

Empowerment in an unequal world: Examining the relationship between fertility and women's economic empowerment among African South Africans

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Background

Within the last forty years, a number of low and middle income countries have experienced dramatic fertility declines with fertility rates dropping from between 6-7 children per woman to as low as 2-3 children per woman. Very few of these countries have been located in sub-Saharan Africa. Notable exceptions are Botswana, Zimbabwe and South Africa, where in the latter fertility has fallen to the lowest levels in sub-Saharan Africa, from a country-level estimate of 6.4 in 1960 to 2.5 in 2009 (World Bank World Development Indicators, accessed June 2011). Most of the overall national level fertility decline in South Africa since 1960 can be explained by fertility decline among African (or black) South Africans, who account for 79% of the total population of South Africa (Statistics South Africa - accessed December 22, 2010). African women in 1960 had an estimated 6.8 children during their reproductive years and this fertility level had dropped to 2.9 by 2007. It has been suggested that such a dramatic shift in fertility would have social and economic consequences; in particular for women, who are traditionally responsible for the bulk of childrearing in addition to childbearing (Amin and Lloyd, 2004; Malhotra, 2009). In this paper we examine the relationship between fertility levels and women's economic empowerment- specifically their human capital attainment and their work outside of the home- from their participation in the labor force in general to more specific measures of their representation in skilled occupations.

Theoretical and Conceptual Framework

We would suggest that the relationship between fertility decline and African women's education and labor force outcomes is initially guided by shifts to women's time allocation. As Malhotra and others have expressed on a conceptual level, and May et al have described specifically within the context of South Africa (Malhotra, 2009; May et al, 1997), with fewer children, women's time allocated to reproductive roles and responsibilities can be reduced, allowing women more time for roles outside of domestic responsibilities.

We would suggest that declining fertility levels would have more immediate effects on rates of female labor force participation and employment. In addition, over time, young women would be increasingly exposed to women in older cohorts both having smaller families and entering the labor force, which could contribute to shifting expectations at the community level for the role of women. For the linkages between decline in community fertility levels and women's education in particular, there are two possible sets of mechanisms: 1. Fertility decline catalyzes parent's ability and interest to invest more in their daughter's education. This would operate both through quality/quantity tradeoffs in investments in children, and reduced necessity for older daughters to take on childcare roles for younger siblings in the context of smaller family sizes. 2. A second mechanism could operate through the shaping of young women's own expectations for their futures as based on their understanding of the lifestyles and opportunities for their older peers (Bourdieu, 1998). Increased participation among women in skilled occupations would be expected to follow significant gains to women's educational attainment, but would not be a pre-condition for gains to women's labor force participation or employment.

This set of mechanisms would be affected by community and household factors and conditions. Namely, one must account for the high levels of inequality in South Africa between and within communities. Throughout apartheid, restrictions on mobility, alongside race-based residential segregation coupled with discrimination in education and employment, mean that there remain many uniformly poor almost uniquely African communities, where unemployment rates are very high (du Toit, 2004). The poverty of such communities affects the quality of schools (Sheppard, 2009) and the effectiveness of social ties in locating rare employment opportunities (Adato, 2006). Therefore, we would expect that the extent to which community fertility levels would lead to economic empowerment would be conditioned on the economic health of the communities and household in which women reside.

Data, Methods and Research Questions

We rely on two data sources for our main analyses: the 1996 South Africa Census and the 2007 Community Survey (mini-census). The 1996 Census was the first post-apartheid census and therefore the first that accounted for the entire population of the Republic of South Africa. The community survey (CS) was conducted in 2007 by Statistics South Africa after moving to a decennial census schedule from a quinquennial schedule and was meant to offer interim measures on important social, economic and demographic trends.

Our main research questions, drawing from these data sources are as follows:

1. Is there an association between African district-level or municipal-level completed fertility and young African women's (ages 20-24) educational attainment?
2. Is there an association between African district-level or municipal-level completed fertility and younger African women's (ages 30-34) LFP, employment, or skilled work?
3. Do these associations vary depending on the socio-economic conditions of the household or communities in which women live?

We hypothesize that living in communities with lower fertility levels will be associated with higher levels of economic empowerment for young African women. We first assess the nature and the strength of these relationships at each time point. We then combine these data to test how this relationship has changed over the 11-year timeframe.

