The Dynamics of Adolescent Childbearing and Schooling in Urban South Africa

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Abstract:
In this paper, we examine the intersections of childbearing and educational attainment in urban South Africa. We compare the pathways of adolescent fertility according to race and how they impact educational attainment. Although racial apartheid ended, our preliminary results show that today's adolescents experience different pathways to adulthood associated with race. Different childbearing experiences may lead to very different educational careers. Insufficient panel data in developing countries has hindered studies examining childbearing and schooling. We use data from the Cape Area Panel Study, a panel of 4,800 young people in Cape Town, to answer: How adolescents experience childbearing in post-Apartheid South Africa? How these pathways drive adolescents' educational attainment for different racial groups? For adolescents enrolled in school in wave 1, we examine the factors leading to a birth between waves. We then look at the factors driving educational attainment after birth, including test scores implemented in wave 1.

Introduction

As social transformation continues in South Africa and the opportunities available to young adults are changing, it becomes ever important to understand the interconnections between adolescent fertility and schooling to draw policy focusing on adolescent well-being. The goal of this paper is to examine the intersections of childbearing and educational attainment in urban South Africa. We are particularly interested in the different pathways of these transitions to adulthood and on how they impact the educational attainment of adolescent boys and girls.

Different timing and order of reproductive transitions may lead youth to subsequent well-being and adulthood under very different circumstances. In this paper, we explore the idea that there is not a pre-defined order of transitions to adulthood by accounting for the timing and order of events. Limited data in developing countries, particularly the lack of panel data and information on timing of events, has not allowed for properly addressing the interconnections of sexual and fertility behaviors and schooling. However, the understanding of how adolescents negotiate these transitions is crucial for successful citizenship and has important policy implications.

Another important dimension we address is how sexual and reproductive transitions of adolescents differ by race. Although racial apartheid ended more than a decade ago in South Africa, our preliminary results show that today's adolescents experience very different pathways to adulthood associated with race.

We take advantage of a unique panel data to answer: What are the different ways adolescent boys and girls transition to sexual initiation, childbearing and union formation? What are the factors driving childbearing for young South Africans? How these different pathways drive adolescents' educational attainment for different racial groups? The Cape Area Panel Study (CAPS) is a survey of 4,800 young people in Cape Town. CAPS includes detailed information on schooling, living arrangements, employment, fertility, and sexual partnerships. A basic numeracy and literacy skills test was also administered to each youth respondent. We use the 2002 and 2005 CAPS waves.

The structure of this paper is as follows. First, we examine racial differences on sexual behavior of boys and girls, and the factors associated with them. We explore factors such as timing of first intercourse, use of condoms and age of first sexual partner. Second, we investigate the transitions to union and childbearing. For young adults enrolled in school in wave 1, we examine the factors leading to a birth between waves 1 and 3. We include test scores implemented in wave 1, prior to birth. Since the majority of adolescents are enrolled in school in South Africa, we hypothesize that the potential effect of education on childbearing would not be through enrollment, but school performance. We then look at the factors driving educational attainment subsequent to birth. South Africa is one of the few African countries where students are not expelled because of pregnancy or parenthood, creating the opportunity of continuing or returning to school. We examine grade advancement three grades in a three-year period.

This paper contributes to the debate and policy implications on transitions to adulthood in three key ways. First, by exploring the interconnections between childbearing and educational attainment across racial groups. This is a particularly important dimension in the South African context. Second, by providing evidence on the educational opportunities and prospects after childbearing. South Africa is one of the few African countries where students are not expelled because of pregnancy or parenthood, creating

the opportunity of continuing or returning to school. Fourth, South Africa has experienced a dramatic increase in female labor force participation in the past decade, as documented by South African researchers (Casale and Posel, 2002). The authors attribute this to a rapid change in family and household characteristics, including greater rates of female headed households, as well as increasing male unemployment. Recent legislature in South Africa such as the Employment Equity Bill has also emphasized the need for greater female employment. In a high unemployment context such as the South African labor market (Wittenberg, 2002), and an increasingly open economy, having educational qualifications is probably very valuable for increasing one's wages and standard of living. Without focusing directly on the link between adolescent fertility and employment prospects, the relationship between fertility and education is clearly an important policy dimension, both for the young mothers and their offspring.

