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Measuring the Progressive Realization of Human Rights Obligations: An Index of Economic and Social Rights Fulfillment

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Abstract

In response to an increasing demand for rigorous monitoring of state accountability in meeting their human rights obligations, a growing literature on human rights measurement has emerged. Yet there are no widely used indicators or indices of human rights obligations fulfillment. This paper proposes a methodology for an index of economic and social rights fulfillment that: uses available survey-based objective, rather than subjective data; focuses on state obligations rather than solely on individual enjoyment of rights; and captures progressive realization of human rights subject to maximum available resources. Two calculation methods are proposed: the ratio approach and the achievement possibilities frontier approach. The paper identifies key conceptual and data constraints. Recognizing the complex methodological challenges, the aim of this paper is not to resolve all the difficulties, but rather to contribute to the process of building rigorous approaches to human rights measurement. The proposed index thus has recognized limitations, yet is an important first step based on available data. Our goal here is to contribute to the longer term development of a methodology for measuring economic and social rights fulfillment. The paper concludes that the proposed index provides important new information compared with other measures of economic and social rights fulfillment, but still does not capture some desired features such as the right to non-discrimination and equality, and the right to social security. The paper also outlines an agenda for longer term research and data collection that would make more complete measurement possible.

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I. Introduction

This paper proposes an index that evaluates and compares countries on their fulfillment of Economic and Social Rights obligations. Like the Human Development Index (HDI), a rigorous Economic and Social Rights (ESR) measure can enable policymakers to better focus on the metrics of development most relevant to peoples' lives. But unlike the HDI, the index evaluates progress specifically by applying the normative framework of human rights principles and standards. It therefore offers a measure that can assess state conduct with respect to obligations to respect, promote and fulfill human rights, with particular consideration for the obligation of progressive realization subject to maximum available resources.

Development policies are designed to achieve specific goals, so how those goals are defined has profound implications for the types of policies pursued. If the sole metric of development is per capita GDP, and the ultimate end goal of policy makers is increasing GDP growth, then fundamental human rights can easily be violated in pursuit of this objective.[1] Moreover, per capita GDP is a profoundly inadequate proxy for the issues of development most relevant to people's lives, including access to adequate food, availability of clean drinking water, and opportunities for education and health care.

Although the HDI already provides one alternative to the per capita GDP metric, the ESR Fulfillment Index highlights different issues by allowing comparison between countries based specifically on the degree of their fulfillment of human rights obligations. The essential differences between development progress and human rights fulfillment are that: human rights are legally secured by international and national law[2]; the principle of non-discrimination is at the core of all

[1] Examples of human rights violations committed in pursuit of economic growth are well known and widespread. Stalin's Five-Year Plans, Mao's Great Leap Forward, and Pinochet's brutal pro-market dictatorship are just a few glaring historical cases.

[2] In particular: Universal Declaration of Human Rights (10 Dec. 1948), U.N.G.A. Res. 217 A (III) (1948) [hereinafter UDHR]; International Covenant on Economic, Social and Cultural Rights (New York, 16 Dec. 1966) 993 U.N.T.S. 3, *entered into force* 3 Jan. 1976 [hereinafter CESCR]; International Convention on the Elimination of All Forms of Racial Discrimination (New York, 7 Mar. 1966) 660 U.N.T.S. 195, 5 I.L.M. 352 (1966), *entered into force* 4 Jan. 1969 [hereinafter CERD]; International Covenant on Civil and Political Rights (New York, 16 Dec. 1966) 999 U.N.T.S. 171 and 1057 U.N.T.S. 407, *entered into force* 23 Mar. 1976 [the provisions of article 41 (Human Rights Committee) entered into force 28 Mar. 1979] [hereinafter CCPR]; Convention on the Elimination of All Forms of Discrimination against Women (New York, 18 Dec. 1979) 1249 U.N.T.S. 13, 19 I.L.M. 33 (1980), *entered into force* 3 Sept. 1981 [hereinafter CEDAW]; Convention on the Rights of the Child (New York, 20 Nov. 1989) 1577 U.N.T.S. 3, 28 I.L.M. 1448 (1989), *entered into force* 2 Sept. 1990 [hereinafter CRC].

human rights obligations[3]; human rights carry correlate obligations on the part of duty bearers[4]; and the obligation of human rights fulfillment is contingent on the availability of resources[5]. These characteristics have a few important implications. First, a human rights approach ensures that the end goals of development policies are grounded in a strong normative framework supported by both international law and the consensus of the international community; there can be no dispute that promotion of human rights fulfillment is a worthwhile end in itself. Second, this approach requires that all people be treated as ends in themselves and not merely as means to an end: the fundamental rights of one person cannot be sacrificed to improve the condition of another. A human rights frameworks still allows for trade-offs, as discussed below, but the trade-offs cannot (a) involve discrimination, or (b) require a person to give-up his/her fundamental human rights to benefit someone else. And third, unlike the free floating concept of development, at the core of the human rights framework is the idea of the duty-bearer. State governments have the duty to protect, promote, and fulfill the human rights of citizens and residents.[6] The existence of a defined duty-bearer allows greater clarity regarding who is responsible for promoting ESRs, and thus attention can be paid not only to what must be done, but also to who is obligated to do it.

These conceptual differences imply that the evaluation of human rights fulfillment cannot necessarily use the same measurement tools as the evaluation of 'development'. However, in the absence of a measure specifically designed to evaluate human rights fulfillment, conventional development outcome indicators are invariably used in academic research and in assessments of state conduct and accountability.

The proposed Index focuses on state obligations for progressive realization of ESRs. The index ranks countries by measuring the relationship between the extent to which a population enjoys fundamental economic and social rights (x), and the resource capacity of the State to fulfill ESR obligations (y). Two indices are proposed: ESRF-1 for low and middle income countries, and ESRF-2 for high income countries.

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[3] See CESCR, Art. 3, para 2; UDHR, Art. 1 and 2.
[4] See CESCR, General Comment 3, *The Nature of States Parties Obligations* (Art. 2, para. 1) (Fifth Session, 1990), UN Doc. E/1991/23, Annex III; Charter of the United Nations (San Francisco, 26 June 1945), 3 Bevans 1153, 59 Stat. 1031, T.S. No. 993, *entered into force* 24 Oct. 1945, Art. 1, para. 3; CCPR, General Comment 31, *The Nature of the General Legal Obligation Imposed on States Parties to the Covenant* (Art. 2) (2187th meeting, 21 March 2004), CCPR/C/74/CRP.4/Rev.6.
[5] See CESCR, Art. 3, para 1.
[6] See *Supra*, note 4.

II. Background

Attempts to develop measures to monitor human rights date back to the early 1970s with the publication of the Freedom House scores for political rights and civil liberties[7]. It was in the early 1990s that literature began to emerge evaluating states on their compliance with human rights obligations. Notable were the works of Charles Humana (1992) on identifying indicators on all sets of human rights, of Herbert and Louise Spirer (1993) on the use of data analysis to establish empirical evidence on human rights violations, of Cignarelli and Richards (CIRI) on political and civil rights data, and of scholars such as Audrey Chapman (1996), Hunt (2003), and Landman (2002) on conceptual issues. By now there is a rich literature on the conceptual, and methodological approaches to measuring human rights.[8]

The use of indicators in human rights monitoring and advocacy has expanded rapidly and many efforts are underway to improve methodologies[9]. The "human rights indicators" most widely used are: (i) events based indicators specific to a given location and point of time, and regarding very specific issues. The limitation of these indicators is that they do not permit aggregation, or comparisons over time and across countries; (ii) indicators that measure human outcomes (such as stunting rates). The limitation of these indicators is that they are development indicators but not human rights indicators. They measure the right-holder's (non)enjoyment of the right, but do not reflect the duty incumbent upon the duty bearer, i.e., the state. Conceptually, this is highly problematic, as pointed out by several authors[10] including Cingranelli and Richards (2007) in a recent article which makes a proposal for a composite index of state 'effort' in fulfilling social and economic rights, taking account of willingness and ability. Yet this index does not assess the extent to which economic and social rights obligations are being fulfilled, rather its focus is on whether a given country is doing better or worse than other countries facing similar resource constraints.

[7] Freedom House, *Freedom in the World* published annually reports on survey results that score countries http://www.freedomhouse.org/template.cfm?page=15.
[8] See overviews of the literature in Hertel and Minkler 2007 for economic and social rights, Landman 2004 for civil and political rights.
[9] For example, the 2003 annual conference of the International Association of Official Statisticians organized by the Swiss Statistical Office was devoted to this issue and included many papers on innovations in methodology for use of measures and use of statistics in event based indicators.
[10] see for example Raworth 2001.

Despite significant advances, there are no sustained initiatives to develop such data sets, and most of the measurement initiatives have focused on within country efforts, including the largest international initiative in this area, OECD/ Paris 21 based Metagora Project. One reason for this situation is the strong resistance to a composite index that would rank countries, voiced by human rights scholars and advocates who argue that human rights are too complex to be quantified, let alone aggregated and compared across countries. For example, in 2000, the *Human Development Report* on Human Rights (UNDP 2000) argued a composite index would not be appropriate because of: lack of reliable data on many essential human rights such as political freedom and dimensions such as participation and transparency; and dangers of misuse, overuse and abuse for purposes other than building human rights accountability. In 2005, a 3 day workshop held at Harvard Carr Center that brought together nearly 50 leading members of the human rights community recommended against pursuing a composite index approach (Carr Center 2005). They argued that quantitative measures could be most useful when they are specific to a country and a context. They argued that meaningful comparisons were not possible because data gathering possibilities vary from country to country. Both the *Human Development Report 2000* and the Carr Center Workshop were concerned that human rights advocacy should focus on specific issues at the country level and that country rankings could be 'fundamentally dangerous'; such rankings could be politically explosive and could only be taken up to oversimplify human rights challenges.

