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**ABORTION LAWS AND LIFE CHOICES OF YOUNG WOMEN AND GIRLS IN SUB-SAHARAN AFRICA: A CROSS-COUNTRY ANALYSIS**

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**ABSTRACT**

**Background:** Early marriage and pregnancy impede the educational attainment of young women and girls in sub-Saharan Africa. Expanding the legal grounds for abortion makes it easier and safer to end unintended pregnancies, but it is not clear whether such high-level policy changes can empower young women and girls to pursue education by delaying marriage or parenting obligations.

**Methods:** I used a difference-in-differences approach to compare marriage, birth, and schooling rates among young women and girls in ten countries that expanded the legal grounds for abortion and eight countries where abortion laws remained extremely restrictive during the period 1996 to 2015.

**Results:** Expanding legal grounds for abortion was associated with a reduction of 2.5 percentage points (95% confidence intervals [CI]: -0.050 – -0.001), or 8.6%, in the annual likelihood of marriage and 0.7 percentage point (95% CI: -0.013 – -.002), or 7.3%, in the annual likelihood of birth. The legal reform was not associated with any statistically significant effect on schooling. The effects of abortion legal reform were driven by those from younger age groups, rural areas, and lower wealth quintiles. The results were robust to several sensitivity analyses.

**Conclusions:** Expanding the legal grounds for abortion enhanced the ability of young women and girls to delay marriage and childbearing. Despite the lack of effects on schooling, this study highlights the broader implications of reproductive health policies to women's agency in low-resource settings.

## 1.1 Introduction

Early marriage and pregnancy impede the educational attainment of young women and girls in sub-Saharan Africa (SSA).<sup>1-6</sup> In 2018, only 78 girls completed upper secondary education for every 100 boys and no country has achieved gender equality in tertiary education in this region.<sup>7</sup> Despite having the highest adolescent pregnancy rates in the world,<sup>8</sup> young women and girls in SSA still face pregnancy-based discrimination in schools that do not apply to their male counterparts, including punitive measures that expel pregnant girls from schools, lack of support for young mothers to return after childbearing, and restrictive gender norms that prioritize women's role in motherhood above all else.<sup>9</sup> The disparities in educational attainment early in life limit women's labor force participation and earnings, affect the health and development trajectories of both women and their children, and contribute to large gender gaps in decision-making in the household, community, and politics.<sup>10</sup>

Expanding the legal grounds for abortion may allow young women and girls to stay in school longer by offering the option to end unintended pregnancies, providing better access to safe reproductive health services, and delaying marriage and parenting responsibilities.<sup>11-13</sup> Studies on the abortion legal reforms in the U.S. in the 1970s and Mexico in 2007 showed that liberal abortion laws increased induced abortions, delayed marriage, and lowered fertility by providing better access to abortion services.<sup>14,15</sup> Abortion is also common in SSA: in 2010-2014, an estimated 15% of all pregnancies ended in abortion in this region, ranging from 12% in Western Africa to 24% in Southern Africa.<sup>16,17</sup> Abortion occurs even in contexts with restrictive laws or with consistent use of contraception,<sup>16</sup> but restrictive laws force women to undergo unsafe procedures, put women at greater risk of physical harm, and disproportionately affect women from disadvantaged socioeconomic backgrounds.<sup>13,17-19</sup> It is within the context of safe motherhood and reducing maternal mortality that the heads of government of the African Union approved the Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa in 2003, which recommends states parties to authorize medical abortion where continued pregnancy endangers the life, physical health, and mental health of the mother.<sup>20</sup>

However, it is not clear whether such high-level policy changes can empower young women and girls to pursue educational through delaying marriage and childbearing. Legal changes are only the first step to make abortion safer and more accessible; clear implementation guidelines, trained healthcare providers, and resources to scale up reproductive health services are all important prerequisites.<sup>18,21</sup> Previous systematic reviews suggested that both women and healthcare providers in SSA usually do not have accurate knowledge of abortion laws, regardless of abortion's legal status in the country.<sup>22,23</sup> In particular, some healthcare providers hold conservative attitudes towards abortions and can be judgmental towards women with unwanted pregnancies, posing additional challenges for young women and girls to seek services.<sup>22</sup> Even with good access, more liberal abortion laws might not increase induced abortion because countries that support women's reproductive rights often provide better family planning services, reducing unintended pregnancies and the need for abortion.<sup>16</sup> On the other hand, reduced access to reproductive health services due to funding cuts for organizations that provide abortion services increased abortion prevalence in SSA.<sup>24</sup> Last, when given the option to delay marriage and childbearing, young women and girls might still choose to drop out of school due to economic, social, and structural barriers that play a larger and more direct role in girls' education than early marriage and pregnancy.<sup>7</sup>

This study focuses on the effects of expanding abortion legal grounds on women's and girls' key life choices in marriage, childbearing, and schooling in SSA. Previous studies have found that liberalization of abortion laws was associated with higher educational attainment of women through delayed childbearing, but the evidence is concentrated in high-income settings and the only study from SSA used a cross-sectional approach.<sup>25-28</sup> To fill the evidence gap, I used data from 18 countries spanning 20 years to examine whether expanding the legal grounds for abortion is associated with greater development opportunities for young women and girls in SSA.

## **1.2 Methods**

Using data from the Demographic and Health Surveys (DHS) supplemented by other policy datasets, I estimated the effects of expanding legal grounds for abortion on key life choices of young women and

girls in 18 countries in SSA. Specifically, I used a difference-in-differences (DID) approach to compare trends in marriage, births, and schooling in countries that expanded abortion legal grounds to those in countries that did not in the 20-year period from 1996 to 2015. I examined the policy impacts among subgroups and performed sensitivity analyses to check the robustness of the study results.

### **1.2.1 Data and sample**

I combined data from three sources for the study. First, country-year data on abortion legality from 1996 to 2015 came from the World Population Policies Database maintained by the Department of Economic and Social Affairs at the United Nations.<sup>29</sup> It provides information on government views and policies from 197 countries on reproductive health. The surveys were conducted decennially from 1976 and biennially from 2001 to 2015, but data on abortion legality were only collected since 1996. The policy data were based on a detailed review of national plans and strategies, program reports, legislative documents, and official responses to the United Nations Inquiry among Governments on Population and Development.<sup>30</sup> Second, individual-level survey data were extracted from the Women's Questionnaire in the DHS conducted between 1997 to 2018 in 18 countries in SSA (Benin, Burkina Faso, Burundi, Cameroon, Democratic Republic of Congo, Cote d'Ivoire, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, and Zimbabwe) harmonized by the IPUMS-DHS project.<sup>31</sup> I excluded five countries (Ghana, Guinea, Tanzania, Uganda, and Zambia) that already had relatively liberal abortion laws in 1996 (i.e., where abortion was allowed by law to preserve a woman's mental health). The dataset includes each woman's year of birth, total years of education, birth history, and household characteristics. Third, country-year data on primary school starting age were obtained from the World Development Indicator database from the World Bank.<sup>32</sup>

Using the DHS data, I constructed a longitudinal cohort with repeated observations for all female respondents that were at most 22 years of age in 1996 and at least 12 years of age in 2015. The analytical dataset consisted of binary variables to indicate marital status, birth, and school enrollment for each person-year together with other individual characteristics.

