



The economic  
impacts of  
child marriage

# ECONOMIC IMPACTS OF CHILD MARRIAGE: FERTILITY & POPULATION GROWTH BRIEF



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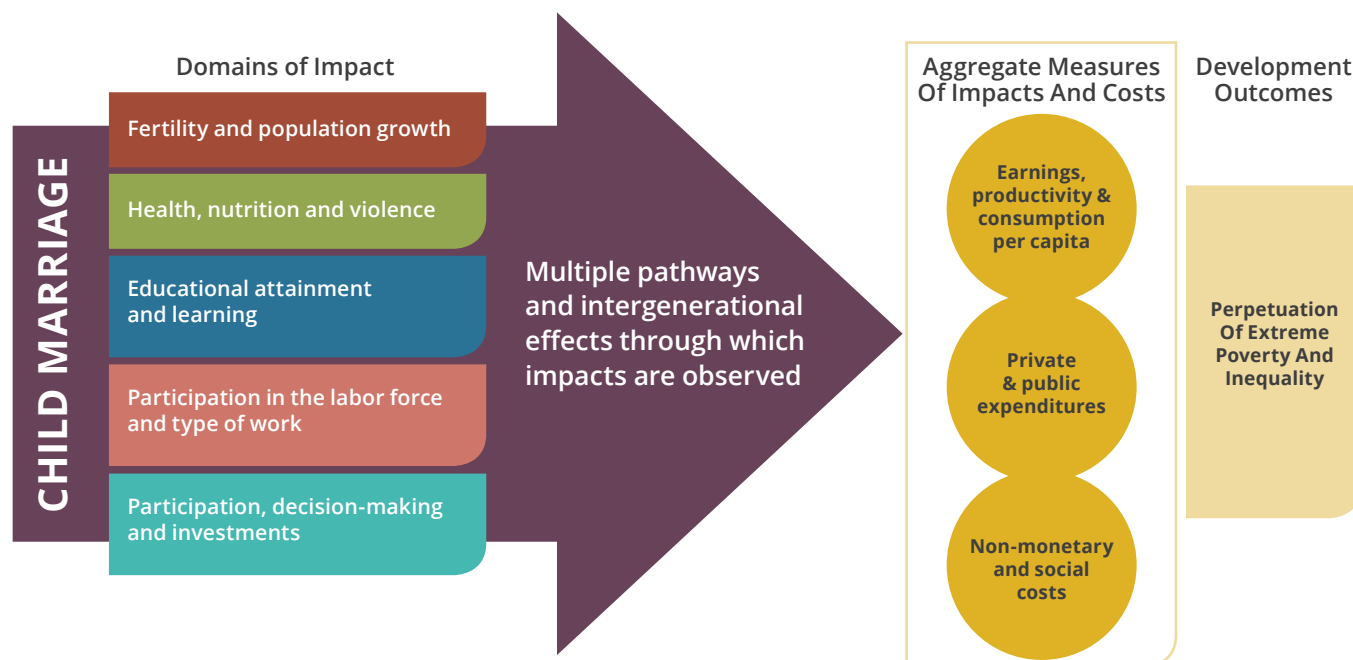
## OVERVIEW

Each day, more than 41,000 girls worldwide are married while still children, often before they may be physically and emotionally ready to become wives and mothers. Child marriage, defined as marriage or a union taking place before the age of 18, endangers the life trajectories of these girls in numerous ways. Child brides are at greater risk of experiencing a range of poor health outcomes, having children at younger ages, having more children over their lifetime, dropping out of school, earning less over their lifetimes and living in poverty than their peers who marry at later ages. Child brides may also be more likely to experience intimate partner violence, have restricted physical mobility, and limited decision-making ability. Most fundamentally, these girls may be disempowered in ways that deprive them of their basic rights to health, education, equality, non-discrimination, and to live free from violence and exploitation, which continue to affect them into adulthood. These dynamics affect not only the girls themselves, but their children, households, communities and societies, limiting their ability to reach their full social and economic potential.

