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TRAINING MATERIAL FOR PRODUCING NATIONAL HUMAN DEVELOPMENT REPORTS

The Gender Inequality Index (GII)[1]

Purpose: To measure inequality in achievements between women and men.

Components: Five indicators belonging to three dimensions: women's reproductive health, empowerment, and labour market participation.

Versions of the Gender Inequality Index (GII):

1. **Gender Inequality Index:** The GII compares the situation of women and men between countries in the dimensions of labour market participation, empowerment, and reproductive health. The global GII was first presented in the *Human Development Report* (*HDR*) 2010, using the method described here.

2. **Regional or national GIIs:** The GII may be adapted to national realities by applying the same functional form but using components that are particularly relevant, as well as technically appropriate.

[1] This chapter was written by Suman Seth and was compiled with information from a range of *Human Development Report*s and other publications by UNDP. Input was gratefully received from Sabina Alkire, Melissa Friedman, Gisela Robles Aguilar, Sarah Valenti, Joanne Tomkinson and Diego Zavaleta and others at HDRO including Amie Gaye and Tim Scott.

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GII: CONTENTS

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1. OVERVIEW

Gender equity is an essential and widely recognized international policy goal because of its intrinsic and instrumental value. It is clearly important as an end in itself and also is a means to the attainment of other development goals such as the nourishment and educational achievements of children.

The disadvantages facing women and girls are significant, and human development should identify and confront these disadvantages. All too often, women and girls are discriminated against in health, education and the labour market—with negative repercussions for their freedoms and capabilities, and for their society's human development.

The global Gender Inequality Index (GII) —built on the same framework as the Human Development Index (HDI) and the Inequality-adjusted Human Development Index (IHDI)—was released in 2010. It measures inequalities in achievements between women and men across three dimensions of human development: reproductive health, empowerment and the labour market. The GII can be used for international comparisons (the global GII), as presented in the 2010 *Human Development Report* (*HDR*). Like the HDI, the global GII's chosen indicators are deeply affected by data limitations, but more accurate national GIIs can be developed using richer data sources (more on this below).

The global GII provides insights into gender disparities in reproductive health, empowerment and the labour market in over 135 countries. It can enable governments and others better understand and promote gender equality. The GII can be used to raise awareness of disparities, track progress towards gender equity and support public action.

2. COMPONENTS OF THE GLOBAL GII

The global GII has three dimensions: reproductive health, empowerment and labour market participation. The reproductive health dimension is measured by two indicators: the maternal mortality ratio and the adolescent fertility rate. The empowerment dimension is also measured by two indicators: the share of parliamentary seats held by each sex, and secondary and higher education attainment levels. The labour dimension is measured by women's labour force participation rate. Table 1 lists the dimensions and indicators of the global GII.

Table 1. Components of the global GII

Dimension	Indicator
Women's Reproductive Health	Maternal mortality ratio (MMR)
	Adolescent fertility rate (AFR)
Empowerment	Share of parliamentary seats held by each sex (PR)
	Attainment at secondary and higher education (SE)

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Labour Market Participation	Labour market participation rate (LFPR)

2.1 Women's reproductive health

The reproductive health dimension is measured by two indicators: the maternal mortality ratio and the adolescent fertility rate. These indicators are used because the degree to which a society prioritizes the well-being of women during childbirth is intrinsically important, and is also a clear signal of women's status in society. In many countries around the world, the risk of death in childbirth could be significantly reduced through the provision of basic education, contraceptives, antenatal health services and skilled birth attendance. Adolescent childbearing tends to prevent young women from achieving higher levels of education, which is necessary for success in the labour market and accessing other life opportunities. Early childbirth also poses significant health risks for the mother and her baby. Some studies suggest that because their bodies are not yet fully developed, teenage mothers' risk of death in childbirth is five times higher.[2]

2.2 Empowerment

The empowerment dimension is also measured by two indicators: the share of parliamentary seats held by each sex, and the percentages of men and women who are 25 years and above and have secondary or higher levels of educational attainment. Women have traditionally been disadvantaged in the political arena at all levels of government. Estimates for parliamentary representation at the national level reflect women's visibility in political leadership and society more generally, and the extent to which women hold high offices. In turn, higher levels of educational attainment expand women's freedoms by strengthening their capacity to question, reflect and act, and also to access information. Educated women are more likely to enjoy meaningful work, to use their voices in public debate, to be able to care for their own health and that of their family, and to act as agents throughout society. We use secondary and higher educational attainment because disparities in these levels strongly affect women's career and leadership prospects.

