Teenage Childbearing and Educational Attainment in South Africa

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Teenage childbearing and attainment at school in South Africa are investigated using nationally-representative data from the National Income Dynamics Study. The analysis focuses on the outcomes by 2010 of a panel of 673 childless young women aged 15–18 in 2008. Girls who had their first birth by 2010 had 4.4 times the odds of leaving school and 2.2 times the odds of failing to matriculate, controlling for other factors. Girls from the highest-income households were unlikely, and girls who were behind at school relatively likely, to give birth. More than half the new mothers enrolled in school in 2010. They were most likely to enroll if they were rural residents who resided with their own mother and she had attended secondary school. Poor educational attainment, teenage motherhood and childhood poverty are interrelated problems in South Africa: for middle-class families, avoiding early motherhood contributes to the intergenerational transmission of privilege. Dissuading girls in their mid-teens who are behind at school from becoming teenage mothers may require intervention at an earlier stage of their schooling.

This article examines the role of teenage childbearing in young women's transitions to adulthood in South Africa using nationally-representative panel data from the National Income Dynamics Study (NIDS). Teenage fertility is lower in South Africa than most sub-Saharan African countries (Figure 1) and has gradually become less common in recent years (Moultrie and McGrath 2007; Branson et al. 2013). However, whereas elsewhere in the African region most teenage mothers are married, in South Africa they are not.

This reflects the development of the country. Development both leads to, and is fuelled by, the expansion of mass secondary schooling. It requires young people to stay in formal education for a period that extends well beyond puberty. Thus, in South Africa, NIDS shows that by 2008 nearly all children aged 7–15 years were enrolled in school, and that no significant differences existed between boys and girls in enrolment (Timæus et al. 2013). Being in school, however, is inconsistent with marrying and fulfilling the adult roles associated with marriage (Furstenberg 1998). Equally, prolonged schooling and Westernization encourage the development of a distinct youth culture and social world in which premarital sexual activity can be legitimized. Together these trends tend to produce an increase in childbearing by girls who are still at school. At the same time, in South Africa, as elsewhere, teenage childbearing becomes increasingly seen as problematic, not only because it has become largely premarital, but also because of its potential consequences for girls' education and for both their and their children's future welfare (Jewkes et al. 2009; Panday et al.

2009). Thus, in South Africa, survey data suggest that more than two thirds of births to teenage mothers are unwanted (Panday et al. 2009).

Despite the progress that South Africa has made in improving children's access to and enrolment in school, the country still faces serious challenges with regard to the effectiveness of its schooling system. In particular, only about 45 per cent of children successfully complete their final year of secondary school (Grade 12), by passing the senior certificate examination ("matriculate" in everyday parlance, although strictly only those students who pass with high enough marks to qualify them for admission to university should be described as matriculating) and this proportion rose hardly at all during the decade leading up to 2008 (Timæus et al. 2013).

In principle, the government of South Africa espouses progressive policies that encourage pregnant girls to remain in school and young mothers to return to school after giving birth. Implementation of these principles varies between provinces and from school to school. Some schools ignore them and expel girls who become pregnant. More often, young mothers are debarred from returning to school in the year in which they give birth in line with a 2007 government policy that aimed to balance the interests of the mother and her infant. (This policy was ruled unconstitutional in July 2013, as it conflicts with the girls' right to an education). While other schools have more liberal policies on attendance, few of them have facilities for nursing and baby changing. Moreover, some teachers remain hostile to having pregnant girls and young mothers in school even when this contradicts their school's official position (Bhana et al. 2010; Morrell et al. 2012). Others, although not actively hostile, feel unable to offer girls additional support to assist them to return to school successfully. Thus, one far-reaching consequence of teenage childbearing is that it interrupts, and often terminates, girls' schooling.

