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Abstract

While everyone agrees that GDP per capita is an inadequate measure of a country's overall "development" it is difficult to specify what, if anything, should take its place as a useful single summary number (or even just ranking). The Human Development Index is a prominent alternative which moves towards the notion of a more comprehensive measure of human well-being, but suffers many limitations in the limits of the domains it covers (only adding mortality and education) and in how those domains are assessed (only averages). I propose that a useful conceptual device is to imagine that individuals were ranking the countries they were to be born into, not knowing what position in that country they would occupy (e.g. male or female, rich or poor). The result could be a cardinal ranking of country of birth satisfaction units, how strongly someone would prefer to be born into country X versus country Y. While this thought experiment obviously does not of itself resolve any of the key issues, it can provide a framework for reasoning about how people would produce such a ranking: the *domains* of well being they would assess as important and how they would assess the *distribution* of well-being in those domains (e.g. would they care about the average, levels of absolute deprivation, inequalities).

Keywords: Human Development, Poverty, Vulnerability.

JEL classification: O15, D63, F22

Background Note for Human Development Report 2010[1]

Introduction

The Human Development Index (HDI) has been a politically and rhetorically powerful counter-point to measures of "development" that focus exclusively on economic indicators, such as Gross Domestic Product per capita or household consumption expenditures. However, the relevance of the HDI is increasingly challenged by success. For instance by pitching the education component of the HDI at a very low level (literacy and gross enrollment), both of which have an upper bound, as more and more countries attain near 100 percent literacy and 100 percent gross enrollment of the young the education component ceases to contribute to progress in the HDI. For countries above the low educational thresholds this implies that more progress in education either in quantity or quality (e.g. expanding tertiary enrollment, improving quality of learning outcomes in primary school) does not raise the HDI while increases in GDP per capita do raise the HDI. Paradoxically, a measure that was intended to promote the importance of non-economic dimensions of human well-being actually has its cross-national variability driven increasingly by GDP per capita[2].

[1] This note is a note (not even a "paper") commissioned for the HDR 2011. As such it is not intended as a comprehensive review of any literature nor a complete treatment of any topic but rather as a statement of a single idea and its potential implications for an HDR approach and HDI like indicators. As this a note, it is structured like an essay, not a journal article, and I apologize in advance for the excess of self-citation as I drew mostly on what was already at hand rather than reviewing and acknowledging all the vibrant relevant literatures available. I would like to thank Jeni Klugman for her insightful and generous comments without holding her responsible for my stubbornness.

[2] This convergence in the non-economic components of the HDI (literacy plus gross enrollment rates for education and life expectancy for health which enter the index in levels not logs) combined with the divergence in per capita incomes implies that, increasingly, cross-national variation in the HDI is driven by variation in GDP per capita. The result is that now the cross-national correlation of the HDI and GDP per capita is .95, which raises the question of how much it continues to contribute to policy debates about the relative merits of income versus other components of human well-being.

The 20th anniversary of the Human Development Report is a fitting occasion to review the conceptual foundations of the of the HDI and to discuss the issue of how to reflect those sophisticated foundations in a measure that is simple, available, and related to policy. In this short note, prepared as a background piece for the HDR 2010, I will obviously not resolve this issue, but do propose a simple framework for thinking through the array of indicators and how to use them to compare human development across countries. This simple framework has three components.

First, I start a simple thought experiment: imagine a person choosing between being born in various countries knowing only that this birth will endow them with a random choice of the life-trajectories of multi-dimensional outcomes of that country or, alternatively, providing a cardinal number to the prospects of being born in a given country knowing what is observable about the country.

Second, I distinguish conceptually among elements of "capabilities", in Sen's sense of possibilities (Sen 1984) or freedoms (Sen 1999) (or, in alternative frameworks, opportunity sets), that a person faces over their life by examining entire trajectories (rather than simple snap shots). Certainly one domain is a person's productivity and hence their command over material goods and the consumption of commodities, which combine into "functioning" in a space of material well-being. But in addition there are other capabilities, such as physical health, social relations, political participation, that are important elements of people's choices.

Third, for each of the components of capabilities one can propose different ways of aggregating up the characteristics of the life trajectories a person considers. This leads to five conceptually distinct ways to rank different life trajectories: *absolute deprivation*, *typical level*, *volatility*, *inequality*, and *fairness.*

The components of human development and the indicators over those components can form a matrix with capability components in columns (e.g. consumption/command over material goods, health, education, social, political) and empirical measures of those components in a given country in the rows (e.g. deprivation, level, volatility, inequality, fairness). Table 1 gives

the rows and columns just as a preview of coming attractions (as the matrix is developed and justified in sections II and III and filled in with *possible* elements in section IV).

Table 1: Measures of human development distinguishing by elements of human capabilities and empirical characteristics of those capabilities

Empirical measure of component	Component of Human Capability				
	Material	Education	Health	Political	Social
Deprivation					
Typical Level					
Volatility					
Inequality					
Fairness					

While obviously a matrix of this type alone does not, in and of itself, resolve any issues, it does help to avoid certain problems and at least frame some discussions. For instance, as I argue below, mixing and matching across indicators across rows is problematic. Using an absolute deprivation component in one capability component (e.g. illiteracy) which has, by construction, a strict upper bound versus a "typical level" component for another capability component (e.g. GDP per capita). While the HDI versus HPI distinction already copes with some of that, the problem remains with the HDI. It also helps to conceptualize what is a "column"—an intrinsically important, conceptually distinct, human capability—and what is a "row"—what are the dimensions of the life trajectory in that human capability that are important

and how can they be measured. It is clear that recent discussions of poverty have emphasized the dynamics of poverty and vulnerability. But these have to be the dynamics *of* something, and the dynamics of some important dimension of well being. Similarly, one can emphasize inequality, but it has to be inequality *of* something that is of intrinsic interest.

More of the implications in section IV, after we introduce the pre-birth "original position" frame (section I), the components (section II), and the measures (section III).

I) Ranking Countries Before Your Birth

There are two deep, inter-related, problems with discussions about rankings of alternative social situations: (i) the defense of existing interests and (ii) the social construction of values/preferences/tastes. In any discussion of how important a factor gender and racial discrimination should play in a social ranking for the USA it is impossible for me to escape the fact that I personally am male and white. This defense of existing interests can lead to a powerful form of "status quo bias" in the rankings of existing situations as the well-situated will defend the situation.

The second complex problem is squaring choice based valuations with the need to isolate particular indicators. As Bourdieu (1984)—among many others—has shown individual choices, including of consumption goods, take place within a social context in which choices signal social distinctions and identities. Hence one cannot single out any particular item as being universally more or less valuable. Moreover, the post-moderns (e.g. Foucault) have shown that abstract concepts like "liberty" or "freedom" or "opportunity" are socially constructed within a realm of discourse that cannot be cleanly separated from structures of power[3]. This means that one cannot simply take for granted that "freedom" is an important value independently of context.

