

1. INTRODUCTION

The World Economic Forum (WEF) introduced the Global Gender Gap Index (GGGI) in 2006. This index identifies the gaps between women and men across four sub-indices:

- i. *Economic participation and opportunity;*
- ii. *Educational attainment;*
- iii. *Health and survival;*
- iv. *Political empowerment.*

1.1 Availability of data

The availability of data is based on the data provided by the related agencies.

1.2 Gender Gap Index

a) Definition of Gender Gap Index

- *The Gender Gap Index is an index designed to measure gender equality.*
- *This index is measured from four fundamental categories: Economic Opportunity & Participation, Educational Attainment, Health & Survival and Political Empowerment.*
- *The gap is measured by a scale of 0 to 1. Generally, gender equality is achieved when the index reaches a scale of 1 while this gap becomes larger if the scale approaches the scale of 0.*

b) Construction of The Index

The overall Global Gender Gap Index is constructed using a four-step process, outlined below:

i. Convert to ratios

Initially, all data is converted to female-to-male ratios. For example, a country with 20 per cent of women in ministerial positions is assigned a ratio of 20 women to 80 men, thus a value of 0.25. This is to ensure that the Index is capturing gaps between women and men's attainment levels, rather than the levels themselves.

ii. Truncate Data at Equality Benchmark

As a second step, these ratios are truncated at the "equality benchmark". For all indicators, except the two health indicators, this equality benchmark is considered to be 1, meaning equal numbers of women and men. In the case of the sex ratio at birth variable, the equality benchmark is set to be 0.944, and the healthy life expectancy benchmark is set to be 1.06.

Truncating the data at the equality benchmarks for each indicators assigns the same score to a country that has reached parity between women and men and one where women have surpassed men.

The type of scale chosen determines whether the Index is rewarding women's empowerment or gender equality. To capture gender equality, two possible scales were considered. One was a negative-positive scale capturing the size and direction of the gender gap. This scale penalizes either men's advantage over women or women's advantage over men, and gives the highest points to absolute equality.

The second choice was a one-sided scale that measures how close women are to reaching parity with men, but does not reward or penalize countries for having a gender gap in the other direction. We find the one-sided scale more appropriate for our purposes, as it does not reward countries for having exceeded the parity benchmark.

iii. Calculate Sub-index Scores

The third step in the process involves calculating the weighted average of the indicators within each sub-index to create the sub-index scores. Averaging the different indicators would implicitly give more weight to the measure that exhibits the largest variability or standard deviation. Therefore the first step is to normalize the indicators by equalizing their standard deviations.

For example, within the educational attainment sub-index, standard deviations for each of the four indicators are calculated. Then determine what a 1 per cent point change of standard deviations by dividing 0.01 by the standard deviation for each indicator. These four values are then used as weights to calculate the weighted average of the four indicators.

This way of weighting indicators allows us to make sure that each indicator has the same relative impact on the sub-index. For example, an indicator with a small variability or standard deviation, such as primary enrolment rate, gets a larger weight within the educational attainment sub-index than an indicator with a larger variability, such as tertiary enrolment rate.

Therefore, a country with a large gender gap in primary education (an indicator where most countries have achieved near-parity between women and men) will be more heavily penalized. Similarly, in the case of the sex ratio indicator (within the Health and Survival sub-index), where most countries have a very high sex ratio and the spread of the data is small, the larger weight will

penalize more heavily those countries that deviate from this value. Table 1 was obtained from the Global Gap Report (World Economic Forum) displays the values of the weights used.

iv. Calculation of final scores

For all sub-indexes, the highest possible score is 1 (parity) and the lowest possible score is 0 (imparity), thus binding the scores between inequality and equality benchmarks. An un-weighted average of each sub-index score is used to calculate the overall Global Gender Gap Index score.

Similar to sub-index scores, this final value ranges between 1 (parity) and 0 (imparity), thus allowing for comparisons relative to ideal standards of equality in addition to relative country rankings. The parity and imparity benchmarks remain fixed across time, allowing the reader to track individual country progress in relation to an ideal standard of equality. Furthermore, the option of roughly interpreting the final index scores as a percentage value that reveals how a country has reduced its gender gap should help make the index more intuitively appealing to readers.