Data and Methods

Data: The Cape Area Panel Study

This paper takes advantage of two waves of a new household survey in metropolitan Cape Town. The Cape Area Panel Study (CAPS), a collaborative project of the University of Cape Town and the University of Michigan, is a longitudinal study of youth and their families. This paper uses the first and third waves of the survey, which were conducted in 2002 and 2005.[1]

The CAPS questionnaire contains two major sources of data. First, the survey includes a household questionnaire, in which demographic data on the entire household is collected. Second, the survey includes a detailed young adult questionnaire, which collects data on schooling, employment, and fertility of household members between the ages of 14 and 22. The young adult questionnaire includes a life history calendar that provides retrospective information on schooling, living arrangements, employment, fertility, and sexual partnerships. A basic numeracy and literacy skills test was also administered to each youth respondent.

CAPS was designed using a two-stage probability sample of households. Cape Town has three predominant population groups – black/African, which are about 27% of the population, coloured (about 50%), and white (about 22%). The CAPS sample oversampled African and white households in order to get large enough samples to make meaningful comparisons across groups. All households in our screener sample of about 10,000 households that contained at least one resident between the ages of 14 and 22 were selected for inclusion in the sample. Additionally, a subset of households with no 14-22 year olds were also included. Upon recruitment into the survey, the household demographic questionnaire was administered to the person most knowledgeable about the household. Full-length young adult interviews were given separately to up to three young adults in the household. The baseline wave of CAPS provides data on roughly 5,000 households and 4,750 young adults. Table 1 shows the composition of the Cape Area Study data in the baseline, Wave 1. The tables also shows sample size in 2002 and percent interviewed in 2005.

Methods

[1] One-third of the sample was interviewed for a second time in 2003, the remaining two-thirds were interviewed for a second time in 2004, and the entire sample was interviewed again in 2005. Details about CAPS, including questionnaires, are available at http://caps.psc.isr.umich.edu.

Our paper makes use of exceptionally rich new data to further our understanding of the inter-relationship between adolescents sexual and reproductive transitions to adulthood and their relation to schooling. The major advantages are much larger samples which allow for rigorous statistical estimation techniques, as well as detailed information about youth's current and early life environments. We also make use of two waves of data, which allows us to identify the temporal relationships between schooling, union formation, sexual behavior and childbearing, something which is impossible in most cross-sectional data.

We first make use the two waves to observe proportion reporting ever had a child for adolescents of all racial groups. We also look at the proportion of girls that are enrolled in an educational institution for each age. This provides a 'big picture' of the magnitude and prevalence of these events, and how they change through the life cycle.

We then use multivariate regression analysis to inform our research questions. One issue of concern is that our standard errors may be incorrect due to potential non-independence of observations from the same household. CAPS interviewed all young adults in households if there were three or fewer household members aged 14 to 22 inclusive. If there were more than three, three were selected at random. To address the non-independence of observations within families, we estimated robust standard errors while clustering at the household level. This allows for correlation of the error term at the household level in our likelihood function, which should mitigate against getting biased standard errors. We believe that this is preferable to the alternative of randomly selecting one observation from each household, as it is more statistically efficient, an issue of particular relevance when our dataset is fairly small.

Preliminary Results

Table 2 shows descriptive statistics of percentage reporting ever had sex, use of condom at last sex, ever had a child and ever married in waves 1 and 3. The proportions are calculated for adolescent boys and girls according to their racial group: coloured, white or African. Although racial apartheid ended more than a decade ago in South Africa, our preliminary results show that today's adolescents experience very different pathways to adulthood associated with race. By age 20 about 90% of African girls have had sex, 67% had used condom at last sex, about a third have had at least one child and less than 10% have ever married. For coloured, about 65% of girls have had sex, 45% had used condom at last sex, about a third have had at least one child and 5% have ever married. For whites, 38% have had sex, 71% had used condom at last sex, less than 1% had at least one child and 3% have ever married. Table 3 reports the age of first sexual partner for the first wave by race.

Figure 1 shows the number of sexual partners in the last 12 months for African males and females in both waves.

Table 4 show the birth and schooling outcomes from 2002 to 2005 of females enrolled in grades 8 or 9 with no previous birth in wave 1. Table 5 shows results from probit regressions of birth and grade advancement between 2002 and 2005 for the same group of females. The coefficients are converted to marginal effects. We will extend these models to all adolescents enrolled in school in wave 1, not only to those in grades 8 or 9.