### 1.2.2 Measures

**Abortion legal reform.** Abortion legal reform in individual countries was first measured as a binary indicator of whether abortion was allowed on all three grounds in a specific year: to save a woman's life, to preserve a woman's physical health, and to preserve a woman's mental health. Although truly liberal laws in the abortion legality continuum should permit abortion for socioeconomic reasons or without restriction as to reason, my definition of "liberal" abortion laws accommodates the fact that Zambia was the only country in SSA with DHS data where abortion was broadly legal as of December 2017.<sup>18</sup> Among the 18 countries that had restrictive abortion laws in 1996, ten countries had expanded the legal grounds for abortion by 2015 while the abortion laws in eight countries remained highly restrictive. Given the structure of the data collection schedule, I assumed abortion laws did not change in the years without policy surveys (e.g., I assumed the abortion laws in 1997, a year without abortion policy data, remained the same as the laws in 1996).

Since countries that eventually expanded abortion legal grounds to include "mental health" started from different places in the continuum of abortion legality, I recoded abortion legal reform to differentiate countries that initially only allowed abortion to save a woman's life ("big" expansion) and those that initially allowed abortion to preserve a woman's physical health in addition to saving life ("small" expansion). Figure 1 shows the changes in abortion legality over 20 years in the 18 countries included in the study.

**Outcome variables.** School enrollment was measured as a binary indicator of whether a woman or girl was in school each year before she turned 22. This variable was created based on an individual's age, year of interview, total years of education, and country-year-specific primary school starting age. I first calculated the individual's year of birth by subtracting age from the year of interview. Then, I calculated the year when an individual ended schooling by summing up the year of birth, the number of years before primary school for each birth cohort by country, and the total years of education for each individual. This

calculation assumed that all children in a birth-cohort in a specific country started primary school at the same age and there was no interruption in individuals' school attendance.

Using similar methods, I created two variables that are closely associated with schooling. First, I created a variable to estimate whether an individual was married in each calendar year based on year of first marriage or cohabitation. Second, I created a binary indicator of whether a woman or girl gave birth in each year before she turned 22. This variable was created based on the year of birth for all children a woman had.

**Control variables.** Individual characteristics, including age, residence (rural or urban), and household wealth quintiles, were extrapolated as control variables from the year when the DHS surveys were conducted. This assumes there was no physical or social mobility among the women and girls in the dataset (e.g., an individual surveyed in rural areas remained a rural resident all her life before the survey).

### 1.2.3 Statistical analyses

I estimated the effects of expanding the legal grounds for abortion using the following two-way fixed-effect linear probability model:

$$Y_{ijt} = \alpha + \beta Treat_{jt} + c_j + y_t + Z_{ijt}'\gamma + \varepsilon_{ijt}$$

where  $Y_{ijt}$  is the outcome variable set to 1 if individual  $i$  from country  $j$  in year  $t$  was in school,  $Treat_{jt}$  is set to one if individual  $i$  resided in country  $j$  that had expanded legal grounds for abortion laws in year  $t$ ,  $c_j$  is a full set of country dummies to control for time-invariant country characteristics,  $y_t$  is a full set of year dummies to account for secular trends, and  $Z_{ijt}$  is a vector of descriptive characteristics including age, rurality, and household wealth index quintiles. The coefficient of interest is  $\beta$ , which represents the DID estimate of the abortion legal reform, or the average annual change in the likelihood of schooling among women and girls in countries with more liberal abortion laws. In separate models, I estimated the effects of expanding abortion legal grounds on marriage and births, intermediate outcomes between abortion laws and schooling by replacing the outcome variable with indicators of whether an individual was married or gave birth in a specific year.

To test whether the effects vary by the extent of legal reform, I fitted a linear probability model specified below:

$$Y_{ijt} = \alpha + \beta_1 Big_{jt} + \beta_2 Small_{jt} + c_j + y_t + Z'_{ijt}\gamma + \varepsilon_{ijt}$$

where  $Big_{jt}$  is set to one if individual  $i$  resided in country  $j$  that had expanded legal grounds for abortion from only allowing abortion to save a woman's life in year  $t$  and  $Small_{jt}$  is set to one if individual  $i$  resided in country  $j$  that had expanded legal grounds for abortion from allowing abortion to save a woman's life and to preserve her physical health in year  $t$ . The coefficients  $\beta_1$  and  $\beta_2$  capture the impacts of different extent of legal reform (i.e., "big" expansion vs. "small" expansion). I used a Wald test to assess the equality hypothesis between  $\beta_1$  and  $\beta_2$ .

To examine whether the treatment effects vary by subgroups, I repeated the main analyses on subgroups of the study sample based on individuals' age group, residence (urban vs. rural), and household wealth quintile.

To check the robustness of my main results, I conducted the following analyses. First, the DID design relies on the "parallel trend" assumption that countries with more liberal abortion laws would have identical trends in schooling as countries with more restrictive abortion laws in the absence of any legal reform. Although this could not be directly tested, I fit a linear probability model specified below that excluded observations from treatment countries in years after the policy change to compare the pre-trends between treatment and comparison countries:

$$Y_{ijt} = \alpha + \beta Changed_j + \delta Year_t + \gamma Changed_j * Year_t + c_j + Z'_{ijt}\lambda + \varepsilon_{ijt}$$

where the interaction of changed country indicator and linear time trend  $\gamma$  indicates whether the trends differed between treatment countries and comparison countries before policy changes.

Second, I excluded one country at a time from the dataset to check whether the results were driven by any single country. Because the policy survey was only conducted in selective years during the 20-year period, I also restricted the analysis to only years where abortion legality was surveyed.

Last, I tested the effects of abortion liberalization on marriage and schooling in a sample that included also men and boys using a triple-difference model. Specifically, I hypothesize that abortion liberalization should not affect the schooling of young men and boys and would affect their marriage, if at all, to a lesser degree than the marriage of women and girls. I followed the same methods as the main analysis, pooled data from the DHS Men's Records of individuals within the same age range as women's sample (i.e., 15 to 49 years), and fit the model specified below:

$$Y_{ijt} = \alpha + \beta Treat_{jt} + \delta Treat_{jt} * Female_i + c_j + y_t + Z_{ijt}'\gamma + \varepsilon_{ijt}$$

where the outcome variable  $Y_{ijt}$  includes only marriage and schooling (no birth history for men) and the vector of descriptive characteristics  $Z_{ijt}$  included an additional variable of sex. I expected the coefficient  $\delta$ , but not  $\beta$ , to be different from zero, which would suggest abortion laws only affected the marriage and schooling outcomes of women and girls.

Statistical tests were 2-sided and I set the statistical significance at  $p < .05$ . Analyses were performed using Stata, version 15.1 (StataCorp LLC).

