

► 2. Estimation of outcome indicators

Given these assumptions, we represent economic losses due to child marriage as a gap between GDP per capita in two scenarios (child marriage scenario and non-child marriage scenario) in the simulation modelling exercise:

$$\text{Economic Loss} = \text{GDP Per Capita}_{\text{As Usual Scenario}} - \text{GDP Per Capita}_{\text{Child Marriage Scenario}} \quad (6)$$

In other words, we can also predict economic gain by estimating the gap between per capita GDP in two scenarios (as usual scenario and child marriage scenario) in the simulation modelling exercise as:

$$\text{Economic Gain} = \text{GDP Per Capita}_{\text{As Usual Scenario}} - \text{GDP Per Capita}_{\text{Child Marriage Scenario}} \quad (7)$$

The aggregate production or GDP in our simulation model is estimated as:

$$\text{GDP}_{t,j} = \text{GDP}_{t-1,j} * (1 + \text{Annual GDP Growth}_{t,j}) \quad (8)$$

Where $\text{GDP}_{t,i}$ is the gross domestic product in time t under j^{th} scenario. Therefore, GDP per capita is projected as:

$$\text{GDP Per Capita}_{t,j} = \text{GDP}_{t,j} / \text{Projected Total Population}_{t,j} \quad (9)$$

Where $\text{GDP Per Capita}_{t,j}$ is the estimated GDP per capita in time t under j^{th} scenario.

Economic cost as a percentage of GDP is estimated as follows:

$$= \left\{ \frac{(\text{GDP Total}_{\text{Non-Child Marriage Scenario}} - \text{GDP Total}_{\text{Child Marriage Scenario}})}{\text{Time Interval}}}{\text{GDP Total}_{\text{As Usual Scenario}}} \right\}$$

Where time interval is the interval between the base year to the respective time points of the estimation.

Economic cost for households is estimated as shown below:

$$= \frac{\text{Economic Loss as Given in Equation (6) for a Country}}{\text{Number of Households in a Country}} \quad (10)$$

Health-care cost for households is estimated as follows:

$$= \frac{\text{Health-care Costs}_{\text{Child Marriage Scenario}} - \text{Health-care Costs}_{\text{Non-Child Marriage Scenario}}}{\text{Number of Households in a Country}} \quad (11)$$

The spectrum simulation model estimates health-care costs based on average health-care spending inputs provided in the model. Differential health-care costs incurred by child married and non-child married women are derived based on differential risks to various maternal and child health-care problems. A detailed technical note about the methodology of computations is given in the Annex and in a supplementary file hyperlinked at the end of this report.