

## Do tuition-free lower secondary education policies matter for antenatal care among women in sub-Saharan African countries?

### About:

*This research brief presents key findings from the following article:*

Bose B, Raub A, Sprague A, Martin A, Bhuwania P, Kidman R, Heymann J. [Do tuition-free lower secondary education policies matter for antenatal care among women in sub-Saharan countries?](#). BMC Pregnancy Childbirth. 24, 250 (2024).

To access additional WORLD publications, please visit [worldpolicycenter.org/resources](https://worldpolicycenter.org/resources).

### Background:

- Antenatal care (ANC) (including services such as nutritional counseling, screening for infections, provision of iron and folic acid supplements, immunizations, and identification and treatment of high-risk conditions like HIV, malaria, and eclampsia/ preeclampsia) is critical to reducing maternal and infant mortality.
- In sub-Saharan Africa (SSA), even a single ANC visit can reduce the risk of neonatal mortality by 39%. However, SSA continues to have one of the lowest levels of ANC visits globally, with half of mothers not meeting the WHO minimum recommendation of at least four visits.
- Maternal education has the potential to increase ANC coverage. Past descriptive research has found an association between women's educational attainment, the use of antenatal healthcare and the ability to make health-related decisions.
- However, there is limited evidence about whether reducing cost barriers to the education of girls can improve uptake of ANC when they are adults. This is the first study to investigate whether national-level tuition-free lower secondary education policies have an impact on ANC across countries in SSA, and to assess the relative impacts of policies making primary and lower secondary education free.

### Methods:

- Information on women's birth histories, including the number of ANC visits, was obtained from Demographic and Health Surveys (DHS) conducted in Sub-Saharan African countries between 2000 and 2019.
- DHS data were merged with data from a novel longitudinal database tracking changes in tuition fee elimination across countries, created by the WORLD Policy Analysis Center.
- Researchers compared nine countries in SSA:
  - Three countries that introduced tuition-free secondary education (Liberia, Rwanda, and Zambia)

- Six countries (Benin, Burundi, Democratic Republic of Congo (DRC), Mozambique, Niger, and Zimbabwe) that did not implement any tuition-free education policies during the same period or did not introduce them early enough to affect mothers participating in the DHS surveys.
- Using a difference-in-differences approach, researchers estimated the change in women's ANC visits in countries with tuition-free secondary policy compared with countries with tuition-free primary alone and those without any tuition-free policy during the study period.

### Findings:

- Tuition-free primary and lower secondary education policies were associated with a 5% increase in the average number of ANC visits. The impact of both education policies combined was greater than that of tuition-free primary education alone.
- Tuition-free primary and lower secondary education policies also increased the share of women meeting the WHO recommendation of four or more ANC visits by 6–14%.
- However, the effects varied across the three individual treatment countries. Tuition-free lower secondary education had a greater impact in Rwanda and Zambia, while Liberia showed a greater effect for tuition-free primary education than for both levels.
- The varying effectiveness of tuition-free lower secondary in the individual countries could be due to a number of reasons: different levels of investment in school budgets impacting access and quality of education, the persistence of other forms of fees such as textbooks or uniforms that create barriers to education, or countries being slower or faster in implementing tuition-free policies for all students. Further research is needed to better understand individual country effects.

### Discussion:

- The findings of this study have significant implications for policymakers and stakeholders seeking to improve ANC coverage. These findings demonstrate that removing the tuition barrier can meaningfully advance both reproductive health and educational outcomes, leading to the full range of related benefits.
- By eliminating tuition fees for secondary school, countries can make significant strides towards improving educational outcomes and ultimately achieve better antenatal coverage, contributing to their commitments to the SDGs related to maternal and infant health, as well as education.
- While tuition-free primary education has been widely implemented across Africa, a significant number of countries still charge tuition fees at the secondary level. As governments across the continent turn their attention to eliminating tuition at the secondary level, this study offers new evidence about its potential impacts on reproductive health outcomes. While investing in free education requires initial investment, the long-term benefits for both health, human development and economic growth far outweigh the costs.

### Average marginal effects of free education policies on ANC visits

|  | (1)     | (2)      | (3)      | (4)      |
|--|---------|----------|----------|----------|
|  | Pooled  | Liberia  | Rwanda   | Zambia   |
| Exposed to free primary and lower secondary (Both) | 0.189** | 0.183*** | 0.323*** | 0.333*** |
|  | (0.095) | (0.043)  | (0.061)  | (0.087)  |
| Exposed to free primary only (Primary)             | 0.093*  | 0.306**  | 0.116    | 0.163*** |
|  | (0.054) | (0.125)  | (0.072)  | (0.049)  |
| Observations                                       | 67,738  | 45,376   | 49,078   | 50,478   |
| Both – Primary                                     | 0.0960  | -0.123   | 0.207    | 0.170    |
| F-test   | 3.140   | 0.712    | 6.165    | 7.499    |
| pval   | 0.0760  | 0.399    | 0.0130   | 0.00600  |
| Mean outcome in pre-policy period                  | 3.799   | 3.948    | 3.569    | 3.703    |

Notes: Treatment countries are Liberia, Rwanda, Zambia, and comparison countries are Benin, Burundi, DRC, Mozambique, Niger, Zimbabwe. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors in parentheses are clustered at the country level. The regressions include country, birth cohort, and survey year fixed effects. We control for mothers' age, domestic health expenditure as percent of GDP at the time of the survey, share of urban population at the time of the survey and GDP per capita at the time of the policy. To calculate the mean number of ANC visits for women in the pre-policy period, we used the birth years before the first cohort exposed to both policies was born.

### Average marginal effects of free education policies on at least 4 ANC visits

|  | (1)     | (2)      | (3)     | (4)      |
|--|---------|----------|---------|----------|
|  | Pooled  | Liberia  | Rwanda  | Zambia   |
| Exposed to free primary and lower secondary (Both) | 0.028   | 0.077*** | 0.031*  | 0.061*** |
|  | (0.019) | (0.011)  | (0.017) | (0.015)  |
| Exposed to free primary only (Primary)             | 0.019** | 0.100*** | -0.017  | 0.033*** |
|  | (0.010) | (0.007)  | (0.012) | (0.008)  |
| Observations                                       | 67,730  | 45,367   | 49,068  | 50,478   |
| Both – Primary                                     | 0.00900 | -0.0230  | 0.0470  | 0.0280   |
| F-test   | 0.481   | 2.775    | 7.777   | 6.874    |
| pval   | 0.488   | 0.0960   | 0.00500 | 0.00900  |
| Mean outcome in pre-policy period                  | 0.532   | 0.548    | 0.492   | 0.524    |

Notes: Treatment countries are Liberia, Rwanda, Zambia, and comparison countries are Benin, Burundi, DRC, Mozambique, Niger, Zimbabwe. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors in parentheses are clustered at the country level. The regressions include country, birth cohort, and survey year fixed effects. We control for mothers' age, domestic health expenditure as percent of GDP at the time of the survey, share of urban population at the time of the survey and GDP per capita at the time of the policy. To calculate the mean share of women with at least 4 ANC visits in the pre-policy period, we used the birth years before the first cohort exposed to both policies was born.