While child marriage is widely considered a human rights issue closely connected to gender inequality,<sup>1</sup> the significance of the practice's impacts at both the individual and societal levels suggests that ending child marriage may play an important role in alleviating poverty and in promoting economic development. Ending child marriage can improve health at the individual and population levels, increase productivity and enhance the opportunity to realize the gains in a country's economic growth that can result from declining birth rates and a shifting population age structure, commonly referred to as the 'demographic dividend'. To date, however, there has been relatively little in the way of rigorous assessment of the economic impacts of child marriage or how much child marriage may "cost" countries and societies.

To address this gap, the World Bank and the International Center for Research on Women (ICRW) collaborated on an extensive and innovative research project to assess the impacts of child marriage on a range of development outcomes, and to understand the economic costs associated with these impacts across countries. By establishing the effects that child marriage has on economic outcomes, the research project aimed to catalyze more effective and evidence-based action to prevent it. The conceptual framework that guided our work follows:

<sup>1</sup> As enshrined in UN General Assembly Resolution 71/175 (December, 2016), "child, early and forced marriage is a harmful practice that violates, abuses or impairs human rights."



In this brief, we summarize results from an analysis of the impacts of child marriage on fertility and population growth and estimate the economic costs of these impacts. This brief and selected other publications from the study can be found at: [www.costsofchildmarriage.org](http://www.costsofchildmarriage.org) ↗

## INTRODUCTION – CHILD MARRIAGE, FERTILITY AND POPULATION GROWTH

There is a strong relationship between child marriage and fertility. Women who marry as children are more likely to have higher total fertility, or more children over their lifetimes, than those who marry later in life. In large part, this is because child brides begin having children at younger ages compared to those who marry even a few years later, and therefore have a longer period of their lives during which they are having children. In some (but by no means all) settings, child marriage has also been shown to reduce contraceptive use, which can lead to both short intervals between births and a later end to childbearing. Finally, power imbalances in marriages involving children, who lack the confidence and agency to be able to assert their preferences and needs, particularly when it comes to negotiating safe sexual practices and the use of family planning, may also play a role in leading child brides to have more children. In short, child brides usually have more children on average than women who marry later in life.

At the household level, this higher fertility can lead to impacts for child brides and their families through increasing household size, thus reducing the availability of funds to pay for food, education, health care and other expenses for each member of the household. It can also affect how people, especially women, use their time. In many developing countries, for example, mothers with many children have less time to engage in the formal, paid workforce. (The impacts of child marriage on education and labor force participation are included in another brief in this series).

## What Do We Mean by Impacts and Associated Costs?

The aim of the study is to estimate the impacts of child marriage on development outcomes and the economic costs associated with some of these impacts. The term “impact” is used for simplicity, but one must be careful about not necessarily inferring causality. Most estimates of impacts are obtained through regression analysis in order to control for other variables that may affect the outcomes of interest. In some cases, simulations are used. What is measured are thus statistical associations, and not necessarily impacts as could be observed, for example, with randomized control trials. Since child marriage cannot be randomized, we must rely on regression analysis in order to estimate likely impacts, but there is always a risk of bias in the measures of the likely impacts of child marriage. Based on measures of likely impacts, costs associated with selected impacts are then computed. Note that we provide cost estimates only for some, and not all impacts. These costs rely on a number of assumptions, and are thus tentative. Overall, the costs represent an order of magnitude of potential costs rather than precise estimations. For more details on the methodology and how it relates to key empirical findings, see Wodon (2017).



At a national level, through its impact on fertility, child marriage can have an important role in shaping overall population growth rates. High population growth can in turn have significant economic consequences for individuals and their households, as well as nationally through reducing GDP per capita and affecting national budgets, which must grow to provide basic services to larger and younger populations.

***“When we have lots of children we can’t raise them properly. But what if I had two or three children, I would be able to raise them properly. I would be able to fulfill all their needs and even I could send them to private school... Now I regret... I was very young [when I got married] so I didn’t know this”***

QUALITATIVE DATA COLLECTED BY ICRW AND THE WORLD BANK.

## IMPACT OF CHILD MARRIAGE ON FERTILITY

In our study, we analyzed Demographic and Health Survey (DHS) data for 15 countries, focusing on the effect of child marriage on the number of live births that women have over their lifetime (defined as total fertility), controlling for a wide range of other factors that may affect fertility.

