UNDP's Gender-Related Indices: A Critical Review

August 24, 1997

Kalpana Bardhan
Berkeley, CA
USA
bardhan@econ.berkeley.edu

Stephan Klasen
King's College
Cambridge
UK
sk242@cam.ac.uk

Draft.

Acknowledgments
The authors would like to thank Sudhir Anand, Pranab Bardhan, Emma Rothschild, and Amartya Sen for helpful comments and discussion.

Since 1990, the United Nations Development Program has published an annual Human Development Report (HDR) in an effort to chart the progress of broad indicators of well-being around the world. In contrast to a focus on income as the sole measure of economic progress, these reports have also emphasized the importance of other indicators of well-being that are often not closely related to income, such as life expectancy and education. Following work by Sen (1985, 1992) and others (Stewart 1985, Streeten et al. 1981, Morris 1979), the reports have argued that these non-income measures of well-being should be an integral component of any assessment of well-being as they measure important aspects of well-being *directly*, while income is only one among several inputs to generating such well-being.

While the particular index developed for the assessment, the Human Development Index (HDI), has been criticized for some of its choices of components, weights, and aggregation rules (Ravallion, 1996; Kelley, 1991; Srinivasan, 1994a), the disparity between the HDI and income measures of progress in many countries has powerfully demonstrated that income may be a poor indicator of well-being in some contexts. As such, it has furthered debates about the importance of non-income goals such as health and education in many countries. In addition, the Reports helped develop and compile new information about a broad range of measures of well-being and deprivation for many countries, although the reliability and compatibility of some of the information presented is open to question (Srinivasan 1994b).

In the 1995 Human Development Report (HDR) focusing on gender, UNDP presented two new indicators of well-being, the Gender-Related Development Index (GDI) and the Gender Empowerment Measure (GEM). While the GEM charts the progress in women's agency in economic and public life, the GDI is not a measure of *women's* achievements as such, but includes gender inequality in its *overall* assessment of well-being in a country. The GDI thus suggests, appropriately, that gender inequality is not only a problem for those it disfavors, but it detracts from overall development in a country.

The two new measures constitute a potentially important tool for analyzing gender inequality and its impact on overall development. In view of major gender inequalities in education, health, economic opportunities, and life prospects prevailing in many countries, the importance of measuring these and their impacts, their change over time and differences across regions, is self-evident. To the extent that these measures would be taken up by policy-makers in individual countries as indicators of progress, they could help focus policy debates on gender

inequality, its causes and its consequences.

While they are thus important new ways to conceptualize gender inequality and compare the progress of nations in this respect, we argue that the particular ways the indices were constructed and the assumptions made to overcome data gaps severely limit their usefulness and produce a number of problematic results. In particular, we argue that the GDI is dominated by a conceptually and empirically problematic estimate of gender gaps in earned income, while downplaying the role of the gaps in education and largely ignoring those in mortality, arguably the two most important problems confronting women in many developing countries. We also suggest that the GEM is too heavily focused on representation at the national political level and in the formal economy. Where appropriate, we will propose remedies for the shortcomings identified to improve this potentially important tool.

The next section describes the underlying theory and the way the GDI is constructed. In the section following, we focus on the GDI, highlighting problems with its design as well as the assumptions used to fill in for missing data. Section four critically reviews the GEM, and section five draws conclusions.

2. Theory and Derivation of the GDI

The theoretical underpinning for the GDI is provided by Anand and Sen (1995a) in a technical note appended to the Human Development Report and, in an expanded version, in a background paper to the report (Anand and Sen 1995b). In the note, Anand and Sen treat gender inequality as one of several possible inter-group inequalities, and then base their analysis on the assumption common in economics that individuals and societies have, *ceteris paribus*, an aversion to inequality. If two societies had the same average achievement but different levels of inter-group inequality in that achievement, aversion to inequality would mean that the society with the lower inter-groups inequality should be socially preferable to one having the same average achievement but larger inequality.[1]

---

[1] One way to conceptualize this point is to decompose a gender gap in achievement (e.g. in literacy) into a mean for both groups (e.g. average literacy of 40%) and a 'mean-preserving regressive transfer' from the disfavored to the favored group (say, females 'transfer' 5 percentage points of their literacy to males, leaving them with 35% literacy and males with 45%). Using the latter concept, one can easily see that a society preferring more equality to less (holding the mean constant) would prefer a situation where both genders had the same achievement to one where the mean achievement was the same but a gender gap existed. This assumption of mean-preserving inequality aversion is not peculiar to specific social welfare functions, but commonly used in welfare economics. For a theoretical

Based on this notion of aversion to inter-group inequality, the GDI then simply becomes a special case of the more commonly known HDI, adjusted for the gender gaps to 'penalize' countries for the existing inter-group inequality between males and females. Since the HDI ignores inter-group differences and (implicitly) assumes that everyone in a country has reached the average achievement in the three components of the index (life expectancy, education, and income), the adjustment for gender disparity will invariably lower the GDI, relative to the HDI.[2] The extent the GDI is lower than the HDI will depend on the size of the gender gap in each component and the penalty factor applied to this gap.[3]

As an adjusted version of the HDI, the GDI too consists of three components: longevity, education, and income. Observed gender gaps in a component are considered in relation to the maximum possible achievement in that component. Therefore, it is important not only to know the absolute size of the gap, but also the range of possible achievements which then determines the relative shortfall considered for the gender penalty.

In the life expectancy component, it is assumed that, given equal treatment, women would outlive men by an average of 5 years. This apparent biological advantage of females is well established in the literature, although its precise magnitude is controversial (Waldron 1993; Johannsson 1991; Klasen 1994b). If the female life expectancy exceeds the male by less or more than 5 years, a gender gap is held to exist (e.g. if female life expectancy is 42 and male life expectancy 40, then a gender gap of 3 years against females is assumed to exist). The range of possible life expectancies assumed in the HDR is 60 years (from 27.5 to 87.5 years for females, and 22.5 to 82.5 years for males), thereby implicitly assuming maximum possible gender gap of 60 years.

In the literacy and school enrollment component of the index,[4] women and men are assumed to have the same potential achievement (100% literacy and school enrollment) so that

---

discussion of this notion, see Atkinson (1970). For economic, philosophical, and ethical justifications of aversion to inequality, see Klasen (1994a).

[2] In a country with no gender gap in the components included in the HDI, the GDI would, of course, equal the HDI.

[3] It is important to point out that this method of adjusting the HDI downward to reflect inter-group inequalities need not be confined to gender. It would perfectly be possible to apply this method to other inter-group differences such as racial, ethnic, or class gaps within a country. Given the magnitude of these gaps in some countries, such adjustments could yield important results in many cases.

[4] The education component of the GDI and HDI consist of two elements. Literacy which receives a weight of 2/3, and combined primary, secondary, and tertiary enrollment which receives a weight of 1/3.

any difference in literacy rates or school enrollment rates constitute a gap, with a maximum possible gap of 100%.

In the income component of the index, a gap is held to exist if the estimated shares of the earned income between males and females differ from their population share (which in most countries is close to 50%). The penalty for the gender gap is applied to the female and male proportional income shares, which are defined as the shares of income earned by females (males) divided by their population share (e.g. if females earn 20% of income and are 50% of the population, their proportional income share is 0.4, while the corresponding share for males will be 1.6 ((1-80%)/50%). Thus the maximum gap in proportional income shares is 2 (in the case where either females or males earn 100% of income).

