Appendix A: Detailed Discussion of Results in Section III

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Comparison of World Bank and International Center for Research on Women (2017) and Center for Global Development (2026) analyses

The economic cost of inaction estimates in this report present costs based on the latest available data. These estimates reflect the most recent estimates of child marriage prevalence rates, but they are not directly comparable with the estimates in the 2017 report due to differences in methodology and data availability.[1] There are four key differences:

1. **Prevalence of child marriage:** The global child marriage prevalence rate has fallen from 22 percent in 2015 to 19 percent in 2025.[2] The cost of inaction would therefore have changed even if the 2017 methodology had been applied to the latest data because the number of girls who are at risk of being married as children has changed over time.

2. **Components analyzed:** Both analyses estimate the costs of inaction due to child mortality and lost earnings. The 2017 report additionally includes welfare and budget costs related to population growth, while the 2026 analysis focuses on mortality, morbidity, and labor market costs that would hold regardless of changes in fertility rates and population growth (see Figure A1 below). Although fertility decreases could reduce public expenditures on education and health, they would also reduce the size of the future labor force, leading to ambiguous net effects on GDP per capita, depending on changes in labor productivity. By contrast, the economic impacts of death or disability for child brides and their children are unambiguously negative because they represent a loss of investments that would already have been made in these individuals. The 2026 analysis therefore focuses on this set of components.

3. **Number of countries:** The 2017 report includes all low- and middle-income countries for welfare costs from population growth, child mortality, and child stunting; 15 core countries for earnings estimates; and 18 core countries for budget savings. The 2026 analysis calculates mortality and morbidity estimates using 27 core countries, which account for 70 percent of child marriages and calculates earnings estimates using the 24 of these countries with comparable data on earnings.

4. **Methodology:** Both reports estimate child mortality costs using regression analysis that compares outcomes for child brides to outcomes of girls and women who were not child brides but who have similar observable characteristics, although using different econometric models. The analyses differ in their methodologies for estimating costs of other factors (see Appendix B for more details). In general, both reports use a selection-on-observables approach to approximate the causal impacts

[1] Wodon et al., "Economic Impacts of Child Marriage: Global Synthesis Report," Economic Impacts of Child Marriage, June 27, 2017, https://documents1.worldbank.org/curated/en/530891498511398503/pdf/116829-WP-P151842-PUBLIC-EICM-Global-Conference-Edition-June-27.pdf.

[2] "Data Centre & Resources," The Child Marriage Data Portal, https://childmarriagedata.org/data-centre/.

of child marriage and associated costs (i.e., to isolate the economic consequences of child marriage, while holding constant other factors that might otherwise have influenced the outcomes of girls at risk of becoming child brides). While these approaches do not definitively eliminate the possibility of there being some remaining confounding factors, they reduce the most likely sources of upward bias.

Figure A1: Comparison between 2017 and 2026 cost of inaction estimates

	2017 World Bank & ICRW	2017 World Bank & ICRW	2026 conservative estimates ("more than")	2026 inclusive estimates ("up to")
	Annual cost in 2015	Annual cost in 2030	Annual cost in 2025	Annual cost in 2025
Welfare costs from population growth	22	566		
Budget costs from population growth		17		
Child stunting	9	16		
Child mortality	42	82	72.9	122.9
Maternal mortality			2	6.2
Intimate partner violence and miscarriage			0.8	0.8
Earnings	26	50	45.3	45.3
Total for shared components	**68**	**132**	**118.2**	**168.2**
Total for all components	**99**	**731**	**121.0**	**175.2**

All costs reported in US$ billions.
Red = included in 2017 analysis; excluded from 2026 analysis.
Green = excluded from 2017 analysis; included in 2026 analysis.
Black = included in both 2017 and 2026 analysis (“shared components”).

Economic Cost of Inaction

The analysis of the economic cost of inaction in Section III estimates the economic cost of child marriage using data from the latest Demographic and Health Surveys (DHS) for 27 strategically selected countries. These countries account for 70 percent of the global burden of child marriage. This analysis focuses on impacts on health and education outcomes, building on the approach used by Fang et al. (2024).[3] Appendix B describes our analytical methodology in more detail.

Table A1 shows the prevalence of having been a child bride for the 27 countries in the main analytical sample. The analysis uses the prevalence for 18–49-year-olds to estimate the number of women in the labor force who were child brides.

Table A2 shows estimated impacts of being a child bride on health outcomes for women and their children.

Tables A3 to A6 show the number of deaths, DALYs lost, and economic costs associated with these estimated impacts of being a child bride. The results report all economic costs in terms of 2024 US dollars. The largest driver of estimated costs, by far, is the impact on under-5 mortality. Other moderate costs arise from the impact of child marriage on maternal mortality, intimate partner violence, and miscarriage or abortion.

Table A7 shows estimated costs arising from a loss of earnings due to child marriage, with a decrease in the likelihood of secondary school completion as the primary mechanism for impact. Once again, the results report all economic costs in terms of 2024 US dollars.

[3] Xiangming Fang et al., "The Economic Burden of Child Marriage in Nigeria," *Child Abuse & Neglect* 140 (2024), https://pubmed.ncbi.nlm.nih.gov/39520958/.

Table A1: Prevalence (%) of child marriage among working-age females, by country

Country	Prevalence of child marriage (women ages 18–49)
Bangladesh	44.21%
Burkina Faso	39.47%
Chad	73.52%
Congo (Democratic Republic)	32.75%
Cote d'Ivoire	28.29%
Egypt	26.58%
Ethiopia	52.00%
Ghana	21.00%
Guatemala	33.32%
Guinea	45.84%
India	34.96%
Indonesia	26.74%
Madagascar	47.63%
Malawi	44.34%
Mali	47.53%
Mauritania	38.58%
Mozambique	46.45%
Nepal	42.76%
Niger	76.91%
Nigeria	42.14%
Pakistan	34.32%
Senegal	30.00%
Sierra Leone	35.18%
Tanzania	30.87%
Turkey	18.91%
Uganda	39.39%
Zambia	34.97%

Table A2: Associations between child marriage and health outcomes for women and children

