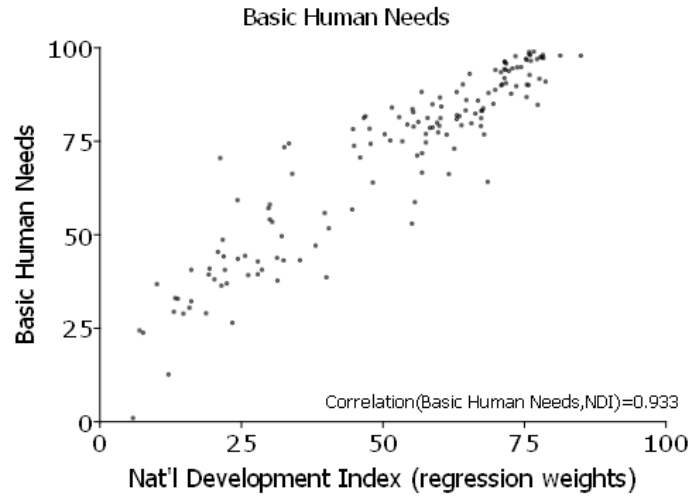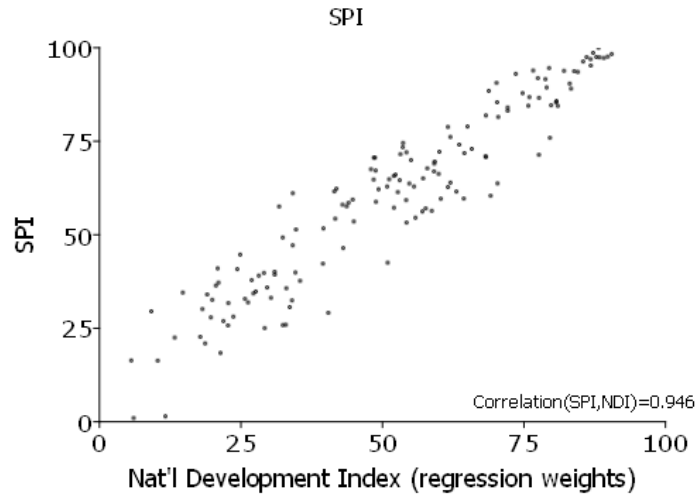Figure GA.4c: Fundamentals and POLITY(K) (partial)
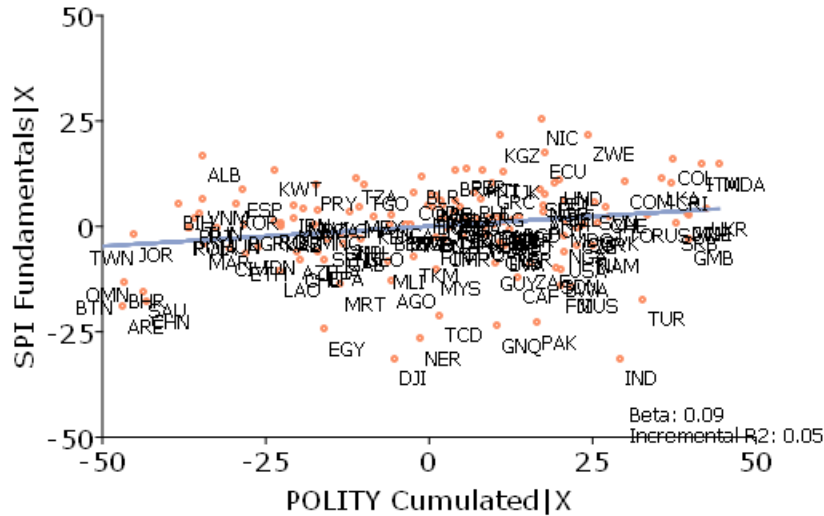
Figure GA.4d: Opportunity and POLITY(K) (partial)
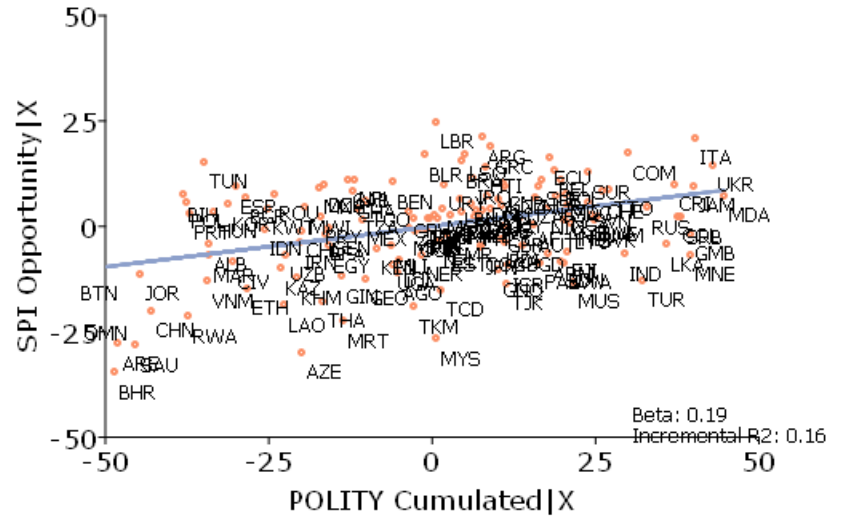
Figure GA.5: Scatter plots of SPI, Basic Needs, Foundations of Wellbeing, and Opportunity with NDI

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