The authors of this paper are keenly conscious of these pitfalls. Yet we believe that a more coherent quantitative measurement tool of human rights fulfillment is needed than the development indicators that are currently being used in State monitoring and accountability frameworks. Recognizing the dangers of misuse, this paper aims to present a methodology with the following features: (i) use of objective survey based data that command widely held international legitimacy, rather than subjective opinion based data that may be more easily subject to bias; (ii) simple construction that is accessible and easily interpreted for policy implications without specialized training in econometric methods; (iii) transparent in methodology and data source; (iv) relevant for use in evidence-based policy research and advocacy; and (v) utilizing appropriate level aggregation that is narrow enough in scope to capture rights in a manner meaningful for assessing policy effectiveness, but broad enough to give a summary assessment of overall state conduct.

Thus the proposed index does not evaluate state fulfillment of all human rights obligations, even though rights are indivisible and interdependent[11]. The scope of the index is limited to Economic and Social Rights for a number of reasons. First is the key issue of appropriate level of aggregation – including only Economic and Social rights allows meaningful comparison among countries regarding this specific subset of human rights obligations, and mirrors the treaty-based division of international rights norms (*International Covenant on Economic, Social and Cultural Rights* versus the *International Covenant on Civil and Political Rights*). Second, *a priori* methodological considerations are more feasible to achieve for these rights than for Civil, Political and Cultural rights since many aspects of Economic and Social rights are more readily quantifiable, and survey based indicator sets already exist.

Recognizing the complex methodological challenges, the aim of this paper is not to resolve all the difficulties, but rather to contribute to the process of building rigorous approaches to human rights measurement. The proposed index thus has recognized limitations, yet is an important first step utilizing data that are currently available. Our goal here is to contribute to the longer term development of a methodology for measuring economic and social rights fulfillment by identifying the key conceptual and data gaps, and outlining a longer term agenda for research and data collection.

III. Evaluating Human Rights Fulfillment: The Right-Holder and Duty-Bearer Perspectives

The relevant issue from the perspective of rights-holders is the extent to which one enjoys the fundamental ESRs guaranteed to all people under international law. The core ESRs put forth by the Charter of the United Nations; the Universal Declaration of Human Rights; and the International Covenant on Economic, Social & Cultural Rights include: the right to food,[12] the right to education,[13] the right to adequate healthcare, [14] the right to adequate housing, [15] the right to decent

[11]Interdivisibility and interdependence refer to the principle that human rights should be seen as a whole and not divided into different categories; each of the rights is of equal importance, the different rights do not conflict but are reinforcing, and should not be traded off one for another.

[12] The right to food is guaranteed in the UDHR, Art. 25; CESCR, Art. 11; and CRC, Art. 24 and 27; and is discussed and clarified in CESCR, General Comment 12, *The Right to Adequate Food* (Art. 11) (Twentieth Session, 26 April - 14 May 1999), E/C.12/1999/5.

[13] UDHR, Art. 26; CESCR, Art. 13; and CRC, Art. 28.

work[16], and the right to social security[17]. These are fundamental to a guarantee for meeting survival needs, and broadly refer to a right to a decent standard of living, employment and minimum guarantees that would secure 'basic rights' (Shue 1980).

The evaluation of Human Rights fulfillment cannot rely solely on a measure of the well being of the individual. In contrast to development, the concept of human rights must be concerned with both the perspective of the duty-bearer and the perspective of the right-holder, in the context of the key principles of human rights that are explicit in international human rights instruments. International human rights instruments are grounded in the fact that particular entities have a duty to protect, promote, and fulfill specific rights[18]; and the holders of these rights can correspondingly make claims on these duty-bearers.[19] Therefore, evaluation of human rights fulfillment must address the extent of the obligation of the duty-bearers as well as the extent of enjoyment of rights-holders.

The obligations of the duty bearer are further differentiated between obligations of result and obligations of conduct. Obligations of result include: (i) progressive realization and non-retrogression of the human rights guaranteed individuals by international legal instruments; and (ii) elimination of discrimination and equal protection of the rights of all, as aggregate population improvements cannot be made by violating the rights of women or racial and ethnic minorities. Obligations of conduct include: (i) undertaking policies to achieve obligations of result (progressive realization, non-retrogression, and equal protection); and (ii) applying principles of participation in the decision-making process.

Under international law, States are legally obligated to promote the '*progressive realization'* of the Economic and Social Rights (ESRs) enjoyed by their residents and citizens.[20] The concept of 'progressive realization' is premised on the recognition that fulfilling ESR obligations requires economic resources, and the financial constraints faced by many developing countries may make

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[14] UDHR, Art. 25; CESCR, Art. 12; CESCR, General Comment 14, *Right to the Highest Attainable Standard of Health* (Art. 12) (Twenty-second Session 25 April-12 May 2000), E/C.12/2000/4.
[15] UDHR, Art 21; CESR Art 11; General Comment 4; CERD Art 5e.
[16] UDHR Art 23; CESR Art 6.
[17] UDHR Art 22; CESR; Art 9.
[18] *Supra*, note 4.
[19] *See, e.g.*, Human Rights Council Resolution 5/1, "UN Human Rights Council: Institution Building" (18 June 2007), establishing the *Human Rights Council Complaint Procedure* in compliance with General Assembly Resolution 60/251, "Human Rights Council" (Sixtieth Session, 3 April 2006).
[20] *Supra*, notes 4 and 5.

simultaneous and immediate fulfillment of all ESR rights obligations impossible. According to the principle of progressive realization, States must strive to fulfill economic and social rights obligations to the maximum extent possible in the face of economic resource constraints.[21] Inherent in this idea of 'progressive realization', therefore, is the principle that countries with greater economic resources – and thus an increased capacity to devote more resources to food, education, health, and water & sanitation – have a correspondingly greater duty to ensure equitable and widespread enjoyment of ESR guarantees. Within a human rights framework States are the relevant duty-bearers; assessing ESR fulfillment means incorporating state capacity for fulfillment into the measurement of how well a country is doing in meeting its ESR obligations under international law.

In summary, a country's performance in terms of Economic and Social Rights Fulfillment depends on both (i) the actual ESR outcomes people enjoy, as indicated by socio-economic statistics that proxy for particular rights, and (ii) a society's capacity for fulfillment, as determined by the amount of economic resources available overall to the duty-bearing state.

IV Measuring Economic and Social Rights Fulfillment: Conceptual and Data Issues

Rights-holder perspective and duty- bearer obligations of result: The level of enjoyment of the core ESRs reflects the rights-bearer perspective as well as the state's obligation of result. In a given country, ESR enjoyment can be measured by the socio-economic statistics that correspond to specific human rights guarantees. Most countries have been collecting data relevant to many of the core ESRs, and international efforts have developed internationally harmonized data sets. However, there are gaps in data collection efforts as well as conceptual challenges for measuring discrimination and inequality.

Gaps in data: In areas of education, health, survival, hunger and nutrition, and employment, there is a rich array of indicators that have been developed, and for each of these areas, there are international series on select indicators. The available indicators are not all adequate for capturing the full complexity of the human right in question but many serve as appropriate proxies. The coverage of many – though not all – indicators extends over the majority of countries, except in the case of employment where data sets are mostly limited to high income countries where the structure

[21] *Id.*

of employment is predominantly formal. In areas of housing (quality and security of tenure) and social security, no international data sets have been published that assess the level of rights enjoyment with broad coverage of countries.

Discrimination and inequality: The enjoyment of rights cannot be measured by national averages alone since human rights are emphatically concerned with the equal rights of all persons, and the state has an explicit duty to remove discrimination with immediate effect – a duty that is not subject to progressive realization. However, measuring equality of rights enjoyment is problematic for both conceptual and data availability reasons. Conceptually, inequality of outcomes such as differences in child mortality between population subgroups may not reflect discrimination in access to healthcare but instead result from historical disadvantages that the current state government has taken steps to redress. Whether equal rights enjoyment and non-discrimination should be evaluated by assessing if all persons enjoy the same outcomes (such as child survival) or the same opportunities (such as access to nourishment, water and sanitation, and healthcare) is subject to debate. Moreover, discrimination manifests itself in different ways in different contexts, so is not amenable to a single set of universal measures even within a single country, let alone across countries. The nature of discrimination is historically determined and context specific. Exclusion may occur along ethnic, tribal, or racial lines, or be based on religion, gender, or geographical location; because the social constructions that determine group identities cannot be applied across countries, inter-country comparison of discriminatory outcomes is difficult. In order to measure inequality in socio-economic outcomes we would first have to identify the privileged and marginalized populations within each country (as delineated according ethnic, racial, gender, religious, or other lines), and then compare the levels of ESR enjoyment for these marginalized populations with ESR enjoyment levels in aggregate and for privileged groups. This approach is also problematic from a data availability standpoint, since cross-country data on socio-economic outcomes disaggregated by ethnic and racial sub-groups does not exist for most countries. Data of any kind on the distribution of outcomes is sparse. The Gini coefficient of income distribution is available and used in many economic studies, but coverage and quality are weak, income inequality is a poor proxy for disparities between sub-groups, and high income inequality may result from non-discriminatory policies, occur in the context of equal protection of the relevant ESRs, or even reflect macro-economic policies that facilitate ESR fulfillment by increasing state resource capacity or individual economic opportunities. While data on disparities in health and education outcomes

are available in some countries for rural-urban, gender, and income quintile divides, the coverage is far from complete, and these divides are a poor proxy for disparities based on ethnicity or race. Further, they may reflect historical conditions or nearly universal statistical correlations, rather than failures in state fulfillment of equal protection and non-discrimination obligations.