Apart from the magnitude of the gender gap, the extent of the penalty applied to this gap determines the amount by which a country's GDI is smaller than the HDI. The way this is done in the GDI calculation is to construct the so-called 'equally distributed equivalent achievement' (edea) which is "defined to be the level of achievement that, if attained equally by women and men, would be judged to be exactly as valuable socially as the actually observed achievement" (Anand and Sen 1995a: 126). For example, what would be the level of literacy that, if achieved equally by everyone, would yield the same social valuation as the actual achievement that shows the gender gap of, say, 45% for males and 38% for females. The formula for calculating the equally distributed equivalent achievement (edea) crucially depends on the size of the exponent ε, the aversion to inequality factor.[5] A larger ε implies a greater penalty for gender gaps. If ε were zero, there would be no penalty for inequality and the equally distributed equivalent would simply be the weighted mean of the male and female levels (weighted by the population shares which in most countries is close to half). Any ε greater than 0 leads to the edea to be below the weighted mean. For the UNDP report, a level of ε=2 was chosen to be applied. As a result, "the incremental achievement of women has four times the weight of men's if the ratio of male and

---

[5] The formula for the equally distributed equivalent achievement, applied to the education index is as follows:
$edea = [male/pop*(educ_m)^{1-\varepsilon}+female/pop*(educ_m)^{1-\varepsilon}]^{1/(1-\varepsilon)}$
where:
male/pop, female/pop: male and female population shares
$educ_m$ $educ_f$: index of educational achievement for males and females (ranging from 0 to 1)
ε: aversion to inequality factor

female achievement is 2" (UNDP 1995: 74).[6] Clearly, the size of ε is, to a certain extent, arbitrary, but the penalty imposed by ε=2 appears to be within the range of reasonable choices.

In the earned income component, an additional transformation drastically alters the gender penalty for unequal income shares. After the calculation of the equally distributed equivalent achievement, the gender penalty is then multiplied by the adjusted average income (which, itself is a concave transformation mapping actual PPP-adjusted income per capita into a range from $100 to $5448) and then the index is derived by determining how much a country falls short of the maximum potential adjusted income of $5448. An implication of this calculation is that the penalty for unequal income shares is dependent not only on the magnitude of the gender gap in earned income, but also on the income level. An identical gender gap in income shares (e.g. women earning 20% and men 80% of earned income) will yield more than 4 times the gender penalty in a rich country such as Saudi Arabia (with adjusted per capita income of over $5200) than in a poor country like Bangladesh (with an adjusted per capita income of only $1200). No justification for this different treatment of gender inequality in earned income between poor and rich countries is provided.

The gender penalties thus calculated are then applied to the HDI, which combines with equal weight the three components -- life expectancy, education, and income -- to arrive at the gender-sensitive index GDI.[7]

As the GDI is simply the HDI adjusted to take into account gender differences, it is possible to investigate how large the imposed penalty for gender inequality is in each country (by simply subtracting the GDI from the HDI) and which component accounts for most of this penalty for gender inequality. In Table 1 below, we selected a sample of 35 countries (from the 130 for which UNDP calculated the GDI in 1995) to illustrate the magnitude and source of the gender inequality penalties implicit in the GDI.[8]

---

[6] For example, if male literacy is 30% and female 15%, then the latter receives four times the weight as the former thereby pushing the valuation below the simple average (from the average of 22.5% to the edea of only 20%, leading to a gender penalty of 2.5%).

[7] The method of calculating the GDI proposed by the UNDP uses a different route and does not separate out the penalty component associated with gender inequality explicitly, but a simple transformation could easily achieve this. We will not review the way the HDI is constructed here (see, for example, Ravallion (1996)).

[8] The sample was chosen to include all of the world's most populous countries for which data was available (e.g. Germany is excluded since it not listed in the UNDP report) and to include several countries from all major regions of the world.

As expected, no country has a GDI as high as its HDI, suggesting that all countries have some gender gaps in at least one of their components. The average penalty for gender inequality implicit in the GDI is 0.059, so that the HDI is reduced by an average of 9% as a result of gender inequality. It differs dramatically between countries and regions. In Sweden, the GDI is only 1% smaller than the HDI, suggesting the smallest gender gap. By far the largest gender inequality penalties are found in the countries of the Middle East and North Africa, where the GDI is up to 33% lower than the HDI. In contrast, the countries of South and East Asia have comparatively smaller gender penalties. Countries in South-East Asia and Sub-Saharan Africa have very small penalties for gender inequality comparable to those found in OECD countries. Also noticeable are the very small gender inequality penalties in Eastern Europe and Russia, among the lowest of the countries listed.

Table 1: Disaggregating the Implied Penalty for Gender Inequality in the GDI

	GDI	HDI	Absolute Penalty	Percent Penalty	Share of Penalty Accounted by: Gap in Life Exp..	Gap in Education	Gap in Income	Absolute Gaps in Components Life Exp. (years)	Education (index)	Income (shares)
Sweden	0.919	0.929	0.010	1.1%	0.10%	0.05%	99.85%	-0.7	-0.9	16.8
Australia	0.901	0.927	0.026	2.8%	0.07%	0.02%	99.91%	-0.9	-0.9	28.0
USA	0.901	0.937	0.036	3.8%	0.25%	0.10%	99.65%	-1.8	-2.1	30.8
Japan	0.896	0.937	0.041	4.4%	0.07%	0.01%	99.92%	-1.1	0.7	33.0
United Kingdom	0.862	0.916	0.054	5.9%	0.00%	0.00%	100.00%	-0.1	-0.2	38.4
Netherlands	0.851	0.936	0.085	9.1%	0.03%	0.01%	99.96%	-1.0	1.0	49.6
Poland	0.838	0.855	0.017	2.0%	2.46%	0.02%	97.52%	-4.0	-0.7	31.4
Russian Federation	0.822	0.849	0.027	3.2%	5.84%	0.02%	94.14%	-6.9	-0.8	23.2
Ireland	0.813	0.915	0.102	11.1%	0.01%	0.01%	99.98%	-0.5	-1.3	55.6
Argentina	0.768	0.882	0.114	12.9%	0.12%	0.04%	99.84%	-2.1	-1.8	58.2
Turkey	0.744	0.792	0.048	6.1%	0.05%	7.35%	92.60%	1.1	18.4	39.6
Mexico	0.741	0.842	0.101	12.0%	0.04%	0.15%	99.81%	-1.1	3.8	55.4
Brazil	0.709	0.804	0.095	11.8%	0.00%	0.01%	99.98%	0.3	1.1	54.2
Bahrain	0.686	0.862	0.176	20.4%	0.01%	0.17%	99.82%	0.7	5.8	79.8
Un. Arab Emirates	0.674	0.861	0.187	21.7%	0.08%	0.02%	99.90%	2.6	-2.3	86.4
Iran, Islamic Rep.	0.611	0.770	0.159	20.6%	0.34%	2.43%	97.23%	4.0	17.1	70.2
Saudi Arabia	0.514	0.762	0.248	32.5%	0.05%	1.77%	98.18%	2.0	17.6	89.4
Algeria	0.508	0.732	0.224	30.6%	0.11%	2.80%	97.09%	2.7	21.4	85.0
Kenya	0.471	0.481	0.010	2.1%	1.42%	19.52%	79.06%	1.9	13.6	30.4
Egypt	0.453	0.613	0.160	26.1%	0.15%	4.45%	95.40%	2.6	21.6	83.6
Zambia	0.403	0.425	0.022	5.2%	2.79%	9.75%	87.46%	4.3	13.3	49.4
Nigeria	0.383	0.406	0.023	5.7%	0.73%	18.91%	80.36%	1.8	16.9	43.0
Cote d Ivoire	0.341	0.369	0.028	7.6%	0.91%	26.35%	72.74%	2.3	19.1	44.4
Sudan	0.332	0.379	0.047	12.4%	0.52%	16.35%	83.13%	2.2	18.7	63.0
Ethiopia	0.217	0.227	0.010	4.4%	1.86%	63.00%	35.14%	1.8	14.7	41.2
China	0.578	0.594	0.016	2.7%	0.33%	14.33%	85.35%	1.3	14.2	37.6
Philippines	0.625	0.677	0.052	7.7%	0.11%	0.00%	99.89%	1.3	1.0	57.8
Indonesia	0.591	0.637	0.046	7.2%	0.18%	2.60%	97.22%	1.5	10.4	49.4
Thailand	0.798	0.827	0.029	3.5%	0.03%	0.31%	99.66%	-0.5	3.0	30.8
Nepal	0.310	0.343	0.033	9.6%	5.39%	51.30%	43.30%	6.0	26.5	47.2
India	0.401	0.439	0.038	8.7%	2.49%	27.04%	70.47%	4.9	25.0	61.6
Bangladesh	0.334	0.364	0.030	8.2%	3.90%	28.48%	67.63%	5.0	19.0	54.4
Sri Lanka	0.660	0.704	0.044	6.2%	0.02%	0.41%	99.57%	0.5	4.2	49.8
Pakistan	0.360	0.483	0.123	25.5%	0.28%	10.98%	88.74%	3.0	22.4	79.8
Average	0.595	0.654	0.059	9.0%	0.98%	13.96%	85.06%			
Weighted Penalty					0.40%	5.77%	93.84%			