While of course no one can step out of their own skin, there are several devices for attempting to abstract from the particularities of circumstances in constructing normative orderings, which necessarily assert values. These usually consist of both a hypothetical position

[3] Interestingly, economists have picked up on these different social valuations and have shown the relative valuations and perceptions of values like "fairness" and "opportunity" can empirical account for different social policies.

from which a discourse is carried out and a proposal for how people in that position would make decisions. Three examples: First, Harsanyi (1953,1955) proposed the concept of "impersonality"- according to which ethical decisions should be based upon the interests of persons who have had all personal biases removed by being put in a situation of complete uncertainty about their true identity – and from that argued what would emerge is a utilitarian social welfare function[4]. Second, Rawls *Theory of Justice* (1970) is a tremendous accomplishment and an intellectual landmark which is beyond quick summary, but one powerful intellectual device he uses is the notion of a discussion behind a "veil of ignorance." He argues that a "just" set of institutional arrangements are those that individuals would voluntarily agree to not knowing exactly which position in that society they would have (e.g. man or woman, ethnicity, race, socio-economic condition of parents, etc.). He argues that in this position individuals would adopt a "maxi-min" principle of decision making, but that argument and the consequences that follow are not necessary consequences of the notion of a "veil or ignorance." Third, the "impersonality" or "original position" is similar to Habermas's notion of "systematically undistorted communication" and hence to the more dialectically minded theories in which repeated, undistorted, communication within communities of discourse plays a key role. The Rawls-Habermas connection is that the "veil of ignorance" playing the role of, at least conceptually, removing the systematic distortions that pervade any actual embedded social or political discourse.

Taking these metaphors of "impersonality" or "veil of ignorance" or "undistorted communication" perhaps far too literally I imagine a discourse among people who exist as sentient beings prior to birth. That is, imagine that beings existed with the intellectual capacities of thought, planning, reason, understanding, evaluation before they were born. People in this situation can imagine being born in Country A or Country B or Country C but their actual position in country A, B or C (socially, economically, politically) is completely unknown to them. People in this pre-birth veil of ignorance situation could be asked would you rather be born in country A or B or C? Moreover, we can imagine asking them for a cardinal number that reflects the intensity of their preference such that if the pre-birth me ranks being born in Country A as a two on this scale and country B a four and Country C a six that the intensity of my

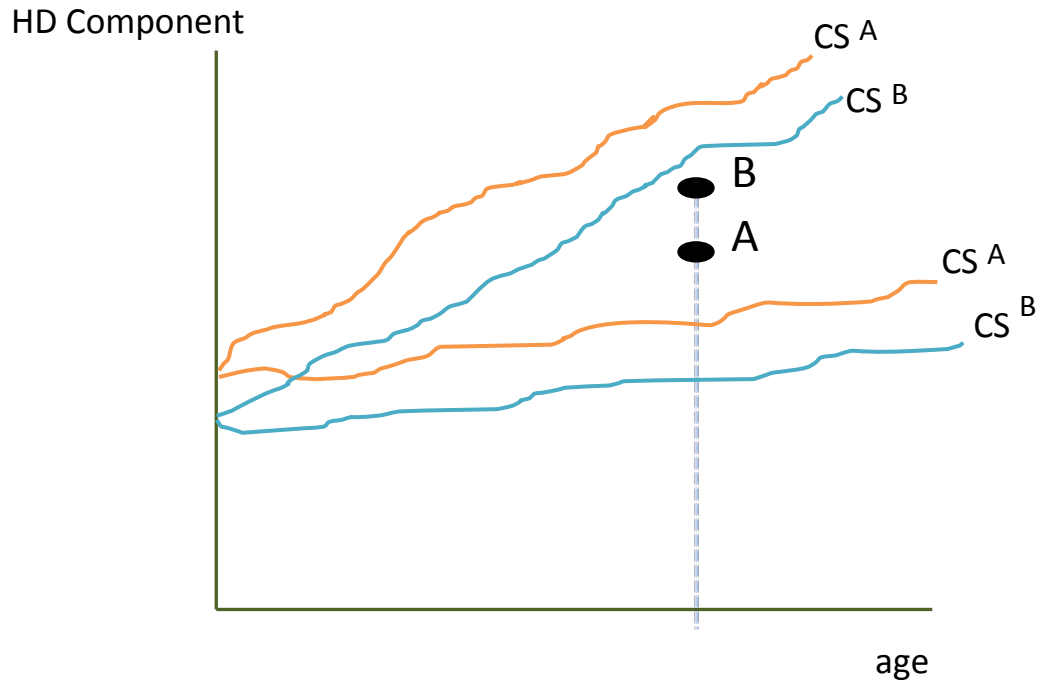
[4] Thanks to Jeni Klugman for the reference to Harsanyi.

preference of C over B is exactly that of B over A and both twice as much the gap of a fourth country D who was ranked a three over country A. I would propose calling this *cardinal* ranking a measure of Birth Satisfaction Units (BSU)—how much would I be pleased or displeased to be born in country A versus Country B or Country Z[5].

In order to make their cardinal rankings of BSUs in the pre-birth situation what information would people want and how would they use it? This leads to the notion of a "life trajectory" in both "capabilities" and "functionings" in various dimensions of human development, where a "functioning" is a choice based realization for an individual from their capability set. Figure 1 illustrates the concept by presenting conjectural trajectories of capabilities (a set) denoted by the boundaries between CS^A for the capability set of an individual in country A (similarly for country B) as it evolves over time (from birth) which in this instance widens. For any given individual, or averages over sets of individuals, we do not observe the capability sets but rather functionings (a real number) over a life cycle for two different individuals born in country A or country B. So, in Figure 1 the observed realization or functioning is higher in B than A, even though the capability set of A has possibilities that are higher than in B.

[5] Note that by imposing cardinality I am ducking, but not therefore avoiding, all of the hard problems associated with constructing aggregate social welfare measures based solely on inter-personal ordinal rankings. For a recent review of this literature, which copes with the difficult theoretical issues raised by inter-personal comparisons of ordinal rankings and how to map from observed choices to opportunity sets see, Fleurbuey 2009.

Figure 1: Life trajectories of capability sets in one component of human development (versus realizations of choices within capability sets)



The issue is that we might believe our individuals in their pre-birth situations would base their cardinal ranking of their preference of birth in country A versus B versus C based the assessment of the entire anticipated life trajectories of the relevant capability sets of the people born in that country on the assumption they will be born into a randomly chosen individual's capability sets (in multiple dimensions).

However, we must acknowledge the difficulty that the "capability" sets from which people choose are not directly observable. That is, a person might have been born with the capability set to be a sociologist or an economist or an actuary or a painter but an individual will be only one of those. Hence, even if we imagine in our pre-birth situation people have access to the world's available data and have computing facilities and reasoning capabilities, we assume they have the same limitations that they cannot "see inside" peoples heads/hearts and must rely on variables that are, in principle, observables. Assume that our pre-birth person will only be able to rank based on actual outcomes, not underlying capability sets.

This still leaves the questions:

- What are the elements of experience that people in the pre-birth situation would rank over life trajectories of capability sets?
- How would they use the existing information to form cardinal rankings across countries (if forced to do so)?
- What, if anything, does this have to do with the HDI?

II) Components of human development (capabilities)

I discuss five dimensions of human capabilities: command over material resources, education, health, political, and social that are the "columns" of a matrix and the domains of trajectories of life experience over which our pre-birth rankers will have valuations.

Command over material resources. There are a variety of reasons that command over material resources would be of importance. First, there are a variety of capabilities that can be acquired with material resources or that require material resources. As Sen (1984) distinguishes, this does not put an emphasis on commodities per se, but rather on the capabilities that commodities make possible. Second, people make choices that reflect their willingness to sacrifice in order to increase their income—for instance, many people in the world work long hours at arduous and otherwise unrewarding labor, a choice that reflects a valuation of income over other uses of time and effort. Third, there is increasing evidence from household surveys that many measures of self-reported happiness or life satisfaction are strongly and reliably related to material resources—both in the cross-section across individuals within a country and across countries (Deaton 2008, Stevenson and Wolfers 2008)[6].