2.3 Labour market participation

The labour dimension is measured by the labour force participation rate of women and men. Women may not participate in the labour market for several reasons, including exclusion, unequal pay and incentives, household duties or caring for relatives, and pregnancy and childcare. Thus, the level of women's participation reflects several aspects, including possibilities and permission to work, which in turn includes labour market opportunities, and the capability of women to combine productive work with duties of care and reproductive responsibilities. Clearly this is affected also by men's complementary activities in the household.

2.4 Data sources

The GII relies on data from the following publicly available databases:

- The maternal mortality ratio from UNICEF's *The State of the World's Children*
- Adolescent fertility rates from the UN Department of Economic and Social Affair's *World Population Prospects*

[2] Rowbottom. (2007)

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- Educational attainment statistics from Barro and Lee (2010) datasets
- Parliamentary representation statistics from the International Parliamentary Union
- Labour market participation statistics from the International Labour Organization's LABORSTA database.

Data from the above sources, compiled by country, can be accessed through the International Human Development Indicators website at: http://*HDR*.undp.org/en/data/profiles/.

3. MEASUREMENT

3.1 Calculating the GII

The computation of the global GII is based on the association-sensitive welfare measure proposed by Seth (2009). This welfare index first aggregates the achievements of each gender across three dimensions using a **geometric mean.** The geometric means for women and men are then aggregated using a **harmonic mean** (for an explanation of "geometric" and "harmonic" means, see box 1). This type of aggregation makes the welfare index, and thus the GII, sensitive to associations between dimensions as you will see.

Box 1. The geometric mean and the GII

The GII is based on the principle that both inequality between dimensions and inequality between genders should be penalised. For this reason the GII is based on the mathematical formulation of the general mean of general means of different orders. [3] First, we apply the geometric mean to penalise inequality across dimensions. Second, we use the harmonic mean to penalise *even more* the inequality between genders. Both the geometric mean and the harmonic mean are special cases of the class of general means as formulated below. For example, for any three values x_1, x_2 and x_3, the general mean may be defined as follows:

$$M_\rho(x_1,x_2,x_3)=(x_1^\rho+x_2^\rho+x_3^\rho)^{1/\rho} \text{ if } \rho\neq 0 \quad (x_1\times x_2\times x_3)^{1/3} \text{ if } \rho=0.$$

.

If $\rho=1$, then the general mean is the arithmetic mean or the simple average of the three values. The arithmetic mean for three variables is denoted by $M_1=(x_1+x_2+x_3)/3$. When $\rho=0$, the general mean is called the geometric mean, and it is a special case. A geometric mean puts higher emphasis on lower values in producing the average, and thus the result is less than the arithmetic mean. A geometric mean for three variables is denoted by $M_0=(x_1\times x_2\times x_3)^{1/3}$. When $\rho=-1$, the general mean is called the harmonic mean. It emphasizes lower values even more than the arithmetic mean and geometric mean. A harmonic mean for three variables is denoted by $M_{-1}=([x_1^{-1}+x_2^{-1}+x_3^{-1}]/3)^{-1}$. When there is no inequality between the three values ($x_1=x_2=x_3$), then the arithmetic, geometric and harmonic means are all equal to each other. Note that this method and these formulae apply to any number of values—we have considered an example using three values above, but any number of values greater than one can be aggregated in this way.

3.2 Computing the GII: Step-by-step

There are five steps to computing the GII. The GII uses available indices. Unlike HDI and IHDI it does not create normalized indices. For both of the **women's reproductive health** indicators - the

[3] The notion of a general mean is used in the Atkinson inequality index to compute the equally distributed equivalent and is also used in the formulations of HDI and IHDI since 2010. See the "Training Material for Producing National Development Reports: Inequality-adjusted Human Development Index" chapter of this primer, box 1 for a discussion on the Atkinson Inequality Index.