	Women's outcomes					Children's outcomes				
Country	Underweight	Obese	Anemia	Intimate partner violence	Miscarriage or abortion	Underweight	Obese	Anemia	Low birthweight	Under-5 mortality
Bangladesh	1.06 (0.09)	0.91 (0.08)			1.20*** (0.05)	0.85 (0.11)	0.89 (0.24)		1.08 (0.14)	1.42** (0.24)
Burkina Faso	1.07 (0.11)	1.39** (0.18)	0.91 (0.05)	1.15** (0.08)	1.19*** (0.07)	0.89 (0.10)	0.69 (0.17)	1.03 (0.08)	0.86 (0.09)	1.35** (0.18)
Chad	0.94 (0.07)	1.06 (0.19)		1.09 (0.13)	1.32*** (0.11)	0.98 (0.09)	0.85 (0.13)		0.92 (0.24)	1.03 (0.07)
Congo (Dem. Rep.)	1.02 (0.09)	0.98 (0.13)	0.98 (0.06)	1.23*** (0.08)	1.31*** (0.07)	1.27* (0.17)	0.86 (0.12)	1.09 (0.09)	1.01 (0.14)	1.13 (0.09)
Cote d'Ivoire	1.24 (0.17)	1.02 (0.14)	0.93 (0.07)	0.91 (0.09)	1.09 (0.07)	0.87 (0.14)	0.84 (0.22)	0.91 (0.09)	0.92 (0.13)	1.15 (0.12)
Egypt	0.63 (0.21)	1.42*** (0.06)	0.82*** (0.06)	1.28*** (0.10)	1.29*** (0.06)	0.92 (0.08)	1.01 (0.07)	1.19* (0.12)	1.22** (0.12)	0.89 (0.15)
Ethiopia	0.99 (0.08)	0.72 (0.18)	1.11 (0.10)	1.22* (0.13)	1.03 (0.09)	1.14 (0.17)	0.88 (0.17)	0.90 (0.08)	0.71 (0.19)	0.97 (0.13)
Ghana	1.04 (0.19)	1.37*** (0.16)	0.92 (0.08)	1.16 (0.13)	1.22*** (0.08)	0.83 (0.19)	1.11 (0.36)	1.12 (0.13)	0.98 (0.18)	0.87 (0.16)
Guatemala	0.72* (0.13)	1.47*** (0.07)	1.08 (0.06)	1.41*** (0.12)	1.29*** (0.07)	1.39 (0.51)	0.82* (0.09)	1.12** (0.06)	0.90 (0.07)	0.96 (0.12)
Guinea	0.82 (0.12)	0.91 (0.11)	1.07 (0.08)		1.30*** (0.10)	0.93 (0.14)	1.05 (0.17)	1.18 (0.12)	1.06 (0.15)	1.24** (0.13)
India	1.00 (0.01)	1.13*** (0.02)	1.00 (0.01)	1.37*** (0.04)	1.11*** (0.01)	1.01 (0.02)	0.86*** (0.03)	1.07*** (0.02)	1.03 (0.02)	1.15*** (0.04)
Indonesia					1.10** (0.05)				1.10 (0.13)	1.25 (0.17)
Madagascar	1.01 (0.08)	0.93 (0.15)	0.91 (0.06)	1.09 (0.09)	0.95 (0.05)	1.08 (0.15)	1.04 (0.28)	1.17** (0.09)	1.14 (0.15)	1.32** (0.14)
Malawi	0.74** (0.10)	1.01 (0.14)	0.89* (0.06)	1.23*** (0.09)	1.16*** (0.06)	0.91 (0.18)	0.87 (0.16)	1.09 (0.09)	0.93 (0.07)	1.06 (0.11)
Mali	0.85 (0.10)	1.14 (0.11)	1.01 (0.06)	1.39*** (0.14)	1.15*** (0.06)	0.86 (0.09)	0.96 (0.17)	0.99 (0.07)	0.96 (0.11)	1.08 (0.09)
Mauritania	0.92 (0.14)	1.14 (0.10)	1.03 (0.07)	1.19 (0.18)	1.27*** (0.08)	1.07 (0.12)	0.85 (0.17)	0.94 (0.10)	0.93 (0.16)	1.13 (0.17)
Mozambique	0.85 (0.16)	1.31** (0.17)	0.96 (0.07)	1.37*** (0.13)	1.18** (0.09)	0.81 (0.27)	1.06 (0.22)	1.06 (0.12)	0.88 (0.16)	1.17 (0.17)
Nepal	0.88 (0.09)	1.51*** (0.20)	0.85** (0.06)	1.48*** (0.13)	1.28*** (0.07)	0.72 (0.15)	0.68 (0.41)	0.97 (0.11)	0.80 (0.13)	1.22 (0.27)
Niger	0.79 (0.11)	0.93 (0.15)	0.99 (0.09)		1.25*** (0.11)	0.87 (0.10)	1.31 (0.36)	1.20 (0.14)	0.99 (0.16)	0.88 (0.11)
Nigeria	1.04 (0.09)	1.02 (0.09)	1.09* (0.06)	1.13* (0.08)	1.15*** (0.05)	0.85 (0.10)	1.24 (0.19)	1.44*** (0.10)	1.12 (0.15)	1.10 (0.10)
Pakistan	0.77* (0.12)	1.18 (0.14)		1.34** (0.16)	1.44*** (0.08)	0.79 (0.18)	0.99 (0.24)		1.62** (0.40)	1.21 (0.16)
Senegal				1.65*** (0.30)	1.31*** (0.10)	1.11 (0.16)	0.70 (0.24)		1.19 (0.20)	0.98 (0.21)
Sierra Leone	1.02 (0.17)	1.15 (0.13)	0.93 (0.07)	1.17** (0.09)	1.03 (0.08)	0.96 (0.19)	0.86 (0.15)	1.10 (0.11)	0.84 (0.13)	1.31** (0.15)
Tanzania	0.29*** (0.12)	1.58*** (0.13)			1.46*** (0.11)	0.83 (0.37)	1.33 (0.37)		1.05 (0.20)	2.87** (1.21)
Turkey	0.88 (0.12)	1.04 (0.12)	0.81*** (0.07)	1.29*** (0.11)	1.04 (0.08)	0.74 (0.19)	0.98 (0.23)	0.97 (0.09)	0.67** (0.12)	1.05 (0.15)
Uganda	1.20 (0.16)	0.82 (0.12)	0.98 (0.08)	1.36*** (0.07)	1.24*** (0.06)	0.93 (0.18)	0.93 (0.16)	1.06 (0.09)	0.88 (0.08)	1.03 (0.10)
Zambia			0.90* (0.05)	1.30*** (0.07)	0.94 (0.07)	0.81 (0.12)	0.83* (0.09)	0.91 (0.06)	0.87 (0.12)	0.78* (0.12)

Notes: Coefficients are given as relative risks. *: p < 0.1, **: p < 0.05, ***: p < 0.01. A 1.10 relative risk indicates that being a child bride increases the risk of the outcome being true by 10%.

Table A3: Estimated deaths due to health outcomes

	Inclusive			Conservative		
Country	**Under-5 deaths**	**Maternal deaths**	**Total deaths**	**Under-5 deaths**	**Maternal deaths**	**Total deaths**
Bangladesh	15,820	238	16,058	15,820	79	15,899
Burkina Faso	11,690	461	12,151	11,690	154	11,844
Chad	1,820	985	2,805	NS	328	328
Congo (Dem. Rep.)	8,238	1,012	9,250	NS	337	337
Cote d'Ivoire	3,322	481	3,802	NS	160	160
Egypt	-973	84	-890	NS	28	28
Ethiopia	-3,033	534	-2,499	NS	178	178
Ghana	-1,495	375	-1,120	NS	125	125
Guatemala	-141	205	63	NS	68	68
Guinea	4,637	687	5,324	4,637	229	4,866
India	35,202	1,142	36,344	35,202	381	35,583
Indonesia	6,024	416	6,440	NS	139	139
Madagascar	5,919	462	6,380	5,919	154	6,073
Malawi	855	296	1,151	NS	99	99
Mali	3,861	495	4,356	NS	165	165
Mauritania	269	657	926	NS	219	219
Mozambique	5,775	375	6,150	NS	125	125
Nepal	1,809	381	2,191	NS	127	127
Niger	-9,466	599	-8,867	NS	200	200
Nigeria	40,742	852	41,594	NS	284	284
Pakistan	22,886	711	23,596	NS	237	237
Senegal	-124	688	563	NS	229	229
Sierra Leone	2,893	1,178	4,071	2,893	393	3,286
Tanzania	35,210	561	35,771	35,210	187	35,397
Turkey	183	81	263	NS	27	27
Uganda	1,423	310	1,733	NS	103	103
Zambia	-2,695	389	-2,306	-2,695	130	-2,565
Total	**190,651**	**14,655**	**205,300**	**108,676**	**4,885**	**113,561**

Notes: Inclusive: Deaths calculated for all countries regardless of statistical significance of estimated impacts from early marriage (shown in Table A2). Conservative: Deaths calculated only for countries with statistically significant impacts from early marriage (shown in Table A2) with the exception that the maternal mortality calculation does not have to pass the bar of "statistical significance" because it does not use a regression estimate. Estimates are in purchasing power parity (PPP) terms. NS = estimated impacts were not statistically significant.