Source: own calculations based on UNDP (1995). Education gaps refer to the difference in the combined index of literacy and enrollment for males and females; earned income gap refers to the difference in male and female shares of earned income.

When disaggregated into the three components, it becomes apparent that the gender penalty is overwhelmingly accounted for by the earned-income gap. In most countries, the earned-income gap accounts for more than 90% of the gender penalty. Only in a few countries where the absolute gender penalty is fairly small, do the other two components account for a larger share of the small penalty. For all 130 countries listed in the HDR, the weighted average of the penalty accounted for by the earned-income component (weighted by the size of the gender penalty) is 93.8%. If the penalty of the earned income component were excluded, 62 countries would have a GDI ranking of at least five places higher or lower than they do with the earnings component included, illustrating the magnitude of this component's impact on the GDI ranking.

In contrast, the life expectancy component accounts for a negligible amount of the gender gap. In no country does it account for more than 6% of the penalty, and the weighted average is a paltry 0.4%. None of the GDI rankings change as a result of this component of the indicator.[9] The education gap accounts for a considerable share of the penalty in some countries, including those countries in Sub-Saharan Africa that have a small overall penalty, low incomes, and a comparatively small earned income gap.[10] The weighted average, however, only amount to less than 6% of the total penalty. Only eight countries would have a different GDI ranking if the gender penalty of the education component was excluded; none would change their ranking by more than 5 places. Thus the education component also has a rather modest impact on the gender penalty imposed by the GDI.

What accounts for the overriding impact of the earned income component? First, the measured gap relative to the maximum possible gap is much larger in the earned income component than in the life expectancy and education components. The gaps in life expectancy vary within a range from -7 to +6 out of a possible range of 60 years, none exceeding 11% of the total possible gap. In the education index, the gap ranges from -3 to +23, equivalent to 23% of the maximum possible gap. In the earned income component, the gap ranges from +16 to +90 in the shares of earned income, and from 0.3 to 1.8 (out of a range of 2) in the proportional income shares. Thus even the smallest gap in earned income in any country (in Sweden) constitutes

---

[9] In come cases where the GDI (including the life expectancy component) is identical between countries (at the level of four significant figures), the exclusion of the life expectancy gap may change the ranking in some of these countries.

[10] As mentioned earlier, low incomes reduce the weight attached to the earned income gap, thereby increasing the relative weight of the other three gaps.

already 15% of the maximum possible gap in earned income, which is already higher than the largest observed gap in longevity anywhere and larger than most education gaps. The highest earned income gap stands at 90% of the maximum possible gap, several times larger than the largest gaps in the other components.

Since the same aversion to inequality factor ε is applied to all three indices, larger observed gaps (relative to the potential maximum gap) receive larger penalties, and thus the earned income gaps, ranging 15-90% of the potential maximum gap, dominate all the other gaps in most countries when the inequality penalties are applied to these gaps. Whether the impression created by the GDI, that the earned income gaps are the only substantive gender gaps in the world, and that the gaps in longevity and education are trivial by comparison, is highly debatable and will be taken up in greater detail below.

This overriding effect of the earned-income component also accounts for the very high penalty imposed on the Middle Eastern and North African countries (e.g. Saudi Arabia, Algeria, Egypt, Bahrain) as these have the largest gaps in earned incomes. Due to the sheer size of the earned-income gaps and the resulting large penalties, the fact that these countries have comparatively small gaps in longevity and education does not count for much to modify this impression.[11]

Moreover, the different treatment of gaps in earned income in poor and rich countries compounds the large penalties in the Middle East and North Africa and serves to reduce the observed penalty in South Asia. In the world of the GDI calculation, the Middle Eastern countries suffer from the unfortunate combination of a large earned income gap and fairly large incomes which, as discussed above, further amplify the gender penalty in the GDI. The difference between Bahrain and Pakistan is instructive here: the same earned-income gap leads to a 50% higher overall gender penalty in Bahrain's GDI than in Pakistan's despite much lower gaps in education and life expectancy (Table 1). The high penalty for earned income gaps in high income countries also explains the very high penalties imposed on countries such as Ireland, Argentina, and Mexico.[12]

---

[11] Similarly, the comparatively small gaps in earned income in the former communist countries of Eastern Europe account for their very small penalties.

[12] Conversely, relatively low penalties are attached to earned income gaps in low-income Sub-Saharan Africa.

The aim and underlying premise of the GDI (to see gender inequality as a human development issue not primarily a 'women's issue') is to be welcomed, and the way to adjust the HDI by the gender gaps in its components is an appropriate theoretical procedure. Moreover, one hopes that the development of the GDI will focus policy discussions on gender inequality and further the collection of gender-disaggregated data for analysis and policy.

At the same time, it appears that, in practice, the GDI is almost entirely driven by gaps in earned income and thereby implicitly downplays the importance of gender gaps in longevity and education. Also, the method of calculating the earned-income gap imposes a very large penalty on wealthy countries with large gaps in earned income, without providing any justification for it. The following section examines the theoretical and empirical underpinnings of the components of the GDI in more detail.

3. The Components of the GDI

As seen in Table 1, the longevity component plays a minor role in the GDI. Part of the reason for that is the comparatively small gaps in longevity observed. Does this mean that gender gaps in longevity are not an important issue?

Another statistic, also first developed by Amartya Sen, to measure the impact of gender bias in life prospects, is the concept of 'missing women' which refers to the cumulative number of women that have died as a result of gender bias in mortality (Sen 1989, Dreze and Sen 1995; Klasen 1994b). Table 2 shows the number and percent of 'missing women' in regions of the developing world.