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maternal mortality rate (MMR) and the average fertility rate (AFR) - an inverse of each indicator is taken. An inverse of a number is equal to one divided by that number. An inverse of a number decreases as the number increases. In this chapter, we sometime denote the inverse of a number x by the notation x^{-1}, where $x^{-1}=1/x$. Given that a higher value of the MMR or the AFR indicates a worse health outcome, the inverses of both indicators are used while constructing the GII. The rest of the three indicators, share of parliamentary seats held (PR), attainment at secondary and higher education (SE) and labour market participation rate (LFPR), are already available in percentage terms, and thus are automatically normalized between zero and hundred.

Step 1. **Treating zeros and extreme values.**

The geometric mean cannot take zero values and is also sensitive to the lower bound. In national or regional-level GIIs, any recoding of low and zero values must be justified conceptually and be subject to sensitivity tests. In the global GII the data are treated as follows:

The maternal mortality ratio is truncated symmetrically at 10 (minimum) and at 1,000 (maximum). The maximum of 1,000 is based on the normative assumption that countries where the maternal mortality ratio exceeds 1,000 are not different in their ability to create conditions that support for maternal health. Similarly, it is assumed that countries with 1–10 deaths per 100,000 births are essentially performing at the same level. Finally, the female parliamentary representation of countries reporting 0 per cent is coded as 0.1 per cent.

Step 2. Constructing dimension indices

In the second stage of constructing the GII, the indictors are first aggregated to construct three dimension indices for each group. These three indices are then aggregated using a **geometric mean** to obtain an overall index for each gender.

For women and children, the **reproductive health index** is equal to $1/MMR \times 1/AFR$. Note that the higher values of both MMR and AFR imply worse health conditions for women and girls. Using the inverse of MMR and AFR ensures that the overall reproductive health index is increasing as reproductive health improves for women and girls.

The **empowerment index** for women is equal to $PR \times SE$. Note that, unlike in the previous situation for reproductive health, higher values in PR and SE imply higher empowerment for women.

Finally, higher values of $LFPR$ implies better **labour force participation** for women. The calculations of the empowerment index and the labour market participation index for men are the same as women, but men obviously do not experience reproductive health. So for this dimension, a value of 1 is attributed to all men.

Thus, aggregating across dimensions within each gender group, using **geometric means**, the aggregation formula of the overall index for women is:

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$$=31/\times 1/\times\times\times\times$$

And, the aggregation formula of the overall index for men is:

$$=31\times\times\times\times.$$

Step 3. Aggregating across genders, using a harmonic mean

The female and male indices are then aggregated using the harmonic mean to create the 'equally distributed gender inequality index'.

$$, =21+1=1+12-1=-1+-12-1.$$

Using the harmonic mean of the two geometric means (for women and men) captures the inequality between the two groups and adjusts for association between dimensions.

Step 4. Calculating the geometric mean of the arithmetic means for each indicator

The reference standard for computing inequality is obtained by aggregating female and male indices using equal weights (thus treating the genders equally) and then aggregating the indices across dimensions. The average achievements in three dimensions are denoted by , , and , respectively.

Thus, the geometric mean of these three averages is:

$$,=3\times\times$$

where,

$$=1/\times1/+1/2$$

$$=\times+\times/2$$ and

$$=(+)/2$$

Note that *health* should not be interpreted as an average of corresponding female and male indices but as half the distance from the norms established for the reproductive health indicators—fewer maternal deaths and fewer adolescent pregnancies.

Step 5. Calculating the GII

The GII is equal to one minus the ratio of the harmonic mean ($(,)$) to the geometric mean of arithmetic means ($,$), introduced above:

$$\text{GII}= 1-, ,.$$

[4] Note that 1 and 1 are the inverse of and , respectively, as first mentioned at the beginning of section 3.2.

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3.3 Example

In this section, the GII is calculated for two countries: Ecuador and the Dominican Republic. The achievements of men and women of these two countries are summarized in the table below.