Duty-bearer obligations of conduct: Measuring obligations of conduct is more difficult than measuring rights-holder enjoyment and duty-bearer obligations of result, and confronts a number of challenges. First, assessing policy choice is both difficult and fundamentally inappropriate since 'one size fits all' policy prescriptions are not effective. Appropriate policies to promote ESR fulfillment vary depending on the challenges and constraints within each country. An approach that focuses on policy objectives (obligations of ESR results), rather than conduct, encourages states to pursue the policies that most effectively promote ESR objectives given a country's particular constraints and opportunities, allowing for innovation, adaptability, and bottom-up solutions. Second, at a practical level, it is quite difficult to credibly aggregate and compare state conduct across countries. Assessing conduct would require far more than merely examining official policies or levels of resource expenditures in specific sectors, since paper commitments can mask corruption and other political-economy failures that often prevent policies from being implemented effectively. However, a focus on obligations of result rather than obligations of conduct does have drawbacks, in that this approach may fail to accurately gauge state conduct designed to realize obligations of results. For example, it is entirely feasible that a government could engage in all the "right" policies to promote the fulfillment of ESRs, but intervening forces – such as external economic shocks, natural disasters, or refugee crises in neighboring countries – still render these policies impotent. Likewise, a government could pursue policies that would be likely to diminish the enjoyment of ESRs, but exogenous forces may buffer a population from the adverse effects of these policies and allow continued widespread enjoyment of ESRs, despite a government's policy choices.

Participation: The obligation to apply principles of participation is difficult to measure because participation – the idea that citizens should have voice in decisions that affect their lives – takes many different forms in different contexts, within a single country let alone across countries. Often, elections are used as a proxy to capture this process, but it is well known that this is a poor indicator of effective voice. Unlike school enrollment rates, for example, 'election' itself can take different forms and has different implications for citizen voice in different types of decisions.

V. Rights and Indicators

The index measures ESR fulfillment in the five dimensions of education, food, health, housing, and decent work. Two other core rights: social security and non-discrimination should be included but cannot be due to data availability constraints.

Although rights are universal, the level of enjoyment spans a significant range that is difficult to capture with the same indicator for low and high income countries. Most indicators differentiate better among countries along a particular segment of the spectrum. For example, primary schooling and literacy rates differentiate among countries with low levels of achievement in education, but most high income countries achieve nearly 100% on both measures, or are assumed to do so and so data on these indicators are no longer collected in high income countries. Moreover, international law grants people the right to the "highest level attainable" of certain rights, so that the higher income countries are held to a higher level of enjoyment. For these reasons, it is not practical to construct a single index for all countries. Therefore two indices have been constructed: ESRF-1 for low and middle income countries, and ESRF-2 for high income countries. Table 1 shows the indicators selected for the two indices.

Table 1: Indicators Selected

Social/Economic Right	**Indicator for ESRF-1**	**Indicator for ESRF-2**
Right to Food	Malnutrition (height for age)	Infants with low birth weight
Right to Education	Primary school completion rates; Gross secondary school enrollment rates	Gross secondary school enrollment rate; Average math and science PISA score
Right to Health	Under 5 mortality rate; Life expectancy; Assisted birth rates	Under 5 mortality rate; Life expectancy
Right to Adequate Housing	Access to improved water source; Access to improved sanitation	Data not available.
Right to decent work	$1 a day PPP poverty rate; Employment:population ratio; Vulnerable employment when data coverage improves	Relative poverty; Long term unemployment; Vulnerable employment when data coverage improves
Right to social security	Data not available	Data not available
Right to equality and non-	Flag using MAR data;	Flag using MAR data;

discrimination	Use disaggregated data	Use disaggregated data

Indicators were chosen based on: relevance to the specific ESRs assessed, data reliability, coverage, policy responsiveness, sensitivity to current government policies (flow variables), and the extent to which the indicator is a "bell weather" determined by low (or high) levels of rights enjoyment in multiple dimensions. For example, malnutrition (low height for age) – also known as the stunting rate – is caused by deprivation of nutrients as well as low caloric intake, tainted water, ill health, and poor caregiver knowledge about child nutrition. It is thus a "bell weather", indicative of low levels of ESR enjoyment in a number of inter-related and inter-dependent rights dimensions. Primary and secondary school completion and enrollment rates were chosen over adult literacy rates because adult literacy is a stock variable that reflects past education policies, while school enrollment and completion more directly measure current government policies. However, these considerations required trade-offs, and inevitably judgment was exercised in selecting indicators that balanced, as best as possible, these multiple criteria.

The right to food includes both the right to adequate nourishment (calories), and the right to sufficient nutrition (micronutrients and a proper balance of proteins and other nutrients). The height for age measurement of malnutrition is sensitive to nutrient deprivation as well as undernourishment. In high income countries, this data is not available but the indicator "low birth weight infants" reflects poor health status and care of mothers and infants. There is some evidence that obesity is a good indicator of poor nutrition in some countries, but it has not yet been established that this is the case for most countries.

The right to education refers to primary education, but in the contemporary world, compulsory education extends into secondary levels, and primary education does not accord an individual with the minimum level of capacity and knowledge necessary to participate in the opportunities offered. Moreover, the quality of education is as important as the number of years of school attendance. In high income countries, primary education is almost universal in all countries so only secondary school attendance is used. PISA scores measure knowledge and skills needed in adult life but coverage is limited and is mostly for high income countries. Moreover, because of limited data coverage, the indicator used here is the average of the math and science literacy score. [22]

[22] Data Source: OECD Program for International Student Assessment.

The right to health refers to the highest attainable standard of health. Under 5 mortality rate per 1000 live births (U5MR) is a 'bell-weather' indicator that is indicative not only of access to primary medical services and policies promoting health, but also to other conditions necessary for health since most child deaths are preventable, particularly in developing countries. U5MR covers only children under age 5; probability of dying before 65 captures the whole population but data are not published annually. Life expectancy is used in its stead. Assisted births reflects access to health care services for the disadvantaged population in low and middle income countries better than other available indicators and has important implications for the health of a vulnerable group. But it is also indicative of related conditions that affect access to healthcare, especially the empowerment of women.

Right to decent work refers to both access and conditions of work, work that is productive and in conditions that are consistent with human dignity. ILO's Key Indicators of the Labour Market Programme (KILM) has developed concepts and measurement approaches as well as datasets on these aspects of decent work. However, the country coverage is not adequate on all these aspects for the purposes of this index. We therefore use long term unemployment (KILM 8 x KILM 10) in high income countries and the employment to population ratio (KILM 2) in low and middle income countries to measure access to work, and poverty rates (% of population above $1 poverty line in low and middle income countries and % above 50% median income in high income countries) to measure productive work. More adequate measures could be used when the KILM data set increases coverage. Their measure of vulnerable employment (KILM 3) is especially noteworthy in this regard.

Right to Adequate Housing refers to adequate access, quality in the form of provision of water and sanitation and use of durable materials, and security of tenure (UN-Habitat and OHCHR 2003). Recent work by UN Habitat defines access and security of tenure, and water and sanitation and housing made with durable materials as important elements. Efforts have been made to develop indicators for these elements; access to clean water and sanitation is one element of adequate housing for which an international data set is available for low and middle income countries. Clean

water and sanitation are also significant as rights in themselves[23]. An appropriate indicator for high income countries is not yet available with sufficient comparable country coverage.

Resource Capacity: State capacity for human rights fulfillment depends on a number of factors, such as financial resources, the strength of administrative and organizational efficiency of state institutions, and the human resources (education, skills, and knowledge) within the country. GDP per capita reflects the per person economic resources available in a country. Total government budget is not used as a proxy for capacity because government revenue reflects policy choices, while the obligation of progressive realization is premised on the notion that governments should be pursuing policies so as to realize ESRs to the maximum extent possible given the availability of resources. In other words, a State does not have a lesser degree of ESR obligations because it chooses to collect less government revenue; failing to collect revenue necessary to pursue policies promoting ESR fulfillment itself reflects a failure in the State's human rights obligation. GDP is measured in purchasing power parity (PPP) 2000 dollars, since PPP$ more accurately reflects resource availability, and usage of a constant price index was necessary to make the index comparable across time. However, it is important to note that per capita GDP is somewhat problematic as a proxy for state resource capacity because low GDP may be the result of poor macroeconomic policy choices by governments, rather than externally generated resource constraints. In other words, to the extent that GDP per capita reflects endogenous policy choices rather than exogenous constraints, per capita GDP does not accurately reflect capacity for fulfillment given available resources as intended. In extreme cases, such as Zimbabwe, low GDP per capita could instead reflect a State's failure to take appropriate policy measures that would enable the realization of economic and social rights by generating sufficient financial resources.

VI. Methodology of Calculation

Two methodologies are proposed for constructing the index: (1) the Ratio approach, and (2) the Achievement Possibilities Frontier approach, with two variants for each of the approaches. All four methodologies focus on the same set of rights and use the same indicators.

A. Ratio Approach:

[23] clarified by CESCR and General Comment 15 (November 2002).

Index Version 1 measures ESR fulfillment as a ratio between the extent of rights enjoyment (x), and State resource capacity (y). A country's raw index score is determined by $z = x/y$. The ratio thus incorporates both the perspective of the rights-holder (in the numerator) and the extent of the obligation of the duty-bearing State (in the denominator). In the numerator, the extent of ESR enjoyment is assessed by looking at socio-economic indicators that measure ESR results, e.g., primary school completion rates, malnutrition rates, etc. In the denominator, the natural log of GDP per capita is used as a proxy for resource capacity, since the concept of 'progressive fulfillment' makes the extent of a State's obligation to fulfill ESRs contingent on resource availability. The natural log is used because the capacity for fulfillment does not increase linearly with per capita GDP, and assuming a linear relationship would penalize higher income countries too heavily. Therefore a country with high GDP but poor socio-economic indicators fares worse on the index than a country with the same poor outcome indicator levels but lower GDP.

Version 1A is calculated by using the percent achievement on each indicator to create an indicator score for each of the five dimensions. For example, if a country has a child malnutrition rate of 5 per hundred children, its score on the right to food dimension will be 95.