[6] In fact, a recent paper by Stevenson and Wolfers 2008 casts doubt on the generality of the "Easterlin Paradox" that happiness does not increase with income—showing overwhelming that cross-national measures of happiness are strongly related to income, both in time series and in cross-section. Moreover they also show with World Value Survey data that the cross-national gradients are, if anything, *larger* than the cross-household income gradients so one need not invoke "relative" comparisons to explain the data (as opposed to the earlier view that the across household happiness gradients were larger than the cross-national).

In fact, the empirical difficulty is that overall command over material resources across countries is strongly correlated with many other measures of well-being (education, health)—including at the national level the non-GDP per capita components of the HDI. This should not be surprising as if people like something one would expect that they would buy more of it when they could.

Education. Clearly access to opportunities to acquire skills and training (and socialization) that expand the range of human capabilities is a central element of human development. There is no question that some measure of the possible life trajectories of education and skills will be important.

Health. The essence of a life trajectory, that makes all others relevant, is survival. Obviously if one is born but dies at a pre-mature age the potential trajectories of everything else, had one survived, are meaningless. Beyond that, health more broadly understood as physical functionings that make life's endeavors possible and pleasurable is also important.

Political. This dimension is more debatable as an independent dimension of human capability. On one level there is the view that the political is important only insofar as it reflects *proscriptive* rights (e.g. that I have physical security, freedom of thought, freedom from torture) and that the political dimension of the human experience is only judged instrumentally beyond that and hence if I live in a state that is rich, and provides quality services then the nature of political decision-making is not a direct argument of my human development. There are others who argue that a right to participate fully and meaningfully in political decisions has intrinsic worth.

Social. The fifth dimension is also more debated. What is not debated is that there are important "social" dimensions to self-assessed happiness or well-being—all of the research agrees that deep and meaningful social relationships are important. What is less obvious is whether these would be features of *places* where one would be born. One dimension of the social that is place/country related is whether there are social groups who are treated better or worse.

Gender issues are the most obvious as any given pre-birth person would have a 50/50 (roughly) chance of being born a man or a woman so the relative treatment of those two groups would be of enormous interest.

Also, discrimination by race, ethnicity, religion, caste at the social (not just political) level would also be a factor in assessing one's life trajectories as societies in which there were structurally disadvantaged groups create a risk.

Of course I am far from the first to provide a list of the elements of human well-being over which people might rank countries based on a typical (randomly chosen) life trajectory of a person in that country (e.g. Ranis, Stewart and Samman, 2005, Alkire 2008). My list is shorter (fewer columns) than other proposals for a several reasons. First, I am focused more on those dimensions of human well-being that have an obvious and important link to public policy. So, while "spiritual life" might be an important component of well-being I am not including it in the dimensions over which we would ask a cardinal ranking. Second, I am focused on things for which there is already data. Third, many of what become "columns" in some discussions—like "inequality" will be "rows" in mine.

What is obviously missing from this list is a category called "sustainability" or "environment." I would argue, weakly, for their exclusion on two grounds. First, "sustainability" as implying something about dynamics is in my framework more properly a row—that is, it is a property of a life trajectory. In the next section "sustainability" comes into assessment in a variety of ways, through the life-trajectory (not just current consumption) for the long(ish) run and through volatility and vulnerability in the short to medium run. "Sustainability" has to be the sustainability of something—it is a property of the *flow* of realizations of human development. Hence, if people are maintaining their current income by over-exploiting a natural resource such that their income will fall in the future then this is already taken into account in the anticipated life trajectory of material well-being.

Second, there is a second sense in which the "environment" as a flow of services enters directly into the normative evaluation. Again, I could be persuaded otherwise, but this is mostly reflected in other dimensions—natural resources in material well-being (properly accounted, this

already includes scarce or polluted water, etc.), damaging pollutants as part of health. What is left over is either direct negative non-income, non-consumption flow, non-health environmental impacts such as aesthetics or direct intrinsic valuation of undisturbed nature or direct concern for other species (which is for instance proposed by Nussbaum 2000 as a "fundamental"). So certainly, people will assess many elements of the natural environment in making their decisions about relative attractiveness of places of birth—and one could include these as a separate dimension if it were felt to be sufficiently important and were done without double counting. But in any case "sustainability" of those environmental flows will be a row, not column.

But my main concern is about the data and analytics of rows and elements of rows, not the columns and I am not making any particularly powerful arguments against additional columns. While I personally like these five, there is nothing about the framework that says Table 1 could not just as easily have a sixth column (a direct measure of the contribution to human development of environmental services) and a additional row (for sustainability as a long-term property of life trajectories, longer than the individual life span, in each domain).

III) Characteristics of life trajectories in components of capabilities

Our pre-birth rankers have access to excellent data on life trajectories—but are not omniscient. That is, suppose they have excellent data of the kind that multi-module panel household surveys (combined other sources of data) can provide and can do with that data what you or I could do. But they can neither "see inside" individuals to directly observe their subjective states nor ordinal utilities nor observe individual's choice sets or opportunities (in the past or future). So our pre-birth rankers want to use available data to compute characteristics of the life trajectories in the various dimensions of capabilities in order to form a cardinal ranking of the attractiveness of being born in various countries.

There are five characteristics of life trajectories that would be of interest to them.

Deprivation. The first characterization is how many of these life trajectories fall below some *absolute* threshold of deprivation. How many people in this country live below an absolute consumption expenditure poverty line? How many people in this country did not complete grade 6? Or achieve a minimal level of learning outcomes? How many of these life trajectories are cut

short by pre-mature death? How many of these trajectories are of people who are denied basic political rights?

Figure 2: Three countries, three individuals (of different ages) with life trajectories in a potential HD component against a common absolute deprivation line