Table A4: Estimated DALYs (thousands) lost due to health outcomes

	Inclusive				Conservative			
Country	**Intimate partner violence**	**Miscarriage or abortion**	**Under-5 mortality**	**Maternal mortality**	**Intimate partner violence**	**Miscarriage or abortion**	**Under-5 mortality**	**Maternal mortality**
Bangladesh		0.00	1520.70	18.30		0.00	1520.70	6.10
Burkina Faso	0.20	0.00	1074.00	34.70	0.20	0.00	1074.00	11.60
Chad	0.30	0.00	165.70	72.60	0.70	0.00	NS	24.20
Congo (Dem. Rep.)	3.00	0.00	764.00	74.80	3.00	0.00	NS	24.90
Cote d'Ivoire	-0.30	0.00	307.30	36.00	NS	NS	NS	12.00
Egypt	1.70	0.00	-98.60	7.20	1.70	0.00	NS	2.40
Ethiopia	3.50	0.00	-283.00	40.60	3.50	NS	NS	13.50
Ghana	0.40	0.00	-140.60	28.50	NS	0.00	NS	9.50
Guatemala	0.40	0.00	-13.60	16.00	0.40	0.00	NS	5.30
Guinea		0.00	425.90	51.30		0.00	425.90	17.10
India	45.60	0.20	3444.20	84.80	45.60	0.20	3444.20	28.30
Indonesia		0.00	579.70	31.00		0.00	NS	10.30
Madagascar	0.30	0.00	549.30	35.00	NS	NS	549.30	11.70
Malawi	1.00	0.00	80.00	22.80	1.00	0.00	NS	7.60
Mali	1.00	0.00	354.30	37.20	1.00	0.00	NS	12.40
Mauritania	0.10	0.00	25.80	48.80	NS	0.00	NS	16.30
Mozambique	2.70	0.00	536.90	28.90	2.70	0.00	NS	9.60
Nepal	2.20	0.00	173.80	29.80	2.20	0.00	NS	9.90
Niger		0.00	-867.60	44.70		0.00	NS	14.90
Nigeria	2.30	0.10	3731.30	63.60	2.30	0.10	NS	21.20
Pakistan	5.30	0.10	2156.90	54.10	5.30	0.10	NS	18.00
Senegal	0.50	0.00	-11.80	51.00	0.50	0.00	NS	17.00
Sierra Leone	0.10	0.00	265.00	87.00	0.10	NS	265.00	29.00
Tanzania		0.00	3288.40	42.60		0.00	3288.40	14.20
Turkey	3.20	0.00	18.90	6.80	3.20	NS	NS	2.30
Uganda	3.20	0.00	131.10	25.50	3.20	0.00	NS	8.50
Zambia	1.10	0.00	-252.40	30.80	1.10	NS	-252.40	10.30
Total	**77.80**	**0.40**	**17925.60**	**1104.40**	**77.70**	**0.40**	**10315.10**	**368.10**

Notes: Inclusive: Deaths calculated for all countries regardless of statistical significance of estimated impacts from early marriage (shown in Table A2). Conservative: DALYs estimated only for outcomes with statistically significant impacts from early marriage (shown in Table A2) with the exception that the maternal mortality calculation does not have to pass the bar of "statistical significance"' because it does not use a regression estimate. Estimates are in purchasing power parity terms. NS = estimated impacts were not statistically significant. DALYs = disability-adjusted life years.

Table A5: Estimated economic costs from health outcomes (US$ PPP millions)

	Inclusive	Conservative	Inclusive	Conservative	Inclusive	Conservative	Inclusive	Conservative
Country	**Intimate partner violence**		**Miscarriage or abortion**		**Under-5 mortality**		**Maternal mortality**	
Bangladesh			0.33	0.33	14669.4	14669.39	176.46	58.82
Burkina Faso	0.59	0.59	0.04	0.04	3110.54	3110.54	100.59	33.53
Chad	0.8	0.8	0.09	0.09	490.76	NS	214.99	71.66
Congo (Dem. Rep.)	5.13	5.13	0.05	0.05	1306.2	NS	127.83	42.61
Cote d'Ivoire	-2.28	NS	0.02	NS	2351.57	NS	275.72	91.91
Egypt	32.79	32.79	0.48	0.48	-1883.5	NS	137	45.67
Ethiopia	11.57	11.57	0.09	NS	-927.96	NS	133.21	44.4
Ghana	2.97	NS	0.06	0.06	-1128.9	NS	229.09	76.36
Guatemala	6.33	6.33	0.19	0.19	-194.96	NS	230.36	76.79
Guinea			0.07	0.07	1950.39	1950.39	234.68	78.23
India	508.69	508.69	2.48	2.48	38433.2	38433.17	946.27	315.42
Indonesia			0.21	0.21	9534.29	NS	510.58	170.19
Madagascar	0.62	NS	-0.01	NS	1034.62	1034.62	65.94	21.98
Malawi	1.83	1.83	0.01	0.01	148.84	NS	42.46	14.15
Mali	3.18	3.18	0.03	0.03	1172.38	NS	122.97	40.99
Mauritania	0.58	NS	0.01	0.01	187.33	NS	355.05	118.35
Mozambique	4.66	4.66	0.03	0.03	912.62	NS	49.15	16.38
Nepal	12.73	12.73	0.22	0.22	996.86	NS	171.19	57.06
Niger			0.09	0.09	-1748.1	NS	90.12	30.04
Nigeria	14.77	14.77	0.48	0.48	24029.2	NS	409.56	136.52
Pakistan	33.2	33.2	0.77	0.77	13560.5	NS	340.23	113.41
Senegal	2.56	2.56	0.02	0.02	-60.22	NS	260.59	86.86
Sierra Leone	0.49	0.49	0	NS	931.6	931.6	305.91	101.97
Tanzania			0.14	0.14	13879.7	13879.74	179.66	59.89
Turkey	138.51	138.51	0.19	NS	832.33	NS	299.35	99.78
Uganda	10.45	10.45	0.09	0.09	429.56	NS	83.48	27.83
Zambia	4.82	4.82	-0.02	NS	-1066	-1066.04	130.1	43.37
Total	**794.99**	**793.1**	**6.16**	**5.89**	**122952**	**72943.41**	**6222.54**	**2074.17**

Notes: Inclusive: Costs calculated for all countries regardless of statistical significance of estimated impacts from early marriage (shown in Table A2). Conservative: Costs estimated only for outcomes with statistically significant impacts from early marriage (shown in Table A2) with the exception that the maternal mortality calculation does not have to pass the bar of "statistical significance" because it does not use a regression estimate. Estimates are in purchasing power parity (PPP) terms. NS = estimated impacts were not statistically significant.

Table A6: Estimated economic costs from health outcomes (US$ millions) (nominal)

	Inclusive	Conservative	Inclusive	Conservative	Inclusive	Conservative	Inclusive	Conservative
Country	**Intimate partner violence**		**Miscarriage or abortion**		**Under-5 mortality**		**Maternal mortality**	
Bangladesh			0.09	0.09	3943.69	3943.69	47.44	15.81
Burkina Faso	0.2	0.2	0.01	0.01	1060.39	1060.39	34.29	11.43
Chad	0.28	0.28	0.03	0.03	168.35	NS	73.75	24.58
Congo (Dem. Rep.)	1.94	1.94	0.02	0.02	494.63	NS	48.41	16.14
Cote d'Ivoire	-0.81	NS	0.01	NS	832.63	NS	97.63	32.54
Egypt	5.73	5.73	0.08	0.08	-329.32	NS	23.95	7.98
Ethiopia	3.57	3.57	0.03	NS	-286.18	NS	41.08	13.69
Ghana	0.89	NS	0.02	0.02	-338.34	NS	68.66	22.89
Guatemala	2.71	2.71	0.08	0.08	-83.45	NS	98.6	32.87
Guinea			0.03	0.03	731.34	731.34	88	29.33
India	122.93	122.93	0.6	0.6	9287.79	9287.79	228.68	76.23
Indonesia			0.06	0.06	2855.04	NS	152.89	50.96
Madagascar	0.18	NS	0	NS	299.36	299.36	19.08	6.36
Malawi	0.5	0.5	0	0	40.69	NS	11.61	3.87
Mali	1.04	1.04	0.01	0.01	384.87	NS	40.37	13.46
Mauritania	0.17	NS	0	0	53.66	NS	101.7	33.9
Mozambique	1.77	1.77	0.01	0.01	347.55	NS	18.72	6.24
Nepal	3.21	3.21	0.06	0.06	251.5	NS	43.19	42.02
Niger			0.03	0.03	-627.02	NS	32.33	10.78
Nigeria	1.85	1.85	0.06	0.06	3010.99	NS	51.32	17.11
Pakistan	7.84	7.84	0.18	0.18	3202.48	NS	80.35	76.2
Senegal	0.87	0.87	0.01	0.01	-20.55	NS	88.93	71.79
Sierra Leone	0.12	0.12	0	NS	231.44	231.44	76	122.52
Tanzania			0.04	0.04	3899.22	3899.22	50.47	59.93
Turkey	48.79	48.79	0.07	NS	293.15	NS	105.44	9.59
Uganda	3.42	3.42	0.03	0.03	140.67	NS	27.34	35.88
Zambia	1.41	1.41	-0.01	NS	-311.71	-311.71	38.04	43.37
Total	**208.61**	**208.18**	**1.55**	**1.45**	**29532.87**	**19141.52**	**1788.27**	**887.47**