The achievement scores on each indicator for Version 1B are constructed by first setting the maximums and minimums for each indicator, and then determining where a given country falls between that max and min. We specify a maximum value of 85 years for life expectancy, and 100% achievement for all other indicators, while the minimum is specified as the minimum value observed in any country in our sample since 1990. For example, the achievement score for under 5 survival rate is constructed by dividing the difference between the survival rate for the given country and the lowest survival rate since 1990 for all countries by the difference between the maximum (100%) and the minimum survival rate observed in any country since 1990: (value – min) / (max – min). The second (Version 1B) method has the advantage of greater sensitivity, since if the minimum score for an indicator is relatively high, then all countries will score within a very narrow (high) range under Version 1A, while Version 1B will penalize the lowest performers more severely. The rights fulfillment indices for each component right are constructed as defined below.

x_i = enjoyment indicator (e.g., primary school completion rate; 100 - malnutrition rate)

y = ln (GDP per capita)

z_i = index score

Version 1A:

1. Right to Food:

   Low & Middle Income Countries: $z_1 = x_{L1}/y$

   where: x_{L1} = 100 – child stunting rate

   High Income Countries: $z_1 = x_{H1}/y$

   where: x_{H1} = 100 - % infants with low birth rate

2. Right to Education:

   Low & Middle Income Countries: $z_2 = (.5x_{L2} + .5x_{L3})/y$

   where: x_{L2} = primary completion rate

   x_{L3} = gross secondary school enrollment rate

   High Income Countries: $z_2 = (.5x_{H2} + .5x_{H3})/y$

   where: x_{H2} = (.5PISA science score + .5PISA math score)/10

   x_{H3} = gross secondary school enrollment rate

3. Right to Health:

   Low & Middle Income Countries: $z_3 = (1/3x_{L4} + 1/3x_{L5} + 1/3x_{L6})/y$

   where: x_{L4} = [1000– child mortality rate (per 1000 live births)]/10

   x_{L5} = Life expectancy

   x_{L6} = % births attended by skilled health personnel

   High Income Countries: $z_3 = (.5x_{H4} + .5x_{H5})/y$

   where: x_{H4} = [1000– child mortality rate (per 1000 live births)]/10

   x_{H5} = Life expectancy

4. Right to Housing:

   Low & Middle Income Countries: $z_4 = (.5x_{L7} + .5x_{L8})/y$

   where: x_{L7} = % access improved water source

   x_{L8} = % access improved sanitation

5. Right to Work:

   Low and Middle Income Countries: $z_5 = (.5x_{L9} + .5x_{L10})/y$

   where: x_{L9} = (employment/population over 15)x100

   X_{L10} = 100 - PPP$1 poverty rate

High Income Countries: $z_5=(.5x_{H6}+.5x_{H7})/y$

Where: x_{H6} = 100-long term unemployment rate

X_{H7} = 100 - % below 50% median income

Version 1B:

The indices (z variables) are defined as above while the indicators (x variables) are defined as shown below.

Low & Middle Income Countries

x_{L1} = (% children under 5 well nourished[24] – min % well nourished)/(100 – min)

x_{L2} = (primary completion rate – min primary completion rate)/(100-min)

x_{L3} = (gross sec school enroll. rate – min gross sec. school enroll. rate)/(100 – min)

x_{L4} = (child survival rate[25] - min child survival rate)/(100-min)

x_{L5} = (life expectancy – min live expectancy)/(85 – min)

x_{L6}= (assisted birth rate[26] – min assisted birth rate)/(100 – min)

x_{L7}= (% access improved water – min % access improved water)/(100-min)

x_{L8}= (% access improved sanitation – min % access sanitation)/(100-min)

x_{L9}= (employment rate[27] – min employment rate)/(100-min)

x_{L10}= (non-poor rate[28] – min non-poor rate)/(100-min)

High Income Countries

x_{H1}= (normal birth weight rate[29] – min normal birth weight rate)/(100-min)

x_{H2}=(Av. % PISA score[30] – min Av. % PISA score)/(100-min)

x_{H3}=(gross sec school enroll. rate – min gross sec. school enroll. rate)/(100 – min)

x_{H4}=(child survival rate - min child survival rate)/(100-min)

x_{H5}=(life expectancy – min live expectancy)/(85 – min)

x_{H6}=(% not long-term unemployed[31]- min % not long-term unemployed)/(100-min)

x_{H7}= (% not relatively poor[32] – min % not relatively poor)/(100-min)

[24] % children under 5 well nourished = 100 – child stunting rate.
[25] child survival rate = (1000 – under 5 mortality rate)/10
[26] assisted birth rate = % of birth attended by skilled health personnel
[27] employment rate = (number employed/population over 15)100
[28] non-poor rate = 100 - $1 poverty rate
[29] normal birth weight rate = 100 - % infants with low birth weight
[30] Av. % PISA score = (.5 PISA science score + .5 PISA math score)/10
[31] % not long-term unemployed = 100 – long-term unemployment rate
[32] % not relatively poor = 100 - % below 50% median income

Aggregate ESRF Index Version 1A and 1B: The aggregate ESRF Index is defined indentically for Versions 1A and 1B as shown below:

Low & Middle Income Countries: $\mathbf{ESRF\text{-}1 = [((z_1)^{1/\alpha} + (z_2)^{1/\alpha} + (z_3)^{1/\alpha} + (z_4)^{1/\alpha} (z_5)^{1/\alpha}) / 5]^{\alpha}}$

High Income Countries : $\mathbf{ESRF\text{-}2 = [((z_1)^{1/\alpha} + (z_2)^{1/\alpha} + (z_3)^{1/\alpha} + (z_5)^{1/\alpha}) / 4]^{\alpha}}$

A value of $\alpha = 1$ weighs all dimensions equally; increasing the value of α will weight more heavily the areas where fulfillment falls shortest.

We initially attempted to convert the raw "index Z-scores" to a scaled "S-score", which measured the degree of ESR fulfillment relative to other countries, taking the highest achieving country's score as the maximum possible. The advantage of the S score is that it turns the raw index Z score into an easily comprehensible number between 1 and 100, with 100 representing the maximum feasible fulfillment of ESR obligations. A quick glance at S scores therefore tells the viewer where a particular country falls in percentage terms vis-à-vis the other countries evaluated. The Z score, taken alone, is difficult to interpret except as an ordinal ranking between countries.

However, we discarded the "S-score" approach due to two serious downsides. First, since the "best" raw Z score from the top scoring country can be expected to change each year, comparing S scores overtime is meaningless; for example, a country's Z score could increase (based on an improvement in ESR enjoyment despite continued resource constraints) but its S score still decrease if the top performing country's Z score increases by a greater amount. Second, using the best performing country as the benchmark for the maximum possible score implies that the top performer is completely fulfilling all ESR obligations, since that top performer receives a 100% score. Likewise, nearby performers receive marks of nearly 100%. However, a high Z score should be interpreted only as a relative achievement, not an absolute one. In other words, a particular country may be doing quite well in fulfilling ESR obligations in relation to other low and middle income countries, but substantial room for improvement might still remain. A 100% S score masks this need for continued improvement and implies that all ESR obligations have already been met.

We also tried measuring the relationship between rights enjoyment and resource capacity by regressing each outcome indicator on the natural log of per capita GDP, and then using the difference between actual and predicted values (the residuals) for each outcome indicator as the raw

index z scores in each human rights dimension. This approach, which is quite similar to that used by Cingranelli and Richards (2007)[33], incorporated consideration of the resource capacity of each country, because the predicted indicator values depended on per capita GDP (measured as ln GDP per capita).

$x_i = \alpha + \beta(y_i)$

x_i = actual value for enjoyment indicator (e.g., primary school completion rate)

$\hat{x}_i$ = predicted value for enjoyment indicator, based on the β coefficient

y = ln (GDP per capita)

z_i = index score in each dimension

The advantage of the residuals approach is that the resulting total Z score was relatively easy to understand: since the underlying indicator values were percentages, the component z scores ($x_i - \hat{x}_i$) were also expressed in percentage terms. The component z scores reflect how far above (for a positive number) or below (for a negative number) the country is performing compared to what would be predicted based on its ln of GDP per capita. A z score near zero implies that enjoyment of a given ESR is at the level that would be predicted, given the country's resource capacity. This method avoided the problem created by the S-score methodology, which implied that the top relative performer is a top absolute performer.

However, there were three other serious problems with the regression approach, which ultimately caused us to disregard it in favor of the ratio methodology proposed above. First, comparisons of country scores across time were precluded. This is because the regression relationship, and thus the predicted indicator values for each country, will be different in each time period. Since the indicator scores and per capita GDPs of all low and middle income countries changes each year, the regression coefficient that determines the predicted value of the outcome variables will also change. Second, unlike the ratio methodology, in which a country's score depends only on its performance on each indicator and its own per capita GDP, the residuals method makes a country's score dependent on the performance and GDP per capita of all other low and middle income countries

[33] Cingranelli, D. and Richards. D., "Measuring Government Effort to Respect Economic and Social Human Rights: A Peer Benchmark", in Hertel and Minkler (eds.), *Economic Rights: Conceptual, Measurement, and Policy Issues*, New York Cambridge University Press (2007).

because all countries together determine the fit of the regression line. Third, at a conceptual level, the residuals approach seemed to imply that the predicted values for each outcome indicator were performance targets, based on per capita GDP. However, the fundamental premise of progressive realization is that States must strive to realize rights to the maximum extent possible, NOT to achieve minimum goals based on per capita GDP levels. For these three reasons we have discarded this approach.

B. Achievement Possibilities Frontier Approach:

Index Version 2 uses an Achievement Possibility Frontier (APF) approach to measure ESR fulfillment. We first estimate an achievement possibility frontier for each ESR. This frontier determines the maximum level of achievement possible in each ESR dimension (x_{max}) at a given per capita income level, based on the highest level of the indicator historically achieved by any country at that per capita GDP level. A country's rights fulfillment score (x*) in each ESR dimension is then determined as $x_{ji}^* = x_{ji}/x_{jimax}$ (where j=L or H for Low & Middle Income countries and High Income countries, respectively, and i refers to the specific indicator of concern as defined in Version 1 of the index). This can be interpreted as the proportion of the feasible level achieved. The most recent observations on the various indicators are used for x. Per capita GDP is measured in constant PPP$ to enable valid comparisons across time.