Table 2: Sex Ratios and Missing Women in the World

	Actual Sex Ratio	Expected Sex Ratio	Number of Women	Percentage "Missing"	Number "Missing" (M.)
China	1.066	0.977	548.7	6.91	37.9
India	1.077	0.992	406.3	8.53	34.7
Bangladesh	1.064	0.961	40.0	9.44	3.8
Pakistan	1.105	1.010	42.2	10.72	4.5
Nepal	1.050	0.968	7.3	8.46	0.6
Pacific Islands	1.067	0.980	3.1	8.50	0.3
Transition Economies	0.975				
South-East Asia	1.001				
East Asia	1.029	0.990	36.7	4.31	1.6
South-West Asia	1.047	1.015	55.0	4.40	2.4
North Africa	1.026	0.996	77.5	3.03	2.4
Sub-Saharan Africa	0.980	0.957	253.0	2.37	6.1
Latin America and Caribbean	0.993				
Europe and North America	0.946				

Note: official data for 1991 (India), 1990 (China), 1985 (West Asia), 1981 (Bangladesh, Pakistan, Nepal). For all other regions, data are estimates for 1995. Only where there are instances of excess female mortality, the number of missing women is calculated.
Sources: United Nations (1979, 1991), Coale (1991), Sen (1989), Klasen (1994b), Bos et al. (1994).

The picture in Table 2 is drastically different from that in Table 1 in several ways. First, the numbers in Table 2 suggest that gender bias in mortality is a major problem in several regions of the developing world. With nearly 100 million 'missing women', it appears to be one of the most important aspects of gender bias in the developing world which is very different from the impression generated by the GDI where gender bias in mortality plays a negligible role. Moreover, the regional distribution of 'missing women' is quite different from that of the gender gaps in life expectancy in Table 1. In particular, the problem of missing women appears to be most severe in the countries of South Asia and China, where between 6.9% and 10.8% of women are 'missing'. The problem exists also in West Asia and North Africa, but is much smaller. In Sub-Saharan Africa, the problem as yet is small with only about 2% of women 'missing'.[13]

The column on life expectancy gap in Table 1 also suggests that women in South Asia (especially Bangladesh, India, and Nepal) seem to be suffering from considerable gaps in life expectancy. At the same time, and in contrast to Table 2, these gaps do not appear to be much

[13] In the countries of Eastern Europe and the former Soviet Union, where females outnumber males by a considerable margin, there may be a serious issue of 'missing men'. Since a considerable portion of this problem is due to the heavy male losses during World War II, it is conceptually not clear whether those should be included in an assessment. At the same time, females in Russia and some Eastern European countries also currently have a large life expectancy advantage (mainly due to the impact of alcoholism, accidents, and violence among males), which is generating new 'missing men', in addition to those who died in World War II.

larger than in some other developing countries, such as Zambia or Iran, and are smaller than the gap in disfavor of *men* in Russia. Moreover, the observed sex-gap in life expectancy in China appears to be smaller than in most other developing countries (including many in Sub-Saharan and North Africa and West Asia), suggesting that there is comparatively little sex-bias in mortality in China, which is in stark contrast to Table 2.

What accounts for this rather disparate views on the geographic distribution of gender bias in mortality? First, there may be inaccuracies in the data. Data on life expectancy are difficult to estimate reliably in the absence of complete vital registration systems since life expectancy is very sensitive to the often underreported number of infant deaths. Thus the smaller magnitude of the gap in life expectancy data may simply be due to imprecise data. This may also be due to the fact that much of the sex-disaggregated data were estimated rather then directly measured (Srinivasan 1994b).

Secondly, the life expectancy figure reports on present conditions only, while the estimate of missing women, based on the population sex ratio, measures the cumulative impact of past and present gender inequality. The discrepancy between the two measured gaps might therefore suggest that gender bias in mortality is declining which is supported by some other evidence from mortality statistics in South Asia (Dreze and Sen, 1995).

It can, however, be asked whether it may not be preferable to also consider the impact of past gender bias in mortality in the index as it is still being felt in these societies in very powerful ways.[14] This could be done in much the same way the education index (discussed below) combines literacy which measures the impact of past and present policies, as well as school enrollment which measures only the impact of present policies.[15] Similarly, the longevity index could include a measure of missing women as a stock component and a measure of the life expectancy gap as a flow concept.[16] This would generate a more reliable indicator, be

---

[14] The female deficit has a number of important demographic and social consequences in the countries with large shares of 'missing women'. Moreover, it can be argued that it is ethically dubious to leave victims of discrimination out of consideration simply because they have died as a result of the discrimination.

[15] Literacy measures the stock of primary education, school enrollment the flow of primary, secondary, and tertiary education. To match the stocks and flows, one would ideally include a stock measure that would also include secondary and tertiary education (such as school achievement data).

[16] Calculating the number of missing women (or missing men) would be fairly straightforward for most developing countries which have quasi-stationary populations and for which the Model Life Tables could be used to compare actual and expected sex ratios (adjusted for international migration, which is important in countries of the Middle East and North Africa). For developed countries where fertility has fallen over the past decades and fluctuated

symmetrical with the treatment of education in the index, and reflect more accurately the impact of gender bias in mortality, past and present, in a society.[17]

A third reason why the gender gap in life expectancy does not conform well with the estimates of 'missing women' is that in some countries, most notably China and South Korea, the incidence of sex-selective abortions as a way to choose the sex of children has been considerable (Banister and Coale: 1994). In China, this has led to the sex-ratio at birth (the number of males divided by the number of females born) rising by more than 5 percentage points in the late 1980s and early 1990s with up to one million sex-selective abortions of females per year (Banister and Coale, op. cit.).[18] Parental attempt in China to select the sex of their children is linked with the one-child policy announced in 1976 which, combined with the desire of many Chinese to have a male heir, has induced strategies to ensure that the one child allowed will be a boy. Sex-selective abortions are not captured by the life expectancy gap since only live births are considered in the calculation.[19] The 'missing women' calculation, however, reflects the impact of these policies as it incorporates an expected (unmanipulated) sex ratio at birth in its calculation.[20]

Regardless of one's view on abortion as a woman's choice, it appears clear that sex-selective abortion to determine the sex of one's children is a form of violence against females and its impact should clearly be considered when measuring gender bias in mortality. Including an

---

considerably (with baby booms and busts) and where the demographic impact of wars is still being felt in the older cohorts, this process would be more complicated as the number of 'missing women' would have to be estimated for each cohort and then aggregated. Since the demographic information in these countries is of very high quality, this could easily be done.

[17] There is, of course, a distinction between the way literacy and 'missing women' are a stock concept: literacy measures the impact of past and present education policies on those currently alive in a country, while the 'missing women' measure would include those no longer alive as a result of discrimination. While one may argue that this is an important distinction, it should also be pointed out that there is a certain degree of injustice in excluding those that died as a result of discrimination immediately from the analysis in later years, and that a society that engaged in such discrimination has its legacy still with them.

[18] The extent of sex-selective abortions is unknown precisely (and is illegal and therefore unreported) and has to be inferred indirectly. Since part of the rise in the sex ratio at birth may be due to under-registration of females, it is difficult to tell how many of the more than 1 million missing female infants per year are undercounted and how many have died as a result of sex-selective abortions (Johannssen and Nygren , 1991).

[19] In fact, the move in China from a neglect of female infants in the early 1980s to sex-selective abortions in the late-1980s would lead to a narrowing of the gender gap in life expectancy, but can hardly be seen as an accomplishment for gender bias in mortality.