Notes: Inclusive: Costs calculated for all countries regardless of statistical significance of estimated impacts from early marriage (shown in Table A2). Conservative: Costs estimated only for outcomes with statistically significant impacts from early marriage (shown in Table A2) with the exception that the maternal mortality calculation does not have to pass the bar of "statistical significance" because it does not use a regression estimate. Estimates are in nominal terms. NS = estimated impacts were not statistically significant.

Table A7: The total loss of earnings attributable to child marriage in 2024

Country	Prevalence of child marriage (18-49, %)	Average marginal effect of child marriage on secondary completion (percentage point)	Annual wage difference (US$ 2021 PPP, Mincer)	Loss of earnings per child bride (US$ 2021 PPP, annual)	Total number of female labor force participants who experienced child marriage (2024)	Total loss of earnings (US$ millions 2021 PPP values)	% of 2024 GDP (nominal)	Total loss of earnings (US$ millions 2024 PPP values)
Bangladesh	44.21	-18.05	502.66	90.75	12633543	1146.46	0.2897	1486.3
Burkina Faso	39.47	-10.34	2,789.80	288.38	1128794	325.52	1.6011	379.12
Chad	67.96	-3.1	872.56	27.04	1812615	49.01	0.2856	55.2
Congo (Dem. Rep.)	32.75	-16.02	54.47	8.73	6115244	53.37	0.0855	69.31
Côte d'Ivoire	28.29	-10.75	2214.44	238.12	1536964	365.98	0.4778	464.3
Egypt	26.58	-31.99	571.36	182.79	1581877	289.16	0.0845	354.4
Ethiopia	52	-7.93	312.94	24.82	12089646	300.01	0.2279	381.05
Ghana	21	-24.98	727.85	181.79	1439596	261.71	0.3616	317.65
Guatemala	33.32	-23.53	763.34	179.58	863062	154.99	0.1557	188.32
Guinea	45.84	-7.12	23515.35	1674.75	854797	1431.57	6.5108	1748.03
India	34.96	-24.06	694.59	167.12	60955025	10186.81	0.2963	14122.29
Indonesia	26.74	-42.27	1168.45	493.85	15061511	7438.12	0.6059	9590.31
Madagascar	37.8	-16.66	469.67	78.24	3040163	237.87	1.5531	284.03
Malawi	44.34	-16.09	364	58.58	1871445	109.64	1.102	120.68
Mali	47.53	-11	4825.8	530.98	1803623	957.68	4.0652	1135.28
Mauritania	38.58	-8.35			155544			
Mozambique	46.45	-7.78			3686938			
Nepal	42.76	-22.48	602.44	135.45	1343041	181.92	0.4822	229.55
Niger	76.91	-2.69	1345.15	36.21	3294016	119.27	0.6825	154.2
Nigeria	42.14	-23.19	384.66	89.21	23122571	2062.8	0.9301	2470.12
Pakistan	34.32	-22.66	861.42	195.2	6557453	1279.99	0.3918	1491.01
Senegal	30	-12.02	645.55	77.58	635786	49.32	0.171	59.92
Sierra Leone	35.18	-8.75			486177			
Tanzania	30.87	-24.77	4396.71	1088.86	4984596	5427.52	7.5874	6558.23
Turkey	18.91	-32.49	2344.38	761.8	2323836	1770.29	0.1481	2488.06
Uganda	39.39	-17.01	716.59	121.89	4341573	529.2	1.1165	645.17
Zambia	34.97	-21.69	1847.01	400.68	1194965	478.8	2.1522	576.1
Total						**35207.01**		**45368.63**

Notes: Analysis of earnings losses excludes Mauritania, Mozambique, and Sierra Leone due to missing data.

Funding Landscape

Tracking funding to end child marriage requires a systematic and multisource approach. The research draws on several sources of published international funding data: The International Aid Transparency Initiative (IATI) Standard, OECD Development Assistance Committee Creditor Reporting System (OECD–DAC CRS), and Candid, a set of grants data taken from tax filings by philanthropic funds and foundations, mostly in the United States.[4] Drawing on these multiple sources captures more funders and more project detail than relying only on OECD–DAC CRS data. Having this additional detail is particularly important given that there is no specific consistently applied tag or marker relating to addressing child, early, and forced marriage.

The analysis focuses on funding for projects with a primary objective of ending child marriage (primary ECM funding) as the core measure of funding, because the full project values can be clearly assigned to the objective of addressing child, early, and forced marriage. The analysis also examines funding for projects addressing child marriage as one of several objectives or as a result indicator (secondary ECM funding). However, it is not possible to determine the amount (or even the proportion) of secondary ECM funding that is specifically directed toward the explicit objective of ECM. Analysis of secondary funding demonstrates trends in relation to the integration of ending child marriage into wider sectoral programming and funding.

Between 2015 and 2023, only 0.025 percent of total official development assistance (ODA) funding went to projects with a primary objective of ending child marriage (primary ECM funding), and 0.081 percent of total ODA went to secondary ECM funding. Total ODA over this period was around $1.5 trillion.

Philanthropic funding made up 23 percent of total primary ECM funding between 2015 and 2023, providing a substantial complement to ODA funding and a core source of support for efforts to address child, early, and forced marriages and unions (CEFMU). The top 10 primary ECM funders include bilateral funders (Canada, the Netherlands, Norway, Sweden, and the United Kingdom) as well as foundations (Kendeda Fund, Ford Foundation, Gates Foundation, and Packard Foundation). Philanthropic funding makes up a much smaller proportion of total secondary ECM funding (only 5 percent). Nine of the top 10 funding sources came from ODA (including funding from top primary ECM funders and Belgium, Denmark, the European Commission, and the United States).

Total secondary ECM funding was over 2.5 times higher than total primary ECM funding from 2015 to 2023, and it increased over time, while primary ECM funding peaked in 2019 and has since been declining, highlighting an increasing amount of funding allocated to projects with multidimensional objectives that include interventions intended to address child marriage.