Version 2A:

Once the raw x* values are determined, the country's scores on each economic and social right, z, are then determined as shown below, where the super and subscripts are defined as for Version 1 of the ESRF index.

Low & Middle Income Countries

Right to Food: $z_1 = x^*_{L1}$

Right to Education: $z_2 = (.5x^*_{L2} + .5x^*_{L3})$

Right to Health: $z_3 = (1/3x^*_{L4} + 1/3x^*_{L5} + 1/3x^*_{L6})$

Right to Housing: $z_4 = (.5x^*_{L7} + .5x^*_{L8})$

Right to Work: $z_5 = (.5x^*_{L9} + .5x^*_{L10})$

High Income Countries

Right to Food: $z_1 = x^*_{H1}$

Right to Education: $z_2 = (.5x^*_{H2} + .5x^*_{H3})$

Right to Health: $z_3 = (.5x^*_{H4} + .5x^*_{H5})$

Right to Work: $z_5 = (.5x^*_{H6} + .5x^*_{H7})$

Once the scores on the individual rights, z values, are determined, they are aggregated into an overall ESR Fulfillment index that is decomposable across rights as in Version 1:

Low and Middle Income Countries

Aggregate ESRF Index: $ESRF\text{-}1 = [((z_1)^{1/\alpha} + (z_2)^{1/\alpha} + (z_3)^{1/\alpha} + (z_4)^{1/\alpha} + (z_3)^{1/\alpha}) / 5]$

High Income Countries

Aggregate ESRF Index: $ESRF\text{-}2 = [((z_1)^{1/\alpha} + (z_2)^{1/\alpha} + (z_3)^{1/\alpha} (z_5)^{1/\alpha}) / 4]^{\alpha}$

To estimate the APF for each rights dimension, for each indicator concerned first a scatter plot was made of the actual value of the indicator achieved against per capita GDP for all countries for all years for which data were available, from 1990 to 2006. The per capita GDP value used was the per capita income level in the year of the observation. Second, observations on the frontier of the scatter plot were identified. Third, the functional relationship, $x_{jimax} = f(y)$, was estimated using the curve fitting algorithms available in SPSS. Three different variants of per capita GDP were considered when fitting the curve: per capita GDP, natural log of per capita GDP, and per capita GDP squared. Linear, logarithmic, inverse, quadratic, power, growth, and exponential functional forms were considered. Fourth, the best fit relationship was used to specify the x_{jimax} value for any given per capita GDP level.

The core advantage of the APF approach is the theoretical coherency of assessing a country's fulfillment of its obligation of progressive realization based on the level at which a country with a given per capita GDP *could* perform. A second advantage is that the APF approach reflects differences across indicators in the feasibility of transforming income into increased achievement. Also, like Version 1, this index is readily comparable across time. A principle drawback is that the calculations are not as simple as for the Ratio Approach. The best fit relationships underlying the APFs are different for each indicator, which may make the index more opaque to policy makers and therefore possibly less salient. It should be pointed out that the achievement possibilities approach does not penalize high income countries with complete or near complete fulfillment of particular rights as heavily as does Version 1 of the index.

The crux of this approach lies in the details of how the achievement possibilities frontiers are estimated. This is illustrated by primary school completion rate and the child survival rate, which will be recalled, is equal to 1000 – the child mortality rate. Figure 1 shows the scatter plot and associated APF for the primary school completion rate. The best fit was obtained with a quadratic relationship using natural log of per capita GDP. Primary school completion rates greater than 100 are constrained to equal 100. The estimated frontier boundary equation is:

$x^*_{L2max} = -3384.641 + 999.403\,(y) - 71.599\,(y)^2$ for GDP per capita (2000 PPP$)<1074

$x^*_{L2max} = 100$ for GDP per capita (2000 PPP$)>1073

Figure 1: PPF for Primary Completion Rate (Max=100)
Best Fit Obtained for Quadratic Relationship Using Ln Per Capita GDP (2000 PPP$)

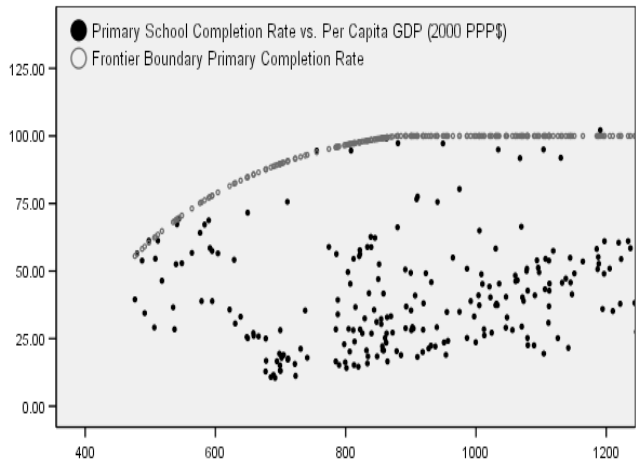


Figure 2: PPF for Under 5 Survival Rate. Best Fit Obtained with an Inverse Function

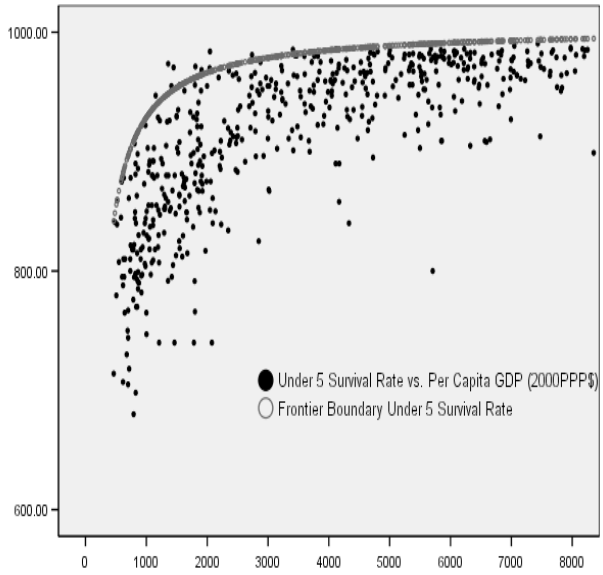


Figure 2 shows the scatter plot and associated APF for the child survival rate. The inverse function with per capita GDP as the independent variable provided the best fit. This function asymptotically obtains a value of 1003.6, but was constrained to 1000.

$x^*_{L4max} = 1003.628 – 74884.7(1/y)$, Values>1000 constrained to = 1000

Note that not only do the shapes of the two frontiers differ, but the per capita GDP level at which they reach a plateau, Yp, differs. This reflects the greater ease of transforming resources into increased educational opportunities for children as opposed to increasing child survival rates.

Version 2B:

The goal here is to capitalize on the best features of both the ratio approach and the simple AFP approach (Version 2A) by overcoming the key weakness of the latter. The APF approach treats countries with very low per capita incomes more appropriately than the ratio approach (Versions 1A and 1B) in that their achieved level on a rights indicator is compared to the best historically achieved by any country with the same per capita income level as identified by the frontier. However, the simple APF version of the index does not make any adjustments in achievement scores when a country's GDP per capita is at or above Yp, the value where the frontier function is first equal to its maximum value (generally 100%) and plateaus. Thus, two countries with the same level (but less than 100%) of achievement (x) on an indicator will have no adjustments to their score if both have incomes above Yp, even though one country might have per capita income five times higher than the other. One way to correct this problem is to calculate an adjusted score that subtracts a "penalty" from the observed achievement when countries have resources sufficient to provide 100% fulfillment. . Thus, in Version 2B, the x* values are specified as follows.

$x^*_{ji} = x_{ji}/x_{jimax}$ if $x_{ji} < 100\%$

else, $x^*_{ji} = x_{ji}$ - penalty

The z values and Aggregate Economic and Social Rights Fulfillment Indices (ESRF-1 & ESRF-2) are calculated as for Version 2A of the index. The crux of this approach lies in deciding on the penalty; that is, how to adjust the x_{ji} scores when countries have per capita income levels above Yp but observed achievement on an indicator of less than 100%. There are several criteria that could be used to evaluate possible adjustments. These include:

i. **No Penalty on 100% Fulfillment:** If the observed value of an indicator equals 100 percent, the adjusted score on the indicator equals 100 percent. This ensures that once a country has completely fulfilled an economic or social right, it is not penalized for per capita income growth.

ii. **Asymptotic equality**: The adjusted score approaches the observed percent achievement as the per capita income approaches the Y_p value for the chosen indicator. This requirement insures that there are no "jumps" in a country's z-score as its per capita income increases from below Y_p to above Y_p.

iii. **Penalty increases with per capita income**: As a country's per capita income increases it has more resources to achieve the economic right under consideration, so the penalty should increase with increasing per capita income. One might argue that ideally, the penalty should not only increase with higher per capita income, but should increase at an increasing rate.

iv. **Penalty adjusts for difficulty of achieving the right**: Some rights indicators are less costly to improve than others (e.g. increasing primary school completion rates costs less than reducing child malnourishment levels). These differences are related to the different Y_p values for the different indicators.

v. **Penalty declines with increasing achievement**: Providing economic rights to the more "difficult to reach" segments of the population will require more resources per percent achieved compared to providing rights initially to the easiest to serve segments of the population. Equivalently, this criterion suggests that penalties should increase with diminishing achievement.

vi. **Meaningful range**: the adjusted scores should range from 0 to 100%.

vii. **Simplicity**: The adjusted score formula should be easy to understand and to calculate, but this may be largely subjective.

viii. **Flexibility**: The adjusted score formula includes parameter(s) that can be adjusted to reflect alternative penalty rates for failure to meet human rights obligations as per capita income levels increase. This criterion facilitates sensitivity analysis.