Concern about teenage motherhood is also prevalent in high-income countries. The issue has been of particular concern in the United States and Britain, where rates of teenage childbearing are relatively high. Much of the literature emphasizes the adverse effects of teenage childbearing on the education and career prospects of the mothers (and sometimes fathers) and on the welfare of their children. However, while at one time the research evidence from the USA and elsewhere appeared to support Campbell's (1968) conclusion that "the girl who has an illegitimate child at the age of 16 suddenly has 90 percent of her life's script written for her", more recent research has tended to suggest that the poor outcomes of teenage mothers and their children result to a considerable degree from the confounding of teenage childbearing with pre-existing personal and familial disadvantages that are hard to measure and control for explicitly (Hoffman 1998). Thus, Furstenberg (1998) suggests that the conclusion that should be drawn from the more recent research literature is that "by the time a 16-year-old girl has a child, 70 percent of her life's script is already written for her".

Concerns about teenage motherhood in South Africa mirror those found in developed countries and also in other middle-income countries (Buvinic 1998). In particular, many of the media

and public believe that young women are having babies in order to access welfare benefits, although the evidence cited in support of this view is no more credible in South Africa than anywhere else (Makiwane 2010). Nevertheless, the context in which teenage motherhood occurs in South Africa is distinctive. First, economic inequality in South Africa is more extreme than almost anywhere else in the world and the prevalence of absolute material deprivation remains high. Second, it has been argued that African societies generally, and those in South Africa in particular, tend to be more tolerant of premarital pregnancy than most Eurasian societies have been until at least recently (Preston-Whyte and Zondi 1992). Third, one enduring consequence of the Apartheid system and the resulting system of labor migration between rural areas and places of employment has been the disruption of gender relationships and family life. Thus, an unusually high proportion of children do not live with their parents and, in particular, with their father.

Fourth, another key component of the Apartheid system in South Africa was the segregated educational system. Separate schooling systems were established for each population group (i.e. African, Coloured, White and Asian, to use the terminology now favored in South Africa). Moreover, different systems existed in the core of the country and the so-called "homelands" and "independent states". Although education has been among the priorities of government since the collapse of apartheid regime and accounts for about 20 per cent of public sector expenditure, the school system remains inadequate in many respects. A broad consensus exists among educationalists and education researchers in South Africa that, although the democratically-elected government rapidly established a color-blind schooling system and eliminated gross inequalities in the allocation of resources in the 1990s, the quality of many children's schooling in South Africa has remained low and progress toward securing more equitable outcomes has been limited (see, for example, Van der Berg 2007).

Research on the determinants and consequences of teenage childbearing in less developed countries has been held back by a shortage of suitable longitudinal datasets. These are essential if one is to distinguish young women's circumstances before giving birth from their current circumstances, which will have changed as a result of them becoming mothers. Moreover, most previous research on schooling outcomes in South Africa has analyzed school-based datasets and surveys. Thus, it remains unclear to what extent girls' progress at school in South Africa is held back by their family circumstances and household poverty, and to what extent by teenage pregnancy and childbearing, and how these factors relate to each other and to the inadequacies of the schooling system. Using NIDS, one can begin to untangle these processes. In addition, one can study for the first time the attainment of cohorts of children who experienced their entire schooling in the post-apartheid era.

DATA AND METHODS

NIDS is the first nationally-representative panel study to be mounted in South Africa. It is funded by the South African Presidency in order to monitor and investigate poverty in the country and run by the Southern African Labour and Development Research Unit at the University of Cape Town. The baseline wave of NIDS in 2008 collected data on more than 28,000 people living in 7305 different households (Leibbrandt et al. 2009; Southern Africa Labour and Development Research Unit 2012a). A second wave of data collection took place in 2010 (Southern Africa Labour and Development Research Unit 2012b) and further waves of the study were conducted in 2012 and 2014. Only the data from the first two waves of the study have been analyzed for this article.

