How do early marriage and childbirth affect young women's education and labor market transitions in Kenya?

By

Phyllis Machio

Jane Kabubo-Mariara

Anthony Wambugu

Motivation

- Kenyan youths (15-35 years) make up about a third of the population
- They however account for 80% of the unemployed
- Female youths are even more disadvantaged
  - They face higher unemployment than their male counterparts
  - Fewer females attain higher levels of education
- Early transition from school into early child birth and marriage can adversely affects women's human capital accumulation and hence their labor market opportunities
- In Kenya, a quarter of women have had a child before 18 years and still many marry before their 18th birthday

Motivation

- Previous literature in Kenya has focused on the correlates and/or determinants of some of these outcomes independently of one another.
  - See, for instance, Ikamari (2005) on the effect of education on age at first marriage; Ferre (2009) on the effect of education on age at first birth.
- Other studies have looked at determinants of educational attainment (e.g. Kabubo-Mariara and Mwabu, 2007), and of youth employment and unemployment (Escudero and Mourelo, 2013; Vuluku et al., 2013).
- Other studies however suggests that simultaneity could exist between education attainment, age at first birth, age at marriage, and labour force participation (Marchetta and Sahn, 2015; Herrera and Sahn, 2015; Glick and Sahn, 2015).
- Such studies are scarce in Kenya

Objectives

- This study fills this research gap by:

1. Analyzing the effect of fertility, (measured by the total number of children ever born) on working and working in a decent job among young women while controlling for endogeneity

2. Analyzing the effect of early marriage and early fertility (before age 18) on educational attainment of young women while controlling for reverse causality

Methodology

- To estimate the effect of fertility on working and working in a decent job, first a simple probit model is estimated
- However, this relationship may be affected by endogeneity because:
  - The same unobservable characteristics-such as, individual preferences toward work and children may affect both fertility and employment
  - Women simultaneously decide to have children and to work
- IV probit model is used to address potential endogeneity
- The instrumental variables used are: infertility shock, twin first birth and time to water source

Methodology

- To estimate the effect of early marriage and early fertility (before age 18) on educational attainment of young women first, ordered probit models are used

- However endogeneity may arise because:

  - Early marriage and child birth adversely affects educational attainment, while educational attainment may delay early child birth (Schultz, 1997; Kabubo-Mariara et al., 2017).

  - Unobservable factors such as motivation can affect likelihood of having a child and marrying early and also educational attainment

Methodology

- Two-stage residual inclusion and the control function approach models were used to control for potential endogeneity.

- Three instrumental variables are used: ever had pregnancy terminated, child before marriage and number of unions.

- These variables are expected to be highly correlated with early fertility and marriage but not directly related with educational attainment

Data and descriptive statistics

- This study used the 2014 Kenya demographic and health survey (KDHS) data
- The descriptive statistics indicate that 51% of the sampled women were working although only 32% of these were employed in decent jobs(professional/technical/managerial positions, clerical jobs and **service sector** jobs)
- Average number of children born to a woman was 2
- About 0.2% of the women were infertile, 2% of the first born children were twins and average time to water source was 26 minutes

Descriptive statistics

- About 43% of the young women who had children had them before age 18.

- Similarly, about half (47%) of those married were married before they were 18 years old.

- The average educational attainment was primary education

- About 4% of the respondents had had a pregnancy terminated, 4% had been in more than one union and 23% had been married with a child.

Findings: Effect of fertility on employment among young women

Table 4: **The effect of fertility on employment among young women**

Variables	Coefficients	Marginal effects			
Dependent variable	Total children ever born	1 if working		1 if working in a decent job	
	First stage estimates	Probit	ivprobit	Probit	ivprobit
Total children ever born		0.007**	-0.086*	-0.010**	0.045
		[0.004]	[0.044]	[0.005]	[0.055]
Instrumental variables					
Infertility shock	-0.724***				
	[0.274]				
Time to water source	0.001***				
	[0.000]				
Twin first birth	0.840***				
	[0.111]				
Constant	1.180***				
	[0.152]				
Observations	14,606	10,807	6,960	5,467	4,395
R-squared	0.466				

Standard errors in brackets   *** p<0.01, ** p<0.05, * p<0.1

Findings: Effect of fertility on employment among young women

- Findings indicate that as the number of children born to a woman increases so does her likelihood of working by 0.7 pp
- However once we control for endogenity, we find that as the number of children increases it reduces a woman's chance of working by 8 pp
- Endogeneity biases downwards the effect of fertility on employment and also leads to unexpected coefficient sign
- Education, wealth index, region, religion are also significant determinants of employment

Findings: The effect of early fertility and early marriage on educational attainment of young women.