### 1.3 Results

The full sample contained 1,786,310 woman-year observations, of which 994,168 (55.7%) were from the ten countries that expanded abortion legal grounds between 1996 and 2015 and the remaining 792,142 (44.3%) were from the eight comparison countries. Among the 270,422 individuals in the sample, at the age of 15 years, 3% were married, 0.8% gave birth, and 23% were in school; at age 22, 58.7%, 10.5%, and 1.8% were married, gave birth, and in school respectively. Among the ten countries that eventually expanded abortion legal grounds, the average annual likelihood of being in school was 37.5% compared to 33.8% in the eight comparison countries (see Table 1). Detailed information showing country-specific marriage, birth, and schooling rates are presented in the Appendix (see Table A1).

The main results are presented in Table 2. The average annual likelihood of marriage was 2.5 percentage points or 8.6% lower immediately after the legal reform (95% confidence interval [CI]: -0.050 – -0.001). The average annual likelihood of giving births was 0.7 percentage point or 7.3% lower with the

legal reform (95% CI: -0.013 – -.002). The legal reform was not associated with any statistically significant effect on schooling. While the effect of “small” expansion on marriage was larger and significant than comparison countries, I was not able to detect statistically different effects between “small” and “big” expansions on marriage ( $p$ -value = 0.092). The effect on birth was different by the extent of legal change and “small” expansion had a larger impact than “big” expansion on birth ( $p$ -value = 0.027).

**Heterogeneity.** The effects of abortion legal expansion varied considerably by age groups (Table 3). For those between 13 and 15 years of age, expanding abortion legal grounds reduced the likelihood of marriage by 0.8 percentage point (95% CI -0.016 – -0.000), a sizable 16% reduction from before the expansion, but did not affect birth or schooling. For those between 16 and 18 years of age, the legal change reduced the likelihood of giving birth by 0.5 percentage point (95% CI -0.010 – -0.001) and “small” expansion had stronger effects than “big” expansion. For those above 18 years of age, changes in abortion laws had no statistically significant effect on any of the three outcomes despite larger point estimates of marriage and birth than those of younger groups.

Similarly, the effects of abortion legal expansion varied by wealth quintiles (Table 4). For women and girls from the poorest wealth quintile, the legal change lowered the likelihood of marriage and birth by 6.0 percentage points (95% CI -0.094 – -0.026) and 1.7 percentage points (95% CI -0.028 – -0.005) respectively. For those from the richest wealth quintile, the legal change did not affect any of the three outcomes. For those in between, the legal change reduced the likelihood of birth but not marriage.

In terms of residence, abortion legal reform only affected those from rural but not urban areas (Table 5). For women and girls who lived in rural areas (at least in the DHS survey years), expanding abortion legal grounds was associated with a reduction of 3.6 percentage points (95% CI -0.067 – -0.005) in the annual likelihood of marriage, or 10.4% from before the expansion. The effect on birth was of similar magnitude at 1.2 percentage points (95% CI -0.019 – -0.005) or 10.3% from before the expansion. Besides, “small” expansion was associated with a 5.1 percentage point increase (95% CI 0.011 – 0.091) in

schooling compared to no expansion and was statistically significantly different from “big” expansion ( $p$ -value = 0.017).

**Sensitivity analyses.** I tested the robustness of the main results with the following sensitivity analyses. First, the test for parallel trends showed that while marriage and birth were declining in all countries during the 20-year period, the trends in marriage, birth, or schooling did not differ between the treatment and comparison countries before legal reforms (Table 6).

The effects of legal reforms were not sensitive to excluding any single country’s data, except for the effect on schooling when Senegal was dropped from the dataset (Figure 2). Without Senegal, the expansion of abortion legal grounds was associated with a 2.9 percentage point increase in schooling (Table A2; 95% CI: 0.003 – 0.051). This might be explained by other policy changes unique to Senegal that affected schooling independent of abortion laws. According to the UNESCO Institute for Statistics, only two countries among the 18 countries in the dataset changed the duration of compulsory education between 1998 and 2015: in Senegal, a comparison country, compulsory education duration was increased from six to 11 years in 2004 and in Kenya, a treatment country, compulsory education duration was increased from eight to 12 years in 2013.<sup>33</sup> Assuming compulsory education policies were implemented well, schooling in Senegal could have increased due to the effect of longer compulsory education. Thus, including Senegal as a comparison country would have violated the common trend assumption of DID. Similarly, the effect of abortion legal expansion in Kenya, if any, might have been partially attributed to the change in compulsory education duration, but the magnitude of bias might be smaller since the change in compulsory education occurred towards the very end of the 20-year period in 2013. To minimize the potential bias due to changes in compulsory education duration, I dropped Kenya and Senegal and repeated the main analyses (Table A3), which showed that abortion legal expansion was associated with a 3.0 percentage point, or 8.7%, increase in the likelihood of being in school (95% CI 0.001 – 0.059). Similar to the patterns in marriage and birth, the effect of “small” expansion was larger than the effect of “big” expansion. However, I am not able to rule out other potential confounders.

When the dataset included only years when abortion policy was surveyed, the effect on marriage was no longer statistically significant (Table A4). However, the average annual likelihood of giving birth was still 1.2 percentage point lower (95% CI -0.023 – -0.001), or 12.8%, after the expansion of abortion legal grounds.

The triple-difference models showed that abortion legal changes did not affect men’s marriage or schooling (Table A5). The coefficients of the treatment and female interaction term had the expected signs but were not statistically significant. However, in “small”-expansion countries, abortion legal change reduced the likelihood of marriage by 6.5 percentage points (95% CI: -0.125 – -0.006) among women compared to men, who were not affected by the legal change. Also, abortion legal expansion had gender-differential effects for older age groups, reducing the likelihood of marriage by 5.1 percentage points (95% CI: -0.098 – -0.003) and 5.8 percentage points (95% CI: -0.116 – -0.000) for women aged 16 – 18 years and 19 – 22 years respectively compared to their male counterparts.

#### **1.4 Discussion**

Abortion laws play a critical role in young women’s and girls’ ability to access health services, make reproductive decisions, and plan for their future. For policymakers, it is important to understand the broader implications of abortion laws as 15% of all pregnancies end in abortion in Africa.<sup>16</sup> To my knowledge, this is the first cross-country study in this setting that assessed the implications of abortion laws on key life choices of young women and girls who usually have limited access to family planning services and face gender-based barriers to pursue development opportunities.<sup>7,34</sup>

Using quasi-experimental methods and cross-country data sources, this study found that expanding abortion legal grounds was associated with a reduction of more than 7% in the annual likelihood of marriage and birth among young women and girls in SSA. In particular, the effects were driven by those younger, from rural areas, and with low economic status. Although legal reforms might coincide with changes in other socioeconomic factors and laws alone do not guarantee access to reproductive health services,<sup>21–23,35,36</sup> a country’s decision to expand legal grounds for abortion nonetheless signals stronger

political will to protect women's health and human rights. The results of this study demonstrated such a state-level policy instrument enhanced young women's and girls' ability to make decisions about marriage and childbearing. In addition, such legal reforms were progressive in helping those with the fewest resources and most likely to experience complications from unsafe abortions.<sup>19</sup>

This study also found that "small" expansion of abortion legal grounds had larger effects than "big" expansion, which seems counterintuitive as it suggests abortion reform would be less effective if a country took a larger step towards more liberal laws on the abortion legality continuum. However, coincidentally all countries that had a "big" expansion of abortion laws started with extremely restrictive abortion policies in 1996 (i.e., only allowing abortion to save a woman's life) while all countries that had a "small" expansion started with less restrictive abortion policies (i.e., allowing abortion to save a woman's life and preserve physical health). This difference in the starting point is important as it may reflect how ready a country's health sector was to scale up its reproductive health services before the legal change. For example, a "small"-expansion country might have had more trained healthcare workers, better healthcare infrastructure, and more accepting social norms about abortion before the reform. As a result, women and girls could obtain an abortion under the ground of "preserving mental health" after the reform. By comparison, a "big"-expansion country where abortion was rarely performed before the legal change might be less prepared to expand its services, posing significant barriers for women and girls to access abortion even after the legal change. Although I am unable to draw definitive conclusions, the larger effects of "small" expansion might indicate the limitation of high-level policy change alone without resources to support its implementation instead of evidence for the lack of effects of more liberal laws.

