

Education Attainment of Girls in Burkina Faso's Sahel Region – A Multiple Decrement Life Table Approach

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Purpose

Purpose of the analysis is to quantify and illustrate the effect of pregnancy, early marriage, and unpaid care work on girls' primary and secondary education in the Sahel region (see figure 1) of Burkina Faso. Preliminary results suggest that elimination of dropouts caused by early marriage, pregnancy, and unpaid care work would increase Sahel girls' average years of education in Burkina Faso by 30 percent. Unmeasured structural causes seem to have more impact on girls' dropping out in the Sahel than family formation and unpaid work.

Data Sources

Region-, grade- and sex-specific proportions of the grade in year t that were promoted to the next grade-level, repeated the same grade-level, or dropped out before year $t+1$ were estimated from annual statistics published by the Burkina Faso's Direction des Etudes et de la Planification, Ministère des Enseignements Secondaire et Supérieure (MESS) and by Direction Générale des Etudes et des Statistiques Sectorielles (DGESS) et Ministère de l'Education Nationale et de l'Alphabétisation (MENA). We used the most recent published data available to us: 2012-2013 and 2013-2014 for post-primary and secondary data; 2015-2016 and 2016 to 2017 for primary data. The same sources also included data for the national level by grade and sex.

Reasons for dropping out are not available from recent data sources and were only available from responses to retrospective questions in the Burkina Faso Demographic and Health Surveys from 1998-1999. In the 1990s, DHS in other African countries, including Mali, also asked similar questions. DHS tabulated responses according to the completed level of education of responding women ages 15-24. See Annex I and Annex II for the DHS tabulations. We used results for Burkina Faso and for Mali combined with probabilities of promotion, grade repetition, or dropout to construct two different estimates each of: the probability of dropping out due to pregnancy/marriage, probability of dropping out due to unpaid care work, and probability of dropping out due to economic need, and probability of dropping out due to other reasons (a residual category). Analysis using reproductive histories suggest that these are an underestimate of dropout rates (Mensch et al. 2009).

Analytic Approach

We used a multiple decrement life table with cause elimination to model competing risks of exiting the school system at each class level. We did not include grade-specific or age-specific mortality. This approach required several assumptions:

- The groupings that we used as reasons for exit are independent of each other.
- Once students in our synthetic cohort exit, they do not re-enter.
- Students live from entry into primary school (CP1) at least until they dropout or graduate.

- The annual cause-specific proportion dropping out at each class level, among those who dropout, is constant from CP1 through CM2 (i.e., educational attainment equivalent to incomplete primary education). The cause-specific proportion dropping out among those who dropout after reaching CM2 but before reaching 3eme is also constant (i.e., educational attainment equivalent to completed primary education). Finally, cause-specific probability of dropping out among those who dropout from 3eme through Terminale is also constant (i.e., educational attainment equivalent to incomplete secondary).

Results

In Table 1, we see that primary through secondary age girls from the Sahel region of Burkina Faso have an estimated average number of years of education that is just over $\frac{1}{2}$ the expected years of education for girls living outside the region. Eliminating early marriage and pregnancy as a cause of dropout before the completing secondary school would increase the expected number of years from 4.3 to 4.8. Eliminating unpaid care work such as caring for younger children as a cause would increase years of education to 5.6, eliminating other economic need, in addition, would increase years of education to 5.9 years. A further increase of 1.4 years would be required to move Sahel girls' expected years of education to the 7.4 years currently estimated for other girls in Burkina Faso. This suggests that structural issues such as the closing of schools due to civil conflict in this region of Burkina Faso must be addressed also.