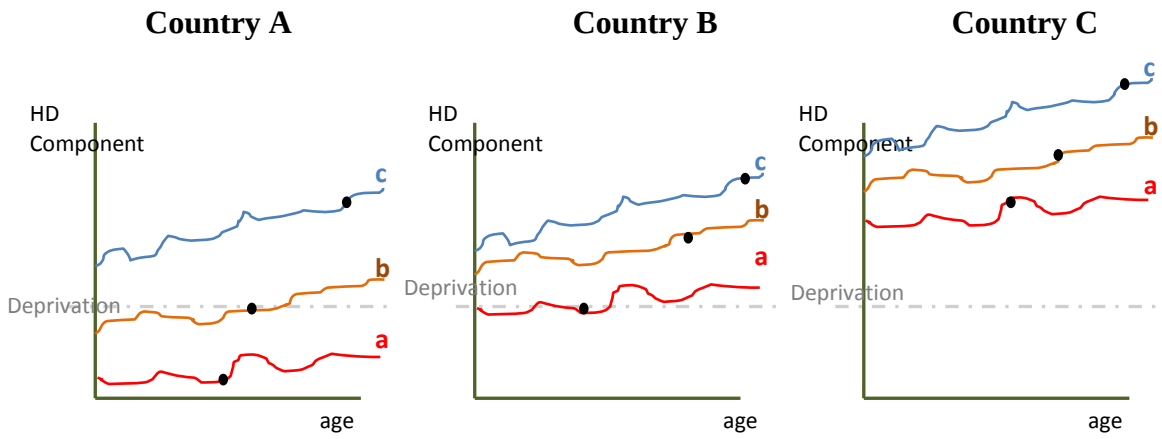


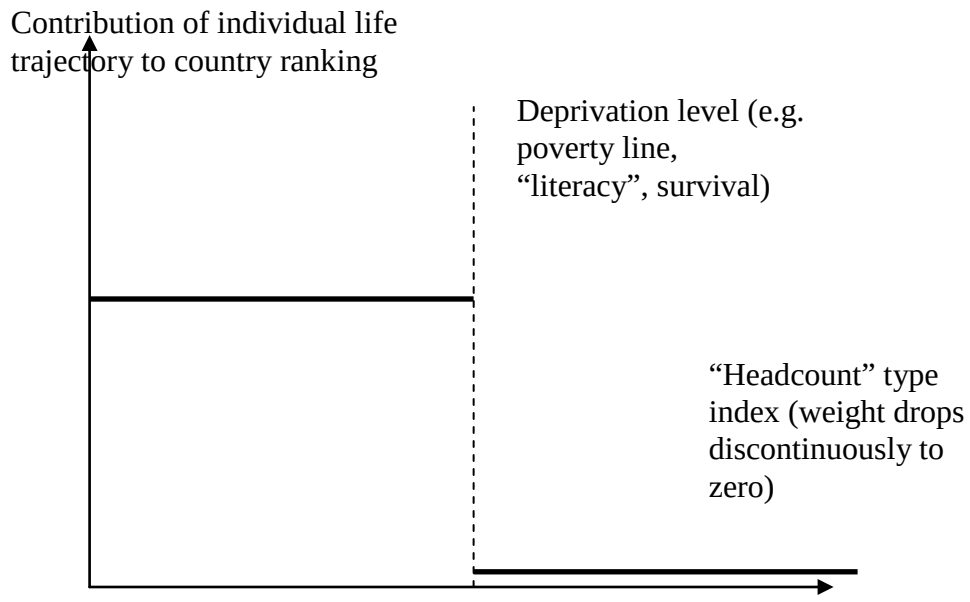
Figure 2 illustrates this as, at any give point in time the three individuals are at a certain point on the observable functionings trajectory (the dots—assuming a is youngest, c is oldest) and can be judged to be above or below in each country A, B, or C the absolute deprivation threshold.

Deprivation indices have a couple of benefits. First, they define a range of the human capability spaces in which the "capability" versus "functioning" distinction is perhaps less important because of an (implicit) assumption that no person observed with functionings at these very low levels have capability sets with adequate functionings. That is, we might observe one doctor making $150,000 a year and one making $100,000 a year, but this might be that one of the doctors simply made a different trade-off between monetary aspects of well-being and other lifestyle elements (pressure, hours, family time) and both doctors had the same opportunity set but made different choices that left them, at their observed levels of income, with the same subjective well-being. An intuitive appeal of deprivation indicators is that this complexity is less compelling. Either because we assume that no one with a capability that included acquiring a minimal education would have chose to not attain it or, on a more normative ground, even if they did make that choice (perhaps to work to survive) it is just unacceptable for people to have to

make that choice (or from a Rawlsian perspective, a person would put enormous weight on not having to make that choice).

Second, deprivation indices are a way of introducing higher weights on the well-being of the poor to reflect a declining marginal gain in ranking as the index expands. There are aspects of well-being that are "necessities" that have the property that their marginal gain at very low levels is very very high but declines quite rapidly. Drinking water is an obvious example, having "enough" is crucial, having twice enough is not so great, having ten times enough versus five times enough has no value at all.

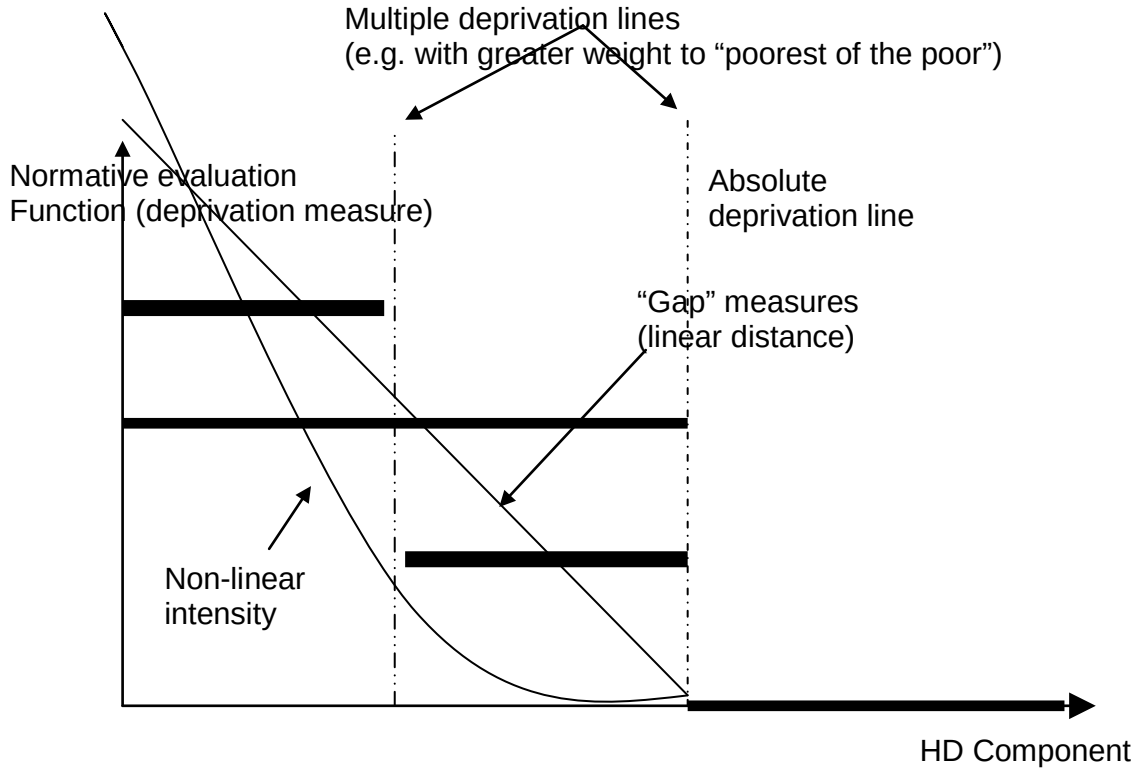
Figure 3: Weights on a given individual of deprivation indices in forming country aggregates of a "headcount" or "proportion of the population"



Of course, the weights in Figure 3 are only one possible way of weighing the individuals *below* the deprivation index. Extensions of measures like the Foster Greer Thorbecke (FGT) class of poverty measures can create different weights given to the "intensity" of deprivation by measuring the deviation below the line and give these a parametric shape, as in Figure 4. This is a very busy figure, but which has the message that the question of what weight to give to individuals whose observed level is below the (upper bound) threshold is perhaps

technically complex, but not really essentially a problem, as there are many solutions to the simple problems of proportions of population below a deprivation line (e.g. without education, below a poverty line) that are (a) not giving more weight to greater deprivation and (b) the "bang-bang" nature of the index as a person crosses the threshold line, which, if the index were taken literally as a normative evaluation of outcomes to be optimized over would lead to goofy prescriptions[7].