Despite the sizable effects on marriage and birth, the study did not find any downstream effect of abortion legal reform on schooling. In contrast, previous studies on abortion liberalization in the 1970s and 1980s from developed countries have shown a strong link between abortion laws and young women's education outcomes through delayed marriage and childbearing, although such effects might have only occurred to subgroups of population (e.g., black but not white women in the U.S.) and at specific

education levels (e.g., college but not high school in Norway and vice versa in Spain).<sup>25-27</sup> Since child marriage and early childbearing are known factors that limit girls' educational potential in SSA,<sup>2,3,5,36-40</sup> it is puzzling that the reforms' effects on marriage and childbearing did not translate into higher school enrollment in this study. This might be because early marriage and pregnancy only explained less than 20% of school dropouts in the case of francophone Africa.<sup>1</sup> Alternatively, women and girls who chose to obtain an abortion under the more liberal laws might have returned to school even if they had decided to give birth. A closer examination of country-specific abortion laws, education systems, and social contexts similar to the analyses conducted in developed countries will provide stronger evidence on whether and how abortion laws affect education in low-resource settings.

This study has several limitations. First, I used selective and distinct legal grounds to categorize abortion laws at the country level, which did not fully capture the complex policy nuances of abortion policies or reflect how these laws were interpreted in practice.<sup>21,41</sup> However, the oversimplified classification of abortion laws made the cross-country comparison possible and were used by the best longitudinal policy data I had access to.<sup>29</sup> Future studies could take advantage of other measures of abortion laws, such as the Global Abortion Policies Database,<sup>42</sup> to develop a more systematic framework for abortion legality and assess the effects of other dimensions of abortion laws. Second, although the DID approach controlled for unobserved time-invariant confounders, other factors that were not fixed over time might still have biased the results. The fact that excluding Senegal from the original dataset produced different effect estimates on schooling led me to consider the changes in compulsory education duration, which is by no means the only country-specific time-varying factor. Nonetheless, the main results were not affected by the omission of any country other than Senegal. Third, I extrapolated the data from cross-sectional surveys to construct a pseudo-panel dataset, which created considerable measurement errors in key demographic variables such as residence or wealth. However, these errors were unlikely to be related to abortion policy changes and the subgroup analyses showed stronger effects among those from rural areas and poorer backgrounds. Thus, the estimated effects might be biased

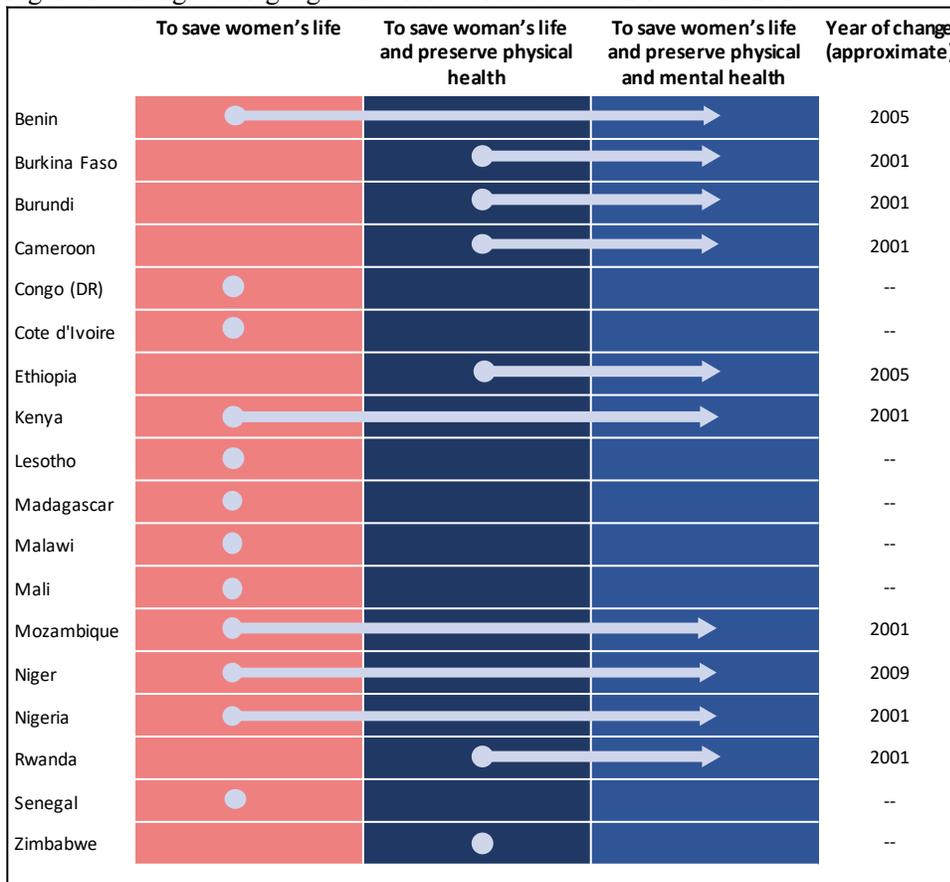
downward in the case of such measurement errors. Fourth, I did not make any assumption on how abortion laws were applied in practice or assess their effects on abortion incidence. Previous studies found that abortion rates were similar regardless of the abortion legal grounds in a country.<sup>16</sup> The effects of laws on marriage or births might be spurious if more liberal laws did not reduce the number of abortions.

However, a country's decision to adopt more liberal abortion laws is likely to prelude or reflect a shift in social norms that are more supportive of women's agency, which enhances the ability of young women and girls to decide the timing of marriage and childbearing independent of fertility outcomes.