[20] Depending on overall health conditions, the sex ratio at birth fluctuated between 1.04 and 1.07. The 'missing women' calculation is based on these normal sex ratios at birth. Sex ratios at birth that are much larger than this suggest a high incidence of sex-selective abortions, and would therefore generate 'missing women' at birth. For details, see Coale (1991) and Klasen (1994b).

estimate of missing women in the estimate of gender bias in longevity would capture this recent development where gender bias in mortality has shifted to sex-selective abortions.[21]

Apart from questions about reliability of data, the education component of the GDI seems to be the least problematic of the three. The inclusion of literacy to measure the impact of past policies and enrollments to measure the impact of current efforts appropriately suggests that both matters for the well-being of a country. The inclusion of the gender gap in enrollments and achievements is straight-forward and appropriately puts heavy penalties on large gaps.

By far the most serious conceptual and empirical problems are with the earned income component, which unfortunately accounts for nearly all of the gender penalty implicit in the GDI calculation (Table 1). First, the link between the HDI measuring average achievements and the GDI adjusting this average achievement for gender gaps breaks down in the earned income component. While the income component of the HDI is a fairly reliable proxy measure of average consumption, the shares of incomes earned by males and females do not measure the gaps in consumption between males and females at the household level. Income, in contrast to education and longevity, is shared within the household, so that a low female share of earned income is not necessarily highly correlated with a low female consumption share. While it is true that the level of earned income brought by women to the household affects their share and control over the allocation of its resources, clearly they have some access to the resources even if they do not earn any income.[22] Conversely, high earned income does not always translate into high female well-being and consumption levels.[23]

---

[21] A fourth reason for the differences between Tables 2 and 1 is the assumption of a fixed five-year biological advantage enjoyed by females everywhere. It is more likely that the biological advantage women have is smaller in high mortality environments (maybe 2-3 years when overall life expectancy is at about 35), and larger in low mortality environments (up to 7 years). This would then suggest that the comparatively large gender gaps in life expectancy found in Sub-Saharan Africa are in fact much smaller as overall mortality is very high in these countries; conversely, some of the industrialized countries reporting gender gaps favoring women may actually have no bias in either direction. Given the minuscule weight of the life expectancy component in the GDI, none of this significantly affects the GDI ranking of a country.

[22] A good example for a rather poor correlation between female earned income and female consumption are some of the oil-rich Arab States (Kuwait, Saudi Arabia, UAE) that have low levels of female earned income but high levels of female consumption (and high female achievements in life expectancy).

[23] Under the Socialist regimes of Eastern Europe and the Soviet Union, women had very high labor-force participation rates and a fairly high share of earnings. Nevertheless, women were regularly expected to carry a double burden of full-time employment and housework for which they received little assistance, and suffered from labor market discrimination in a variety of forms. During the transition, however, the rapidly rising female unemployment and the reduction of women's work opportunities are very likely to have reduced their well-being in the process of their decreasing control over income resources (Klasen, 1993).

This problem is well recognized in the HDR and in the technical note (Anand and Sen 1995a). The report and the technical note suggest instead that the shares of earned income are a measure of gaps in agency which is of intrinsic significance and which is related to the shares of resources males and females receive at the household level. While this is true and, as we argue below, well-suited for inclusion in the Gender Empowerment Measure, it puts into question the conceptual underpinnings of the GDI as it is no longer obvious what it means for an overall development indicator if a proxy for average *consumption* is adjusted by gender gaps in *agency*. Moreover, by using earned income gaps to adjust average incomes, the impression is created that gaps in agency are as important as equivalent gaps in consumption, which may be debatable.

Second, the focus on inequality in imputed earnings between males and females implicitly assumes that a 50/50 split in income is necessarily the desirable state of affairs, which is debatable. Some may argue that a certain sexual division of labor is economically advantageous and socially necessary; others may argue that this is a culturally relative goal and is based on Western conception of economic and social organization.

Third, the concept of *earned* income excludes unremunerated work and reproductive labor, which is substantial in most parts of the developing world. Calling for a 50/50 split in *earnings* from economic activities, while continuing to exclude unremunerated labor in the measure, implies that unremunerated labor is and remains worthless, which is contrary to the spirit of the Human Development Reports.

In addition, there are serious questions about the particular way the earned-income share is calculated, including the assumptions made to arrive at the estimates. These are calculated by using the ratio of female to male non-agricultural wages (as a proxy for the female-male wage ratio in the total economy) to estimate the ratio of female wages to average wages and of male wages to average wages. These are then multiplied by the female and male shares of the economically active population (the labor force) to obtain the male and female shares of earned income. If these shares differ from the respective population shares, the penalty for aversion to inequality is imposed (UNDP 1995: 130-2).

The use of the non-agricultural wage-ratio with the labor-force participation data to derive the female and male shares of total earnings (from all economic activities, paid or not) is questionable for three reasons.

First, take the assumption of the average female-to-male wage in non-agricultural sectors to be the average wage-ratio for the agricultural sector as well, and the use of this ratio as a proxy for overall wage-differential by sex. Using this proxy implies a great deal of intersectoral mobility of labor, both male and female, which is hardly reconcilable with the evidence of labor-market rigidities of varying degrees among regions and sectors and skill-levels within most developing countries. The female-male wages in the formal non-agricultural sectors do not as a rule represent those in agriculture and other informal sectors, certainly not to the same extent between countries like Thailand or South Korea with about 40% of paid non-agricultural employment being female and India with only about 12%. In addition, in many Sub-Saharan African countries, the female share of employment in the formal sectors is so low that it seems quite impossible to use them to represent the entire female labor force.

Secondly, the difference between women's share of self-employment and family-employment in agriculture and other informal sectors and their share of non-agricultural wage-workers varies far more among countries than does the corresponding difference in the case of men. For women, this difference tends to be larger in the poorer countries with large proportions of peasants and artisans and non-market sectors in the workforce. To assume the wage-gap by sex in factories and companies to be similar to the remuneration-gap for work in family production and petty trading would imply that those working on own account or as helpers in family business could otherwise all -- and more or less equally too by sex --be in jobs at the prevailing non-agricultural wage rates. This is not the case in low-income agricultural countries with mobility in credit and labor markets variously constrained for women relative to men. Even if the comparison of wage-gaps were to be limited only to the low-income countries, the assumption of a uniform wage-gap would not hold beyond the educated young for whom work increasingly means wage work in or near cities.[24] The wage-gap even for casual farm labor, in

---

Incidentally, the question of sharing within the household presents problems unique to a *gender*-sensitive indicator. If one chose to include other inter-group inequalities in the assessment of human development in a country, it would be a much less severe problem as the majority of members of groups classified by race, ethnicity or class, do not mix systematically at the household level, and therefore estimates of their earnings would be a reasonably good proxy for their consumption.

[24] The estimation of the earnings-gap component of the GDI could well be used for comparisons where female wage-labor is more substantial and uniform. To compare, for example, the educated urban young cohorts in Asia. Averaged for age-groups, it could perhaps even be used for comparing between Asian cities -- between, say, Singapore, Bombay, Colombo, Bangkok. But hardly for comparing between Singapore, India, Sri Lanka, Thailand.

India for example, is found to vary between high-growth and low-growth regions and between peak and slack seasons.

Thirdly, for the majority of the GDI-ranked nations, the earned-income component actually is not based on estimation of the non-agricultural wage ratio by sex. In seventy-four countries, including the vast majority of the developing countries, for which a sex-breakdown of the wage data is not available from the ILO sources, an average female-male wage ratio of 75%, derived from the remaining 56 countries, is applied instead of a direct estimate from actual figures. The degree of uniformity thus introduced in the wage-ratio across countries at various levels of development and employment structure means that the wide variations in the female share of the labor force dominate the inter-country picture regarding gender disparity in earnings. Why not then use just the data on sex-disparity in labor-force participation for the purpose of inter-country comparisons, rather than adding this uniform assumed ratio that is unlikely to hold true in reality in most of the countries?