The study collects basic demographic data on all members of the panel and on other members of their households; information on their dwellings and access to utilities; information on the consumer durables owned by the households; and itemized income and expenditure data. Thus, it generates more detailed information on households' socioeconomic status than most demographic inquiries. It also collects information on social grants, demographic events in the households, panel members' health, and other topics. In particular, it collects detailed data on the enrolment in school, progress and outcomes of school-age children and adults aged less than 30. It also identifies children's schools and links several school-level indicators compiled by the national Education Management Information System (EMIS) to the individual-level survey data. Thus, NIDS is a new and important resource for the study of inequalities in child welfare and the determinants of educational attainment in South Africa.

Longitudinal studies such as NIDS allow one to distinguish young mothers' circumstances before giving birth from their subsequent circumstances, which will have been influenced by them becoming mothers. The analyses presented here focused on the cohort of young women aged 15–18 in 2008 who at the time had not matriculated, were enrolled in school and had not yet had a baby. Most children in South Africa today now remain enrolled in school until the legal school-leaving age of 16 years (Anderson et al. 2001; Motala et al. 2007; Republic of South Africa 2013). Thus, although the final cohort of 673 young women only represents 78 per cent of the female population aged 15–18, it includes 92 per cent of the 15- and 16-year old girls.

Attrition of the sample is an issue in any panel study. The 2010 wave of NIDS successfully interviewed 77 per cent of the surviving young women identified as cohort members in 2008. In addition, a proxy respondent completed a shorter questionnaire on an additional 7 per cent of them, but these members of the panel were not included in the analysis because several key items of information are unavailable for them.

The educational outcomes that we investigated are whether, by the time of their interview in 2010, those girls who had not matriculated remained enrolled in school and whether the subset of girls who were in Grades 11 and 12 in 2008 had matriculated successfully from school. Thus, girls'

educational outcomes are deemed unsatisfactory either if they left school without matriculating or if they remained in school in 2010, instead of having matriculated, because either they were held back from taking the examination or they had failed it and returned to school to repeat Grade 12.

All the demographic and educational outcomes examined are binary variables and have been modeled using logistic regression. Both the descriptive tables and the regression coefficients and their standard errors have been adjusted for the fact that the panel was selected in 2008 using a weighted, stratified, and clustered sample design.

The information collected from each household about the construction of their dwelling, its water supply and toilet was combined by means of a principal components analysis (PCA) into a single index of housing quality (Timæus et al. 2013). This index does not discriminate among the 30 per cent of the young women in the cohort who live in modern, well-constructed, fully-serviced dwellings. Similarly, PCA was used to construct a single consumer durables score for each household based on the ownership of nine different assets (Timæus et al. 2013). This index does not discriminate among the 18 per cent of the young women living in households that own none of these assets.

No information was available on the highest educational attainment of the mothers of 5 per cent of the young women. As earlier research has suggested that this characteristic is an important determinant of aspects of educational attainment in South Africa and is highly confounded with socioeconomic status, these missing values were imputed by predicting the odds that the mother was in each educational category using an ordered logistic regression model that included the variables used in the subsequent analysis, race, and province of residence in 2008 (Timæus et al. 2013).

After exploratory analyses using several other EMIS variables that have been linked to NIDS, only the fees status of the schools was used in the final analyses. In 2008-10, schools located in the poorest 40 per cent of census tracts were eligible to receive supplementary funding from government instead of charging fees. Although some such schools opt out of the arrangement, schools' actual policies on fees are not a matter of public record. In the interests of concision, therefore, this article describes all schools eligible for supplementary funding as "no-fees schools". Most of them were African schools prior to the collapse of the apartheid educational system and they tend to receive less funds in total than schools that charge fees and to have worse facilities. Perhaps most importantly, as a result of these factors, they find it difficult to recruit their share of better-qualified and more effective principals and teachers. No information was available from either the 2008 or 2010 rounds of data collection on the fees status of the schools of 60 of the 673 young women in the cohort under study. For 32 of these girls, we inferred their school's fees status from the answer to a question about the households' expenditure on the girl's school fees. For the other 28, we estimated the odds that they were attending a no-fees school using a logistic regression model with province, residence and the household's housing score as predictors.