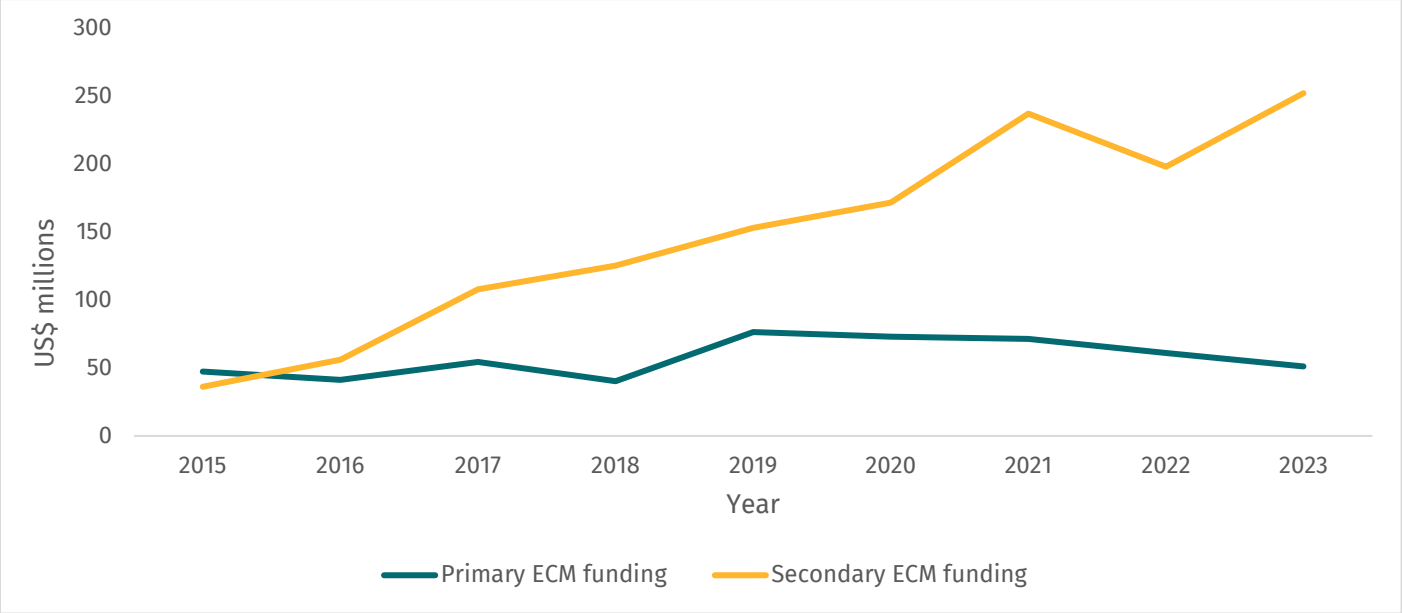
From 2015 to 2023, total primary ECM funding was $516.2 million (including ODA and philanthropic funding), compared with $1.338 billion of total secondary ECM funding, with an average of $61.2 million per year over

[4] This analysis of the funding landscape draws on "International Funding to End Child Marriage: Reviewing a Decade of Investment" Girls Not Brides and Girls First Fund, March 2026 https://www.girlsnotbrides.org/learning-resources/resource-centre/international-funding-end-child-marriage-2015-2024-report/.

the last three years of that period (2021–2023) for primary ECM funding and $229.3 million per year for secondary ECM funding. After starting at a level below primary ECM funding in 2015, secondary ECM funding increased to being almost five times the level of primary ECM funding in 2023.

This increase in secondary relative to primary ECM funding mirrors the pattern for funding for gender equality funding more broadly—with declines in funding to projects with a principal objective of gender equality over time and increases in funding to projects with a significant objective of gender equality (i.e., projects in which gender equality is a deliberate goal but not the principal objective). Evidence has demonstrated the importance of multi-sectoral responses for sustainable solutions to address child marriage. If we want to see a substantial reduction in child marriage, we therefore need to see an increase in projects that bring together multiple sectors to work toward ending child marriage. Nevertheless, while it is desirable to see the goal of addressing child marriage integrated into other projects, we also certainly want to see an increase in funding with a primary goal of addressing child marriage.

Figure A2: Trends in primary and secondary ECM funding (2015–2023)



Source: Data analysis by Publish What You Fund for "International Funding to End Child Marriage: Reviewing a Decade of Investment" Girls Not Brides and Girls First Fund, March 2026 https://www.girlsnotbrides.org/learning-resources/resource-centre/international-funding-end-child-marriage-2015-2024-report.

Primary ECM funding looks set to continue its decline, with many of the top bilateral funders cutting back ODA and shifting away from a focus on gender equality, while some prominent philanthropic funding has also wound down (e.g., from Kendeda Fund). Donor Tracker's analysis of bilateral funding announcements projects that Belgium, Canada, the Netherlands, the United Kingdom, and the United States will have substantial ODA cuts over the next two years, leaving only Norway, Sweden, and EU institutions as the top primary or secondary ECM funders with limited projected ODA cuts.[5] Beyond announcing overall cuts in

[5] SEEK Development, "Donor Tracker: An initiative by SEEK Development," 2025, https://donortracker.org/.

funding, several of these bilateral donors have announced a shift away from focusing on gender equality as a foreign policy priority, suggesting that cuts to ECM funding could be even more severe than cuts to overall ODA.

Primary ECM funding is geographically concentrated. Two-thirds of primary ECM projects from 2015 to 2023 were in a specified country. Almost half of this country-specific funding went to three high-burden or high-prevalence countries: Bangladesh, Ethiopia, and Niger. This concentration indicates that global funding has been quite strategic, going to countries classified as low-income (e.g., Ethiopia and Niger) or lower-middle-income (e.g., Bangladesh) economies by the World Bank, with a high burden of child marriage or a high prevalence. Nonetheless, this concentration of funding potentially implies opportunities to identify additional high-impact projects to fund in settings that have historically received little funding.

Analysis of Funding Required

Using data from 27 high-burden and high-prevalence countries, over 54.5 million 8- to 13-year-old girls are estimated to be at risk of getting married between now and 2030, which represents 70 percent of the girls at risk in all low- and middle-income countries (expanding this analysis to encompass all low- and middle-income countries indicates a total of 78 million girls at risk). Furthermore, 19 million girls (1 in 20) are at risk of marriage before age 15. (See calculations in Tables A8 and A9.)

This analysis uses data on the global prevalence of child marriage and current population estimates to calculate numbers of at-risk girls each year between now and 2030. Specifically, UNICEF data were used on the prevalence of child marriage (percentage of women ages 20–24 who were first married or in union before age 18).[6] UN DESA data on the medium variant estimates of populations of girls ages 8–13 in 2025 were used.[7] Additionally, cost estimates were used from a review of data on the costs of implementing interventions to reduce child marriage.

Child marriage is driven by different factors in different contexts, so this analysis is agnostic about the type of intervention that would be implemented in each context. For example, interventions focused on addressing gender norms might be most effective in places with strong norms around child marriage, whereas economic strengthening interventions might be most effective in contexts where income is the primary driver. This analysis focuses instead on estimating the cost of delivering the most cost-effective intervention imaginable in any context. It assumes that the most cost-effective approach feasible could be used to serve all at-risk girls.

This analysis starts with an illustrative example in which all girls were served with the most cost-effective intervention available. Combining this with the number of girls at risk indicates that it would take a minimum of $21.5 billion to delay all child marriages under a best-case scenario in which all girls in low- and middle-income countries could be served at this cost through a one-off investment. Alternatively, if the aim is to decrease global child marriage prevalence from one in five to one in seven, it would take a minimum investment of $1.3 billion annually for the next five years. And eliminating marriage before age 15 would take a minimum investment of $1.05 billion annually for the next five years. This suggests that the current levels of primary ECM funding (averaging $61.2 million per year) are drastically insufficient to end child marriage. Given that service delivery is often more expensive in remote versus accessible areas, and that service delivery costs are also likely to differ by country income classification and geographic region, even under this assumption that all girls can be served with the lowest cost documented, the current funding levels are extremely low. Additionally, this analysis has assumed a one-off investment for all girls at risk, whereas in practice, larger annual investments may be required, particularly for interventions such as scholarships or reforms providing free secondary education.

What can be done to address this funding gap? As discussed in Section III, some of this investment could come from domestically mobilized resources instead of coming exclusively from international funding. One

[6] "Child Marriage Data," UNICEF, https://data.unicef.org/topic/child-protection/child-marriage/.
[7] "World Population Prospects 2024," United Nations Department of Economic and Social Affairs, Population Division, https://population.un.org/wpp/.

example of ongoing efforts of government co-investment with international funding is Kenya's Social and Economic Inclusion Project, a collaboration between the Kenyan government and the World Bank.[8]

Nonetheless, the minimum investment estimated is substantially larger than current global funding levels and would require strategic increases in funding. An additional dimension of strategic improvements in funding efficiency is the need for improvements in targeting and the ability for implementers to direct interventions toward girls who are at risk and would be most likely to benefit. Some degree of ECM funding will end up going to serve some participants (often both girls and boys) who are not at risk of child marriage and nevertheless deliver positive impacts to the well-being of program participants (e.g., funding for free secondary schooling will cover education costs for all students in the eligible age group, not only those at risk of child marriage).