Figure 1. Sahel Region in Burkina Faso



Table 1. Multiple Decrement Life Table Estimates of Average Years of Education by Cause Eliminated

Causes	Sahel Girls with Mali cause-specific distribution	National Girls (less Sahel) with Burkina Faso cause-specific distribution
All causes	4.3	7.5
No pregnancy/marriage	4.8	7.9
No unpaid care work	5.0	7.9
No economic need	4.5	8.8
No other causes (education system quality issues)	8.9	10.7

ANNEX I

Tableau 2.10 Fréquentation scolaire et raisons de l'abandon de l'école

Répartition (en %) des femmes de 15 à 24 ans par fréquentation scolaire et raisons de l'abandon de l'école, selon le niveau d'instruction atteint, EDSBF-II Burkina Faso 1998-99

Fréquentation	Niveau d'instruction			Ensemble
	Primaire incomplet	Primaire complet	Secondaire ou plus	
Fréquentent actuellement				
Oui	4,6	13,9	59,8	30,4
Non	95,4	86,1	40,2	69,6
Total	100,0	100,0	100,0	100,0
Raisons d'abandon scolaire				
Fréquentent actuellement	4,6	13,9	59,8	30,4
Est tombée enceinte	0,0	0,0	5,2	2,2
S'est mariée	1,6	1,9	1,5	1,7
S'occupe des enfants	1,0	0,0	0,5	0,5
Aide sa famille au travail	2,8	2,5	0,0	1,5
Ne pouvait payer école	18,8	25,1	13,7	18,3
Avait besoin argent	0,3	1,0	0,8	0,7
Assez scolarisée	0,0	0,8	0,8	0,5
Échec à l'école	27,7	35,6	5,6	20,3
N'aimait pas l'école	25,9	12,5	2,6	12,6
École non accessible	1,6	1,7	0,3	1,1
Emploi	0,6	1,5	4,8	2,6
Autre	12,8	3,0	4,0	6,6
NSP/ND	2,3	0,4	0,3	1,0
Ensemble	100,0	100,0	100,0	100,0
Effectif	176	140	234	550

Table 2.2 Reasons for leaving school

Percentage distribution of women 15-24 who have attended school but who are not currently attending, by reasons for leaving school, according to the highest level of attendance