### **1.5 Conclusions**

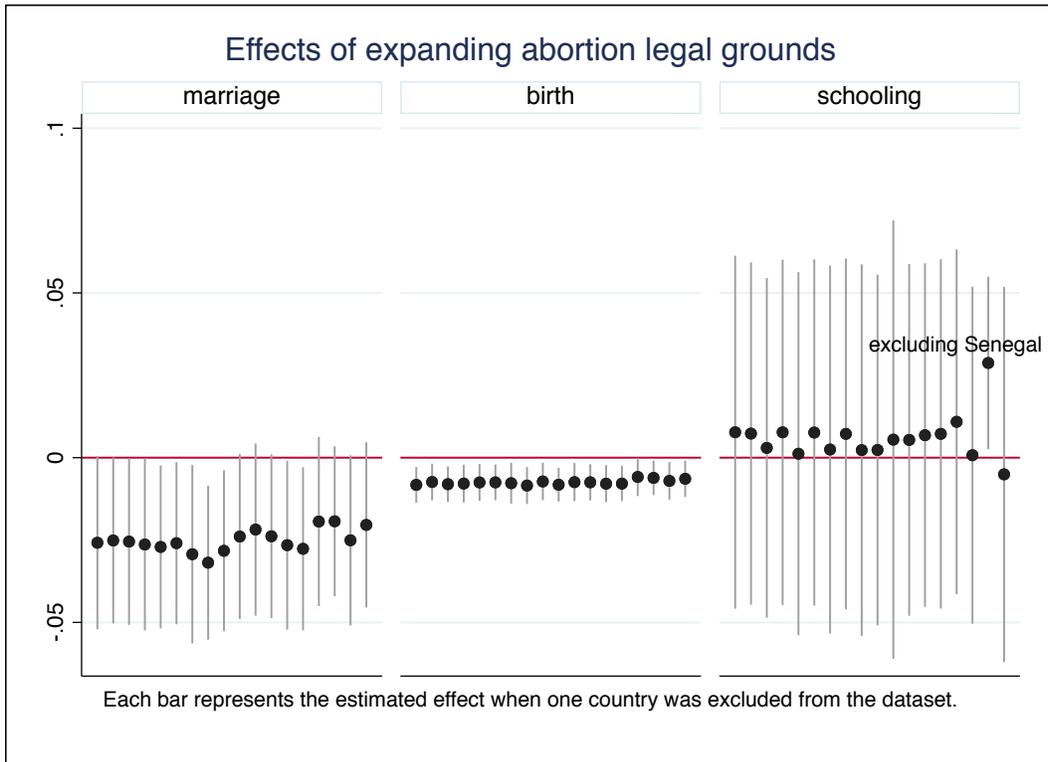
Policy reforms that expanded the legal grounds for abortion were associated with reductions in marriage and birth but had no effect on schooling among young women and girls in SSA. Whether interpreted as better access to reproductive health services or merely a signal of greater political will to protect women's health and rights, such policy reforms enhanced the ability of young women and girls to make important life choices and were especially beneficial to those with the fewest resources. This study adds to our understanding of the broader implications of reproductive health policies to women's agency beyond saving lives from unsafe abortion practices.

Figure 1: Changes in legal grounds for abortion between 1996 and 2015



This figure shows the changes in the legal grounds under which abortion was allowed in each country from 1996 to 2015 based on the World Population Policies Database – 2015 Revision ([https://esa.un.org/poppolicy/wpp\\_datasets.aspx](https://esa.un.org/poppolicy/wpp_datasets.aspx)). The surveys on abortion policies were conducted first in 1996 and then biennially from 2001 to 2015. Given these gaps in survey years, the “Year of change” data were only approximate. For example, in Benin, abortion was only allowed under the ground to save women’s life in 1996. By 2015, Benin had expanded the legal grounds to allow abortion to preserve women’s physical and mental health. The legal change, represented by an arrow in the figure, occurred on or before 2005 (a year when abortion policy was surveyed). By comparison, in Congo (DR), abortion was only allowed to save women’s life in 1996 and this did not change in 2015, represented by a dot in the figure.

Figure 2. Effects of expanding abortion legal grounds, excluding one country at a time



This figure shows the estimated effects of expanding abortion legal grounds on marriage, birth, and schooling using a dataset that originally included 18 countries from sub-Saharan Africa. Each bar represents the estimated effect when excluding one country at a time from the original dataset.

Table 1. Sample Description

<b>Indicator</b>	<b>Treated countries</b>	<b>Comparison countries</b>	<b>Full sample</b>
Number of individual-year observations	994,168	792,142	1,786,310
Number of individual-year observations after legal change	655,161		655,161
Number of individuals in sample	151,466	118,956	270,422
Number of countries in sample	10	8	18
Annual likelihood of being married, %	24.1	30.1	26.7
Annual likelihood of giving birth, %	8.5	9.7	9.0
Annual likelihood of being in school, %	37.5	33.8	35.9

Note: Treated countries (year of change in abortion legality based on the World Population Policies Database): Benin (2005), Burkina Faso (2001), Burundi (2001), Cameroon (2001), Ethiopia (2005), Kenya (2001), Mozambique (2001), Niger (2009), Nigeria (2001), Rwanda (2001). Comparison countries: Democratic Republic of Congo, Cote d'Ivoire, Lesotho, Madagascar, Malawi, Mali, Senegal, and Zimbabwe

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Table 2. Effects of expanding abortion legal grounds on marriage, birth, and schooling

	<b>Marriage</b>	<b>Birth</b>	<b>Schooling</b>
Treat	-0.025* [-0.050,-0.001]	-0.007** [-0.013,-0.002]	0.006 [-0.045,0.057]
Small	-0.034* [-0.067,-0.002]	-0.009* [-0.017,-0.002]	0.024 [-0.031,0.078]
Big	-0.018 [-0.050,0.013]	-0.006 [-0.013,0.001]	-0.008 [-0.058,0.043]
<i>P</i> -value (Big = Small)	0.092	0.027	0.139
Age	0.075** [0.065,0.085]	0.024** [0.021,0.028]	-0.088** [-0.095,-0.082]
Rural	0.032** [0.010,0.053]	0.010** [0.004,0.016]	-0.049*** [-0.071,-0.026]
Poorer	-0.029** [-0.045,-0.013]	-0.009*** [-0.013,-0.004]	0.038*** [0.021,0.055]
Middle	-0.058*** [-0.084,-0.032]	-0.021*** [-0.031,-0.011]	0.091*** [0.061,0.120]
Richer	-0.089*** [-0.117,-0.060]	-0.034*** [-0.048,-0.021]	0.149*** [0.108,0.191]
Richest	-0.169*** [-0.202,-0.136]	-0.063*** [-0.080,-0.046]	0.292*** [0.249,0.334]
Observations	1786310	1786310	1786310
Adjusted <i>R</i> <sup>2</sup>	0.2669	0.0693	0.3393
Control mean	0.288	0.095	0.350

95% confidence intervals in brackets

Included country and year fixed effects.

Standard errors clustered at country level.

Small: abortion legal grounds expanded from “to save life & preserve physical health”.