Table 1 provides the key results from our analyses. The first two columns show the estimated percentage increase in the number of births that women who married at ages 13 and 17, respectively, would have over their lifetimes as compared to women marrying at or after age 18. Our analysis suggests that, on average across the 15 countries, women who married at age 13 are likely to have 26.4 percent more live births than if they had married at 18 or later, all other things being equal. Even marrying at age 17 has an important effect in all of the countries included in the analyses. In Bangladesh, for example, women who married at 17 rather than 18 or older are estimated to have 12.2 percent more children over the lifetimes. In Mali, these women are estimated to have more than 26 percent more children.

The third column in the table estimates the impact that eliminating child marriage would have on total fertility in each country, all else equal. The reduction in total fertility that would result across countries is significant, and varies from

0.25 births in Egypt to 1.1 births in Niger. In percentage terms (the last column), the reduction in total fertility would range from seven percent in Egypt to 18 percent in Bangladesh. Clearly, ending child marriage would significantly impact fertility patterns, with the effect increasing the younger that girls are married. As one might expect, the effect of child marriage on national fertility rates is generally the highest in the countries that have a higher prevalence of child marriage, as more women are at risk of having an early childbirth and increased lifelong childbearing in those contexts.

**TABLE 1: INCREASE IN UNDER-FIVE MORTALITY AND STUNTING DUE TO EARLY CHILDBIRTHS**

Impact on number of live births over a woman's lifetime				
	Impact of marrying at age 13 versus after 18 (%)	Impact of marrying at age 17 versus after 18 (%)	Absolute reduction in total fertility (national)	Percentage reduction versus base (national)
Bangladesh	31	12	0.70	18
Burkina	18	14	0.55	9
Dem. Rep. Congo	33	25	0.63	10
Egypt	37	17	0.25	7
Ethiopia	34	23	0.97	15
Malawi	12	11	0.48	8
Mali	20	26	0.57	10
Mozambique	25	15	0.40	8
Nepal	25	15	0.45	11
Niger	28	14	1.10	15
Nigeria	31	18	0.72	12
Pakistan	31	20	0.53	10
Republic of Congo	30	16	0.35	7
Uganda	19	10	0.56	8
Zambia	24	21	0.59	10

Source: Onagoruwa and Wodon (2017a).  
(Estimates are available for other ages at first marriage from the authors.)

Child marriage may also affect lifetime use of contraception, though our analyses using the latest DHS data do not show a direct consistent relationship once a variety of other factors that could influence contraceptive use are taken into account. In terms of direct effects, in a majority of countries, ending child marriage could help increase contraceptive use slightly, but in a few, the effect goes in the opposite direction. However, in addition to the direct impact of child marriage on modern contraceptive use (shown in Table 2), child marriage may lower contraceptive use indirectly through its impact on girls' educational attainment. This is because a higher level of education is associated with higher likelihood of contraceptive use and child marriage has a negative impact on educational attainment, as discussed in another brief in this series. Overall, it therefore seems clear that child marriage reduces use of contraception, but the impact is not necessarily very large.

**TABLE 2: IMPACT OF ENDING CHILD MARRIAGE ON CONTRACEPTIVE USE**

Impact on likelihood of using modern contraception				
	Impact of marrying at age 12 and below versus after 18 (%)	Impact of marrying at age 17 versus after 18 (%)	Absolute change versus base (national)	Percentage change versus base (national) (%)
Bangladesh	NS	NS	0.38	0.68
Burkina	0.08	0.03	-1.23	-7.87
Dem. Rep. Congo	-0.04	NS	0.11	1.32
Egypt	NS	NS	0.08	0.13
Ethiopia	-0.09	NS	2.46	8.42
Malawi	-0.12	NS	0.57	0.91
Mali	NS	NS	0.26	2.48
Mozambique	-0.03	NS	0.09	0.74
Nepal	0.14	0.05	-2.59	-5.86
Niger	-0.08	NS	1.29	9.08
Nigeria	-0.01	NS	0.09	0.86
Pakistan	NS	NS	-0.80	-2.96
Republic of Congo	NS	NS	0.57	2.58
Uganda	NS	NS	0.00	0.00
Zambia	NS	NS	0.37	0.77

Source: Onagoruwa and Wodon (2017b).