An examination of the large body of GDI exercises already done with Indian data for the purpose of inter-state comparisons shows the additional problem of differences in definition of labor force participation and earnings (Prabhu et al, 1996). For quite a few states major variations appears in the ranking by the gender-gap in earned incomes and by the overall GDI depending on the measures of females work participation and wage rates used. In the case of Gujarat, for example, the female work participation ranges between 14% and 30% depending on whether one uses the census definition of main workers of the National Sample Survey measure of principal plus subsidiary workers. The high incidence of marginal workers causes the state's **[GDI or gender gap in earned income?]** to improve from 6 to 2 when the latter is used; Maharashtra shows the least gender disparity in income using census data whereas with the NSS it gets the third rank; Tamil Nadu ranks second of the census WPR data and the average agricultural wage data of the ministry of agriculture are used; use of the NSS data lowers the state's rank to 6 or 7 depending on whether the agricultural wage rates relate to regular of casual workers; correspondingly, Haryana's rank goes up from 7 to 2 or 1 (Prabhu et al., 1996, ES-77). Such relative variations in the ranking underscore a severe problem with the imprecision and variability of the definitions of labour force participation and earnings. Reliance on published official statistics as done in the GDI are often based on differing definitions and caution is needed in interpreting these differences.

Apart from these problems relating to the individual components, there is a question as to the relative weights given to gender bias in the three components. As mentioned in section 2, an important factor for the dominance of the earned income component in the gender penalty of the GDI are the much larger observed sex-gaps in earned income (or in labor-force participation), compared to the smaller gaps in education, and the even smaller gaps in life expectancy. By applying the same aversion-to-inequality factor of 2 to the gaps in all three components, the observed gaps are penalized in accordance with the magnitudes of measurement unit. Should they?

While it is obviously very difficult to assess the relative importance of a gender gap in education or longevity vis-à-vis a gender gap in earned income, some observations may be in order.[25] First, small gaps in longevity have considerable substantive importance. If gender inequality led to a drop in female life expectancy by one year, this would, in a typical developing country, lead to an increase in the female crude death rate by 3.9%.[26] In a country like India, with about 20 million births a year, it would lead to an increase of female infant deaths of 98,000 alone, in addition to higher rates of deaths in all other age groups. This suggests that even a small gap in life expectancy has as its consequence a considerable human toll and it is debatable whether such a gap is of the same severity as a 2/3 percentage point difference in earned income in a country (which would receive the same penalty in the GDI as a one year gap in life expectancy).

Another way to illustrate the implications of the equal penalties applied to all three components is to consider the following scenario. The maximum penalty applied for gaps in earned income (applied in Qatar where females are earning only 5.3% of total income) would, if they existed in the longevity component, be applied to a country where there was a 54 year gap in longevity between males and females (i.e. a male life expectancy of 82 and a female life expectancy of 33, or a female life expectancy of 82 and a male life expectancy of 23). This would mean a female death rate of 8 times that of males (or vice versa). It seems difficult to argue that Qatar suffers from the disparity of earnings opportunities to the extent

---

[25] Such an assessment would have to spell out the intrinsic and instrumental importance of each of those indicators, express them in a cardinal form, and then assess the impact of certain gaps on well-being. This is beyond the scope of the present analysis.

[26] The assumptions used are: a stationary population conforming to the Model Life Tables West (Coale, Demeny, and Vaughan, 1983), with life expectancy of 50 years, and a population growth rate of 2%.

they would if women had an 8-times higher mortality rate then men. Clearly, the weight the earned-income component receives, compared to the other two components, especially life expectancy, is much higher than is justified.

Thus the GDI is faced with three serious short-comings that make the index deeply problematic. First, it ignores the impact of past (and present pre-natal) discrimination in mortality by concentrating on the life expectancy measure. Second, the overwhelming earned-income component is deeply problematic, both conceptually as well as in its estimation procedure. And finally, the overall assessment ends up neglecting the life expectancy measure completely, and the education measure largely, by giving too little weight in the assessment of the inequality penalty, which is contrary to the reality of large and highly consequential gender gaps in these two measures.

One implication of these is that we should discount the results arrived at by the problematic methods. In particular, the concentration of the gender penalty in the Middle East and North Africa, largely driven by the problematic earned income component, is questionable, given the importance of large gaps in longevity and education in other parts of the world, most notably South Asia. There is reason to doubt that the impact of gender inequality in Saudi Arabia on human development is, in percentage terms, twelve times larger than in China, three times larger than in India, and four times larger than in Bangladesh.

Several remedies to the more serious problems suggest themselves. First, it may be best to drop the earned income component from the assessment due to its severe conceptual and practical problems.[27] If it is to remain, one would have to consider ways to look at some measure of consumption by sex, as more relevant to well-being, rather than focus only on the earned income or the labor-force participation. At the very least, attempt should be made, consistently with the perspective of the HDRs, to include women's non-market work (including domestic/reproductive work) in laborforce participation, whose extent is usually far greater in poorer and less commercialized contexts.

---

[27] That would obviously reduce the conceptually elegant parallels and comparisons with the HDI with uses average income in its assessment. One way to still be able to compare results would be to calculate a HDI without the income component and then compare it to a GDI only including the longevity and education components to see the impact of gender inequality on human development in a country.

Secondly, the weight of the longevity and the education components must be increased to insure that countries are indeed penalized for any large gap in these areas. One simple procedure would be to increase the aversion-to-inequality factor applied for these two components, with the option of increasing the penalty in the longevity component more than the education component.[28]

Thirdly, the longevity component should include a stock measure such as of 'missing women' in such a way that it penalizes countries for large shares of missing women to at least the same extent it penalizes countries for large education disparities.

4. The Gender Empowerment Measure

The Gender Empowerment Measure (GEM) of the UNDP is conceptually very different from the GDI. Instead of focusing on the impact of gender inequality in human development, the GEM measures the extent to which women have gained economic and political power. It thus attempts to measure not their achievement in well-being, but their roles as *agents* in society.

It contains three elements comparing male and female shares, the gaps adjusted by the 'aversion to inequality' factor (implying that 50/50 shares should be the goal in all three).[29] These are: the share of parliamentary seats;[30] the share of administrative, professional, technical, and managerial positions; and the share of earned income similar to that used for the GDI.[31] It thus attempts to indicate women's participation in governmental and managerial decision-making and professional roles, and in economic activities generally. This may be of importance for

---

[28] An easy way to increase the weight of the life expectancy component would be to reduce the range of possible life expectancies from presently 60 years to, say, 35 years (42.5 to 87.5 years for women, and 37.5 to 82.5 years for men) which would still then include the entire range of observed life expectancies. This way the same life expectancy gaps (of -7 to +6 years) would be larger in percentage terms (as they are divided by the maximum possible gap), leading to a higher penalty for them. Another way to deal with the weighting issue is to simply assume that the maximum observed gap in each component should receive the same penalty and adjust the aversion-to-inequality factor accordingly. While this may also be seen as arbitrary, it would avoid the problematic results of the unjustified preponderance of one component in the index owing to massive differences in measurement of observed gaps.