RESULTS

According to NIDS, 35 per cent of South Africa women aged 20–34 in 2010 had their first child before their 20th birthday (Table 1). Moreover, only 48 per cent of women aged 20–34 had matriculated from school successfully. However, while only 33 percent of women aged 20–34 who had their first birth as a teenager had matriculated, 57 per cent of the rest of the women in this age group had done so.

As can also be seen from Table 1, substantial differentials existed in 2010 between demographic and socioeconomic groups in South Africa in both the incidence of teenage childbearing and educational attainment. Young White and Asian women were much less likely to have given birth as a teenager, and much more likely to have matriculated, than African or Coloured women. Moreover, women living in the best-off fifth of households were much less likely to have had a baby as a teenager than those in the poorer 60 per cent of households and fewer than a third of women aged 20-34 in the poorest fifth of households had matriculated, compared to 84 per cent of women in the best-off fifth of households.

Elaboration of Table 1 demonstrates that the incidence of teenage motherhood and proportion of women who matriculated varied by income within the African population (results not shown). It provides no clear evidence, however, that the outcomes of middle-class African women differed from those of minority ethnic women. The cohort aged 15 to 18 that the analysis focuses upon includes only a handful each of White and Asian girls. Therefore, no attempt is made to estimate the impact of population group on the outcomes of the cohort.

Table 2 provides information on how many of the cohort of childless girls aged 15 to 18 who were enrolled in school in 2008 gave birth, left school without matriculating, and matriculated between 2008 and 2010. It also provides weighted statistics describing the characteristics in 2008 of each of these three sub-groups of young women and of the cohort as a whole. Half the young women were living in urban areas in 2008. Their median reported monthly household per capita income was R383, which is about three-quarters of the South African poverty line and, in terms of purchasing power, equates to about US$3 a day. Slightly more than two thirds of the girls were living with their mother and fewer than 40 per cent of them with their father. Half of them were in a lower school grade than one would expect, given their year of birth, if they had started school on time and progressed through the school system without interruptions or repeating a grade.

The young women who had a baby between 2008 and 2010 were older, on average, than the cohort as a whole. They came from households with a slightly higher median income per head than the other girls, but relatively few of them lived in households in the top income quintile. They were slightly less likely than other young women to be enrolled in a no-fees school but three-quarters of them were behind at school. Young women who were not enrolled in school in 2010 despite not having matriculated were also highly likely to be behind at school in 2008. They came from

considerably poorer households than the other members of the cohort and were slightly more likely to live in rural areas. They were also much less likely to be living with their parents than other girls and fewer of their mothers had been to secondary school. In contrast, only a fifth of the women in Grades 11 and 12 in 2008 who matriculated by 2010 were behind at school. They tended to come from relatively well-off households and were slightly less likely than other girls to be attending no-fees schools. They were also more likely than other girls to be living with their parents and to have mothers who had attended secondary school. Two thirds of them were living in urban areas in 2008.

One fifth of girls aged 15-18 who were enrolled and childless in 2008 gave birth by 2010. Experimentation with several specification of the income variable in the regression model presented in Table 3 shows the young women's fertility varied little with household income across the lower 80 per cent of the income distribution. However, young women from households in the top fifth of the income distribution (which in South Africa corresponds approximately to the middle class) were much less likely than other girls to have a baby by 2010 (p=0.04). In other respects, the analysis provides only limited support for the hypothesis that whether these young women gave birth depended on their home circumstances: their odds of giving birth only varied moderately with the other socio-economic measures, the indicators of their living arrangements and their mothers' level of schooling and none of the differences are statistically significant.