Big: abortion legal grounds expanded from “to save life” only.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 3. Effects of expanding abortion legal grounds on marriage, birth, and schooling, by age group

	13 – 15 years of age			16 – 18 years of age			19 – 22 years of age		
	Marriage	Birth	Schooling	Marriage	Birth	Schooling	Marriage	Birth	Schooling
Treat	-0.008*	-0.001	0.006	-0.017	-0.005*	0.017	-0.033	-0.010	0.003
	[-0.016,-0.000]	[-0.004,0.002]	[-0.080,0.092]	[-0.037,0.002]	[-0.010,-0.001]	[-0.044,0.077]	[-0.083,0.017]	[-0.025,0.005]	[-0.022,0.029]
Small	-0.005	-0.001	0.030	-0.024*	-0.007**	0.027	-0.065	-0.015	0.027
	[-0.011,0.001]	[-0.005,0.003]	[-0.065,0.125]	[-0.044,-0.005]	[-0.012,-0.003]	[-0.041,0.095]	[-0.147,0.016]	[-0.040,0.010]	[-0.007,0.060]
Big	-0.011	-0.001	-0.013	-0.011	-0.003	0.008	-0.008	-0.007	-0.015
	[-0.022,0.001]	[-0.005,0.003]	[-0.095,0.069]	[-0.038,0.015]	[-0.010,0.003]	[-0.054,0.071]	[-0.058,0.042]	[-0.021,0.007]	[-0.033,0.004]
<i>P</i> -value (Big = Small)	0.074	0.747	0.167	0.057	0.010	0.636	0.263	0.374	0.086
Rural	0.005	0.001	-0.059**	0.030*	0.007	-0.064**	0.058**	0.021***	-0.025**
	[-0.005,0.015]	[-0.003,0.004]	[-0.085,-0.034]	[0.003,0.056]	[-0.001,0.016]	[-0.094,-0.033]	[0.026,0.090]	[0.012,0.030]	[-0.042,-0.008]
Poorer	-0.010*	-0.003*	0.067***	-0.042***	-0.011**	0.043***	-0.037**	-0.014***	0.002
	[-0.018,-0.003]	[-0.005,-0.001]	[0.041,0.094]	[-0.063,-0.020]	[-0.018,-0.003]	[0.020,0.065]	[-0.061,-0.014]	[-0.021,-0.007]	[-0.003,0.007]
Middle	-0.022**	-0.006***	0.144***	-0.073***	-0.024**	0.113***	-0.083***	-0.034***	0.012*
	[-0.034,-0.010]	[-0.009,-0.003]	[0.105,0.183]	[-0.108,-0.039]	[-0.038,-0.010]	[0.067,0.158]	[-0.120,-0.045]	[-0.052,-0.017]	[0.003,0.022]
Richer	-0.032***	-0.010***	0.211***	-0.108***	-0.038***	0.198***	-0.126***	-0.056***	0.037**
	[-0.045,-0.018]	[-0.014,-0.006]	[0.163,0.259]	[-0.143,-0.073]	[-0.055,-0.022]	[0.125,0.270]	[-0.169,-0.084]	[-0.078,-0.033]	[0.016,0.058]
Richest	-0.049***	-0.014***	0.333***	-0.184***	-0.065***	0.388***	-0.258***	-0.104***	0.153***
	[-0.064,-0.034]	[-0.019,-0.009]	[0.288,0.379]	[-0.226,-0.143]	[-0.085,-0.044]	[0.319,0.457]	[-0.303,-0.212]	[-0.129,-0.078]	[0.108,0.197]
Observations	591096	591096	591096	569924	569924	569924	625290	625290	625290
Adjusted <i>R</i> <sup>2</sup>	0.0194	0.0050	0.1121	0.0634	0.0197	0.1694	0.1012	0.0251	0.0892
Control mean	0.049	0.015	0.653	0.246	0.087	0.318	0.561	0.181	0.079

95% confidence intervals in brackets

Included country and year fixed effects.

Standard errors clustered at country level.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4. Effects of expanding abortion legal grounds on marriage, birth, and schooling, by wealth quintiles

<b>Panel A: Marriage</b>					
	<b>Poorest</b>	<b>Poorer</b>	<b>Middle</b>	<b>Richer</b>	<b>Richest</b>
Treat	-0.060** [-0.094,-0.026]	-0.044 [-0.095,0.007]	-0.033 [-0.071,0.004]	-0.027 [-0.056,0.001]	-0.006 [-0.029,0.017]
Small	-0.060** [-0.094,-0.026]	-0.057* [-0.105,-0.009]	-0.042 [-0.085,0.001]	-0.041* [-0.077,-0.006]	-0.015 [-0.047,0.017]
Big	-0.060* [-0.107,-0.014]	-0.036 [-0.100,0.028]	-0.028 [-0.074,0.017]	-0.020 [-0.055,0.015]	0.003 [-0.022,0.028]
<i>P</i> -value (Big = Small)	0.003	0.065	0.134	0.074	0.535
Control mean	0.392	0.356	0.320	0.295	0.220
<b>Panel B: Birth</b>					
	<b>Poorest</b>	<b>Poorer</b>	<b>Middle</b>	<b>Richer</b>	<b>Richest</b>
Treat	-0.017** [-0.028,-0.005]	-0.015* [-0.028,-0.003]	-0.014* [-0.024,-0.003]	-0.008* [-0.016,-0.000]	0.000 [-0.006,0.006]
Small	-0.007 [-0.019,0.004]	-0.016* [-0.029,-0.002]	-0.014* [-0.024,-0.004]	-0.010 [-0.024,0.003]	-0.004 [-0.012,0.004]
Big	-0.024*** [-0.037,-0.012]	-0.015 [-0.031,0.001]	-0.013 [-0.026,0.000]	-0.007 [-0.015,0.001]	0.004 [-0.002,0.010]
<i>P</i> -value (Big = Small)	0.003	0.038	0.016	0.131	0.074
Control mean	0.131	0.121	0.108	0.097	0.069
<b>Panel C: Schooling</b>					
	<b>Poorest</b>	<b>Poorer</b>	<b>Middle</b>	<b>Richer</b>	<b>Richest</b>
Treat	0.014 [-0.019,0.048]	0.023 [-0.022,0.068]	0.008 [-0.067,0.082]	0.015 [-0.049,0.080]	0.007 [-0.037,0.051]
Small	0.035* [0.001,0.069]	0.040 [-0.007,0.087]	0.027 [-0.055,0.109]	0.045 [-0.032,0.122]	0.026 [-0.023,0.074]
Big	-0.003 [-0.030,0.025]	0.013 [-0.032,0.058]	-0.003 [-0.077,0.071]	-0.000 [-0.063,0.063]	-0.012 [-0.050,0.025]
<i>P</i> -value (Big = Small)	0.014	0.058	0.366	0.200	0.134
Control mean	0.184	0.227	0.281	0.336	0.470
Observations	158254	230557	305921	407809	683769

95% confidence intervals in brackets

Included age, urban/rural, country, and year fixed effects.

Standard errors clustered at country level.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 5. Effects of expanding abortion legal grounds on marriage, birth, and schooling, by rurality

	Marriage		Birth		Schooling	
	Urban	Rural	Urban	Rural	Urban	Rural
Treat	-0.013	-0.036*	-0.003	-0.012**	-0.009	0.025
	[-0.033,0.006]	[-0.067,-0.005]	[-0.007,0.002]	[-0.019,-0.005]	[-0.075,0.058]	[-0.013,0.064]
Small	-0.019	-0.047*	-0.006	-0.012*	0.005	0.051*
	[-0.043,0.005]	[-0.085,-0.009]	[-0.012,0.000]	[-0.023,-0.001]	[-0.065,0.074]	[0.011,0.091]
Big	-0.008	-0.028	-0.000	-0.012**	-0.019	0.007
	[-0.036,0.019]	[-0.065,0.009]	[-0.007,0.007]	[-0.020,-0.004]	[-0.085,0.046]	[-0.030,0.044]
<i>P</i> -value (Big = Small)	0.253	0.041	0.160	0.009	0.264	0.017
Observations	875784	910526	875784	910526	875784	910526
mean	0.229	0.345	0.073	0.116	0.439	0.263

95% confidence intervals in brackets

Included age, wealth quintile, country, and year fixed effects.