(Estimates are available for other ages at first marriage from the authors.)

Note: NS means that the impact of child marriage is not statistically different from zero.

growth that would be seen in the first year that child marriage was eliminated (assumed to be 2015), and the reductions would have compounded effects over time. For example, the annual rate at which the population of Bangladesh is growing would be reduced in the first year of the simulations by 0.25 percentage points, or 21 percent (see column 2). In Niger, which has the highest prevalence rates of child marriage in the world, ending child marriage would reduce the rate of population growth by about 10 percent each year. The cumulative effects of these reductions would be significant. The last column in Table 2 provides the estimated percentage reduction in the total population of each country by the year 2030, due to the elimination of child marriage and early childbirths.

These effects have large impacts for the affected countries. For example, Niger is projected by the United Nations to be the country with the largest percentage increase in population by the year 2030: its total population is expected to grow from roughly 20 million people in 2015 to 36 million in 2030. Ending child marriage and early childbirths would lead to reductions in the country's total population by more than five percent. This would have significant impacts on national budgets and welfare. On average, across the 15 countries, population sizes would be 2.45 percent smaller by 2030 if all child marriages and early childbirths were ended today.

**TABLE 3: IMPACT OF CHILD MARRIAGE AND EARLY CHILDBIRTHS ON POPULATION GROWTH**

	Absolute reduction in annual rate of population growth in 2015	Percentage reduction versus baseline annual population growth rate (%)	Cumulative percentage reduction in total population by 2030
Bangladesh	0.25	21	2.85
Burkina	0.15	5	1.94
Dem. Rep. Congo	0.23	7	2.64
Egypt	0.07	3	0.84
Ethiopia	0.10	4	1.02
Malawi	0.21	7	2.06
Mali	0.30	10	3.79
Mozambique	0.33	12	4.03
Nepal	0.10	8	0.95
Niger	0.39	10	5.24
Nigeria	0.20	8	2.47
Pakistan	0.04	2	0.42
Republic of Congo	0.31	12	4.16
Uganda	0.17	5	1.75
Zambia	0.24	8	2.53

Source: Wodon and Yedan (2017).

## IMPACT OF CHILD MARRIAGE ON POPULATION GROWTH

The effects that child marriage has on fertility have implications for both individual women and their respective countries, as it directly influences the rate at which the size of the population increases. In order to estimate the impact of ending child marriage on population growth, we conducted a number of demographic projections using simulation tools parametrized with DHS data.

As with the analyses above, we examine the effects of eliminating all marriages as well as childbirths among girls younger than 18. We assume for the purposes of this estimation that all child marriages and births under age 18 are eliminated beginning in 2015 (the most recent year for which data are available), and estimate the effect these changes would have every year through the year 2030. The intention is to demonstrate the magnitude of the potential effect that ending child marriage would have using a hypothetical complete elimination of child marriage and childbearing immediately (simulations for progressive reductions in child marriage were also computed but are not shown here). Table 3 provides the main results from the simulations. The first column provides the immediate reductions in population

## WELFARE BENEFITS THAT RESULT FROM ENDING CHILD MARRIAGE

The reductions in population growth that would result from eliminating child marriage and early childbirths would have significant economic consequences for both household to national budgets. While there are many ways to measure a country's welfare, we focus here on Gross Domestic Product (GDP) per capita, or the monetary value per capita of what countries produce in goods and services. Although there is reason to believe that reducing child marriage would influence GDP in a number of ways (particularly through increasing educational attainment and earnings of women, as discussed in other papers under this study), we assume for the sake of this particular analysis that ending child marriage does not influence GDP and instead focus specifically on the effects of child marriage on population growth, and, in turn, the economic effects that changes in population growth have at the national level on GDP per capita.

Because ending child marriage reduces population size, GDP per capita should increase even if the total GDP does not. At the aggregate level, this can be considered an improvement in welfare for the population as a whole. In other words, one can estimate the welfare benefits from ending child marriage based on the difference in GDP per capita that a smaller total population would bring if child marriage were eliminated. Based on these criteria, we estimate the global welfare costs of child marriage and early childbirths, as shown in Table 4. The estimates were conducted using data from 106 countries and are intended to provide a sense of the magnitude of the potential benefits that could be achieved solely through reducing population growth when ending child marriage and/or early childbirths. Other costs associated with child marriage are provided in other briefs and papers.