Table 2. Achievements of men and women – Ecuador and Dominican Republic

Country	Gender	MMR	AFR	PR	SE	LFPR
Ecuador	Female	210	82.8	25.0%	44.2%	48.1%
	Male	-	-	75.0%	45.8%	79.2%
Dominican Republic	Female	150	108.7	17.1%	49.7%	54.6%
	Male	-	-	82.9%	41.8%	83.6%

First, we calculate the three dimension indices:

1. The **reproductive health index** of women for both countries:
   Ecuador's reproductive health index: $1/MMR \times 1/AFR = 1/210 \times 1/82.8 = 0.0076$.
   The Dominican Republic's reproductive health index: $1/150 \times 1/108.7 = 0.0078$.

2. Then the **empowerment index** of women for both countries:
   Ecuador's empowerment index: $0.25 \times 0.442 = 0.332$
   The Dominican Republic's empowerment index: $0.171 \times 0.497 = 0.293$

3. Finally, the **labour market participation index** of women for both countries:
   Ecuador's labour market participation index: 0.481
   The Dominican Republic's labour market participation index: 0.546

Next, we need to perform the same calculations for men in both countries. The empowerment and labour market participation indices are calculated in the same way for men and women. In the reproductive health dimension, men are attributed a score equal to one.

Then, we need to aggregate the achievements by geometric mean to obtain the overall achievement for each gender. For females we use the formulation:

$$=3\sqrt{1/MMR \times 1/AFR \times \quad \times \quad \times \quad}$$

And for males we use the formulation:

$$=\sqrt{3}1 \times \quad \times \quad \times \quad .$$

Ecuador therefore is:

Female: $\sqrt{3}0.0076 \times 0.25 \times 0.442 \times 0.481 = 0.107$

Male: $\sqrt{3}1 \times 0.75 \times 0.458 \times 0.792 = 0.774$

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The Dominican Republic meanwhile is:

Female: $30.0078\times0.171\times0.497\times0.546=0.108$

Male: $31\times0.829\times0.418\times0.836=0.790$

Next, we aggregate across gender groups, using a harmonic mean $\square\square\square$, $\square\square=2/1\square\square+1\square\square$

Ecuador: $210.107+10.774=0.188$

The Dominican Republic: $210.108+10.790=0.190$

Now, we calculate the geometric mean of the arithmetic means for each indicator:

Ecuador:

$\square=1/MMR\times1/AFR+12=(0.0076+1)/2=0.504$

$\square=\square\square\square\times\square\square\square+\square\square\square\times\square\square\square/2=0.459$

$\square=(\square\square\square\square\square\square+\square\square\square\square\square\square)/2=0.636$

The Dominican Republic:

$\square=1/MMR\times1/AFR+12=(0.0078+1)/2=0.504$

$\square=\square\square\square\times\square\square\square+\square\square\square\times\square\square\square/2=0.440$

$\square=(\square\square\square\square\square\square+\square\square\square\square\square\square)/2=0.690$

We then calculate the geometric mean of arithmetic mean $\square\square,\square=3\square\times\square\times\square$

Ecuador: $30.504\times0.459\times0.636=0.528$

The Dominican Republic: $30.504\cdot0.440\cdot0.690=0.535$

Finally, we calculate the GII $=1-\square(\square\square,\square\square)\square\square,\square$

Ecuador: $1-0.1880.528=0.645$

The Dominican Republic: $1-0.1900.535=0.646$

3.4 Interpreting GII results

The GII is designed to capture the inequality in achievements across genders using three important dimensions of human development. It is assumed that, for a country, the maximum ideal human

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development is achieved for a given set of achievements whenever they are equally distributed across genders. The GII of a country is interpreted therefore as the **loss** in human development due to the unequal distribution in the GII achievements between men and women as a percentage of the maximum ideal human development. This interpretation of the GII is analogous to the interpretation of the IHDI. However, note that since the GII is based on three different dimensions than those used for the HDI, it cannot be interpreted as the **loss in HDI** due to gender inequality (see below for a detailed explanation of the differences between both indices).