The handful of cost estimates from published research cover a narrow geographic scope, with most studies coming from sub-Saharan Africa, Asia, and Latin America. There are limited data available for countries in East Asia Pacific and the Middle East / North Africa. Available cost data are limited to small-scale interventions, implemented in four sub-Saharan African countries, two Asian countries, and one Latin American country. Most cost data derive from interventions that provide a monetary transfer or reduce the cost of education, consequently reducing the household economic burden driving early marriage in many contexts. Most estimates also come from NGO-implemented interventions, making it difficult to estimate costs of delivering interventions through government-run systems at scale. It is possible that scaling up interventions and integrating them into public delivery systems could lower costs. To address these limitations, the aforementioned review of academic research was complemented by emerging insights from simulations of scaling up NGO-led multicomponent interventions.[9]

Altogether, this analysis of funding indicates that the most recent primary ECM levels of $61.2 million per year are equivalent to less than $1 a year for each of the 78 million girls at risk of child marriage. Secondary ECM funding levels are higher, averaging $229.3 million per year, but this still represents less than the estimated minimum investment level. To achieve the SDG goal of ending child marriage by 2030 will therefore require bold change.

[8]Labor Management Procedures, Second Kenya Social and Economic Inclusion Project (P504218), April 2025, https://www.childrenservices.go.ke/sites/default/files/%5BDownloads%5D/kseip%20ii/FINAL%20LABOUR%20MANAGEMENT%20PLAN-2025.pdf.

[9] Accelerate Hub, "High impacts and returns from investing in adolescent girls at scale in Northern Nigeria," Policy Brief, 2025, https://www.acceleratehub.org/wp-content/uploads/2025/12/Evidence-brief-Nigeria.pdf.

Table A8: Funding required to end child marriage

Country	Child marriage prevalence (%)	Population of 8–13-year-old girls (thousands)	Girls at risk of marriage by 2030 (thousands)	Minimum investment to avert all child marriages (US$ millions)	Minimum investment to go from 1 in 5 to 1 in 7 child marriages (US$ millions)
India	23%	72047	16787	4633	1390
Nigeria	30%	18293	5543	1530	459
Bangladesh	51%	9399	4765	1315	395
Ethiopia	40%	9300	3748	1034	310
Pakistan	18%	18033	3300	911	273
Congo (Dem. Rep.)	29%	8761	2549	704	211
Indonesia	16%	14394	2346	648	194
Niger	76%	2253	1719	475	142
Tanzania	29%	5224	1520	420	126
Uganda	34%	4061	1381	381	114
Mozambique	48%	2817	1364	376	113
Egypt	16%	7611	1203	332	100
Mali	54%	2039	1095	302	91
Burkina Faso	51%	1921	986	272	82
Chad	61%	1618	980	271	81
Madagascar	39%	2317	899	248	74
Malawi	38%	1737	655	181	54
Nepal	35%	1694	591	163	49
Turkey	15%	4022	591	163	49
Guinea	47%	1109	516	142	43
Zambia	29%	1692	491	135	41
Senegal	30%	1329	401	111	33
Ghana	16%	2424	390	108	32
Guatemala	30%	1189	351	97	29
Sierra Leone	30%	632	187	52	15
Mauritania	37%	406	148	41	12
Total Main Sample	28%	196,323	54,506	15,044	4,513
Total Remaining LMIC	14%	167,861	23,485	6,482	1,945
Total	**21%**	**364,185**	**77,991**	**21,526**	**6,458**

Notes: This analysis includes all low- and middle-income countries. The UNICEF global datasets did not have information on early marriage prevalence for 11 countries: 1 low-middle-income country, 9 upper-middle-income countries, and 1 country without an income classification (Venezuela). For these countries, data were imputed using the average early marriage prevalence from other countries in the same income bracket and region.

Sources: Population data come from "World Population Prospects: The 2024 Revision," United Nations, Department of Economic and Social Affairs, Population Division, 2024, https://population.un.org/wpp/. Note: custom data acquired via website. Child marriage prevalence data come from UNICEF Global Databases, 2025, based on DHS, MICS, and other national surveys. https://data.unicef.org/topic/child-protection/child-marriage/. Estimates of cost per child marriage averted come from authors' evidence review.

Table A9: Funding required to end marriage before age 15

Country	Child marriage prevalence (married before 15) (%)	Population of 8–13-year-old girls (thousands)	Girls at risk of marriage by 2030 (thousands)	Minimum investment to avert all child marriages (US$ millions)	Minimum investment to go from 1 in 5 to 1 in 7 child marriages (US$ millions)
India	5%	72047	3458	954	286
Nigeria	12%	18293	2250	621	186
Bangladesh	17%	9399	1570	433	130
Ethiopia	14%	9300	1311	362	109
Congo (Dem. Rep.)	8%	8761	736	203	61
Pakistan	4%	18033	649	179	54
Niger	28%	2253	631	174	52
Chad	24%	1618	392	108	32
Mozambique	13%	2817	363	100	30
Mali	16%	2039	324	89	27
Uganda	7%	4061	296	82	25
Madagascar	13%	2317	294	81	24
Indonesia	2%	14394	288	79	24
Tanzania	5%	5224	272	75	22
Guinea	17%	1109	189	52	16
Burkina Faso	9%	1921	171	47	14
Egypt	2%	7611	137	38	11
Malawi	8%	1737	130	36	11
Senegal	9%	1329	120	33	10
Nepal	6%	1694	98	27	8
Zambia	5%	1692	88	24	7
Turkey	2%	4022	80	22	7
Ghana	3%	2424	80	22	7
Guatemala	6%	1189	74	20	6
Mauritania	16%	406	63	17	5
Sierra Leone	9%	632	54	15	5
Total Main Sample	7%	196,323	14119	3897	1169
Total Remaining LMIC	3%	167,861	4816	1329	399
Total	**5%**	**364,185**	**18,935**	**5,226**	**1,568**

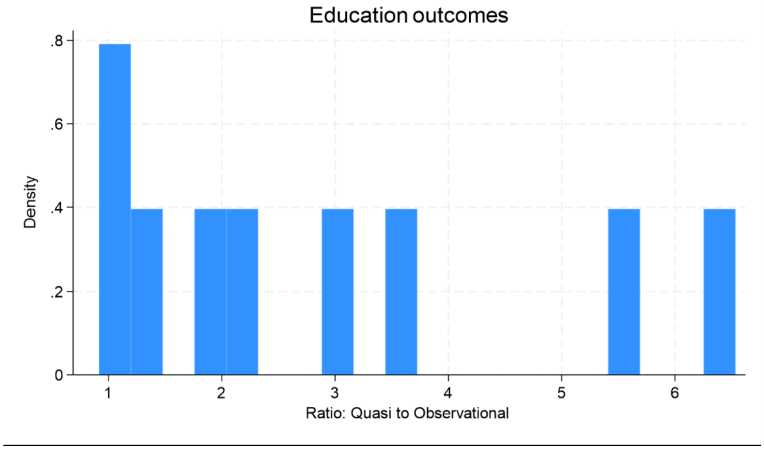
Notes and Souces: Same as Table A8.

Appendix B: Methodology

Economic Cost of Inaction

Existing evidence and outcomes of interest: This analysis began by searching for papers estimating the impacts of child marriage on the outcomes of focus in Wodon et al., using Google Scholar.[10] All papers found that reported an estimate based on an experimental or quasi- experimental method were collated; the effect sizes from these papers were then extracted, including effect sizes calculated using observational methods. This resulted in 18 papers, and 100 separate effect sizes in total. The magnitudes of effect sizes estimated using quasi-experimental methods were then compared with those using observational methods from the same paper. Figure B1 (showing this comparison for impacts on education outcomes) demonstrates that effect sizes from quasi-experimental methods tend to be substantially larger than effect sizes from using observational methods in the same paper. Based on this finding, it was concluded that estimating impacts using observational methods would be a conservative approach; this approach was adopted for all outcomes, as there were too few papers found using experimental or quasi-experimental methods to extrapolate from the existing evidence and draw conclusions for all outcomes and across all the countries under analysis.