Figure 4: Possible weights (gaps, squared intensity, alternative thresholds) of deprivation below the line



But Figure 4 also expresses the *necessary* downside of a deprivation index. The very notion of a deprivation index is that above an upper threshold a person's level contributes *exactly*

[7] For instance, the well known (if, in my view, not particularly empirically important) problem that if you literally wanted to maximize the impact on headcount poverty of a given budget for redistribution one would allocate it to those just below the poverty line. Similarly, one might triage so to increase the likelihood of survival of those just near the line of survival and ignore others.

zero to deprivation. This implies, as is well-known, such indices that it ceases to effectively rank countries above some level. A commonly used deprivation index in the command over material resources dimension of well-being is "dollar a day" poverty (which is now, with inflation 1.25 a day in PPP). In the latest HDR (2009) Egypt, Jamaica, Thailand, Poland, and South Korea all had exactly the same headcount value (reported as < 2 percent). For all intents and purposes these countries are "tied" in that dimension. Hence "dollar a day" poverty helps to rank Nigeria at 64 versus India at 41 versus El Salvador at 11 it stops effectively ranking countries in roughly the top third of the HDI countries. Similar issues of upward truncation affect deprivation indices like "illiteracy." In the HDR 2009 tables this was at (or very near) 100 percent for at least a third of the countries.

This has two downsides, one theoretical and one empirical, which are related. The theoretical problem is that this violates the common sense idea (known as the "strong Pareto" principle) that one should choose situation Z as better than situation W if each individual in Z is better off than each individual in W—and no one is worse off. But if, in figure 2 in country B versus C it could well be that each person a, b, and c, are (at adult ages) above the deprivation line but are much higher in C than B—but the index (no matter how weighted below the line) is going to be the same if each individual is above the line (however marginally).

This leads to the empirical problem therefore. If one chooses a "low" deprivation line (which has its empirical merits in putting "a lot" of emphasis on deprivation) then it is really difficult to make the case that individuals' own orderings of their well-being are indifferent to what happens above the line. As I have argued elsewhere for instance, the "one dollar a day" or "two dollar a day" poverty lines cannot be reasonably considered as thresholds at which people feel that marginal gain to additional consumption/income is *exactly* zero—or even well approximated by zero. Similarly, it is obvious that people care about their education more than literacy and their political participation as more than absence of torture. It is implausible that, in ranking countries by birth, people in the pre-birth situation would rely *exclusively* on deprivation indices based on low thresholds and really be indifferent to all the variation in the HD components above that.

On the other hand, if one chooses a "high" deprivation index then it loses some of the power to differentiate at the low end (for which it was intended), some of the rhetorical appeal (as people can disagree that a high threshold really conveys "deprivation"), and makes the weights of those below the threshold the key element of the index (about which there is a whole lot of arbitrariness).

Of course, no decision about "deprivation" can be made once and for all. A main notion of "poverty" is an "unacceptable deprivation" in which obviously "unacceptable" is a socially constructed notion that depends in part on the resources and abilities to address the deprivation. Deprivations which are acceptable as inevitable at one level of technology become unacceptable when feasible interventions are created. This means that over long periods of time the standards of deprivation can be expected to change, but without undermining the validity of the concept at any given time.

Average (Typical) Level. The second characteristic of a life trajectory in any relevant human development dimension is its average or typical level. This is in some sense the easiest conceptual characteristic. As for each component of human development an empirical measure in which it is assumed that roughly "more is better" is developed, and then the measure for each country is just a measure of the average (or typical, median) value across all individuals (or for the society as a whole).

Of course, this leaves a number of problems of creating a scale that encompasses the entirety of the phenomena of interest and the aggregation issues within each domain have to be addressed. For the material components there is a well worked out theory of aggregation in which prices convert incommensurate measures (kilos of wheat, pairs of shoes, numbers of haircuts) into a money measure of "total expenditures"[8]. For the other dimensions of human development the problem is that even within a domain of human experience there is not a well worked out and broadly accepted way of aggregating various elements. While one can object to "prices" as a means of aggregating, any time there is aggregation something plays the role of

[8] I say this is well worked out, not that all the claims made on its behalf are correct. That is, the conditions under which this aggregation succeeds and for what purposes are well articulated. The debate is usually about whether those well worked out theoretically conditions have any empirical relevance.

prices in deciding that, in its contribution to this overall index, this much of X is the same as this much of Y.

Take health. While death versus life is a clear distinction, there is "better" and "worse" health but how does one create an omnibus measure of "health"? While there have been various measures tried, such as DALYs (disability adjusted life years) or QALYs (Quality adjusted life years) these remain controversial because fundamentally an index is about trade-offs and in domains such as health it is difficult to get agreement on whether, for instance, being blind in one eye is "worse" (counts more in reducing "health") than having only one leg.

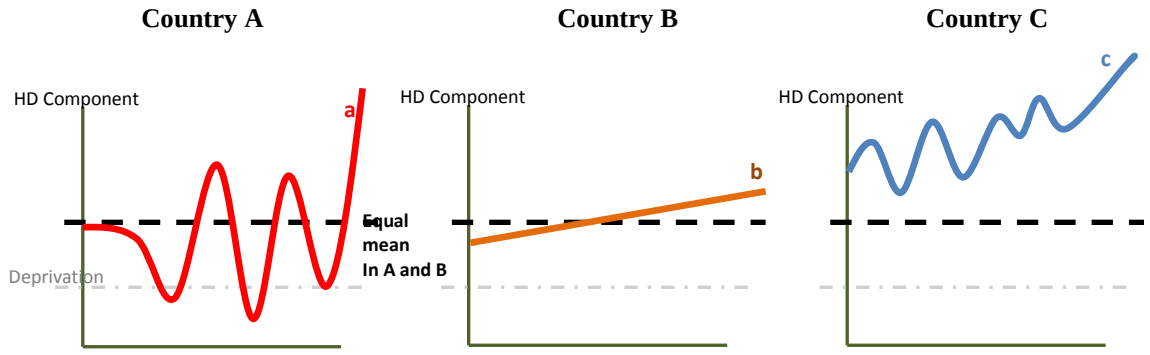
Similar problems exist for "social" dimensions. Suppose we have a notion of "social capital" as a phenomena of a society (as opposed to an individual's social capital) then how would we measure it? Some measures, following Putnam for instance, are measures of the density of associational life—how many organizations or social networks is the typical person a member of? However, this is obviously flawed as this measure of "associational life as social capital" would include membership in the Klu Klux Klan and the Red Cross as contributing exactly the same amount to social capital. But empirical work has shown that memberships in some organizations have positive social spillovers and others negative spillovers (Alatas, Pritchett, and Wetterberg 2002). Due to the fundamentally different nature of the phenomena, crude borrowings of concepts (or just rhetoric), like saying "social capital", are unlikely to actually be much help conceptually, as the conditions in which one can aggregate disparate items like tractors, buildings, and machines into an even semi-coherent concept like "physical capital" are certainly impossible for anything like "social capital" (Hammer and Pritchett 2005).

All that said; do can be made by making do. People do have notions of what are "better" or "worse" dimensions of various domains and translating those, as clearly as possible and as best as possible, into indicators can give people an idea of how different the politics of Pakistan versus Kuwait versus Mexico versus Norway deviate from some ideal.

Volatility. The third characteristic of a life trajectory in a human capability a pre-birth person would want to know about is its volatility—how much variability there would be over time. Figure 5 illustrates three possible life trajectories for a single person in each of three

countries. Even though the life trajectories of person *a* and person *b* have equal means, the life trajectory of *a* is much more volatile, with respects to good times and bad times. There are (at least) two distinct reasons to care about volatility: aversion to volatility (of which pure risk aversion is one component) and *vulnerability* to deprivation as a result of volatility.

