Is Education the Best Contraceptive?
Examining the relative influence of schooling and family planning environment on contraceptive use across sub Saharan Africa

ABSTRACT

Introduction

Over the last few decades, governments and international organizations have made significant efforts to boost women's educational attainment around the globe. The World Bank argued that investments in women's schooling were the "single most influential investment that can be made in the developing world" (UN 1997). Not only does education boost human capital, but it also has important spill over effects including increased modern contraceptive use, smaller families, improvements in children's health and schooling.

This paper uses mix of regression and advanced decomposition methods (Eloundou-Enyegue & Giroux 2012) to document the extent to which expansion of female schooling has boosted use of modern contraception methods. More specifically, we first assess how much of the gain in use of modern contraceptives is driven by increased use among highly educated women (behavioral component) versus growth the relative size of each education group (compositional component). As a second step, we decompose the behavioral component further to understand how much of the gain is driven by baseline factors, changes in the impact of education itself, and all other factors. After this, we regress family planning environment (FPE) scores on our decomposition components to determine the extent to which the baseline and education effects are impacted by increased investments in the FPE.

Data & Methods

Data

DHS. This first two steps of this analysis use Demographic Health Survey (DHS) data from 26 sub Saharan countries[1]. The analysis required countries to have at least 2 surveys, and for each case we examine the oldest and most recent data files. This sample represents both a geographic breadth and, more interestingly, periods where the use of modern contraceptives rose dramatically, and also instances of decline.

FPPE. For the third step in our analysis, we regress Family Planning Program Effort Index (FPPE) data on our decomposition results. The FPPE Index measures the

[1] Benin, Burkina Faso, Burundi, Cameroon, Chad, Cote d'Ivore, Eritrea, Ethiopia, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali Mozambique, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. The specific survey years are listed in Appendix Table 1.

quality the national family planning program of a given country on four dimensions (policies, services, evaluation, and method access). Individual countries scores can range from of 0-300 points, based on 1-10 points for each of 30 items. The information on the family planning effort is gathered with a questionnaire designed explicitly for this purpose, completed by an average of 10-15 individuals per country. The items have remained constant over the multiple rounds of data collection.

Methods

Our analysis begins with a basic decomposition method to examine how much of the change in contraceptive use is attributed to the rising impact of education (education effect) versus increases in the size of more highly educated groups (demographic effect). This basic decomposition analysis proceeds as follows:

1) Basic Decomposition. Total modern contraceptive use (C) at time (t) is a function of group specific use rates for each education group (r_{jt}) multiplied by the size of each education group (w_{jt}) group.

$$C_t = \sum r_{jt} * w_{jt}$$

The above expression can then be decomposed, so we can determine whether changes in contraceptive use were driven predominantly by changes in rates of contraceptive use by each education group versus changes in the size of each education group:

$$\Delta C = \bar{r} * \Delta w_j + \overline{w} * \Delta r_j$$

Term 1 **Term 2**

Where the term 1 represents the change driven by changes in the size of education group groups, while term 2 represents the proportion of change driven by changes in use of contraceptives by each education group. Identifying where the change happens is important to understand how the relative importance of education itself versus the expansion of education.

2) Advanced Decomposition. We then proceed to a more advanced decomposition approach which further decomposes the changes in group-specific enrollment rates, can be decomposed into three separate components.

$$\Delta C = \sum \bar{r}_i \Delta w_i + \sum \overline{w}_i \, \Delta\alpha + \sum \overline{w}_i \, \Delta\beta * EDU_i + \sum \overline{w}_i \, \Delta\mu$$

where w_i represents the percentage of women within education group i and e_i represents the group specific enrollment for each socioeconomic group. The alpha (a), beta ($ß$) and residual (μ) terms are all generated from the grouped regression of education level on use of modern contraception.

This decomposition allows us to assess how much of the behavioral shift is due to baseline factors that impacted all education groups equally (a), versus the shifting relevance of education itself (b), versus all other factors outside of education (u).

3) Family Planning Environment. While the initial decompositions allow us to understanding the shifting relevance of education in contributing to contraceptive use, we also want to examine how the national family planning environment mediates this relationship. Do to this, we regress family planning environment (FPE) scores on our decomposition components a & b to determine the extent to which the baseline and education effects are impacted by increased investments in the FPE. The innovation here is that we can examine the extent to which family planning effort works in promoting both an average gain, and perhaps a speedier gain among the educated.

Literature

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