4. POTENTIAL INNOVATIONS

As stated above, the GII can be used for international comparisons (the global GII) or adapted for regional or national level exercises, in a similar way to other well-being, inequality or poverty measures. Both global and national level exercises are extremely valuable in obtaining different—but complementary—information.

The global GII has been designed for international comparability and thus its dimensions and indicators are fixed across countries. This is useful because it enables comparison between genders in a country vis-à-vis the rest of the world. This provides policy-relevant information for both national governments and the international community. However it does have two limitations that can be addressed through the construction of national GIIs. First, the global GII is shaped by data constraints—which continue to be shockingly pervasive despite the central importance of understanding gender disparities. There are other vitally important dimensions of gender disparity that have not been included only because valid, reliable and timely internationally comparable data are lacking. Second, the global GII is comparable but gender discrimination is context specific.

These limitations can be overcome (at least partially) by creating national GIIs. National exercises are not affected by the limitations imposed by international comparability and thus can incorporate different or additional dimensions and/or indicators (providing the data are available) that are particularly relevant to their country specific context.

The straightforward formula of the GII makes it easy to adapt as the functional form underpinning the index can incorporate more indicators and dimensions, so long as the steps elaborated above are followed precisely.

Potential indicators include:

- time use
- child mortality
- malnutrition
- asset ownership
- control over productive resources
- gender-based violence
- local or regional political leadership and other kinds of agency

It is important to note that special caution should be taken to choose dimensions and indicators that consist of measurable achievements for all the groups involved (see section 7 for a discussion on this point).

Thus, while national teams are encouraged to adopt the global GII methodology to create a national GII, they are also urged to use other indicators that either are not available for international comparisons or are particularly relevant to their country-specific context.

5. STATISTICAL ANALYSIS AND DATA PRESENTATION

The following section presents some examples of statistical analysis and data presentation that can be performed using the GII. For example, the global GII, estimated for 138 countries in the *Human Development Report 2010*, reveals that gender inequality varies tremendously across countries, from 17 per cent to 85 per cent. Some of the main findings in terms of national and regional patterns of inequality include:

- The world average score on the GII is 0.56, reflecting a percentage loss in achievement across the three dimensions due to gender inequality of 56 per cent.
- Regional averages range from 32 per cent in developed OECD countries, to 74 per cent in South Asia. Sub-Saharan Africa, South Asia and the Arab States suffer the largest losses due to gender inequality.
- At the country level losses due to gender inequality range from 17 per cent in the Netherlands, to 85 per cent in Yemen.

Differences between countries in terms of the gender disparities of human development dimensions can also be analyzed and illustrated. Figure 1 below presents such disparities. Consider two very high human development countries: Qatar and Netherlands. The loss in human development due to gender inequality is 67 per cent in Qatar, while in the Netherlands it is 17 per cent. This shows that high human development does not necessarily mean equal treatment of men and women.

Similarly, gender inequality varies among countries with lower human development rankings as well. For example, consider Yemen and Burundi. They both are low HDI countries but the loss of human development due to gender inequality is 85 per cent in Yemen compared to 63 per cent in Burundi. The type of analysis may be conducted at the sub-regional level within countries as well.