Table 2 shows seven possible adjustment formulas (formulas A-G), while table 3 shows which of the above criteria are met by each of the seven possible adjustment formulas. Three common components of these formulas should be noted. First, (Y/Yp) is the "income ratio," the ratio of the country's income to the plateau value. It will always be 1.0 or greater in these equations because they are only applied when a country's income is at or above Yp. Second, (Y-Yp)/Yp measures how much a country's income is above Yp (in Yp units). It will always be 0 or above and is equal to the income ratio minus one. Third, (100-x) is the "shortfall" of a country on the indicator from 100% enjoyment.

Table 2. Possible Adjustment Formulas

Formula A: $x^* = x - (Y/Yp)^{\beta}$ for $x<100\%$. $x^*=x$ for $x=100\%$. This simply subtracts from the achieved percentage some power function of the income ratio. The power function is used to minimize discontinuity at the Yp value, but it still has a 1% discontinuity there. This formula subtracts a penalty that increases with the income ratio in an increasing manner, but it is the same penalty for all levels of enjoyment. The adjustment parameter β controls the magnitude of the penalty.
Formula B: $x^* = x - [(Y-Yp)/Yp]^{\beta}$ for $x<100\%$. $x^*=x$ for $x=100\%$. This is similar to formula A, but without its discontinuity.
Formula C: $x^* = x - [(Y-Yp)/Yp]\beta$ for $x<100\%$. $x^*=x$ for $x=100\%$. Instead of the power parameter, this formula uses a simple multiplier, so the increase in the penalty is a simple proportion of the income ratio. The larger is β, the greater is the penalty.
Formula D: $x^* = x - [(Y - Yp)/Yp](100-x)\beta$ or, equivalently, $x^* = 100 - (100-x)(Y/Yp)\beta$ This formula allows different penalties for different levels of enjoyment and for different income ratios. It subtracts from the observed percent the product of the income ratio minus one, the shortfall, and an adjustable parameter, β.
Formula E : $x^* = x\,(Yp/Y)^{\beta}$ for $x<100\%$. $x^*=x$ for $x=100\%$. This formula simply weights the observed achievement by a power function of the **inverse** of the income ratio. Thus, a country with per capita income five times higher than Yp will have it's observed score weighted by $(1/5)^{\beta}$. When β is less than 1.0, it increases the value of proportions, e.g., $(1/5)^{.2}$ is 0.72.
Formula F: $x^* = 100\,(x/100)^{(Y/Yp)}$ This formula uses the fact that multiples of a proportion diminish faster the smaller the proportion. The percent achieved is converted to a proportion and the income ratio specifies the power function. The 100 multiplier converts the proportion back to a percent. No adjusting parameters can be added.
Formula G : $x^* = x - [(Y - Yp)/Yp]^{\beta}\,(100 - x)\gamma$ This complex formula weighs the shortfall by a power function of the income ratio -1. The power function allows the penalty to increase at an increasing rate with increasing income. The adjustable parameters β is the power for the income ratio -1. It controls how fast the penalty increases with increasing income ratios. The parameter γ controls the size of the penalty increase as a linear function of the shortfall.

Table 3. Features of the Alternative Formulas

Criteria	Formula A	Formula B	Formula C	Formula D	Formula E	Formula F	Formula G
No Penalty on 100% Fulfillment	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Asymptotic equality	Almost, 1% change at Yp	Yes	Yes	Yes	Yes	Yes	Yes
Penalty increases with GNP/capita	Yes, at increasing rate	Yes, at increasing rate	Yes, at decreasing rate	Yes, at decreasing rate	Yes, at decreasing rate	Yes, at decreasing rate	Yes, at increasing rate
Penalty adjusts for difficulty of achieving the right	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Penalty declines with increasing achievement	No	No	No	Yes	No	Yes	Yes
Meaningful range	Can be < 0	Can be < 0	Can be < 0	Can be < 0	Always >0	Always >0	Can be < 0
Simplicity	Good	Good	Very good	So so	Good	Good	Poor
Flexibility	Some	Some	Some	Some	Some	None	More

To demonstrate how the penalty rate changes as Y/Yp increases, we have selected two of the formulas, F and G. Figure 3 shows how a country's observed achievement score, x, would be adjusted using formula F depending on a) the observed achievement level on x, and b) how many times it's per capita income level exceeds Yp. (In figures 3 and 4 below, we have assumed only a single indicator, x, is used to measure a right, z, so that z = x* and the vertical axis is labeled as the "z-score" rather than the x* value.) The highest curve indicates that if a country's per capita income level exactly equaled Yp, then x* equals the observed achievement level on x, 95%. However, if a second country had a per capita income level of ten times Yp and its observed achievement level on x were also 95%, its x* score would be reduced to 60%. Note that with formula F the penalty increases at a decreasing rate and falls more rapidly to zero the lower the observed achievement level. In an analogous manner, figure 4 shows how the penalty changes when formula G is applied instead. In our example, the adjustable parameter for beta is set equal to 1.5 and the adjustable parameter gamma is set equal to .1.

A more comprehensive description of the alternative methodologies, sensitivity analyses and resulting rankings are available in a longer version of this paper and in supplementary notes, available

Figure 3. Formula F Adjustments for Observed Achievements of 40, 60, 80, 90, and 95% at Income Ratios Up to 10.

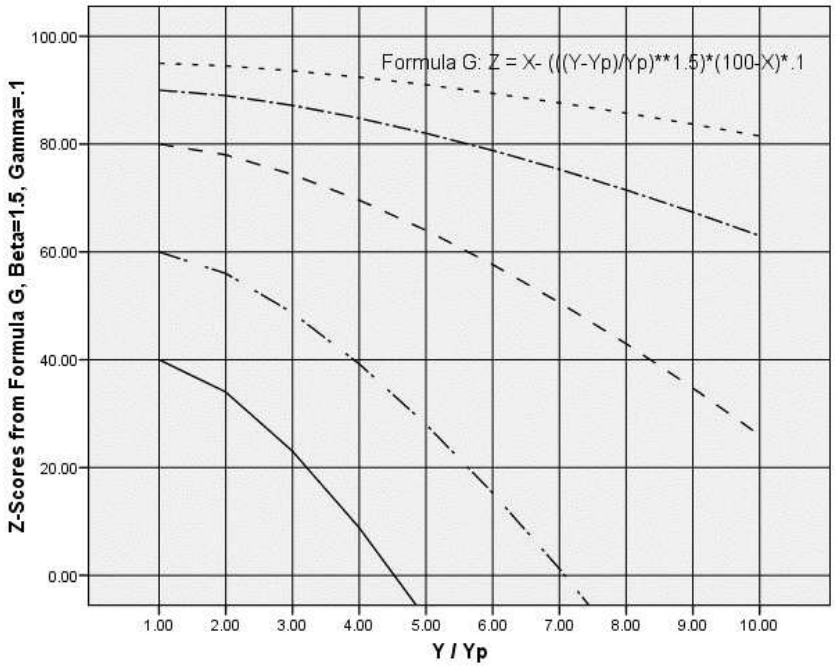
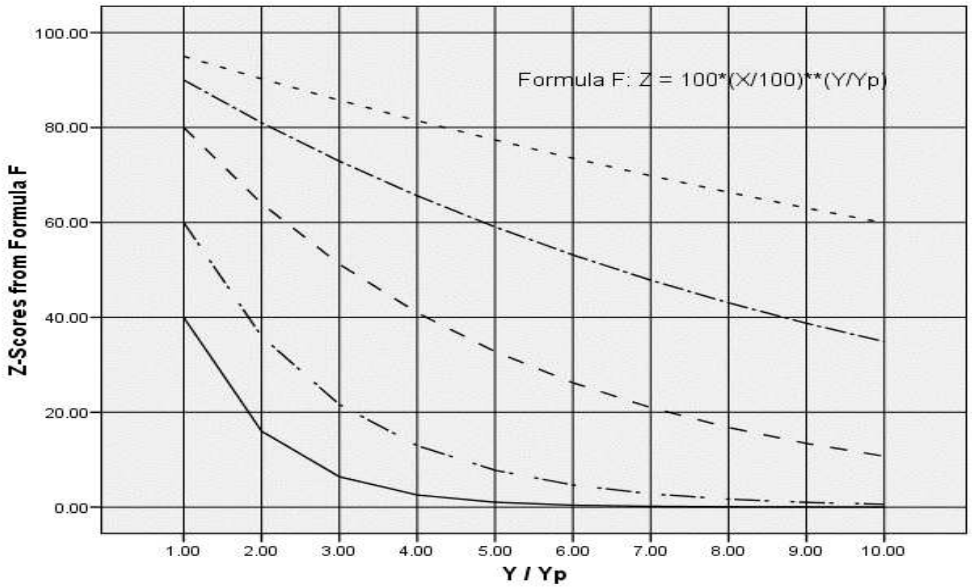


Figure 4. Formula G Adjustments for Observed Achievements of 40, 60, 80, 90, and 95% at Income Ratios Up to 10 (with Beta =1.5 and Gamma =.1



VII. Discrimination and Inequality

It is important to note that this index currently does not incorporate a measure of discrimination. From a conceptual standpoint this might be viewed as a serious failing; because the principle of non-discrimination is at the core of the human rights framework, it is questionable how accurately an index can measure ESR fulfillment when discrimination is not taken into account. Concretely, a country in which the population as a whole enjoys high levels of ESRs – but a small minority is systematically denied basic Social and Economic Rights enjoyment – could still receive a high ESRF index score.

The primary reason for excluding measures of discrimination is methodological, as incorporating discrimination is difficult given the conceptual and data issues already explained. However, it would be valuable to create such an index of discrimination in ESR Fulfillment, to be used in conjunction with the present index.