One important influence on the fertility of the young women is whether they were behind at school relative to their expected grade for their year of birth. Being behind at school only mattered, however, if the girls were attending a school that charged fees, not a no-fees school. The right-hand columns of Table 3 show that, controlling for age and other factors, the odds of giving birth of girls attending fee-charging schools who were behind at school were 3.2 times those of other girls at fee-charging schools (p=0.08) and 2.5 times those of girls attending no-fees schools (p=0.03). Adding these indicators of attainment at school and the fees status of schools to the regression model attenuates the relationship between urban residence and childbearing, reflecting the concentration of fee-charging schools in urban areas, but has little impact on the other regression coefficients This suggests that being behind at school is more than just a mechanism through which socio-economic background was making itself felt: girls who were attending "good" schools in 2008, but struggling academically, were more likely than other girls to have a baby during the following two years irrespective of their socio-economic background and family circumstances.

By 2010, 25 per cent of the enrolled, childless girls aged 15-18 in 2008 had matriculated successfully and 15 per cent had left school without matriculating. The rest of the girls were still enrolled, although nearly a quarter of this group were in Grade 11 or 12 in 2008 and so should have matriculated before 2010. As one would expect, having a baby was a severe obstacle to continuing at school (Table 4). Controlling for other factors, the young women who gave birth between the two waves of NIDS had 4.4 times the odds of other young women of not being enrolled in 2010

(p<0.01) and 2.2 times the odds of failing to matriculate from Grade 11 or 12 (p=0.07). In addition, girls who were behind at school in 2008 were less likely to matriculate than other girls in the same grade. This is not because they already had a history of failing the examination. Because the cohort excludes young women aged 19 or more, hardly any of the girls were repeating Grade 12 in 2008.

Leaving the measure of being behind at school out of the regression models increases the odds of both dropout and failure to matriculate associated with giving birth; omitting the measure of whether the girls gave birth increases the odds of both these adverse schooling outcomes (results not shown). Thus, the association between having a baby and the final outcome of girls' schooling results in part from confounding with being behind at school. Moreover, being behind at school influenced young women's final outcomes in part because it leads to early childbearing.

Table 4 also shows that girls who did not live with their mother were more likely to drop out (p=0.10) and either not to enter or to fail the senior certificate examination (p=0.09) than other girls. Girls from better-off households, as measured by ownership of consumer durables, were much more likely than other girls to remain enrolled in 2010 than other girls, but none of the measures of the girls' socioeconomic background were significantly related to their odds of matriculating successfully.

More than half (54 per cent) of the members of the cohort who gave birth for the first time between 2008 and 2010 were enrolled in school in 2010. The regression model in Table 5 examines who they were, controlling for both their age and the year in which they gave birth. As only 133 of the cohort of young women had a baby by 2010, the estimated odds ratios have very wide confidence intervals. The analysis provides no evidence that any the income- and wealth-related indicators are important. Moreover, while girls who were in the correct grade for their year of birth in 2008 were more likely to have matriculated by 2010 and less likely to have had a baby than other girls, they were no more likely to have returned to school if they did have a baby than other young women. However, young mothers living in urban areas were much less likely to have re-enrolled in school than those living in rural areas (p=0.09). Moreover, their mothers had a big impact on whether the young women had returned to school. Girls who were living with their mothers in 2008 (p=0.03) and girls whose mothers had completed at least Grade 7 at school (p=0.06) were much more likely to be enrolled in 2010 than the other young women who had given birth during the previous two years.

Tables 6 and 7 look at some of the consequences of being born to a teenage mother for children and young people aged less than 20. Table 6 examines whether they belong to the same households as their fathers. It shows that only a minority of young people in South Africa were living with their fathers in 2010. However, if the mother gave birth to the child in question as a teenager, this proportion falls to about half that for children whose mothers were older at the time of the birth.