Analysis Plan

Nationally representative data sources on African fertility predating 1996 are limited due to the apartheid era, and restrict our options for including fertility measures that significantly pre-date our outcome measures, we therefore rely on implicitly lagged measures of fertility. We use multi-level logistic regression models to predict young women's (ages 20-24) likelihood of having completed high school as influenced by implicitly lagged fertility at the municipal level (mean children ever born [CEB] for women ages 30-39 and 40-49) in addition to other community, household and individual characteristics. The additional covariates include community wealth, as measured by a household asset wealth score, aggregated to the municipal level; derived household income; relationship to household head; marital status; the woman's own childbearing, migration into the community; and her age.

We then predict slightly older women's (ages 30-34) labour force outcomes (labor force participation, employment, and skilled occupations) as influenced by African women's completed fertility at the municipal level (mean CEB for women ages 40-49) in addition to the same set of community, household and individual characteristics.

In our multi-level logistic regression models we examine the influence of variables at the district, municipal, household and individual level. We begin with models that assume fixed effects of the community-level variables, controlling for the clustering of individuals within geographic areas. Analyses will then explore the possibility of explicitly modeling the intra-class correlation to examine the extent to which women's economic empowerment is clustered within communities in 1996 and 2007. This analysis would also allow examination of the extent to which our predictor variables explain the geographic clustering in women's economic empowerment.

Preliminary Findings

Descriptive statistics comparing across data waves confirm the overall trends seen in South Africa over time: women's mean CEB declines, and the percent of women participating in the labor force, employed or holding a skilled job all increase, albeit only slightly for the latter.

Table 1: Characteristics of African Women ages 20-24 and 30-34 in the 1996 Census as compared to the 2007 Community Survey

	African Women 20-24				African Women 30-34			
	Census 1996 (n=104,383)		CS 2007 (n=35,757)		Census 1996 (n=90805)		CS 2007 (n=25,058)	
	n	%, Mean (std err)	N	%, Mean (std err)	n	%, Mean (std err)	n	%, Mean (std err)
Passed high school exam	24,212	23.16	10,200	29.5	16,451	18.03	6,684	28.13
In Labor Force	--	--	--	--	69,505	76.53	21407	86.13
Employed	--	--	--	--	31,064	34.26	9,263	37.49
Skilled worker	--	--	--	--	6,250	7.01	1,867	8.42
Mean CEB	104383	.907 (.003)		.701 (.005)	90805	2.70 (.006)	25058	1.99 (.009)

Our preliminary analysis, based on the 2007 community survey alone, first included unadjusted bivariate logistic regression models to examine the association between the predictor variables and the outcomes. The bivariate associations between municipal-level completed mean CEB for women 40-49 years of age (which ranges from 1.9 to 5.5 within 202 municipalities) and all of our outcome variables are highly significant. Each outcome is negatively associated with municipal-level fertility measures (all at $p < .000$).

In building the multivariate logistic regression analysis, a series of models were examined. We report here on the preliminary findings for predicting the odds of completion of the high school finishing exam (the matriculation exam). The first model only included individual and household-level variables. The second and third models added community-level fertility and community-level socioeconomic status, respectively. Lastly, interactions between community-level fertility and

household income, and community-level fertility and municipal wealth were tested. We only find evidence for the first mechanism proposed, that of parents investing in their daughter's education, modeled through the longer fertility lag, as significant. For the models testing the explanatory power of completed municipal fertility for women ages 40-49, we do find evidence that this variable improves the model fit (from a base model) and highly significantly determines the odds of young women completing their matric ($p < .000$). We then test interaction terms and find household income does not appear to significantly modify the relationship between municipal fertility and education. This may be good news, suggesting that women from poorer households are just as likely to benefit from lower community fertility levels than women from wealthier households. We then test an interaction between community wealth and community fertility (both at the municipal level). This interaction term is highly positively significant and suggests that the effects of community fertility on the odds of a woman completing the high school exam are greater in wealthier communities.

This study provides an important contribution to an effort to determine if and to what extent demographic transitions may benefit women's position in society. Our findings may provide some evidence to suggest that fertility decline can contribute to gains to women's economic empowerment; however, our findings also remind us that these gains are likely subject to important social and economic conditions in women's lives.

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