Figure 1. Large losses due to gender inequality across the HDI spectrum

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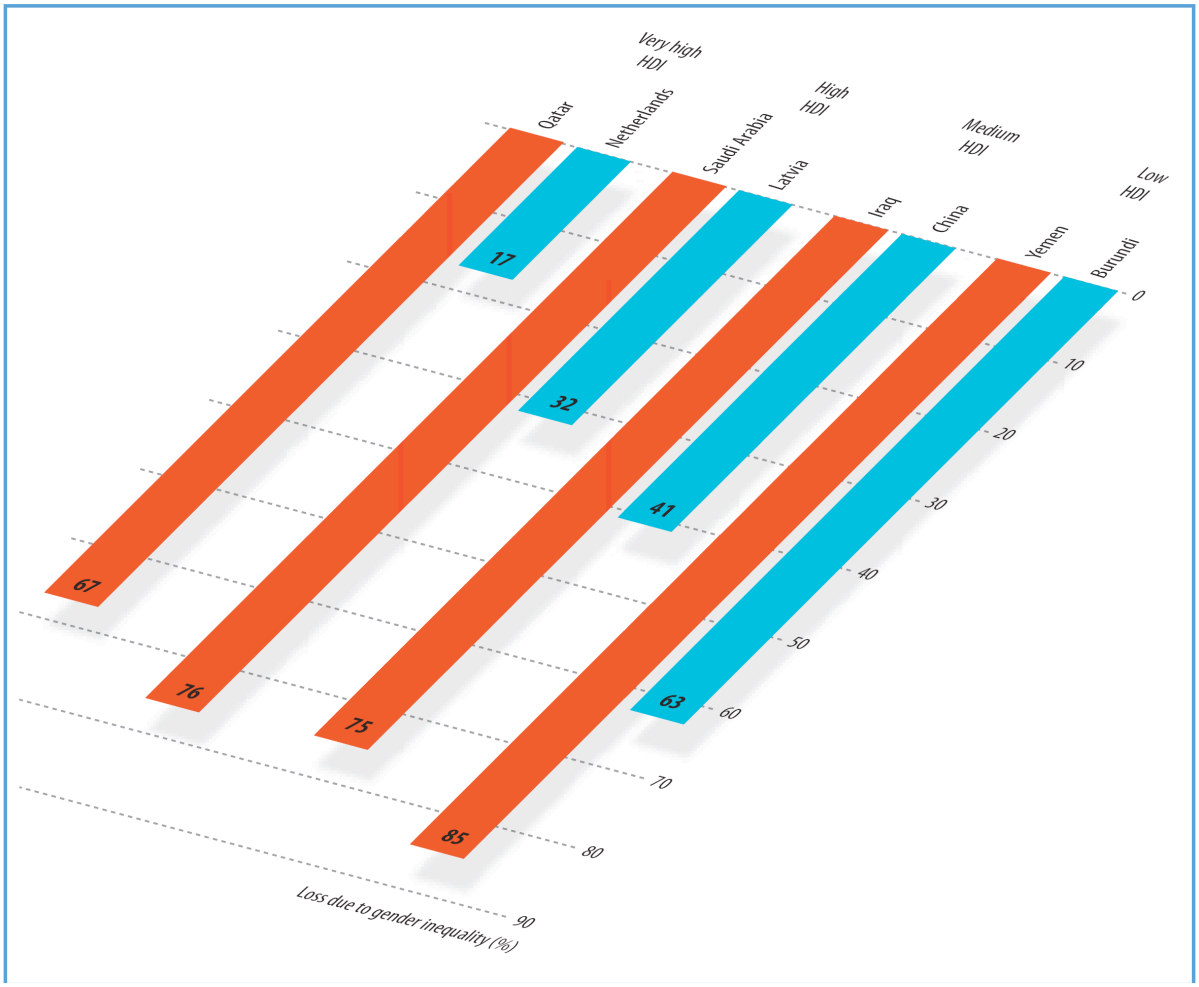

Source: HDR 2010, Figure 5.4, p. 92.

Tables can also be used for presenting GII data in a concise way and to illustrate the evolution of each indicator. The following table depicts the global GII data for Uganda as presented by the Human Development Report Office (see http://*HDR*stats.undp.org/en/countries/profiles/UGA.html)

Indicator	Value
Maternal mortality ratio (deaths of women per100,000 live births)	550
Population with at least secondary education, female/male ratio	0.437
Adolescent fertility rate (women aged 15–19 years) (births per 1,000 women aged 15–19)	150.0
Labour force participation rate, female/male ratio (Ratio of female to male shares)	n.a.
Gender Inequality Index, value	0.715
Shares in parliament, female-male ratio	0.454
Maternal mortality ratio (new estimates) (deaths of women per100,000 live births)	430
Gender Inequality Index (updated)	0.704

6. INNOVATIONS AND RELATIONSHIP WITH OTHER INDICES

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6.1 Gender indices in earlier *HDR*s: GDI and GEM

The global GII builds on the previous gender indices used in earlier *HDR*s. In previous reports, two other gender indices were used: the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM). The GDI was based on the same three dimensions as the HDI and assessed the level of human development discounting for existing gender inequality. The notion of GDI was thus quite similar in spirit to that of the current IHDI (see below for full explanation of this). The GEM, in turn, focused on political participation (measured by women's share of parliamentary seats), economic participation (share of high level and professional positions) and power over economic resources (income gaps).