- First stage estimates

Table 5: Determinants of early fertility and early marriage

Variables	Linear probability model	
	1 if had a child before 18	1 if married before 18
Instrumental variables		
1 if ever had pregnancy terminated	0.0720**	0.1013***
	[0.037]	[0.036]
1 if had a child before marriage	0.1505***	-0.2079***
	[0.020]	[0.020]
1 if married more than once	0.2022***	0.2368***
	[0.045]	[0.044]
Constant	1.9019***	2.0903***
	[0.135]	[0.132]
Observations	2,229	2,229
R-squared	0.163	0.217
Standard errors in brackets	*** $p<0.01$, ** $p<0.05$, * $p<0.1$	

Findings: The effect of early fertility and early marriage on educational attainment of young women.

Table 6: The effect of early fertility and marriage on educational attainment

Variables	ordered probit model				Two-stage residual inclusion				Control function approach			
	No formal education	Primary education	Secondary education	Tertiary education	No formal education	Primary education	Secondary education	Tertiary education	No formal education	Primary education	Secondary education	Tertiary education
Married before 18	0.134*** [0.011]	-0.052*** [0.005]	-0.052*** [0.005]	-0.030*** [0.003]	0.306*** [0.067]	-0.121*** [0.027]	-0.120*** [0.027]	-0.065*** [0.015]	0.303*** [0.067]	-0.122*** [0.027]	-0.118*** [0.027]	-0.064*** [0.015]
Child before 18	0.103*** [0.012]	-0.040*** [0.005]	-0.040*** [0.005]	-0.023*** [0.003]	0.360*** [0.090]	-0.142*** [0.036]	-0.142*** [0.036]	-0.076*** [0.020]	0.349*** [0.092]	-0.140*** [0.038]	-0.136*** [0.036]	-0.073*** [0.020]
Married before 18 residuals					-0.163** [0.069]	0.064** [0.027]	0.064** [0.028]	0.035** [0.015]	-0.205*** [0.076]	0.082*** [0.031]	0.079*** [0.030]	0.043*** [0.016]
Child before 18 residuals					-0.257*** [0.092]	0.102*** [0.037]	0.101*** [0.037]	0.055*** [0.020]	-0.293*** [0.097]	0.118*** [0.040]	0.114*** [0.038]	0.061*** [0.021]
Interaction of married before 18 and residuals									0.085 [0.072]	-0.034 [0.029]	-0.033 [0.028]	-0.018 [0.015]
Interaction of child before 18 and residuals									0.084 [0.082]	-0.034 [0.033]	-0.033 [0.032]	-0.018 [0.017]

Findings: The effect of early fertility and early marriage on educational attainment of young women

- The results indicate that having a child before 18 years reduces a young woman's chance of attaining primary, secondary and tertiary education by 10, 10 and 9 percentage points respectively
- while it increases their chance of attaining no formal education by 26 percentage points.
- Further that young women who get married before 18 years are 31 percentage points more likely to attain no formal education
- But are 12, 12 and 7 percentage points less likely to attain primary, secondary and tertiary education respectively.
- Failure to control for endogeneity biases downwards the effects of early fertility and marriage on educational attainment
- Other significant determinants of educational attainment include wealth index, educational attainment of household head, religion among others

Conclusion

- Overall, our findings reaffirm the importance of schooling to young women's longer-term employment prospects,
  - While highlighting the inverse relationship between fertility and education
- These findings point to the value of policies aimed at enhancing school progression and education attainment.

Policy recommendations

- Given the role of household wealth in shaping young women's educational and employment choices, a range of income supports and incentives may be instrumental. For example:
- **Rural/slum development programs** that increase the socio-economic status of poor households may have a positive impact on girls' education attainment,
  - And reduce the incidence of early pregnancy and child birth.
- **Day care services** would enable young mothers to continue their education and participate in paid employment.
  - Government can reduce the burden of child care by promoting low-cost but safe day care facilities, with subsidies for the very poor.
- **Subsidized secondary school fees** could prevent girls from dropping out at an age when they face pressures to marry early.