Region, country, and highest schooling	Reasons for leaving school*												Total	Number of women	
	1	2	3	4	5	6	7	8	9	10	11	12			
Sub-Saharan Africa															
Benin	1.0	1.4	1.3	4.1	11.9	4.4	0.8	30.2	28.3	1.0	15.1	0.5	100.0	598	
- Primary	0.4	1.1	1.5	4.8	11.5	4.3	0.4	29.3	30.2	1.2	14.7	0.3	100.0	507	
- Secondary+	3.9	2.8	0.0	0.0	13.8	5.1	2.7	35.1	17.8	0.0	17.4	1.3	100.0	92	
Central African Republic	11.1	3.8	7.5	1.8	19.2	1.9	0.6	9.3	26.7	2.1	14.0	2.0	100.0	1,090	
- Primary	5.4	3.8	8.5	2.0	20.0	1.7	0.6	9.9	29.1	2.1	14.7	2.2	100.0	892	
- Secondary+	37.0	3.4	3.3	1.1	15.2	3.0	0.5	6.7	15.9	1.6	11.2	1.1	100.0	197	
Comoros	1.8	12.9	0.3	3.6	8.5	1.0	3.9	26.0	22.2	2.6	14.7	2.6	100.0	388	
- Primary	1.0	9.6	0.3	4.0	9.3	1.0	4.0	26.9	24.9	2.7	13.6	2.7	100.0	301	
- Secondary+	4.6	24.1	0.0	2.3	5.7	1.1	3.4	23.0	12.6	2.3	18.4	2.3	100.0	87	
Mali	3.0	12.3	2.7	11.9	3.3	1.9	1.4	14.6	36.6	3.3	6.5	2.5	100.0	514	
- Primary	0.9	9.3	3.1	14.3	3.5	1.8	0.0	11.4	41.3	3.9	7.6	3.0	100.0	420	
- Secondary+	12.4	25.6	1.1	1.1	2.7	2.3	7.5	28.7	15.5	1.0	1.6	0.3	100.0	93	
Uganda	7.4	5.1	1.9	1.4	72.6	0.5	0.8	1.0	3.2	0.2	4.8	1.1	100.0	2,136	
- Primary	4.7	5.3	2.1	1.7	75.4	0.4	0.0	0.8	3.4	0.3	5.0	1.0	100.0	1,851	
- Secondary+	25.0	4.4	0.7	0.0	54.4	0.6	5.9	2.2	1.6	0.0	3.5	1.6	100.0	285	
Zimbabwe	5.8	5.5	0.3	0.2	60.9	1.4	4.1	13.1	2.2	0.8	5.4	0.4	100.0	2,053	
- Primary	2.9	4.6	0.6	0.4	76.2	1.0	0.1	1.6	3.3	1.4	7.5	0.4	100.0	919	
- Secondary+	8.1	6.2	0.1	0.1	48.5	1.7	7.3	22.4	1.3	0.3	3.7	0.4	100.0	1,134	
Near East/North Africa															
Egypt	18.2	2.9	3.6	5.7	0.6	33.6	12.5	15.5	0.7	6.3	0.6	0.0	100.0	1,692	
- Primary	5.8	7.5	9.9	10.4	0.8	0.3	15.4	34.3	1.0	13.9	0.7	0.0	100.0	518	
- Secondary+	23.6	0.8	0.8	3.5	0.4	48.3	11.2	7.2	0.6	2.9	0.6	0.0	100.0	1,174	
Asia															
Indonesia	0.4	26.4	1.2	2.5	47.0	3.4	5.4	1.3	4.6	2.4	4.8	0.7	100.0	5,108	
- Primary	0.0	21.4	1.7	3.2	52.6	3.2	3.9	1.0	4.9	2.5	5.0	0.6	100.0	3,495	
- Secondary+	1.1	37.2	0.3	1.0	35.0	3.9	8.5	1.8	3.8	2.0	4.4	0.8	100.0	1,613	
Kazakhstan	1.0	23.9	2.4	8.0	11.6	33.5	5.4	8.0	1.3	4.4	0.4	0.0	100.0	1,865	
- Primary	-	-	-	-	-	-	-	-	-	-	-	-	100.0	4	
- Secondary+	1.0	24.0	2.4	7.9	11.6	33.6	5.4	8.0	1.3	4.4	0.4	0.0	100.0	1,861	
Nepal	2.1	34.1	6.5	32.3	2.0	0.9	0.2	2.3	5.3	4.8	9.0	0.5	100.0	769	
- Primary	0.6	14.4	8.7	46.9	2.9	1.1	0.0	0.0	8.3	5.4	11.4	0.4	100.0	438	
- Secondary+	4.2	60.1	3.5	13.1	1.0	0.5	0.4	5.3	1.4	4.1	5.9	0.6	100.0	331	
Latin America/Caribbean															
Bolivia	5.6	9.9	2.5	28.0	3.1	18.8	5.0	2.0	8.7	6.6	9.0	0.9	100.0	1,937	
- Primary	1.1	2.9	3.1	38.1	3.0	16.9	3.2	2.1	10.0	9.9	9.4	0.4	100.0	967	
- Secondary+	10.1	16.9	1.9	18.0	3.3	20.7	6.7	1.9	7.3	3.3	8.6	1.4	100.0	970	
Colombia	4.2	11.5	2.4	3.6	31.2	12.8	6.1	0.8	18.7	2.8	3.8	1.9	100.0	8,748	
- Primary	1.6	4.1	2.3	6.5	41.2	8.6	0.2	0.1	23.7	5.0	4.1	2.7	100.0	3,939	
- Secondary+	6.4	17.6	2.6	1.2	23.0	16.3	11.0	1.4	14.6	1.0	3.6	1.3	100.0	4,810	
Guatemala	1.1	4.3	2.6	15.8	7.7	10.6	5.3	2.3	32.4	4.0	9.3	4.4	100.0	3,152	
- Primary	0.3	1.9	2.5	18.6	7.3	10.5	1.0	2.4	37.9	4.7	8.8	4.0	100.0	2,494	
- Secondary+	4.3	13.6	3.1	5.1	9.2	11.4	21.6	2.0	11.5	1.4	11.1	5.8	100.0	658	

* Reasons: 1 - Got pregnant 2 - Got married 3 - Take care of children 4 - Family needs help 5 - Could not pay school 6 - Need to earn money 7 - Graduated, enough 8 - Did not pass exams 9 - Did not like school 10 - School not accessible 11 - Other 12 - Don't know/Missing