Table 1

Composition of Cape Area Panel Study Wave 1
Young Adult Sample, 2002

Population Group	Number of households	Number of young adults	Unweighted percent	Weighted percent
Black/African	1,442	2,151	45.3	28.2
Coloured	1,412	2,002	42.1	53.1
White	450	599	12.6	18.7
Total	3,304	**4,752**	100	100

Sample size in 2002

Age in 2002	African		Coloured		White		Total
	Female	Male	Female	Male	Female	Male	
14	102	105	110	105	29	27	478
15	120	98	127	119	35	32	531
16	150	91	145	111	23	36	556
17	138	98	140	142	40	25	583
18	158	103	142	106	28	31	568
19	160	131	105	106	30	31	563
20	145	104	104	98	23	17	491
21	123	99	118	73	26	14	453
22	125	102	86	65	24	14	416
Total	1,221	931	1,077	925	258	227	4,639

Percent interviewed in 2005

Age in 2002	African		Coloured		White		Total
	Female	Male	Female	Male	Female	Male	
14	75.5%	79.0%	93.6%	87.6%	75.9%	59.3%	82.2%
15	75.8%	84.7%	89.8%	89.9%	82.9%	78.1%	84.6%
16	78.7%	71.4%	84.8%	86.5%	73.9%	75.0%	80.2%
17	75.4%	76.5%	87.9%	85.9%	67.5%	48.0%	79.4%
18	67.1%	73.8%	84.5%	86.8%	42.9%	45.2%	73.9%
19	61.9%	67.2%	77.1%	74.5%	40.0%	64.5%	67.3%
20	56.6%	69.2%	77.9%	80.6%	34.8%	41.2%	67.0%
21	66.7%	73.7%	78.8%	83.6%	38.5%	28.6%	71.3%
22	60.8%	65.7%	69.8%	81.5%	29.2%	28.6%	64.2%
Total	68.4%	73.3%	83.4%	84.4%	55.8%	56.8%	74.8%

Summary Statistics from Cape Area Panel Study Waves 1 and 3

Percentage reporting ever had sex

	Male						Female					
	African		Coloured		White		African		Coloured		White	
Age	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005
14	13.1		1.7		0.0		4.1		1.2		0.0	
15	21.1		8.6		2.9		24.9		3.2		0.0	
16	53.7		16.6		0.0		31.5		9.4		3.7	
17	55.9	48.3	27.8	29.5	0.0	18.2	51.6	59.9	15.9	21.1	15.6	24.6
18	61.4	78.0	48.7	42.4	13.2	31.3	69.6	81.6	27.1	39.1	33.0	41.7
19	78.9	89.4	59.1	56.8	30.5	50.8	81.3	79.5	46.1	47.3	43.0	53.3
20	74.6	92.1	59.5	74.7	44.7	62.4	88.6	90.2	61.9	65.1	70.2	37.7
21	89.1	90.5	63.4	81.0	37.3	47.7	83.9	94.9	67.7	57.3	85.5	94.9
22	86.0	94.2	72.4	78.1	57.9	58.5	90.5	98.1	75.0	71.8	57.8	70.4
23		93.8		86.8		57.6		100.0		81.9		79.3
24		100.0		87.0		83.1		100.0		88.0		92.7
25		100.0		91.8		40.1		100.0		90.2		87.6

Percentage reporting used condom at last sex

	Male						Female					
	African		Coloured		White		African		Coloured		White	
Age	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005
14	23.7		100.0				100.0		51.5			
15	48.8		53.2		100.0		58.7		0.0			
16	58.6		76.1				61.0		36.0		100.0	
17	73.0	71.8	84.8	76.5		67.5	52.2	72.5	12.2	21.8	84.5	48.8
18	76.9	78.7	65.9	77.6	29.7	79.3	62.5	75.5	39.2	32.7	100.0	82.7
19	71.6	87.4	70.2	64.8	100.0	70.2	55.2	79.4	38.8	32.0	87.1	93.0
20	83.7	75.5	76.7	56.8	59.4	30.6	49.3	66.5	19.2	45.1	70.0	71.2
21	74.4	83.1	48.3	62.7	66.5	78.1	43.1	64.0	12.1	34.5	30.8	77.0
22	64.0	85.1	66.4	53.9	39.1	56.4	43.0	68.9	25.7	21.1	61.8	35.0
23		74.9		51.1		68.2		56.8		32.7		53.7
24		70.0		48.3		47.4		51.2		23.7		49.9
25		68.3		33.2		100.0		55.7		14.8		0.0