[29] The first two components are different from those in the GDI as they measure not absolute achievements (e.g. longevity and schooling) but gender shares which, by definition, add up to 100%. Therefore, in the calculation of the GEM, there is no achievement element that is considered, only the gaps in the shares.

[30] The UNDP acknowledges a broader measure including regional and local parliaments and governments to be preferable, but data limitations force it to use this rather limited indicator (UNDP 1995: 82).

[31] In contrast to the GDI, the GEM uses unadjusted income which ranges from $100 to $40,000 rather than mapping this unadjusted income by the concave function used for both the GDI and HDI. The justification provided is that the GEM measures income as an empowerment tool while the GDI measures income as a development tool (UNDP 1995: 82).

several reasons. First, it is a measure of economic and political opportunities open to women, which may be of considerable intrinsic importance. Secondly, it may be that women are more effective promoters of their own cause. If that were the case (which may be debatable in some circumstances[32]), then greater economic and political power for women may be an effective way to reduce other gender inequalities in society. And finally, it can be argued that a society that neglects the economic and political potential of half its population is likely to perform worse than a society that draws on all its best talent, regardless of gender.

Table 2 shows the HDI, GDI, and GEM and its components for a sample of countries. As all three components are based on a scale of 1-100 and since the variance of the three components does not differ greatly, the GEM avoids some of the problems of the GDI. In particular and in contrast to the GDI, there is no component that enjoys such overriding importance as the earned income component has in the GDI. Moreover, the use of the gender gaps in earned income to adjust average income appears much less problematic conceptually here than in the GDI, as the GEM is designed to measure female agency (rather than overall development as the GDI) and economic power as measured by earned income shares is clearly an important aspect of agency.[33]

---

[32] For example, as Sen (1990) argues, women may be the agents 'conspiring' to lower their own welfare through putting the welfare of the other family members before their own. Besides, the impressive number of female heads of state and prime ministers in South Asia in recent decades (largely owing to relationship with politically powerful males) seems to have had little effect on women's empowerment at mass level.

[33] At the same time, the data issues and the assumptions made to calculate the index are the same as those mentioned above.

Table 2: GEM and its Components in Selected Countries

	HDI	GDI	GEM	GEM-HDI	GEM-GDI	Female Shares in: National Parliament	Administrators and Managers	Prof. and Tech Employees	Earned Income
Sweden	0.929	0.919	0.757	-18.5%	-17.6%	33.5	38.9	63.3	41.6
USA	0.937	0.901	0.623	-33.5%	-30.9%	10.3	40.2	50.8	34.6
Cuba	0.726	0.769	0.524	-27.8%	-31.9%	22.8	18.5	47.8	27.2
China	0.594	0.578	0.474	-20.2%	-18.0%	21.0	11.6	45.1	31.2
Japan	0.937	0.896	0.442	-52.8%	-50.7%	6.7	8.0	42.0	33.5
Poland	0.855	0.838	0.432	-49.5%	-48.4%	13.0	15.6	60.4	39.3
Botswana	0.696	0.763	0.407	-41.5%	-46.7%	5.0	36.1	61.4	28.5
Mexico	0.842	0.741	0.399	-52.6%	-46.2%	7.3	19.4	43.2	22.3
Thailand	0.827	0.798	0.373	-54.9%	-53.3%	3.7	22.2	52.7	34.6
Indonesia	0.637	0.591	0.362	-43.2%	-38.7%	12.2	6.6	40.8	25.3
Brazil	0.804	0.709	0.358	-55.5%	-49.5%	5.5	17.3	57.2	22.9
Bangladesh	0.364	0.334	0.287	-21.2%	-14.1%	10.3	5.1	23.1	22.8
Syria	0.571	0.761	0.285	-50.1%	-62.5%	8.4	5.6	26.4	11.3
Algeria	0.732	0.508	0.266	-63.7%	-47.6%	6.7	5.9	27.6	7.5
South Korea	0.78	0.882	0.255	-67.3%	-71.1%	1.0	4.1	42.5	22.0
Iran	0.77	0.611	0.237	-69.2%	-61.2%	3.5	3.5	32.6	14.9
Egypt	0.613	0.453	0.237	-61.3%	-47.7%	2.2	10.4	28.3	8.2
India	0.439	0.401	0.226	-48.5%	-43.6%	7.3	2.3	20.5	19.2
Nigeria	0.406	0.383	0.198	-51.2%	-48.3%	2.1	5.5	26.0	28.5
Pakistan	0.483	0.36	0.153	-68.3%	-57.5%	1.6	2.9	18.4	10.2

Source UNDP (1995).

While there is some correlation between the GEM and the HDI as well as between the GEM and the GDI, the correlation is not very close. In Sweden, the GEM is 18% lower than the HDI, while in Iran it is nearly 70% lower than its HDI. In South Korea, the GEM is 71% lower than the GDI, mostly due to its minuscule female membership of the parliament and small female share of administrators and managers.

While the GEM clearly captures some important aspects of female agency, it is questionable how well the GEM measure at present fully captures economic and political power held by women and their roles in the development process. Apart from the problems noted earlier with the earnings-gap indicator in inter-country comparison, and with the weighting and averaging procedures, the choice of the other two indicators suffers from two weaknesses.

One arises from the problem of lack of power of parliaments in some of the cases, thereby making it difficult to interpret the share of female political representation. As seen in Table 2, two of the countries with high shares of female representation in parliament are China and Cuba. In

both cases, parliaments have little say and the higher GEM ranking as a result of this is therefore not reflecting actual political power for women.[34]

The other weakness is that it focuses too much on representation at the national government level and in the formal sectors of the economy. It thus misses much of the participation and involvement of women at local political and administrative levels, in grassroots mobilization at the community level (whether within political parties or outside of them), and in the many NGOs active in development -- in the range of participatory and network-articulatory processes. This omission is not only of academic significance, but may also have practical repercussions, given the likelihood that a country's GEM ranking will catch attention internationally and hence generate battles internally. A less lop-sided notion of women's agency could therefore help focus policies and politics more adequately on the issues of female empowerment at all levels of development-related decisionmaking.

For instance, in India an important political-economic process that has been gaining real strength in some areas is the institution a decade ago of 30% female share of seats in village councils known as *panchayat* through seat reservation and election. This arguably can mean more, not less, in terms of women's empowerment and agency than a similar quota reservation of parliamentary seats as proposed by the recent constitutional amendment bill.[35] Eventual passage of this constitutional amendment to reserve parliamentary seats for women would, no doubt, boost India's GEM ranking as defined, and that itself would serve to propel it politically, while the importance of increased level of activity of village women in the local decision-making

---

[34] Under the communist regimes, Eastern European parliaments (though not the all-powerful politburos!) had among the highest levels of female representatives. Since these parliaments had effectively no power, this was of little meaning. The irony of history is that as soon as parliaments took on a more powerful role in the transition, the share of women in the formerly communist countries dropped sharply (Klasen, 1993b).

[35] For a realpolitik critique of the proposed reservation of seats in national parliament and state legislative assemblies in India, see Kishwar (1996), a noted feminist, activist, social scientist. "Parties who are sincerely interested in seeing women take an active part in politics ought to begin by activating their women's fronts at all levels, and by recruiting more women at the decision-making levels in their respective parties. So far they have shown no inclination or preparation to do so. . . . Similarly, women's organizations who have been the prime lobby for more seats for women in parliament, legislative assemblies, etc., have to work to ensure that women join various political parties in large numbers and develop their own constituencies by building alliances with other sections of society rather than waiting for reservations to give them automatic entry. . . . [It] is like demanding . . . the equivalent of a 'zanana dabba' in every train. Men then get very upset if women occupy seats not reserved for them . . . . The present scheme of reservation will ensure that women will enter the electoral battle only against other women . . . , a sure way to perpetually ghettoize women's politics." (op. cit., 2871-2).

bodies, directly accountable to the local communities, does not at all get reflected in the GEM as it is constituted at present.