Standard errors clustered at country level.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

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Table 6. Test for the parallel trend assumption

	<b>Marriage</b>	<b>Birth</b>	<b>Schooling</b>
Treated country	-0.485 [-9.472,8.503]	-1.175 [-4.837,2.487]	-9.917 [-22.731,2.897]
Linear year	-0.003*** [-0.005,-0.002]	-0.001*** [-0.002,-0.001]	0.001 [-0.004,0.006]
Treated country # Linear year	0.000 [-0.004,0.005]	0.001 [-0.001,0.002]	0.005 [-0.002,0.011]
Age	0.080*** [0.067,0.092]	0.025*** [0.021,0.030]	-0.089*** [-0.096,-0.082]
Rural	0.039*** [0.020,0.057]	0.013*** [0.008,0.017]	-0.053*** [-0.078,-0.027]
Poorer	-0.032** [-0.053,-0.011]	-0.009** [-0.015,-0.003]	0.038** [0.016,0.060]
Middle	-0.057** [-0.091,-0.024]	-0.019** [-0.031,-0.008]	0.082*** [0.052,0.113]
Richer	-0.087*** [-0.118,-0.056]	-0.031*** [-0.044,-0.018]	0.132*** [0.100,0.164]
Richest	-0.171*** [-0.198,-0.144]	-0.060*** [-0.072,-0.047]	0.276*** [0.242,0.311]
Constant	5.470** [2.476,8.464]	2.449*** [1.209,3.688]	-0.081 [-10.430,10.269]
Observations	1131149	1131149	1131149
Adjusted R <sup>2</sup>	0.2836	0.0720	0.3424

95% confidence intervals in brackets

Treated country variable indicates whether a country eventually changed abortion policy.

The coefficient of interest is the interaction of treated country indicator and linear time trend.

Included country fixed effects.

Standard errors clustered at country level.

Excluded observations from treated countries after the abortion policy was changed.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A1. Sample Description – by Country

	Number of individual-year observations	Number of individuals	Marriage, %*	Birth, %*	Schooling, %*
Benin	41845	6505	14.0	4.6	39.8
Burkina Faso	32073	5386	23.7	7.0	33.8
Burundi	77726	11767	16.5	6.2	36.6
Cameroon	85263	13815	29.9	10.1	31.8
Congo Democratic Republic	85614	12220	32.9	11.1	33.2
Cote d'Ivoire	18663	2959	16.8	7.2	38.5
Ethiopia	100226	15773	23.5	5.7	46.0
Kenya	213498	32051	28.4	11.4	35.2
Lesotho	92416	13707	26.1	8.4	27.9
Madagascar	35780	6483	29.2	7.9	31.8
Malawi	209247	30430	38.3	12.9	28.4
Mali	29507	4817	34.6	9.3	42.4
Mozambique	52974	8025	32.7	11.6	27.1
Niger	23406	3969	31.3	9.7	31.6
Nigeria	248911	35764	24.4	8.4	47.6
Rwanda	118246	18411	15.2	6.1	24.2
Senegal	165242	24461	18.9	5.7	38.2
Zimbabwe	155673	23879	32.8	10.3	38.6

\* Annual likelihood

Table A2. Effects of expanding abortion legal grounds, excluding one country at a time

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Benin	Burkina Faso	Burundi	Cameroon	Congo DR	Cote d'Ivoire	Ethiopia	Kenya	Lesotho	Madagascar	Malawi	Mali	Mozambique	Niger	Nigeria	Rwanda	Senegal	Zimbabwe
Marriage	-0.026 (0.054)	-0.025 (0.051)	-0.025* (0.049)	-0.026* (0.048)	-0.027* (0.034)	-0.026* (0.040)	-0.029* (0.036)	-0.032* (0.011)	-0.028* (0.026)	-0.024 (0.060)	-0.022 (0.096)	-0.024 (0.059)	-0.027* (0.043)	-0.028* (0.031)	-0.019 (0.129)	-0.019 (0.091)	-0.025 (0.056)	-0.020 (0.104)
Birth	-0.008** (0.005)	-0.007* (0.012)	-0.008** (0.006)	-0.008* (0.010)	-0.008* (0.012)	-0.008** (0.010)	-0.008* (0.017)	-0.008** (0.006)	-0.007* (0.016)	-0.008** (0.004)	-0.007* (0.015)	-0.007* (0.011)	-0.008** (0.009)	-0.008** (0.007)	-0.006* (0.047)	-0.006* (0.025)	-0.007* (0.019)	-0.006* (0.026)
Schooling	0.008 (0.764)	0.007 (0.769)	0.003 (0.905)	0.008 (0.760)	0.001 (0.964)	0.008 (0.762)	0.002 (0.926)	0.007 (0.777)	0.002 (0.932)	0.002 (0.927)	0.005 (0.864)	0.005 (0.833)	0.007 (0.785)	0.007 (0.776)	0.011 (0.665)	0.001 (0.975)	0.029* (0.033)	-0.005 (0.853)
Observations	1744465	1754237	1708584	1701047	1700696	1767647	1686084	1572812	1693894	1750530	1577063	1756803	1733336	1762904	1537399	1668064	1621068	1630637

*p*-values in parentheses

The country in the model title was excluded.

Included individual characteristics and country and year fixed effects.

Standard errors clustered at country level.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

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Table A3. Effects of expanding abortion legal grounds, excluding Kenya and Senegal

	<b>Marriage</b>	<b>Birth</b>	<b>Schooling</b>
Treat	-0.032*	-0.008*	0.030*
	[-0.056,-0.007]	[-0.014,-0.002]	[0.001,0.059]
Small	-0.034*	-0.009*	0.048**
	[-0.067,-0.001]	[-0.017,-0.001]	[0.014,0.081]
Big	-0.029	-0.007	0.010
	[-0.060,0.002]	[-0.016,0.002]	[-0.012,0.031]
<i>P</i> -value (Big = Small)	0.053	0.037	0.026
Age	0.076***	0.024***	-0.088***
	[0.064,0.089]	[0.020,0.028]	[-0.096,-0.080]
Rural	0.036***	0.012***	-0.047***
	[0.025,0.047]	[0.008,0.017]	[-0.069,-0.026]
Poorer	-0.022**	-0.007*	0.028**
	[-0.036,-0.007]	[-0.013,-0.002]	[0.013,0.043]
Middle	-0.045**	-0.015**	0.079***
	[-0.072,-0.017]	[-0.024,-0.006]	[0.043,0.114]
Richer	-0.073***	-0.027***	0.141***
	[-0.102,-0.045]	[-0.038,-0.015]	[0.091,0.192]
Richest	-0.156***	-0.054***	0.292***
	[-0.191,-0.121]	[-0.068,-0.041]	[0.243,0.342]
Observations	1407570	1407570	1407570
Adjusted $R^2$	0.2734	0.0685	0.3493
mean	0.306	0.100	0.344

95% confidence intervals in brackets

Included country and year fixed effects.