Figure 5: Different volatilities in life trajectories



There are a variety of reasons why people may dislike volatility from pure risk aversion from non-linear normative evaluation functions, to adjustment costs (either psychic or real) from adapting to potentially rapidly changing conditions. But it is clear from people's choices—in financial markets, in buying insurance products of various kinds (life, health) that they prefer less to more volatility. Moreover, I argue that the design of social transfer programs reveals a desire to reduce risk by instituting what I have called "safety ropes" that help catch people when they experience a negative shock and hence make transfers primarily within individuals from good states to bad states (Gelbach and Pritchett 2002). That is, the massive historical rise in "social" spending in the Western democracies has been for programs that accommodate shocks (health insurance, unemployment insurance) and smooth over the life-cycle (old age and children's programs) and hence smooth long-run volatility for individuals rather than about transfer programs to people who are "chronically" poor (Lindert 2004). This is a huge and interesting distinction even amongst the rich countries in the extent to which they effectively smooth risk, and hence which distinguishes "varieties" of "welfare capitalism" (Esping-Anderson 1993).

A second conceptually distinct reason to dislike volatility is that it leads to "vulnerability." I am not quite sure what "vulnerability" means, whether it is being exposed to shocks that, if not mitigated, would lead to volatility or whether it is just another word for realized volatility or whether one has in mind discrete thresholds and increased volatility leads to a higher probability of experiencing a negative (and permanent) condition. So for instance, firms may dislike revenue volatility because, with limited capability to borrow this may increase the likelihood of bankruptcy which ends the life of the firm. In that sense, one could (I have) develop a measure of "vulnerability" as the exposure to risk of a shock of poverty (Suryahadi, Sumarto, and Pritchett 2000). This concept could be extended to other dimensions in which one could distinguish even among countries that are "democracies" between those that are "fragile" (a high likelihood of reverting to a less favorable condition) versus "stable."

Measures of volatility would have to be combined with other measures. As illustrated in Figure 5 a country like country C could have more volatility than B but such that every outcome is better then any outcome in Country B. In this sense, one can imagine, volatility adjusted streams that combine mean and volatility (in the same sense that one uses a risk-return frontier in analyzing income streams from an asset).

Inequality. A fourth element of the collection of life trajectories in a country is the inequality across individuals of their observed life trajectories. As this dimension has received enormous attention and the consequences are obvious I will say little, this little reflecting the topic's importance not unimportance.

The main issue is how to construct indices of inequality that can be compared, either across the columns—how important is inequality in material well-being versus social domains, for instance and across the rows for a given domain.

Again, in the domain of material well-being, such as consumption expenditures, these indicators have been well worked out, particularly with work such as that of Atkinson that essentially "adjusts" measures of the level for the variability to achieve a single measure. The nice thing about these is that they require specific assumptions about parameters so that it is easy to take two situations and compare them across a variety of parameters of inequality aversion to

see how robust the rankings of two situations are—does one distribution dominate another or is the comparison sensitive to the particular inequality aversion.

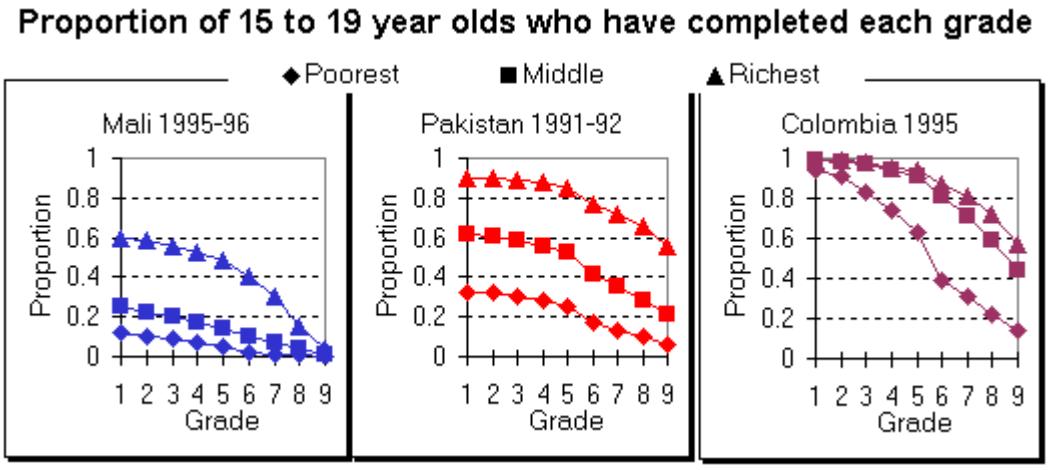
Fairness. The measures of deprivation, levels, volatility, and inequality each have, particularly in the material domain, well worked out theories and measures. The last I propose is probably the most potentially controversial. I would propose that, in addition to inequality measures one could add measures of "structural inequality" as a potential measure of "unfairness."

Start with the example of education. Suppose we measure raw "inequality" across individuals in schooling. There is not construal in which this has the normative interpretation of "less is better"—certainly no one believes that a society in which everyone has exactly 10 years of schooling is better than a society in which everyone has *at least* 10 years and some people, say doctors, have 20 (e.g. 10 plus 2 plus 4 plus 4). Certainly on education everyone wants to "deprivation" so that inequality that is the result of some being below a minimal threshold is undesirable, but *inequality* in schooling outcomes *per se* is not undesirable. Most people, I would suspect, have the view that what is normatively desirable is a combination of a minimal standard, plus beyond that equality in opportunity plus freedom of choice. So some people who are adept at schooling will choose to do more and others whose preferences and intrinsic abilities run in other directions will choose to do less schooling. There is nothing intrinsically of concern about inequality of outcomes (above a threshold).

However, the key question is whether the observed inequality in outcomes is the result of an acceptable and legitimate—or "fair" set of processes or whether the inequalities in the education domain are the result of structural inequalities. For instance, are a person's educational opportunities at birth strongly conditioned by forces beyond their control and which do not "properly" affect outcomes—such as sex, caste, race, or, somewhat more controversially, socio-economic status. The Demographic and Health Survey (DHS) data have provided the ability to examine education outcomes (completed years of schooling) across the obvious categories of sex and residence and, combined with the use of an index of the assets included in the DHS, the assets of the child's households. This can be used to generate "attainment profiles" of grade completion of a cohort for those characteristics and hence measure not just inequality in

education outcomes but how strongly stratified on characteristics these outcomes are. Figure 6 shows just for three countries what these attainment profiles look like, in this case stratified on assets of the household. This same stratification by sex, residence, assets can be done for all the health indicators of the DHS.

Figure 6: Use of an asset index to examine grade completion (ever enrollment and drop-out) across countries.



Source: www.worldbank.org/html/prddr/prdhome/projects/edattain/edattain.htm

The arguments in favor of a "fairness" measure are several-fold.

One, it could potentially capture differences in capability sets than inequality in outcomes, which are observations on choice based functionings. Some people choose to be doctors and others choose not to, but if all people who choose to be doctors are men, or white, or from rich families, this suggests there really are differences in capability sets.