The first column in Table 4 shows the effect solely of ending child marriage, while the second includes the effect of ending both child marriage and early childbirths. Because the overwhelming majority of early childbearing globally takes place in the context of marriage, these effects are generally similar in magnitude. As with the above projections, this estimation assumes that child marriage and early childbearing are eliminated completely in 2015, resulting in immediate gains that compound and increase over time.

In the first year of the simulations (2015), the benefit from ending child marriage is estimated at US \$22.1 billion in purchasing power parity (PPP) terms. The benefit of ending child marriage and early childbirths is a bit larger at US \$27.8 billion. The benefits increase rapidly over time, as annual effects on population growth are compounded from year to year. In addition, the valuation of these benefits also increases as standards of living rise. By 2030, the benefits from ending child marriage reach more than \$566 billion. When the effect of ending early childbearing is taken into account, these benefits are valued at more than \$700 billion. Importantly, most of these benefits would accrue to the poorer segments of the population, since girls living in poverty are more likely to marry early than girls from higher socio-economic status. Cumulatively, for the 15-year period leading up to 2030, the welfare gains from ending child marriage and early childbirths could reach more than US \$5 trillion.

**TABLE 4: GLOBAL WELFARE COST OF CHILD MARRIAGE AND EARLY CHILDBIRTHS DUE TO POPULATION GROWTH**

Year	Cost of child marriage in billion US\$ (Purchasing Power Parity)	Cost of early childbirth in billion US\$ (Purchasing Power Parity)
2015	22.1	27.8
2016	44.8	56.3
2017	68.6	86.2
2018	93.8	117.9
2019	120.8	151.8
2020	149.5	187.8
2021	179.9	225.9
2022	211.9	266.1
2023	245.8	308.5
2024	281.7	353.4
2025	319.6	400.9
2026	360.4	451.9
2027	405.1	507.7
2028	454.0	568.5
2029	507.6	634.9
2030	566.3	707.5
<b>Total</b>	<b>4,031.9</b>	<b>5,053.1</b>

Source: Wodon (2017b).





## BUDGET SAVINGS THAT RESULT FROM ENDING CHILD MARRIAGE

In addition to overall welfare benefits, eliminating child marriage and early childbirths should result in substantial budget savings for governments, as the slower population growth that would result would mean less pressure on governments to provide a range of public services.

A good example of the type of budgetary savings that could result is in regard to the provision of public education. With population growth come more children who require schools, books, teachers, supplies and other items that cost governments in the form of ever-expanding education budgets. If child marriage were eliminated, the slower than currently-anticipated population growth would mean fewer

children to educate, which would reduce pressures on education budgets. To estimate budget savings of this type, we again rely on simulation tools, focusing on how much it would cost to achieve universal preschool, primary, and secondary education by 2030, both with and without child marriage and early childbearing. On average, across the 19 countries included in these analyses, the savings arising from ending child marriage and early childbirths are estimated to be 5.4 percent of the total cost of achieving universal education by 2030, or US \$17 billion in the year 2030 alone (Wodon, 2017c).

There would be many other potential budget savings for governments from the impact of slower population growth, such as in the health sector, for example. These savings were not estimated for the purposes of this study, but would also likely be substantial.

## CONCLUSION

Child marriage and early childbearing have significant implications for women, their households, communities and nations. Women married before they turn 18 are likely to have more children over their lifetimes than those married later, which can have significant implications for their health and welfare, as well as that of their families. In countries with high rates of child marriage, the increased fertility that results from child marriage plays a significant role in contributing to population growth, thus placing an increased burden on services. The costs of these impacts are large and important at all levels. The analyses presented here provide an illustration of just how large these impacts can be. At the global level, if child marriage and early childbearing were eliminated completely, the benefits that would accrue by 2030, simply from the reduction in population growth, would exceed US \$5 trillion. Significant additional budgetary savings would also result.

Overall, these analyses, and those presented in the accompanying series of reports and briefs covering other aspects of the costs of child marriage, provide a strong economic rationale for investing in programs and policies to end child marriage.

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