Discrimination may be reflected in inequality of outcomes, so outcome disparities could be used as a proxy indicator for discrimination. Outcome inequality is conventionally used in human rights assessment as *prima facie* evidence of discrimination, or, at the minimum, unequal treatment and inequality of opportunity for rights enjoyment. And insofar as states are obligated to eliminate discrimination in the enjoyment of human rights, inequality in outcomes is an appropriate measure of success (or lack thereof) in this regard. However, as discussed previously, outcome inequality is not a perfect proxy for discrimination because differences may be the result of historical circumstances that the current state government is taking proactive steps to address.

A discrimination score could either be incorporated into the existing ESR fulfillment index, in order to reward countries with non-discriminatory ESR outcome metrics and penalize countries where ESR enjoyment levels differ significantly along racial/ethnic/gender/religious lines, or it could serve as a complementary ranking system. In either scenario it would be necessary to define 'marginalized' and 'privileged' groups within each country, and to collect disaggregated socio-economic data that reflects outcomes for these groups as compared to the population as a whole. Currently only very limited inequality data is available, including: income distribution; rural-urban distributions for some socio-economic outcomes; and gender distributions for some indicators.

However, it is possible to generate some disaggregated data, which could provide differentiated outcome levels for a limited number of subgroups within a given country, based on some existing data sets such as those of the Demographic and Health Surveys[34].

One possible methodology to incorporate discrimination when data are available by relevant population subgroups is to adjust the score on each of the indicators in a manner that reflects the extent of inequality or discrimination. For example, the following formula could be used to "correct" the value of any or all indicators:

$$x^D = (1 - \omega)\, \Sigma P_i x_i + \omega x_1$$

Here x^D is the indicator value corrected for discrimination, xi is the value of the indicator for sub-group i, i is an index for sub-group with i=1 assigned to the sub-group with the lowest score on the index, Pi is the proportion of the population in sub-group i, and ω is a weight between 0 and 1. The value selected for ω reflects the emphasis placed on non-discrimination (or inequality). If ω=0 then the "corrected" value of the indicator is the weighted average of the value of the indicator for the subgroups where the weights are the subgroup's shares in the population. That is, the "corrected" value equals the raw value of the indicator, so no penalty is imposed for inequality/discrimination. If ω=1, then the maximum penalty is imposed and the "corrected" value of the indicator equals the value of the indicator for the sub-group with the lowest score on the indicator. Thus, as the value of ω is increased from 0 to 1, the emphasis placed on inequality or discrimination increases. One interesting option is to set $\omega=P_1$. In this case, the penalty for inequality is greater the larger (proportionately) is the sub-group with the lowest achievement on the indicator.

An alternative, and significantly less time intensive, strategy is to utilize the existing Minorities at risk (MAR) database to "flag" countries with discriminatory policies and practices vis-à-vis fulfillment of ESR obligations. The MAR database assesses the political and economic exclusion of ethno-cultural minorities in every country with a population of at least 500,000 (MAR 2008). Numeric codes indicating existence and severity of discrimination, social exclusion, and inequality are assigned for approximately two dozen variables, including higher education and public health conditions. The MAR database explicitly evaluates group discrimination and bias *relative* to other groups within the country. In our analysis, each country was flagged as: "Green", indicating little

[34] Demographic and Health Surveys (DHS), a project funded by USAID and other donors implemented by ORC Macro. See website http://www.measuredhs.com/ .

or no discrimination; "Yellow", for caution, indicating moderate discrimination; or "Red", indicating severe and systemic discrimination.

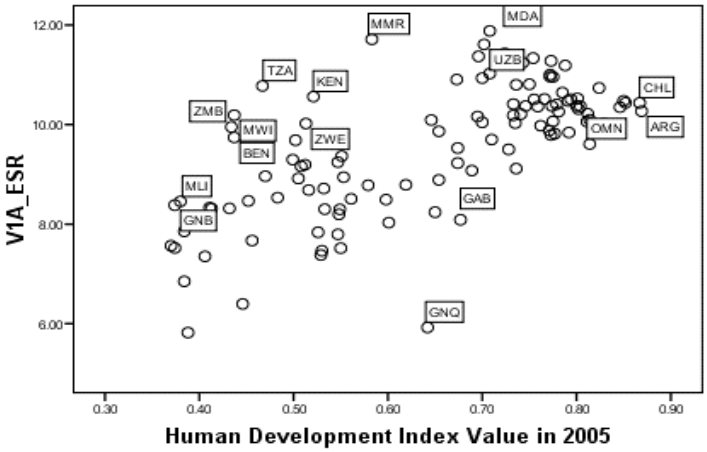
VIII. Insights and Policy Implications

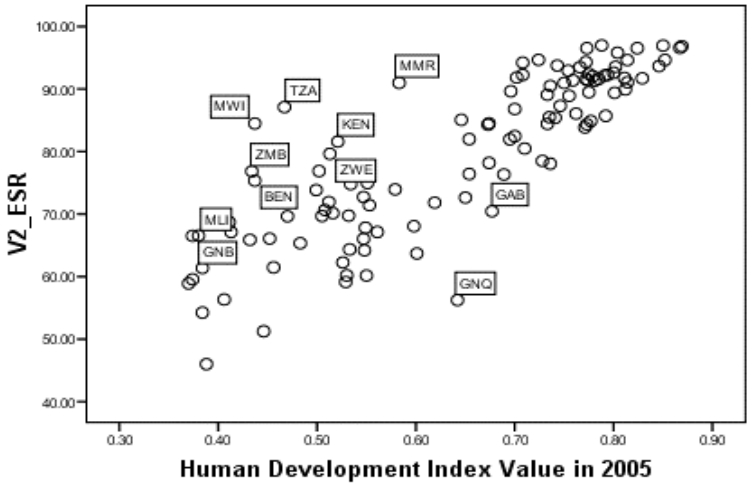
The ESRF Index provides a number of important insights. First, it is clear that countries' performance in terms of economic and social rights fulfillment differs substantially from their performance in simple human development as measured by HDI rankings. For example, Moldova ranks near the bottom on the 2005 HDI but ranks near the top on both Versions 1 and 2 of the ESRF-1 Index. Similarly, Malawi and Tanzania rank at the bottom on the HDI – but in the upper half on all versions of the ESRF-1 index. In contrast, Guatemala, which is ranked substantially ahead of both Malawi and Tanzania, on the HDI, and is virtually tied with Moldova on the HDI is ranked in the bottom 40% on both Versions 1 and 2 of the ESRF-1 Index. Other examples of countries that perform relatively well when only human development is measured but under perform in fulfilling human rights obligations when state resource capacity is considered include Mexico and Malaysia.

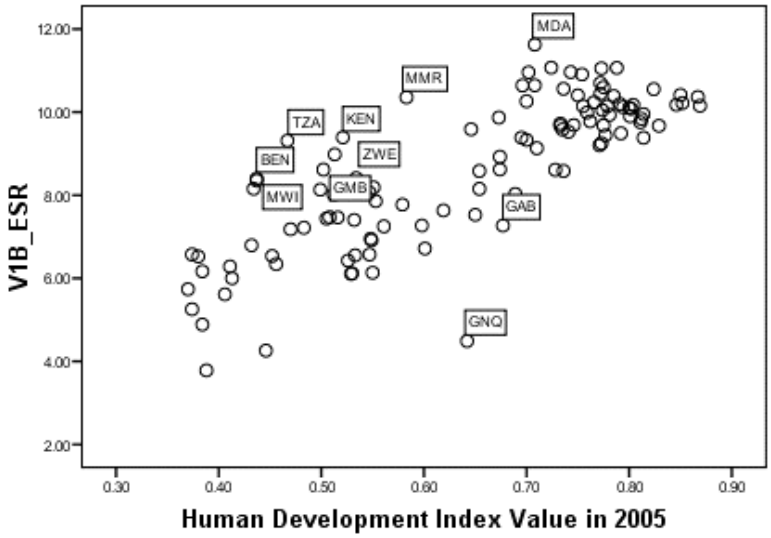
The ESRF Index illustrates that human development measures are not adequate indicators of human rights fulfillment. The significant difference between fulfillment of human rights obligations versus achievement in human development is apparent in the graphs that plot countries' rankings in the different ESRF Index versions against HDI rankings and shown in Figure 5.

Second, the UNDP Human Development Reports have shown wide variance in human development achievement among countries of similar income levels. The ESRF Index draws attention to the fact that some countries with apparently high human development achievements do not actually do as much as they could in view of their income levels. For such countries, ESRF Index rankings will be comparatively lower than HDI rankings. For example, Costa Rica, South Africa and Mexico have roughly similar per capita incomes: 2005 per capita incomes in 2000 prices were $9067 PPP, $9952 PPP and $9618 PPP, respectively (at the high end within our sample). However, Mexico had an under 5 malnutrition rate of 17.1% when last measured in 1999, and South Africa had an under 5 malnutrition rate of 24.9% when last measured (also in 1999), while Costa Rica's under 5 malnutrition rate was only 6.1% when last measured (1996). Equatorial Guinea and Oman – the top two countries in terms of per capita GDP among the low and middle income countries in our sample – have roughly equivalent per capita income levels ($15385 PPP and $13887 PPP, respectively). However, Equatorial Guinea has a primary completion rate of only

Figure 5: Scatterplots of Economic and Social Rights Indicators Against Human Development







54.3%, an under 5 malnutrition rate of 45.3%, and an under 5 mortality rate of 205 per 1000 live births. In contrast, Oman has a primary completion rate of 91.3%, an under 5 malnutrition rate of 8.7%, and an under 5 mortality rate of 14.5 per 1000 live births. Botswana, with a slightly lower per capita income ($10,812 PPP) likewise significantly outperforms Equatorial Guinea, achieving a primary completion rate of 93.3%, an under 5 malnutrition rate of 23.1%, and an under 5 mortality rate of 120. However, Botswana and Oman both fall short in terms of under 5 malnutrition rates when compared with other countries at similar income levels, such as Croatia, whose malnutrition rate is less than 1%. The ESRF Index, particularly the component right indices ranking countries on each of the five human rights dimensions, highlights instances where States are falling short of what they could and should be able to achieve given their resource capacities.