Second, "fairness" is less more resistant to concerns about inequality as a desiderata being influenced by "envy." That is, nearly all inequality measures violate the strong Pareto principle, in that if a person in the top end of the distribution gets better off then inequality

"worsens" even though all that has happened is that one person has gotten better off. The fairness concern clarifies that there are *independent* concerns about the variation in outcomes (which may, or may not, have intrinsically deleterious effects) and about whether the stratification of outcomes reflects a fair outcome[9].

Third, one issue that is very difficult, is that none of the measures so far have been able to capture correlations in the human capabilities across individuals. That is, if I am choosing in the pre-birth situation and I know that country A has this level and inequality in each of the indicators and country B has exactly the same level and inequality in the same indicators—it makes a big difference to my overall risk if they are strongly correlated in Country A so that being born into a rich family, or male, or the privileged ethnicity means my capability sets are higher in all dimensions, while in Country B these are independent dimensions of my life experience.

Fourth, this has independent policy interest.

IV Implications for HDI and HDR measures

I return to the basic table and the basic idea. Imagine that you exist as you but in an ethereal unborn state but which we could use your reasoning capabilities (and computers) and had access to the perfect achievable data (that is, only data observable to humans after they are born). How would you use the available data to rank on a cardinal intensity scale your preference for being born in each of the countries of the world, knowing your birth will endow you with a randomly chosen capability set from among the (anticipated) life trajectory capability sets of people born in that country? I would dub this measure a "Birth Satisfaction Unit" (BSU).

Table 2 can be used to raise a sequence of questions:

[9] This is the response to Nozick's famous objection to Rawlsian concern about inequality, which is that if everyone is willing to pay a nickel to see the world's best basketball player and that makes the world's best basketball player fantastically rich, there can be nothing unfair about the outcome of a series of mutually voluntary transactions. The obvious objection if that this is "fairer", then basketball skills are something that all had equal opportunity to acquire.

- How would a given *cell* be measured appropriately? (what is a measure of "political deprivation"?, what is a measure of "health unfairness"? what is a measure of educational inequality?)
- How can the cells be combined across given rows? (e.g. is there an aggregate ranking of countries by a "level of HDI" measure across components? Or "unfairness" across countries in multiple dimensions?)
- Can the rows be combined into an omnibus country ranking?

Table 2: Filling in the cells *illustratively* with possible examples.

Empirical measure of component	Component of Human Capability				
	Material	Education	Health	Political	Social
Deprivation	FGT consumption expenditure poverty	Minimally adequate learning outcomes (e.g. MLG)	Infant mortality, life expectancy	Negative human rights (e.g. torture, free speech)	Discrimination
Typical Level	HH consumption (PPP) per capita	Years of Schooling per person	Health functionality (e.g. disease conditions, disability)	Political participation, civic engagement	Social integration, tolerance
Volatility	Variability of HH Cons, Vulnerability to poverty	?	Risk of health shocks	Institutional stability, lack of political risk	Ethnic/ Social violence
Inequality	Cross-sectional variability (e.g. Gini)	Differences in education outcomes	Inequality in health outcomes (level?)	Inequality in political power/control	
Fairness	Structural inequalities in economic outcomes by gender, race, ethnicity, castes, etc.	Structural inequalities in education outcomes across illegitimate categories	Structural inequalities in health outcomes across illegitimate categories	Structural inequalities in political participation/ Power	Socially structured persistent inequalities in status

This table would represent both a summary of the accumulation of the Human Development agenda as it has evolved in the various domains by expanding across rows (e.g. in material well-being "deprivation" on the agenda over averages through poverty work, volatility and vulnerability on the agenda, inequalities and justice) and across rows (from "income" to health and education to politics and social. Moreover, this is a huge agenda of research and practice for the next decade of filling in the cells coherently on a conceptual basis and providing increasingly reliable empirical measurement. Of course the Human Development Reports of recent history have moved in this direction by adding additional measures (e.g. the "deprivation" indices), but my view is that the HDI, which has been the single number that most captures the imagination, still mixes a bit across the rows (e.g. "typical level" with GDP per capita but "deprivation" by using "literacy" which is bound above at a low level).

IV.A) Empirical considerations of implementing BSU

Let me start with two "blue sky" considerations about filling in the table.

First, the pre-birth conceptualization and BSU link the most recent HDR on mobility to the HDI and hence could be a potential motivation. That is, one thing that was clear is that people move to high HDI countries—only 3.2 percent of "medium" HDI people moved to "low" HDI (and only 1.5 and .7 percent of "high HDI") and conversely 42.6 percent of people from medium HDI moved to "very high" HDI. This suggests that people really would prefer to be elsewhere. The Gallup World Survey has responses on the number of people who, given the chance, would *wish* to *permanently* move from their country. The interesting thing is that the expected pattern that poorer countries have more people wanting to move is there, but also, what about places like India? Or even more strikingly Pakistan? Or Laos? Why is it that 60 percent of Ghanaians would choose to move permanently but only 10 percent of Laotians? Analysis reported by the Gallup organizations suggests that while "living in a low GDP country" is a factor, so is "perceiving hard work does not pay off in your country." How does people's interest in moving relate to their assessment of their "human capabilities" (and prospects for their children) in one country versus another?

Table 3: Proportions wishing to move from their country permanently

Highest 15	
Sierra Leone	64.50%
Guyana	59.60%
Congo (Kinshasa)	58.80%
Ghana	58.30%
Nigeria	58.20%
Liberia	57.90%
Zimbabwe	56.80%
Dominican Republic	56.50%
Senegal	55.50%
Uganda	51.00%
Malawi	50.90%
Haiti	50.80%
El Salvador	49.20%
Cameroon	49.10%
Ethiopia	46.10%
Lowest 15 countries	
Tajikistan	10.70%
Laos	10.50%
Finland	10.40%
Austria	9.20%
South Africa	8.20%
Spain	7.90%
India	7.70%
Uzbekistan	7.70%
Australia	7.60%
Malaysia	7.30%
Pakistan	6.80%
Indonesia	6.00%
China	5.90%
Thailand	5.90%
Saudi Arabia	3.10%