6.2 Limitations of previous gender indices

However, GDI and GEM had some important limitations, including:

- These two measures combined absolute and relative achievements. Thus, a country with low absolute income scored poorly, even with perfect gender equity.
- The GDI adjusted the HDI for gender inequalities, thereby measuring both total achievements and disparities—though it was often misinterpreted as reflecting only the latter.
- Extensive imputations were needed to fill in missing data. For gender-disaggregated incomes in both indices, more than three-quarters of country estimates were partly imputed. Because imputed income differences were the most important cause of difference between the HDI and the GDI, this imputation was particularly problematic.
- Nearly all indicators in the GEM arguably reflected a strong urban elite bias and used some indicators that were more relevant to developed countries.
- Both indices ignored the joint distribution of deprivations —whether people suffer more than one disadvantage simultaneously. For example, consider two situations. In the first situation, women's achievements in the three dimensions are (0.7, 0.5, 0.6) and those of men are (0.9, 0.7, 0.4). Men therefore perform better than women in the first two dimensions, but women perform better in the third. In the second situation, meanwhile, women's achievements are (0.7, 0.5, 0.4) and those of men are (0.9, 0.7, 0.6). Here men perform better than women in all three dimensions. Stepping back, if we look at the dimensions separately, and don't consider which group has which achievements, the results appear to be the same for both situations: the first, second and the third dimensions end up as (0.7, 0.9), (0.5, 0.7) and (0.6, 0.4) for both scenarios. Both GDI and GEM give us this sort of result—they treat both situations as equally unequal because they don't account for the simultaneous disadvantages of a single group. However, if we look at which group experiences simultaneous disadvantages, the two situations appear rather different. The extent of inequality is much higher in the second situation as women fare worse than men in all three dimensions, unlike the first. While the GII does not reflect joint distribution at the individual level, it is sensitive to association between aggregate achievement levels.

6.3 Innovations and the GII

Responding to some of the limitations of these indexes, the 2010 *HDR* introduced a new measure of gender inequality, the GII. This includes some aspects of the two previous measures but also has an innovative approach to assessing gender inequality, including some methodological improvements and alternative indicators. New features of the GII include:

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- Use of only measured variables, not imputations—which were particularly problematic in GEM and GDI.
- Combining both empowerment and development-related indicators of gender disparity.
- Incorporating some elements of the GDI and the GEM. Income, however, the most controversial component of the GDI and GEM, due to the imputations involved, is not a component of the GII.
- Capturing overlapping disadvantages - the GII increases when disadvantages across dimensions are associated—that is, the **more correlated the disparities** between genders across dimensions, the **higher the index**. Overlapping disadvantages are an important aspect of gender inequality and capturing this overlap is one of the major advantages of the GII.

6.4 Relationship with the Inequality-adjusted Human Development Index (IHDI)

The fact that two indices within the 2010 *HDR*—the GII and the IHDI—tackle issues of inequality may be confusing. However, the two indices are different in two crucial ways: 1) they capture inequalities in **different dimensions** and between **different sets** of individuals and 2) their values show opposite results (one shows **losses** while the other shows **achievements**).

Interpretation differences

The IHDI is a measure of the level of human development of people in a society that accounts for inequality. As its name implies, it is an adjusted version of the Human Development Index (HDI) and thus based on its dimensions: human development achievements in health, education and living standards. The HDI is based on the average distribution of achievements in these components. Yet an average hides how well distributed these achievements are among the population.

The adjustment itself amounts to an assessment of how these achievements are distributed among the population. Because it works as a modification of the HDI according to this inequality, it still provides us with a measure of human development. As such, **higher** values in the IHDI imply **better** performance by countries. The percentage loss in human development can be estimated by taking the difference in HDI and IHDI as a percentage of the HDI.