At the same time, the ESRF Index rewards countries that have managed to achieve high levels of human development in spite of severe resource constraints. For example, Tanzania, with a per capita GDP of $650 PPP, has a primary completion rate of 71.6% and an under 5 mortality rate of 122 per 1000 live births, while Niger, with a similar per capita GDP of $700 PPP, has a primary completion rate of only 28.1% and the much higher under 5 mortality rate of 256. The performance of Tanzania in terms of primary completion is similar to that of Guatemala (which has a 74% completion rate), a country with significantly more resources (per capita GDP $4064 PPP). Tanzania's under 5 mortality rate is comparable to Zimbabwe's (132 per 1000 live births), although Zimbabwe's GDP per capita is almost three times that of Tanzania ($1837 PPP in the year under 5 mortality data was collected). In the same vein, Senegal's under 5 malnutrition rate is identical to Peru's (25.4%), although Peru has nearly 4 times more income per capita.

The index measures – in a simple and transparent way – the fulfillment by States of their obligation to progressively realize the economic and social rights guaranteed to all people under international law. The fundamental principle underlying the obligation of progressive realization is that States must strive to protect, promote, and fulfill the economic and social rights of their citizens to the maximum extent possible in the face of economic resource constraints. The ESRF Index highlights successes and failures in States' realization of their international human rights obligations, both in aggregate and along the five dimensions of food, health, education, housing, and work.. Moreover, the component index rankings for each of the five human rights dimensions allows States to better

understand in what areas they are failing to meet their human rights obligations, and thus encourages governments to direct social services and expenditures towards those areas. In this regard an important aspect of the index is its transparency and ease of disaggregation, which makes it accessible to a wide audience.

IX. Conclusions and agenda for further research and data development

This index is an attempt to create a rigorous measure of ESR Fulfillment that is based on survey-based quantitative indicators for which data are available. The methodology demonstrates the possibility of measuring obligations for progressive realization of core economic and social rights that can be replicated and that permits comparison among countries. The achievement possibilities frontier method empirically estimates the obligations in terms of human outcome achievements on the basis of historical achievements and is our preferred method.

The methodology also identifies limitations due to the current state of quantification and data availability. A number of important elements are missing from the index: (i) discrimination and inequality; (ii) participatory decision making; and (iii) core rights including social security and in the case of high income countries, housing. Incorporating these elements will require an investment in both conceptual development and in data collection. These are challenges for future work for which a work program can be developed. In some areas, such as decent work and adequate housing, work is already under way that promises to develop more adequate data bases. In other areas such as discrimination, or right to food in high-income countries, more conceptual research is required. In other areas, such as group-based differentials in achievement, more data need to be generated through new surveys as well as further analysis of existing material.

References

Carr Center for Human Rights Policy Project (2005). *Measurement and Human Rights: Tracking progress, assessing impact.* Harvard University, Kennedy School of Government, (Summer, 2005). Policy Project Report, Available at http://gip.undp.vrl3.com/wp-content/uploads/file/measurement_and_human_rights_carrcenter05.pdf

Chapman, A. (1996). A Violations approach for monitoring the International Covenant on Economic, Social and Cultural Rights, *Human Rights Quarterly* 18, 23-66.

Cingranelli, D, L. and D. L. Richards (2007) Measuring government effort to respect economic human rights: a peer benchmark. In A. Minkler and S. Hertel, (Eds.), *Economic rights: conceptual, measurement and policy issues*, Cambridge University Press, New York .

Cingranelli-Richards (CIRI) Human Rights Dataset project (2008) http://ciri.binghamton.edu/index.asp

Committee on Civil and Political Rights (CCPR) (2004). General Comment No. 31: *The Nature of the General Legal Obligation Imposed on States Parties to the Covenant* (Art. 2) (2187th Meeting, 21 March 2004), CCPR/C/74/CRP.4/Rev.6.

Committee on Economic, Social and Cultural Rights (CESCR) (2000). General Comment No. 14: *Right to the Highest Attainable Standard of Health* (Art. 12). Twenty-second Session, 25 Apr. – 12 May, UN Doc. E/C. 12/2000/4.

Committee on Economic, Social and Cultural Rights (CESCR), (1999). General Comment No. 12: *The Right to Adequate Food* (Art. 11). Twentieth Session, 26 Apr. – 14 May, UN Doc. E/C. 12/1999/5.

Committee on Economic, Social and Cultural Rights (CESCR), (1990). General Comment No. 3: *The Nature of States Parties Obligations* (Art. 2, par. 1). Fifth Session, UN Doc. e/1991/23, Annex III

Freedom House (2008). *Freedom in the World, available at* http://www.freedomhouse.org/template.cfm?page=15

Green, M. (2001). "What We Talk About When We Talk About Indicators:Current Approaches to Human Rights Measurement" *Human Rights Quarterly 23 (2001) 1062–1097*

Hunt, P. 2003. *The right of everyone to enjoy the highest attainable standard of physical and mental health,* Interim report of the Special Rapporteur of the Commission on Human Rights on the right of everyone to enjoy the highest attainable standard of physical and mental health, Mr. Paul Hunt submitted to the 58th Session, Agenda item 117 (c) (10 October 2003) available on website: UNOHCR

Hertel, S. & Minkler, L. (2007). Economic and social rights: the terrain. In S. Hertel & L. Minkler (Eds.), *Economic rights: conceptual, measurement and policy issues.* Cambridge University Press, New York.

Humana, C. (1992). *World Human Rights Guide*, Oxford University Press, New York.

Human Rights Council (2007). Resolution 5/1, *Institution-building of the United Nations Human Rights Council* (18 June 2007).

Landman, Todd, 2004. 'Measuring Human Rights, Practice and Policy', *Human Rights Quarterly* 26 (2004) 906–931

Minorities at Risk Project (2005). Dataset user's manual 030703. Center for International Development and Conflict Management, College Park, MD. *Available at* http://www.cidcm.umd.edu/mar/

OECD Program for International Student Assessment. *Available at* http://www.pisa.oecd.org

OHCHR (2005). Report of the independent expert on technical cooperation and advisory services , Ms. Charlotte Abaka E/CN.4/2005/119

OHCHR, (2006). Report of the special rapporteur on the right to food, Jean Ziegler – Mission to Guatemala. E/CN.4/2006/44/Add.1 http://www.ohchr.org

OHCHR (2000) 'Cooperation of Human Rights Treaty Bodies with United Nations Departments, Specialized Agencies, Funds, Programmes and Mechanisms and Non-Governmental Organizations. Status of the Plans of Action: Establishment of Indicators/Benchmarks to assess the realization of human rights' 16 June 2000 HRI/MC/2000/3

OHCHR (2008) 'Report on Indicators for Promoting and Monitoring the Implementation of Human Rights' International Human Rights Instruments, HRI/MC/2008/3 (6 June 2008) Twentieth meeting of chairpersons of the human rights treaty bodies, Geneva, 26-27 June 2008 available on website: http://www2.ohchr.org/english/bodies/icm-mc/docs/HRI.MC.2008.3EN.pdf

Raworth, K. (2001) Measuring human rights. *Ethics and International Affairs* 15, 111-131.

Shue, H (1980) Basic rights: subsistence, affluence and U.S. foreign policy, Princeton University Press, Princeton

Spirer, H. and Spirer, L. (1993). *Data analysis for monitoring human rights.* American Association for Advancement of Science (AAAS) and HURIDOCS, Washington, DC.

United Nations (1945). Charter of the United Nations (San Francisco, 26 June 1945), Art. 1 par. 3. 3 Bevans 1153, 59 Stat. 1031, T.S. No. 993, (*entered into force* 24 Oct. 1945)

United Nations (1948). Universal Declaration of Human Rights (UDHR), *adopted* 10 Dec. 1948, United Nations General Assembly Res. 217 A (III) (1948) New York.

United Nations, (1965). International Convention on the Elimination of All Forms of Racial Discrimination, *adopted* 21 Dec. 1965, G.A. Res. 2106 (XX), U.N.T.S. 195 (*entered into force* 4 Jan. 1969)

United Nations, (1966). International Covenant on Economic, Social and Cultural Rights (ICESC), 1966. *adopted* 16 Dec. 1966, G.A. Res. 2200 (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3 (entered into force 3 Jan. 1976).

United Nations, (1966). International Covenant on Civil and Political Rights (ICCPR), *adopted* 16 Dec. 1966, G.A. Res. 2200 (XXI), U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc. A/6316 (1966), 999 U.N.T.S. 171 (entered into force 23 Mar. 1976).

United Nations, (1979). Convention on the Elimination of All Forms of Discrimination Against Women, *adopted* 18 Dec. 1979, G.A. Res. 34/180, U.N. GAOR, 34th Sess., Supp. No. 46, U.N. Doc. A/34/46 (1980) (*entered into force* 3 Sept. 1981), 1249 U.N.T.S. 13, *reprinted in* 19 I.L.M. 33 (1980).

United Nations, (1989). Convention on the Rights of the Child, *adopted* 20 Nov. 1989, G.A. Res. 44/25, U.N. GAOR, 44th Sess., Supp. No. 49, U.N. Doc. A/44/49 (1989) (*entered into force* 2 Sept. 1990), 1577 U.N.T.S. 3, *reprinted in* 28 I.L.M. 1448 (1989).

United Nations Development Programme (2000). *Human Development Report 2000.* Oxford University Press, New York.

United Nations Development Programme Oslo Governance Centre (2007). Indicators for Human Rights based Approaches to Development in UNDP Programming – A Users Guide, available on website: http://www.undp.org/oslocentre/flagship/governance_indicators_project.html

United Nations-HABITAT and OHCHR (2003). Monitoring housing rights: developing a set of indicators to monitor the full and progressive realisaiton of the human right to adequate housing' Background paper for the 2003 expert group meeting on housing rights monitoring, United Nations Housing Rights Programme Working Paper No. 1, Nairobi