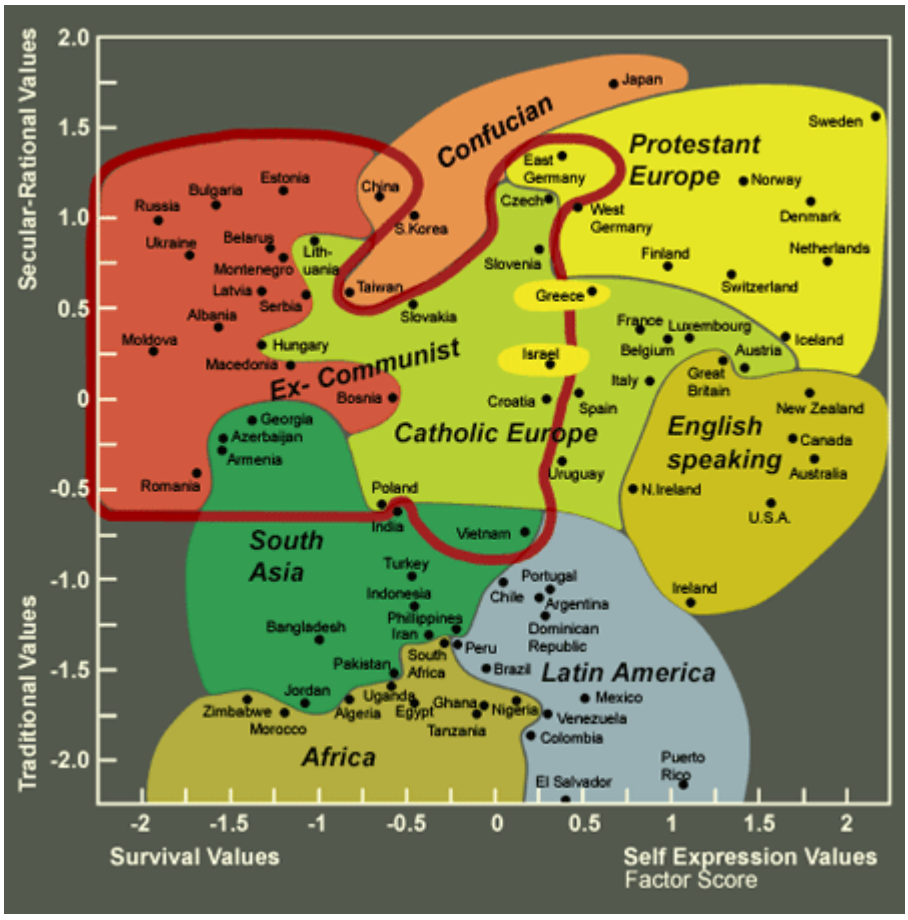
Source: Gallup survey, Torres 1999

The second "blue sky" research question is how to link the increasingly available data on people's own perceptions of their "happiness" or "life satisfaction" or other subjectively reported

measures and the empirical measures (and weights) in an index of human development. One concern is that the very process of creating an index doesn't allow people's own concerns and their own choices to be reflected. That is, there is always a danger of supplanting the values of "elites" who know best for the judgments of people about what they feel would improve their well-being. This is a particular concern as it has been shown with the World Values data that people's relative valuation of various dimensions of well-being shifts as people become more prosperous (which is not surprising given the declining marginal value of any dimension). So, for instance, Figure 7 shows the relative importance of "survival" versus "self-expression" values (a principal components index of a variety of responses) across a variety of countries. There is a clear relationship as richer countries are more likely to be more concerned with "self-expression."

In constructing a set of weights to combine say, material well-being and political participation (which may be important to people as a component of "self-expression") one can easily see that a Nordic dominated index would put a high weight on self-expression over material well-being whereas an African dominated index would put more weight on "survival" issues (material well being) over "self-expression." Or actually both may be reflective to equivalent underlying rankings but just different relative to availabilities of the two (e.g. Swedes have plenty of prosperity).

Figure 7: Different "values" across countries



Source: Inglehart and Welzel, 2005.

So for instance, while not equating the concepts of "human development" and "life satisfaction" or "happiness" it would be at least intriguing to know what the household and aggregate data say about people's actual correlates of their own perceived well-being. Certainly this will provide important backing to the notion of the multi-dimensionality of well-being—as health and social relationships will play key roles—but there will also be a powerful role for material well-being as a reflection of the array of capabilities it can facilitate. The recent paper by Stevenson and Wolfers (2008) is pretty compelling, concluding that the relationship between subjective well-being and income is very strong, both across households within countries and across countries (a finding confirming Deaton's analysis of the Gallup data).

IV.B) Some conjectures about implications for HDI/HDR

What about the concrete issues of the HDI and more generally HDI? I actually won't speculate too much on this (as the "note" is already in its 32nd page). But there are at least three issues.

First, the combination across rows (different components of human development) is extremely problematic, particularly if it mixes across columns (characteristics). The main problem with the HDI as a device is that it originally mixed "deprivation" and "level" indicators (especially in education versus GDP) and hence eventually lost ability to differentiate. The current distinction between HDI and HPI already gets this more correct, but already illustrates the problems with an HPI, which is that it cannot differentiate on a consistent basis (hence the need for HPI-1 and HPI-2) which I regard as extremely problematic (as it creates entirely different standards for poor and rich countries, which could be construed as an assertion that the poor countries are not entitled to define their "deprivation" on a global standard).

In the end, there is going to be no compelling way to combine across the columns even along a row—how important is "unfairness" in health versus education, how important is deprivation in material goods (standard "poverty" measures) versus in education (an MDG)? At the same time a parametric "dashboard" approach that moves from perfect substitution (linear) to lexicographic (ranking is the lowest of any of the X rankings) to examine a country's robustness would be easy once one had clarity on the columns and rows and good indicators in each cell.

Second, the key issue in moving to "level" sub-indicators (that is, a number within each cell that represents a distinct concept like "average level of education" or "deprivation in political participation/rights") will be moving to overall indicators that capture the complexity of the domain, which will almost certainly require that sub-indicators even within a cell be combined in some way, with all the difficulties that implies. That is, having a "health" or "education" indicator requires a measure that combines easily measured quantities (e.g. deaths, years of schooling) and more difficult to assess but more important (e.g. disability, lack of "wellness", learning outcomes). I would strongly argue against being overly influenced by notions of "simplicity" to settle on a single number per cell. The Consumer Price Index (CPI) is widely accepted and used in countries around the world. It captures a simple concept "how much did the overall level of prices increase." One could have argued for a "simple" approach

like using a single price of a key commodity—e.g. "bread" which admittedly would be much easier for everyone to understand. However, this would have been subject to both short and long-run shocks to that particular commodity. In order to work out a CPI there was a tremendous amount of extremely technical work done, which led to advances in overall understanding in economics. Therefore the CPI is based on complex theoretical concepts and is extremely complex empirically--including the use of hedonic regressions for some components. The point is that having a simple and powerful concept that is easily understood ("change in overall level of prices") is important but this needn't mean it is a single number nor that the concept is not based on a sophisticated underlying theory or that it would be simple to compute. Simplicity limits the useful and relevance of the indicators as a base for policy dialogue and can become (as have the MDGs on education in middle income countries) a dead-end such that, perversely, the MDGs cause education to get *less* policy attention.

This is distinct from a desire for *coverage* which depends on data availability which may depend on the sophistication of the capability of various states for producing information. Numbers that are "complex" in the sense of requiring huge capability to produce might cause the poorest countries to drop out for lack of data availability and this is a legitimate concern. But often within a single cell of a matrix of indicators there are more and less sophisticated ways to combine data that are in fact widely available, or which could be, and in these debates "simplicity" should not be so easily accepted as a trump card.

Third, in my view moving towards understanding of the dynamics is a key path forward, on all fronts. I feel the move to dynamics both in panel and in qualitative work has deconstructed the notion of "poverty" as a "characteristic" (e.g. speaking of "the poor" as if they were a group like the "left handed") and revealed it is a "condition" and that people's transitional dynamics in and out of that condition are very different (Narayan, Kapoor, and Pritchett 2009). This highlights the role of vulnerability. This also means that risks are important dimensions, which comes into play in other domains, particularly health, but also in any political indicator where risks of change are a big problem.

Conclusion

This note has used the conceptual device of people behind a veil of ignorance choosing a cardinal ranking of countries by their human capability to frame a number of key issues about cross-national measures of human development. How would reasoning individuals in a pre-birth state rate potential countries in which they could be born in a cardinal metric of "Birth Satisfaction Units" (BSU) on the assumption they were born into a randomly chosen life trajectory of a given country? This thought experiment provides, I believe, a useful frame for addressing what would be the domains of such a comparison (particularly those of public policy relevance—e.g. what are the relevant capabilities and functionings) and what would be the ways in which the existing information on those domains would be ranked (e.g. averages, inequality, deprivation).

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