Table 1: Calculation of weight within each sub-index (based on the Global Gender Gap Report 2006)

Economic Participation and Opportunity	Standard deviation	SD per 1% point change	Weight
Ratio: Female labour force participation over male value	0.160	0.063	0.199
Wage equality between women and men for similar work	0.103	0.097	0.310
Ratio: Female estimated earned income over male value	0.144	0.069	0.221
Ratio: Female legislators, senior officials and managers over male value	0.214	0.047	0.149
Ratio: Female professional and technical over male	0.262	0.038	0.121
TOTAL			1
Educational Attainment	Standard deviation	SD per 1% point change	Weight
Ratio: Female literacy rate over male value	0.145	0.069	0.191
Ratio: Female net primary enrolment rate over male value	0.060	0.167	0.450
Ratio: Female net secondary enrolment rate over male value	0.120	0.083	0.230
Ratio: Female gross tertiary enrolment rate over male value	0.228	0.044	0.121
TOTAL			1
Health and Survival	Standard deviation	SD per 1% point change	Weight
Sex ratio at birth (converted to female-to-male ratio)	0.010	0.998	0.693
Ratio: Female healthy life expectancy over male value	0.023	0.441	0.307
TOTAL			1
Political Empowerment	Standard deviation	SD per 1% point change	Weight
Ratio: Female with seats in parliament over male value	0.166	0.060	0.310
Ratio: Female net secondary enrolment rate over male value	0.208	0.048	0.247
Ratio: Female gross tertiary enrolment rate over male value	0.116	0.086	0.443
TOTAL			1

2. INDICATORS COMPOSING THE MALAYSIA GENDER GAP INDEX (MGGI)

2.1 Labour-force participation rate (%)

The economic activity of a population depends on the demographic characteristics of that population. Therefore, the proportion of economically active persons differs between sub-groups of that population. These variations are measured by specific activity rates termed labour force participation rate.

Labour force participation rate is defined as the ratio of the labour force to the working age population (15 - 64 years), expressed as percentage.

Source: Labour Force Survey Report, Malaysia

2.2 Wage equality for similar work, 1–7 (best)

Response to the World Economic Forum Executive Opinion Survey question, "In your country, for similar work, to what extent are wages for women equal to those of men?" (1 = not at all, significantly below those of men; 7 = fully, equal to those of men).

Source: World Economic Forum, Executive Opinion Survey (EOS)

2.3 Estimated earned income

Estimated Earned Income is an indicator derived from the ratio of female to male salaries and wages, reflecting relative income levels between women and men in the labour market. This indicator calculated by comparing the mean salaries and wages received by female employees with those received by male employees for the reference year.

Source: Salaries and Wages Survey Report, Malaysia

2.4 Legislators, senior officials and managers (%)

Ratio of female to male employed in senior roles. It corresponds to Major Group 1 of the Malaysia Standard Classification of Occupations (MASCO) which plan, analyze, formulate, direct and advise on government policies, or carry out similar tasks on behalf of special interest organizations; or plan, organize, lead, control and coordinate the policies and activities of an enterprise, organization, department or internal section.

Source: Labour Force Survey Report, Malaysia

2.5 Professional and technical workers (%)

Ratio of female to male employed in professional and technical roles. It corresponds to the sum of Major Group 2 and 3 of the MASCO which as follows:

Major Group 2 (Professionals):

Conducts analysis and research, and develops concepts, theories and methods of operation. Enhance existing knowledge, apply scientific or artistic concepts and theories, teach about the subject in a systematic way, or engage in any combination of the above three activities.

Major Group 3 (Technicians and Associate Professionals):

Perform technical and related tasks connected with research and the application of scientific or artistic concepts and operational methods, and government or business regulations.

Source: Labour Force Survey Report, Malaysia

2.6 Literacy rate (%)

Literacy rate is defined as the population who have formal education (female and male 15 to 64 years old). Literacy rate is proxy from the school attendance variable which is schooling and completed schooling from Labour Force Survey.

Source: Labour Force Survey Report, Malaysia

2.7 Enrolment in primary education (%)

Total enrolment in primary level expressed as a percentage to the eligible official primary level age population (6–11 years old).

Source: Ministry of Education, Malaysia

2.8 Enrolment in secondary education (%)

Total enrolment in secondary level expressed as a percentage to the eligible official secondary level age population (12–17 years old).

Source: Ministry of Education, Malaysia

2.9 *Enrolment in tertiary education (%)*

Total enrolment in tertiary level expressed as a percentage to the eligible official tertiary level age population (18–22 years old).

Source: Ministry of Higher Education, Malaysia

2.10 *Sex ratio at birth (%)*

Sex ratio at birth refers to ratio of female to male births.

Source: Vital Statistics, Malaysia

2.11 *Life expectancy, years*

Refers to an estimate of the average number of years a newborn baby is expected to live, if he or she were to experience the age-specific mortality rates of the reference period throughout his or her life.

Source: Abridged Life Tables, Malaysia

2.12 *Women in parliament (%)*

Refers to the women holding positions in House of representative. In computing MGGI by states, the State Legislative Assembly (SLA) added and included in this indicator.

Source: Parliament of Malaysia

2.13 *Women in ministerial positions (%)*

Refers to the women holding positions in ministerial portfolios. State Executive Council (EXCO) was take into account in computing the MGGI by state.

Source: Prime Minister's Office and State Government

2.14 *Years with female/male head of state (last 50)*

The number of years in the past fifty-year period for which a woman has held a post equivalent to an elected head of state or head of government in the country. It takes into account prime ministers and/or presidents. Royalties are not considered.

Source: Department of Statistics Malaysia's calculations