Figure B1: Ratio of effect sizes from quasi-experimental methods to observational methods



Note: This figure shows a histogram of the ratio of quasi-experimental to observational effect sizes. For each study that estimated equivalent effect sizes (identically specified exposure and outcome variables) using a quasi-experimental method and an observational method, the ratio between them was calculated. The graph shows that for almost all studies, the effect size using the quasi-experimental method was larger than that using the observational method and was sometimes many times larger.

While the approach used in this analysis does not definitively rule out the possibility of confounding factors, it reduces the most likely sources of upward bias (e.g., comparing child mortality rates of married and unmarried adolescent girls holds age constant so that differences are not driven by differences in age

[10] These outcomes were: fertility, child mortality, educational attainment, intimate partner violence, child health, household decision-making, child stunting and wasting, and earnings.

at first birth but reflect differences associated with being married). Altogether, the aforementioned comparison of correlational estimates to quasi-experimental estimates for studies that reported results using both approaches indicated that quasi-experimental estimates typically exceeded correlational estimates, suggesting that our approach provides a conservative (downward-biased) estimate, implying that the costs of inaction could be even higher than what we estimate. The subsequent analysis adopts this conservative approach so that the resulting estimates do not overstate the likely costs of child marriage.

Country focus: This analysis produces estimates for 27 countries, shown in Table B1. These countries were selected based on the prevalence of child marriage, the overall burden of child marriage, whether countries were selected for country profiles for this report, and whether they had a recent DHS survey available. These countries account for 70 percent of the global burden of child marriage.

Data and Methods: This analysis uses DHS data to estimate impacts on outcomes focused on by Fang et al. (2024): Outcomes and control variables were defined as described in Table B2.[11] The impacts and the associated burden were estimated following a modified version of the approach used by Fang et al. (2024) to estimate the economic burden of child marriage in Nigeria.[12] The approach—conducted separately for each country—is detailed below. Child marriage, defined as being in a marriage or union before the age of 18, is included as the variable of interest in the regressions.

[11] Fang et al, "The economic burden of child marriage in Nigeria."
[12] Fang et al, "The economic burden of child marriage in Nigeria."

Table B1: Countries analyzed

	High burden	High prevalence	Country profile	Latest DHS year	New DHS	New or old DHS
Bangladesh	x	x		2022	x	x
Burkina Faso		x		2021	x	x
Chad			x	2014-2015		x
Cote d'Ivoire				2021	x	x
Congo (Dem. Rep.)	x			2013-2014		x
Egypt	x		x	2014		x
Ethiopia	x	x		2016		x
Ghana				2022	x	x
Guatemala*			x	2014-2015		x
Guinea		x		2018	x	x
India	x			2019-2021	x	x
Indonesia	x		x	2012	x	x
Madagascar*		x		2021	x	x
Malawi		x	x	2015-2016		x
Mali		x		2018	x	x
Mauritania		x		2019-2021	x	x
Mozambique	x	x		2022-2023	x	x
Nepal	x	x		2022	x	x
Niger	x	x	x	2012		x
Nigeria	x			2018	x	x
Pakistan	x		x	2017-2018	x	x
Senegal				2018	x	x
Sierra Leone*			x	2019	x	x
Tanzania*	x			2022	x	x
Turkey*	x			2018*	x	x
Uganda	x			2016		x
Zambia				2018	x	x
TOTAL					**19**	**27**

*Green are newly added countries with new data (Guatemala, Madagascar, Sierra Leone, Tanzania, and Turkey). Red are countries in Wodon et al., but with no updated data. Countries not included from Wodon et al.'s sample are: Dominican Republic, Peru, and Democratic Republic of Congo. These three were replaced because they are neither high burden nor high prevalence and they have old DHS surveys (2012). This analysis uses Indonesia's earlier survey from 2012 and Senegal's earlier survey from 2018, as more recent surveys were missing key variables.

Table B2: Outcomes analyzed

Variable	*Definition [with DHS variable codes]*
Woman's outcomes	
Underweight	Body mass index [v445] less than 18.5
Obese	Body mass index [v445] greater than 30
Anemia	Hemoglobin level [v453] less than 12 grams per liter of blood (g/L)
IPV	Having experienced an instance of physical or sexual violence inflicted by an intimate partner within the previous 12 months
Miscarriage or abortion	Having ever experienced a pregnancy which ended in miscarriage, abortion, or stillbirth [v228]
Maternal mortality	Death of the mother caused by pregnancy
Secondary completion	Completing secondary school [v149]
Child's outcomes	
Underweight	Body mass index lower than 2 standard deviations below the median, based on the WHO Child Growth Standards [hw73]
Obese	Body mass index higher than 2 standard deviations above the median, based on the WHO Child Growth Standards [hw73]
Anemia	Hemoglobin level below 11 g/dl [hw57]
Low birthweight	Child birthweight [m19] below 2500 grams
Under-5 mortality	Child dies before the age of 5
Control variables	
Women's age group	Dummies for age [v012] categorized as: 15–17 (reference category), 18–24, 25–29, 30–34, 35–39, 40–44, 45–49
Region	Dummies for region in each country [v024]
Urban-rural	Dummy equal to 1 if living in a rural area [v025]
Marital status	[v501]: Never in union (reference category); married; widowed; divorced; no longer living together/separated
No education	Highest education level listed as "no education"
Child sex	[b4]
Child age	[b8]

Step 0: Estimating the prevalence of child marriage among working-age females

From nationally representative household survey data (DHS data from the latest available year), the proportion of working-age women (between 18 and 49 years of age) who had been married before the age of 18 was extracted. The same was done for the prevalence of child marriage across age groups in five-year brackets, from 15 to 49 years of age.

Impact on Health

Step 1: Estimating the impacts of child marriage on health outcomes

This analysis used logistic regression to estimate the risks associated with several outcomes related to the health of the child bride and her children. The sample was women ages 18–49, and their children under the age of 5. In line with Fang et al. (2024), this analysis adjusted for: women's age in multi-year groups (18–24, 25–29, 30–34, 35–39, 40–44, 45–49); de facto region of residence; area of residence (urban versus rural); current marital status of the respondent (never in a union, married/living with partner, widowed/divorced/no longer living together/separated); and whether the women received no education. Additionally, child gender and age were included as control variables for child outcomes, and child gender was included as a control variable for the child mortality outcome.

Regressions were estimated for all countries, and the results were inspected across outcomes and countries. The results showed statistically significant estimates most frequently for the relationship between early marriage and intimate partner violence, miscarriage/abortion, and under-5 mortality. The analysis subsequently followed steps 2–4 below for these outcomes, to estimate the economic costs associated with these impacts.

Step 2: Estimating population-attributable fraction for each outcome resulting from child marriage
Using the method of Greenland and Drescher (1993), population-attributable fractions (PAF) were estimated for each outcome.[13] This gives the percentage of burden of a disease or risk factor in a population that would be eliminated, were a condition—in this case the elimination of child marriage—to be fulfilled. This is based on the results from step 0—the prevalence of child marriage in the population—and step 1—the impact of child marriage on the risk of the outcome. The analysis only executed step 2 for countries where a statistically significant estimate was found—at a 0.1 significance level—for the respective outcome in step 1.

Step 3: Estimating costs arising from these impacts
Also following Fang et al. (2024), these health impacts were converted from child marriage in each country into economic costs using a two-stage process:

i. Estimate the disability-adjusted life years (DALYs) lost from the impact of child marriage, through the specific outcome.
ii. Convert the DALY loss into a monetary value assuming one DALY is equal to the country's per capita GDP.

To execute the first stage, the PAF for each outcome was multiplied by the overall DALY loss from each outcome, as estimated in the Global Burden of Disease (GBD) Study (2021).[14] Each outcome was matched to its closest cause or risk factor category in the GBD: For anemia, this was "haemoglobinopathies and hemolytic anemias," and for obesity this was "high body mass index." While these are defined slightly differently from the outcomes in the DHS data, the overlap is strong enough for these to present a reasonable approximation. The outcome of the mother being underweight does not have an associated burden in the GBD study; consequently, it was not included in estimates of economic costs. As the analysis included separate impacts on child and maternal mortality, only the Years Lost to Disability was used for the other outcomes, to avoid double counting the impacts of child marriage on maternal and child mortality. DALYs were used for women ages 15–49 for the health impacts on women 18–49, as this was the closest age category available.