In contrast, the GII measures the **loss** in human development a country experiences due to inequality in reproductive health, empowerment and labour market participation between women and men. Since it is a measure of the extent of a loss from an ideal level of human development, **higher** values of GII imply **worse** performance by countries. Yet despite the differences, the results of the IHDI and GII are highly correlated (0.87), indicating that unequal distribution of human development is strongly associated with unequal distribution across gender inequality.

6.5 Other gender indices

Several other gender indices are used by different world institutions, such as the World Economic Forum's Global Gender Gap Index (GGI), the Economist Intelligence Unit's Women's Economic Opportunity Index (WEOI), the OECD's Social Institutions and Gender Index (SIGI), and the Gender Equity Index (GEI) developed by Social Watch. They differ from the GII in many ways yet can be useful complements as we seek to understand the underlying causes of gender inequalities in economic participation.

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The World Economic Forum's **Global Gender Gap Index**, for example, uses different dimensions and indicators than the GII. It consists of four dimensions: economic participation and opportunity, educational attainment, political empowerment, and health and survival. It uses 14 indicators. A female-male ratio is calculated for each indicator and each indicator is truncated at the equality point so that if women are doing better than men, then it is assumed there is no inequality across genders. All these indicators are averaged to calculate the overall index. Note that unlike the GII, this is not a measure of inequality. Rather the GGI is a measure of women's relative disadvantage to men because this index overlooks any aspects where women perform better than men.

The Economist Intelligence Unit's **Women's Economic Opportunity Index** (WEOI), focuses on laws and regulations regarding women's participation in the labour market and the social institutions that affect women's economic participation. It consists of five dimensions: labour policy and practice; women's economic opportunity; access to finance, education and training; women's legal and social status; and the general business environment. Each category or sub-category has four to five indicators. This index measures women's opportunity and not inequality across genders.

The OECD's **Social Institutions and Gender Index** (SIGI), focuses on the societal norms and institutions that cause inequalities rather than inequality outcomes. It consists of twelve indicators based around social institutions, which are grouped into five categories: family code, physical integrity, son preference, civil liberties and ownership rights. Again, this is not a measure of gender inequality.

The **Gender Equity Index** (GEI) developed by Social Watch, meanwhile, looks into the gap in achievements across genders by taking the ratio of performance in each dimension. The index consists of three dimensions—the gap in education, the gap in economic activity and the gap in empowerment. It uses ten indicators.

For further discussion on these indices, see Gaye et al. (2010)

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7. LIMITATIONS OF THE GLOBAL GII

As we have seen, the global GII addresses many of the shortcomings of previous gender inequality measures. The GII, however, also has some shortcomings of its own. This is partly due to some major data limitations, which constrained the choice of indicators, and also to its construction.

The GII's use of reproductive health indicators has, for example, been criticised. Naturally, data for the two indicators are only available for women, making interpretations of the GII problematic. The GII responds to this discrepancy by giving men a value of "one" in this dimension—a value which signifies that men have achieved the best possible outcome here. Critics say, however, that a measure of inequality must consist of measurable achievements for all the groups involved. The two indicators—maternal mortality ratio and adolescent fertility rate—should instead, it is said, be used to construct an index that compares the state of women across countries, rather than a gender inequality index, comparing the situation between women and men.

Another shortcoming of the GII is the bias towards elites that persists in some indicators (such as parliamentary representation, which excludes participation at the local government level and elsewhere in community and public life). However this is due to data restrictions; as better data become available the GII could easily incorporate new variables.

A related criticism—and the fundamental shortcoming—also relates to data. Many vital dimensions and indicators of gender inequality are missing. These include aspects such as time use—the fact that many women have the additional burdens of care giving and housekeeping, which cuts into leisure time and increases stress and exhaustion. They also include information on incomes, employment and on unpaid work by women in the labour market. To address this data constraint it is necessary to add modules to standard household questionnaires and also to interview males and females in the same household to ascertain differential achievements.

Finally, the value of the GII doesn't tell us which gender is doing better or worse. Instead the GII score tells us the level of inequality between two groups—men and women—but not which group is disadvantaged. However, as previously discussed, national adaptations of the methodology (for example using alternative indicators) offer many opportunities to surmount such criticisms.

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