LANCET-SIGHT COMMISSION

PEACEFUL SOCIETIES through HEALTH and GENDER EQUALITY

SIGHT.
SWEDISH INSTITUTE FOR GLOBAL HEALTH TRANSFORMATION

VERSION: FEBRUARY 2022

INDICATOR ANALYSIS

GENDER INEQUALITY INDEX

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FOR THE LANCET-SIGHT COMMISSION ON PEACEFUL SOCITIES THROUGH HEALTH AND GENDER EQUALITY

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How is the indicator calculated?	"The GII is an inequality index. It measures gender inequalities in *three important aspects* of human development—*reproductive health*, measured by maternal mortality ratio and adolescent birth rates**;** *empowerment*, measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education; and *economic status*, expressed as labour market participation and measured by labour force participation rate of female and male populations aged 15 years and older" (1). Technical estimation (2): Subindices to the GII are first calculated for each sex. The female subindex (G_F) is calculated as the geometric mean of indicators representing three aspects of human development: reproductive health, empowerment and economic status for women. The male subindex (G_M) is calculated as the geometric mean of indicators representing empowerment and economic status for men. A third subindex representing a reference point for equality is calculated by first aggregating the female and male indicators using equal weights and then aggregating the indices across dimensions ($G_{F,M}$). The harmonic mean of the male and female subindices is calculated to represent the degree of inequality while capturing overlapping inequalities in dimensions. Finally, the comparison of the distributed gender index to the reference standard yields the GII: $$GII = 1 - \frac{HARM(G_F, G_M)}{G_{F,M}}$$ Note that zero values cannot be used so a minimum of 0.1 is set for all values and maternal mortality is truncated to between 10 and 1000 deaths per 100000 births. For the latter, the "rationale is that countries where maternal mortality ratios exceed 1,000 do not differ in their inability to create conditions and support for maternal health and that countries with 10 or fewer deaths per 100,000 births are performing at essentially the same level and that small differences are random" (2).

GLOBAL TRENDS	
What are the global patterns for this indicator?	Overall trends show a decline in inequality. Whereas African countries experience the highest levels of inequality, the results for Latin America hover around central tendency and results in Asia exhibit high variance depending on region. Most European countries have very low inequality scores. Gulf States experienced a huge decrease in inequality in the 2000s that is most likely linked to labour participation rising from low levels.

RELEVANCE TO UNDERSTANDING RELATIONSHIPS AMONG GENDER, HEALTH, FRAGILITY/PEACE

How could this indicator contribute to our understanding of how gender, health and fragility and peace influence one another?	It provides a useful tool that regroups several aspects of gender inequality and offers a reference for broader inequalities. The main use should be in highlighting key trends in gender and reproductive health inequality among men and women. To provide insights into fragility, further data is necessary, but this could be achieved in combination with fragility indices (that presumably use different input variables that do not introduce endogeneities into the index comparison). As with any index, the various components need to be disaggregated to identify driving factors since the aggregate index does not identify the types of inequality without said disaggregation.

UTILITY	
What does the indicator measure?	The indicator estimates level of gender inequality though measurement of the quality of reproductive health and gender differences in empowerment and economic status. For reproductive health or health, men's score is set to 1 (i.e., perfect) whereas women's score is calculated using the geometric mean of maternal mortality and the adolescent birth rate.
What does it NOT measure - what does it miss?	Although the indicator does estimate inequality between genders, it goes without saying that this is only true for the indicators that serve as inputs to the index. For example, the economic status dimension only measures differences in labour market participation and does not adjust for wage differentials or other forms of socioeconomic inequality. The same applies to other dimensions in that the reproductive health dimension only estimates the difference between current maternal mortality and adolescent rates compared to fewer than 10 deaths per 100,000 births and a 0.1 percent adolescent birth rate.

AVAILABILITY	
Sources for indicator (CRVS, DHS etc.);	Different data sources/estimation approaches were used for each of the indicators underlying the GII in the 2019 report [2]: Maternal mortality ratio: UN Maternal Mortality Estimation Group (2017) (3). Adolescent birth rate (ABR): UNDESA (2019) (4) . Share of parliamentary seats held by each sex (PR): IPU (2019) (5). Population with at least some secondary education (SE): UNESCO Institute for Statistics (2019) (6) and Barro and Lee (2016) (7). Labour force participation rate (LFPR): ILO (2019) (8). Values for the index are available from the UNDP: http://hdr.undp.org/en/data
Most recent date available;	2019.

Availability across geographic areas;	128 countries for 1995 but expands to 175 in 2019.
Availability in conflict affected settings;	Yes.

GRANULARITY	
Disaggregation at national level	
Data disaggregated by sex;	N/A.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income	No.
Data disaggregated by citizenship	No.
Data disaggregated by migration background	No.
Disaggregation at sub-national level	
Data disaggregated by geographic region;	No.
Data disaggregated by identity group (race, ethnicity);	No.
Data disaggregated by income.	No.

VALIDITY	
Clear and accepted international standards for indicator;	Yes, indicators used to calculate the GII are commonly employed in the development sphere.

Validity of measurement of indicator generally accepted;	The harmonic and geometric means are used appropriately and reflect differences in male and female performance across all three dimensions appropriately.

RELIABILITY	
Reliability of indicator generally accepted;	Accepted reliability.

COMPLEXITY	
Enables analysis across time and location.	Yes, this indicator does enable for analysis across time and location as there is no geographic or time-related limitation explicitly identified within its definition.

OTHER REFLECTIONS	
Are indicator values imputed/modelled?	Data for the share of parliamentary seats held by each sex provided by the IPU is not modelled or imputed. However, it should be noted that the GII estimates for 1995 rely on data from 1997 for this indicator (5). Estimates for labour participation rate taken from the ILO are not imputed or modelled (8). Adolescent birth rate estimates are taken from the United Nations World Population Prospects which model some of their values and offer a description of country specific methods and data sources used to derive estimates in their metadata documentation (9) . *Caution should be exercised when comparing GII by country where values for adolescent birth rates are derived using models based on limited data.* Estimation of the maternal mortality ratio is done through the use of a model which relies on real observations based on availability and produces estimates in countries or country-periods with limited information (10). *Uncertainty bounds for estimates produced by the UN Maternal Mortality Estimation Group are available on the WHO's Global Health Observatory and should be considered during analysis (10).* Estimates for educational attainment from the UNESCO UIS datacentre and the Barro and Lee (2016) dataset include imputed values (11), (7).

Other reflections and debates	The index is based on modelled estimates for some indicators and does not offer uncertainty bounds associated with its final value. Caution should be exercised when using the index in country comparisons where low data availability is likely. As an index, the GII has much to offer in terms of aggregate insights. However, users should consider individual components of the index to better understand driving mechanisms.

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