[13] Sander Greenland and Karsten Drescher, "Maximum Likelihood Estimation of the Attributable Fraction from Logistic Models," *Biometrics* 49, no. 3 (1993), https://pubmed.ncbi.nlm.nih.gov/8241375/.
[14] "Global Burden of Disease (GBD)," Institute for Health Metrics and Evaluation, https://www.healthdata.org/research-analysis/gbd.

The method in WHO (2001) was used to convert DALY losses into an economic cost, which assumes that one DALY is equivalent to the country's GDP per capita (obtained from the World Bank), based on the idea that this corresponds to a year of productive capacity lost.[15]

Maternal Mortality

It is not possible to execute step 1 for maternal mortality, as the DHS lacks information on the characteristics of mothers who have died. This analysis therefore followed a different approach, also following Fang et al. (2024), who in turn used a method by Save the Children (2021), to estimate the impact of child marriage on maternal mortality, and the economic cost associated with this impact.[16] For each country, the number of child marriage–related maternal deaths for girls ages 15–19 was calculated as:

*No. of child marriage-related maternal deaths = adolescent birth rate (per 1,000 adolescent women)/1,000 * adolescent maternal mortality rate (per 100,000 live births)/100,000 * adolescent female population * the percentage of adolescent mothers who were already married/in a union when they gave birth * percentage of adolescent mothers for which child marriage caused pregnancy*

Data on the adolescent birth rate and the female population ages 15–19 were obtained from the World Bank; the maternal mortality rate for this age group was obtained from the GBD 2021 study; the percentage of adolescent mothers who were already married or in a union when they gave birth—90%—came from the global estimate by the United Nations Population Fund (2015); and the percentage of adolescent mothers for which child marriage caused pregnancy—15% in a conservative scenario and 45% in an intermediate scenario—came from Save the Children (2021).[17] The last parameter is used because even among child brides, some pregnancies are assumed to have occurred even under the alternative scenario that they had not been married.

To convert the number of child marriage–related maternal deaths to a DALY figure, the country-specific ratio of DALY loss to deaths from the GBD 2021 study was used; finally, this was converted into a monetary figure using the same approach as with other health outcomes, assuming one DALY to be equivalent to the country's GDP per capita.

[15] The most recent estimate of GDP per capita for Ethiopia is for 2022, so the analysis uses that value. For all other countries, the value for 2024 is used.
[16] "Child Marriage Kills More than 60 Girls a Day," Save the Children, October 11, 2021, https://www.savethechildren.net/news/child-marriage-kills-more-60-girls-day.
[17] *Girlhood, not Motherhood, Preventing Adolescent Pregnancy* (UNFPA, 2015), https://www.unfpa.org/sites/default/files/pub-pdf/Girlhood_not_motherhood_final_web.pdf; Joseph Molitoris et al, "Early Childbearing and Child Marriage: An Update," *Studies in Family Planning* 54, no. 3 (2023), https://onlinelibrary.wiley.com/doi/10.1111/sifp.12243. Provides an updated estimate that 76% of first births to adolescent mothers happen within marriage or a union globally. For the 27 countries in this analysis, this parameter ranges from a low of 36.8% in Mauritania to a high of 99.9% in Egypt, with a population-weighted average of 90%.

Impact on Education

Step 1: Estimating the marginal effect of child marriage on education
Using nationally representative household survey data (DHS data from the latest available year), the marginal effect of child marriage on women's educational attainment was estimated, specifically on the probability of completing secondary education or higher. The analysis controlled for key sociodemographic characteristics, including age (in five-year groups), region of residence, urban–rural status, current marital status, and household economic status (proxied by wealth quintiles). Average marginal effects capture the expected percentage point change in educational attainment associated with child marriage, holding these other factors constant.

Step 2: Translating education impact into earnings loss via Mincer returns
To convert the educational effect into a monetary loss, the per-year Mincer return to secondary education was used, as summarized in Psacharopoulos and Patrinos (2018).[18] Each additional year of schooling is associated with an average logarithmic return to earnings using a Mincerian model to derive private rates of return to schooling. The return coefficient for general secondary education attainment was used, due to higher data availability across countries. This rate of return is applied to the difference in completed secondary years between women who completed secondary or higher levels of education, and those who have only completed primary education or lower. This gives an implied wage premium (in percentage terms), which was multiplied by a baseline wage to estimate the annual earnings loss per case of child marriage. This baseline wage is derived from the International Labour Organization's data on average monthly earnings by sex and education.[19] The average monthly earnings were annualized for women who had completed only primary education or lower for the latest available year for a country. The difference between the Mincer-adjusted wage for years of education post-secondary completion and the baseline wage gave us the average annual wage difference for the girls married before 18. The loss of earnings per female married early is the product of this wage difference and the average marginal effect of child marriage on secondary attainment (Step 1).

Step 3: Scaling to the labor force
The total number of females labor force participants who had experienced child marriage was then estimated. For this, the analysis applied the prevalence of child marriage among women of working age (derived in Step 0) to the number of women in the labor force for the latest available year, extracted from the World Bank's World Development Indicators, to derive the number of women in the labor force who would have experienced child marriage.[20] Multiplying the estimated per-woman income loss from child marriage (Step 2) by this number yielded the total annual productivity loss attributable to child marriage. This figure was scaled using World Bank data to the latest year to express it in terms of US$ billions at 2024 values.

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[18] George Psacharopoulos and Harry Anthony Patrinos, "Returns to Investment in Education: A Decennial Review of the Global Literature," World Bank, April 2018, https://openknowledge.worldbank.org/handle/10986/29672.
[19] International Labor Organization, "Average Monthly Earnings of Employees by Sex and Education - Annual," ILOSTAT, https://rshiny.ilo.org/dataexplorer88/?lang=en&segment=indicator&id=EAR_4MTH_SEX_EDU_CUR_NB_A.
[20] World Bank, "Labor Force, Female (% of Total Labor Force)," World Bank World Development Indicators, https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS.

Funding to End Child Marriage

To estimate the minimum investment to serve all girls at risk, the following steps were applied:

1. **Target population:** This analysis focused on girls ages 8–13 in 2025, as this cohort is the most likely to be at risk of early marriage between 2025 and 2030. To estimate how many of these girls are at risk, the total population of girls ages 8–13 was multiplied by the percentage of girls married before age 18.

2. **Intervention costs:** Child marriage is driven by different factors in different contexts, so this analysis is agnostic about the type of intervention that would be implemented in each context. For example, interventions focused on addressing gender norms might be most effective in places with strong norms around child marriage, whereas economic strengthening interventions might be most effective in contexts where income is the primary driver. This analysis focuses instead on estimating the cost of delivering the most cost-effective intervention imaginable in any context. As an illustrative example for the analysis in this report, the costs from a multi-sectoral bundled intervention in Northern Nigeria were used.[21]

3. **Total minimum investment by country:** The number of girls at risk was multiplied by the estimated cost of averting a marriage. The results report estimates that consider (i) eliminating early marriage for all girls at risk of marriage by age 18, (ii) reducing the rate of global early marriage from one in five to one in seven, and iii) eliminating early marriage for all girls at risk of marriage by age 15.[22] Notably, these estimates do not include the opportunity costs of girls' forgone income (due to them switching away from paid work to attend school or to participate in intervention activities such as skills training) because the focus is on estimating funding requirements to implement an intervention.

4. **Global minimum investment:** Country-level estimates are aggregated to calculate the global investment required to serve all girls at risk.

[21] Accelerate Hub, "High Impacts and Returns From Investing in Adolescent Girls at Scale in Northern Nigeria," 2025.
[22] This assumes governments are able to target girls at risk perfectly.