Percentage reporting ever had a child

	Male						Female					
	African		Coloured		White		African		Coloured		White	
Age	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005
14	0.0		0.0		0.0		0.0		0.0		0.0	
15	0.0		0.0		0.0		1.3		0.7		0.0	
16	1.7		0.0		0.0		1.8		1.1		0.0	
17	1.5	0.0	2.1	1.5	0.0	0.0	9.7	10.1	9.9	7.1	0.0	0.0
18	0.0	0.0	3.1	2.1	0.0	0.0	9.9	19.2	10.4	14.4	0.0	4.9
19	4.8	4.6	4.2	6.9	0.0	0.0	14.8	19.0	24.5	21.1	0.0	0.0
20	6.5	4.9	2.3	15.9	0.0	0.0	22.6	31.5	36.1	31.0	21.5	0.0
21	0.0	10.1	14.3	18.6	0.0	0.0	29.5	27.9	42.4	26.7	0.0	0.0
22	11.5	15.7	21.6	18.3	0.0	8.8	37.0	36.3	52.3	45.3	0.0	6.9
23		23.9		21.8		0.0		57.6		62.7		27.0
24		33.2		44.7		9.1		70.1		66.3		7.7
25		37.0		48.2		0.0		69.2		76.8		0.0

Percentage ever married

	Male						Female					
	African		Coloured		White		African		Coloured		White	
Age	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005
14	0.0		0.0		0.0		0.0		0.0		0.0	
15	0.0		0.0		0.0		0.0		0.0		0.0	
16	0.0		0.0		0.0		0.0		0.0		0.0	
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	1.8	3.1	0.0	0.0
19	0.7	0.0	0.0	1.1	0.0	0.0	7.3	0.0	5.3	4.8	0.0	0.0
20	0.0	0.0	0.0	4.4	0.0	0.0	3.2	0.9	1.7	5.1	10.0	3.4
21	0.0	0.0	4.0	2.2	13.8	0.0	7.8	0.9	10.3	6.5	5.3	0.0
22	1.8	1.2	8.6	7.5	0.0	0.0	16.1	9.3	17.5	21.3	0.0	0.0
23		0.0		9.6		0.0		10.9		13.7		27.0
24		0.0		17.3		0.0		18.6		25.0		3.7
25		6.5		28.3		0.0		24.9		39.8		0.0

Table 4

Birth and schooling outcomes from 2002 to 2005,
Females enrolled in grade 8 or 9 in 2002 with no previous birth
CAPS Wave 1 and 3

	African	Coloured	White	Total
Number of observations	198	166	39	403
Percent with birth between 2002 and 2005	19.7%	13.3%	0.0%	15.1%
Percent advancing three grades by 2005				
No birth by 2005	39.6%	50.0%	87.2%	49.4%
Birth between 2002 and 2005	10.3%	4.5%	-	8.2%
Total	33.8%	44.0%	87.2%	43.2%
Percent enrolled in school in 2005				
No birth by 2005	87.4%	66.7%	89.7%	78.9%
Birth between 2002 and 2005	41.0%	9.1%	-	29.5%
Total	78.3%	59.0%	89.7%	71.5%

Probit regressions of birth and grade advancement between 2002 and 2005, Females enrolled in grade 8 or grade 9 in 2002 with no previous birth Coefficients converted to marginal effect

	Birth by 2005	Advance 3 grades between 2002 and 2005		
White		0.488	-0.113	-0.186
		[0.066]**	[0.180]	[0.165]
Coloured	0.012	0.123	-0.204	-0.218
	[0.046]	[0.055]*	[0.068]**	[0.069]**
Age in 2002	0.059		-0.104	-0.095
	[0.041]		[0.063]	[0.065]
Number of grades behind in	0.018		-0.077	-0.058
2002	[0.046]		[0.076]	[0.078]
Literacy and numeracy	0.012		0.145	0.168
evaluation score	[0.031]		[0.043]**	[0.046]**
Log household income per	-0.012		0.131	0.133
capita	[0.022]		[0.034]**	[0.035]**
Had birth between 2002 and				-0.391
2005				[0.064]**
Observations	341	403	373	373

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

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