In various forms, women's community-level empowerment and organization are increasingly taking place in the development processes, generating what is widely viewed as a major new participatory resource of considerable potential in a context of gender-related policymaking. Such organization of poor and disadvantaged groups has often helped, and been helped by, solidaristic activism cutting across class and ethnic lines. In the best of the cases, it has helped generate the much-needed skills of collective bargaining, insurance for economic survival, the means to develop human and entrepreneurial resources against poverty and oppression, and the networks of participatory groups to politically demand and safeguard their basic needs, networks in the absence of which even well-intentioned policy from the top tends to founder in implementation. These grass-roots forms of women's emergence in varying degrees in developing countries, which often prove to be empowering as well as human resource augmenting and both the individual and social levels, seem to be quite left out of the UNDP's GEM as it is now. Finding ways to take them into account would track more adequately the real extent of women's socio-political agency at the levels of communities and nations.

A somewhat related criticism of the present GEM is that in assessing economic empowerment, it concentrates too much on income earning, ignoring even the available indicators of access to work-related facilities that are of crucial importance for the female working poor. Access to institutional credit is one such thing, (including collateral-substituting innovations to overcome women's credit-market disadvantages). Access to production and marketing information is another. Access to childcare (especially positive effects on not only the quality of women's labor-force participation, but also the schooling of their daughters (Bardhan and Klasen, 1997)), and access to cooking fuel and potable water has similar feedback effects on both quality of work and health through reduced caloric drain in collecting these.

5. Conclusion

Clearly, the 1995 HDR has succeeded in stimulating the debate on gender inequality and its measurement. The introduction of two measures to rank countries by gender inequality in human development and economic-political empowerment of women has been an important

element in this effort. It is hoped that the momentum achieved in the discussion of gender inequality in human development will be maintained.

However, the measures unfortunately do not adequately capture the existing gender biases and their impact on human development. The GDI suffers from a range of flaws in its design as well as in its practical application. The GEM, while avoiding some of the problems of the GDI, is too narrowly focused on the formal economy and national political structures and thereby neglects many important facets of (actual and potential) female empowerment at the local institutional levels and in the grass-roots organizational forms.

In this paper, we have attempted to highlight the problems with the current measures and suggest certain steps to improve them, feasible with existing data sets and/or information not too hard to compile. We believe that these measures, if suitably adjusted, could be an important element in a strategy to monitor progress in the gender dimension of human development and in women's economic and political empowerment.

References

Anand, S. and Amartya Sen. 1995a. "Computing Gender-Equity-Sensitive Indicators," in *UNDP: Human Development Report 1995*. New York: Oxford University Press.

------. 1995b. *Gender Inequality in Human Development: Theories and Measurement*. Human Development Report Office Occasional Paper No. 19. New York: UNDP.

Atkinson, A.B. 1970. "On the Measurement of Inequality." *Journal of Economic Theory* 2:244-63.

Banister, J. and A. Coale. 1994. "Five Decades of Missing Females in China," *Demography* 31: 459-479.

Bardhan, K. 1985, 1986. "Women's Work, Welfare and Status: Forces of Tradition and Change in India," *Economic and Political Weekly*, 20 (51-2) 1985 (Bombay). A shorter version of this paper was published in *South Asia Bulletin*, 6 (1), 1986: 3-16.

------ and S. Klasen. 1997. "Gender in Emerging Asia," for the Asian Development Bank.

-------. 1992. "Women and Feminism in a Stratified Society," in S. Sutherland (ed), *Bridging Worlds: Studies on Women in South Asia.* Oxford University Press (Delhi, New York).

Bos, E. et al. 1994. *World Population Projections,* 1994-95 Edition. Baltimore: John's Hopkins University Press.

Coale, A. 1991. "Excess Female Mortality and the Balance of the Sexes: An Estimate of the Number of Missing Females," *Population and Development Review* 17: 517-523.

------, P. Demeny, and B. Vaughan. 1983. *Regional Model Life Tables and Stable Populations.* Princeton: Princeton University Press.

Dreze, J, and A. Sen. 1995. *India Economic Development and Social Opportunity*. Delhi: Oxford Univer Press.

Johannson, S. Ryan. 1991. "Welfare, Mortality, and Gender." *Continuity and Change* 2.

Johannson , S. and O. Nygren. "The Missing Girls of China: A New Demographic Account," *Population and Development Review* 17: 35-51.

Kelley, A.C. 1991. "The Human Development Index: Handle with Care." *Population and Development Review* 17:315-324.

Kishor, S. "May God Give Sons to All: Gender and Child Mortality in India," *American Sociological Review*, 58: 247-265.

Kishwar, M. "Women and Politics: Beyond Quotas," *Economic and Political Weekly*, Oct 26, 1996: 2867-74.

Klasen, S. 1994a. " Growth and Well-Being: Introducing Distribution-Weighted Growth Rates to

Reevaluate US Postwar Economic Performance." Review of Income and Wealth 40: 251-272.

------. 1994b. "Missing Women Reconsidered," *World Development* 22: 1061-1071.

------. 1993. "Human Development and Women's Lives in a Restructured Eastern Bloc: Lessons from the developing World," in Schipke, A. and A. Taylor: *The Economics of Transition: Theory and Practise in the New Market Economies*. Berlin: Springer.

Morris, M.D. 1979. *Measuring the Condition of the World's Poor: The Physical Quality of Life Index*. New York: Pergamon.

Prabhu, K. Seeta, P.C. Sarkar, and A. Radha. 1996. "Gender-related Development Index for Indian States: Methodological Issues," *Economic and Political Weekly*, 31 (43): WS 72-9.

Ravallion, M. *Good and Bad Growth: The 1996 Human Development Report.* Mimeographed. Washington, DC: The World Bank, 1996.

Sen, A.K. 1992. *Inequality Reexamined.* Cambridge: Harvard University Press.

------. 1990. "Gender and Cooperative Conflicts" in Tinker I (ed.) *Persistent Inequalities.* New York: Oxford University Press.

------. 1989. "Women's Survival as a Development Problem," *Bulletin of the American Academy of Arts and Sciences* 43-14-29.

------. *Commodities and Capabilities.* Amsterdam: North-Holland, 1985.

Srinivasan, T.N. 1994a. "Human Development: A Paradigm or Reinvention of the Wheel?" *American Economic Review* 84: 238-243.

-------. 1994b. "Data Bases for Development Analysis: An Overview" *Journal of Development Economics* 44:1, 3-28.

Stewart, F. 1985. *Planning to Meet Basic Needs.* London: Macmillan.

Streeten, P. et al. 1981. *First Things First: Meeting Basic Needs in Developing Countries.* London: Oxford University Press.

UN. 1979, 1991. *Demographic Yearbook 1977, 1989.* New York: United Nations.

-------. *The World Women 1970-1990.* New York: Oxford University Press, 1992.

UNDP. 1995, 1996. *Human Development Report 1995, 1996.* New York: Oxford University Press.

Waldron, I. 1983. "The Role of Genetic and Biological Factors in Sex Differences in Mortality," in Lopez, A. and L. Ruzsicka (eds.) *Sex Differentials in Mortality.* Canberra: Australian National University Press.