

Annexure 4

Method of calculating SDG 3.8.2 and its proposed revision, including the societal poverty line.

- SDG indicators 3.8.2 are calculated as follows:

$$\sum_i \frac{m_i \omega_i}{\sum_i m_i \omega_i} * 1 \left(\frac{oop_i^{health}}{y_i} > \tau \right)$$

where

- m_i corresponding to the number of household members of household i
- ω_i corresponds to the sampling weight of household i ,
- $1()$ is the indicator function that takes on the value 1 if the bracketed expression is true, and 0 otherwise,
- oop_i^{health} corresponds to daily per capita out-of-pocket household expenditure on health
- y_i corresponding to daily per capita total household consumption expenditure or income
- $\tau = 10\%$ and 25% and corresponds to the two thresholds identifying large household expenditure on health as a share of total household consumption or income.

- If the revision is adopted, the indicator will be calculated as follows:

$$\sum_i \frac{m_i \omega_i}{\sum_i m_i \omega_i} * 1 \left(oop_i^{health} > 0.4 * (y_i - SPL) \cap oop_i^{health} > 0 \right)$$

where

- All variables (oop_i^{health} , y_i , m_i , ω_i , $1()$) are defined exactly as in SDG 3.8.2
- SPL is the only new component. It corresponds to the societal poverty line.
- Using 2017 purchasing power parities (PPPs), the SPL corresponds to whichever is greater: \$2.15 (the international poverty line) or \$1.15 + 50% of median* household consumption expenditure or income. There isn't any explicit health allowance in the definition of the societal poverty line. On these grounds, the median* is computed based on the distribution of household consumption expenditure or income, excluding out-of-pocket household expenditure on health as follows:

$$\max(\$2.15 \text{ a day}; \$1.15 \text{ a day} + 0.5 * \text{median}(y_i - oop_i^{health}))$$

- All amounts defined in PPP values (\$2.15 and \$1.15) are converted to local currencies in 2017 price and then converted to the prices prevailing at the time of the relevant household survey using the best available Consumer Price Index (CPI). This approach is consistent with the methodology used for SDG indicator 1.1.1.
- The SPL data produced by the World Bank is available on the Poverty and Inequality Platform (pip.worldbank.org) but might differ from the one computed for this revision as the median might not be systematically based on the distribution of consumption or income excluding OOP health spending.

- 0.4 is the only explicit threshold applied to the household discretionary budget ($y_i - SPL$). Implicitly, the threshold used for people with positive OOP health spending ($OOP > 0$) but a negative or null discretionary budget ($y_i - SPL \geq 0$) is 0. These people include those living in poverty (with $SPL > y_i$) and at the poverty line (with $SPL = y_i$). Some of the people spending more than 40% of their discretionary budget on out-of-pocket health will have OOP spending levels exceeding the total discretionary budget, which corresponds to those pushed into poverty. Implicitly for these people the threshold is equal to 100%. If the revised definition is adopted, WHO and the World Bank will decompose the population rate into those with implicit thresholds at 0 and 100% to identify those with impoverishing OOP health spending and those with relatively large OOP health but who are neither pushed nor further pushed into poverty, i.e., those with OOP health spending greater than 40% but below 100%.
- For both the SDG 3.8.2 indicator and its proposed revised definition, the choice of the threshold (10%, 25%, 40%) affects the population level rates – the higher the value, the lower the rate. But it does not affect the trends. However, the choice of the threshold affects the pro-poor gradient in SDG 3.8.2 and the indicator's sensitivity to the choice of consumption versus income, unlike in the revised definition. When SDG 3.8.2 is based on consumption, higher thresholds tend to lead to greater concentration of SDG 3.8.2 among the better off and in the top quintiles of per capita consumption. When SDG 3.8.2 is based on income, higher thresholds tend to lead to greater concentration of SDG 3.8.2 among the worse off and in the lowest quintiles of per capita income. The proposed definition is always more concentrated among the poorer and in the lowest quintiles of both per capita consumption and income.