Standard errors clustered at country level.

Small: abortion legal grounds expanded from to save life & preserve physical health.

Big: abortion legal grounds expanded from to save life only.

Excluded Senegal and Kenya – two countries that increased the duration of compulsory education.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A4: Effects of expanding abortion legal grounds, restricted to years with abortion policy surveys

	<b>Marriage</b>	<b>Birth</b>	<b>Schooling</b>
Treat	-0.025 [-0.056,0.005]	-0.012* [-0.024,-0.000]	0.015 [-0.037,0.067]
Small	-0.040 [-0.080,0.000]	-0.018* [-0.032,-0.005]	0.021 [-0.036,0.079]
Big	-0.012 [-0.057,0.032]	-0.006 [-0.021,0.009]	0.009 [-0.043,0.062]
<i>P</i> -value (Big = Small)	0.137	0.038	0.670
Age	0.075** [0.064,0.085]	0.024** [0.020,0.027]	-0.088** [-0.094,-0.082]
Rural	0.033** [0.011,0.054]	0.011** [0.004,0.018]	-0.050*** [-0.073,-0.026]
Poorer	-0.031** [-0.048,-0.013]	-0.007* [-0.013,-0.001]	0.040*** [0.023,0.057]
Middle	-0.061*** [-0.086,-0.036]	-0.020** [-0.031,-0.009]	0.093*** [0.063,0.123]
Richer	-0.092*** [-0.117,-0.067]	-0.033*** [-0.045,-0.021]	0.151*** [0.109,0.193]
Richest	-0.171*** [-0.202,-0.141]	-0.062*** [-0.077,-0.047]	0.290*** [0.248,0.332]
Observations	765460	765460	765460
Adjusted $R^2$	0.2662	0.0683	0.3359
mean	0.290	0.094	0.346

95% confidence intervals in brackets

Included country and year fixed effects.

Standard errors clustered at country level.

Small: abortion legal grounds expanded from 'to save life & preserve physical health'.

Big: abortion legal grounds expanded from 'to save life' only.

Included only years when abortion policy surveys were available: 1996, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table A5. Effects of expanding abortion legal grounds, including men and women

	All		13 – 15 years of age		16 – 18 years of age		19 – 22years of age	
	Marriage	Schooling	Marriage	Schooling	Marriage	Schooling	Marriage	Schooling
Treat	0.000	0.002	0.001	-0.004	0.020	0.009	0.008	0.002
	[-0.022,0.022]	[-0.056,0.059]	[-0.010,0.013]	[-0.092,0.084]	[-0.010,0.050]	[-0.063,0.081]	[-0.019,0.036]	[-0.035,0.040]
Treat x Female	-0.034	0.013	-0.011	0.020	-0.051*	0.017	-0.058*	0.005
	[-0.074,0.007]	[-0.012,0.038]	[-0.024,0.002]	[-0.015,0.056]	[-0.098,-0.003]	[-0.021,0.055]	[-0.116,-0.000]	[-0.012,0.022]
Small	0.012	0.015	0.009	0.006	0.036	0.008	0.014	0.032
	[-0.012,0.036]	[-0.044,0.074]	[-0.008,0.026]	[-0.094,0.106]	[-0.006,0.078]	[-0.069,0.085]	[-0.006,0.035]	[-0.011,0.074]
Small x Female	-0.065*	0.020	-0.019	0.036	-0.084*	0.036	-0.103*	-0.002
	[-0.125,-0.006]	[-0.010,0.050]	[-0.041,0.003]	[-0.004,0.075]	[-0.157,-0.010]	[-0.007,0.079]	[-0.186,-0.021]	[-0.026,0.021]
Big	-0.011	-0.011	-0.005	-0.014	0.006	0.009	0.005	-0.025
	[-0.032,0.011]	[-0.069,0.048]	[-0.018,0.007]	[-0.101,0.073]	[-0.021,0.033]	[-0.065,0.083]	[-0.031,0.040]	[-0.058,0.007]
Big x Female	-0.009	0.010	-0.004	0.009	-0.025	0.004	-0.027	0.014
	[-0.036,0.018]	[-0.017,0.036]	[-0.017,0.010]	[-0.027,0.046]	[-0.064,0.013]	[-0.034,0.041]	[-0.065,0.012]	[-0.001,0.028]
<i>P</i> -value (Big = Small)	0.314	0.169	0.412	0.712	0.231	0.967	0.356	0.125
Female	0.215***	-0.052**	0.047***	-0.044*	0.213***	-0.071***	0.379***	-0.041***
	[0.188,0.241]	[-0.078,-0.027]	[0.036,0.057]	[-0.076,-0.012]	[0.178,0.249]	[-0.107,-0.036]	[0.344,0.414]	[-0.055,-0.028]
Age	0.060***	-0.088***						
	[0.050,0.069]	[-0.095,-0.081]						
Rural	0.025**	-0.051***	0.003	-0.061***	0.019*	-0.067***	0.049***	-0.027**
	[0.009,0.040]	[-0.071,-0.030]	[-0.004,0.010]	[-0.083,-0.038]	[0.001,0.037]	[-0.094,-0.039]	[0.023,0.075]	[-0.043,-0.010]
Poorer	-0.022***	0.039***	-0.007*	0.065***	-0.029***	0.044***	-0.032***	0.005*
	[-0.033,-0.011]	[0.022,0.055]	[-0.012,-0.002]	[0.038,0.092]	[-0.044,-0.015]	[0.022,0.065]	[-0.047,-0.016]	[0.000,0.010]
Middle	-0.043***	0.089***	-0.014**	0.134***	-0.051***	0.112***	-0.068***	0.018***
	[-0.062,-0.025]	[0.060,0.118]	[-0.022,-0.006]	[0.093,0.175]	[-0.073,-0.028]	[0.068,0.156]	[-0.096,-0.039]	[0.009,0.027]
Richer	-0.069***	0.145***	-0.021***	0.197***	-0.077***	0.193***	-0.108***	0.047***
	[-0.088,-0.049]	[0.104,0.187]	[-0.029,-0.012]	[0.147,0.246]	[-0.100,-0.053]	[0.124,0.262]	[-0.140,-0.077]	[0.026,0.067]
Richest	-0.133***	0.285***	-0.033***	0.312***	-0.134***	0.374***	-0.219***	0.169***
	[-0.157,-0.110]	[0.245,0.326]	[-0.043,-0.024]	[0.266,0.357]	[-0.163,-0.105]	[0.309,0.439]	[-0.253,-0.185]	[0.125,0.212]
Observations	2659340	2659340	877744	877744	847630	847630	933966	933966
Control mean	0.219	0.367	0.035	0.669	0.178	0.341	0.439	0.093

95% confidence intervals in brackets

Included country and year fixed effects.

Standard errors clustered at country level.

Small: abortion legal grounds expanded from “to save life & preserve physical health”.

Big: abortion legal grounds expanded from “to save life” only.

Included only individuals that were still in school at age 12.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

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