Table 7 examines the relative odds in 2010 of children and young people aged less than 20 living in households with an income of less than half the poverty line. In terms of its purchasing power, half the poverty line corresponds approximately to a per capita income of $2 a day. The odds of living in extreme poverty defined in this way were 1.4 times greater for children born when their mother was still a teenager than other children. This difference was only partly accounted for by the type of place of residence of these children and their population group. Moreover, while Table 7 shows that having a mother who at least completed primary school and living with their father greatly reduced children's odds of growing up in poverty, controlling for these factors fails to further attenuate the increase in the odds of living in extreme poverty associated with being born to a teenage mother. Thus, although this article has already presented results that show that these two factors are important consequences of teenaged childbearing, neither of them was an important mechanism explaining why the children of women who gave birth as teenagers are at an elevated risk of spending their childhood living in extreme poverty. Thus, it seems likely that this association was at least in part due, not to the women having had a child before they were 20 *per se*, but to the ongoing impact of unmeasured characteristics of the mothers that predisposed them to become pregnant as teenagers and also, in many cases, to drop behind at school.

DISCUSSION

Becoming a mother is central to the failure of many young women in South Africa to matriculate. As well as representing a summary indicator of children's learning during their school career, the National Senior Certificate is an essential pre-condition for most forms of further and higher education and a wide range of skilled and white-collar jobs. This article demonstrates, however, that selection of girls who are behind the appropriate grade for their age into teenage motherhood explains part of this association. In other words, while some girls who would have otherwise have matriculated are prevented from doing so by the consequences of pregnancy and motherhood, girls who become mothers tend to be behind at school already and girls who are behind at school are relatively unlikely to matriculate even if they avoid early motherhood.

Teenage girls who are behind the appropriate grade for their age comprise a diverse group. Some enrolled in school late, a smaller number will have failed to enroll in one or more subsequent years for health, financial or other reasons, and many of them will have been required to repeat one or more grades. Unfortunately, only two-thirds of the cohort analyzed here reported their age at first enrolment, but modeling the data on this sub-group suggests that both late enrolment and having repeated grades raise girls' odds of giving birth as a teenager (results not shown). This accords with a study in KwaZulu-Natal that distinguished the two factors and found that they independently affected the risk of teenage pregnancy (Grant and Hallman 2008).

Our results suggest that girls who were behind at school only responded by becoming more likely to have a baby if they were attending schools that charge fees, not if they were attending a government-designated no-fees school in a deprived area. As few no-fees schools are located in urban areas, this suggests that girls behave differently in urban and the more developed rural areas from in the poorer, more remote rural areas, many of which are ex-"homelands". The proportion of girls who are behind the appropriate grade for their year of birth does not differ much between the two groups of schools. Thus, while it is possible that girls in the two groups of schools end up behind at school for rather different reasons, no obvious reason exists why they are should be differentially selected for academic ability or other characteristics.

One rather unlikely explanation of these findings is that it is the fees themselves that matter – which is to say that girls, or their parents, are less likely to arrange the termination of a pregnancy if this is going to involve them in paying further school fees than if no fees have to be paid to keep the girl in school. More plausibly, girls at schools that charge fees might be more likely to be sexually active than girls at no-fees schools but, when their attainment is satisfactory, are also both more motivated and better able to avoid becoming mothers by means of contraception or obtaining terminations than girls who are either behind at school or attend a no-fees school.

The socioeconomic background of the teenage girls also shapes their transition to adulthood. Girls from relatively wealthy households are much less likely to drop out of school than other girls and girls from households in the top 40 per cent of the income distribution are less likely than other girls to have ended up in a lower grade than they would if they had enrolled in school at the right age and progressed steadily through the school system. Girls who are behind at school, in turn, are less likely to pass the senior certificate examination when they reach Grade 12 and also more likely to have a baby than other girls, which independently reduces girls' chances of matriculating. In addition, whether or not they are behind at school, girls from the highest-income fifth of households are less likely to have a baby than other girls of the same age. The overall outcome of this web of influences linking socioeconomic status to examination success via progress at school and teenage childbearing is that, among those in Grade 11 or 12 in 2008, 40 per cent of girls from households in the top 40 per cent of the income distribution matriculated by 2010, compared to only 21 per cent of girls from households in the bottom fifth of the income distribution.

The cohort of young women studied in this article is the first to have undergone its entire schooling in the national post-Apartheid educational system. Nevertheless, socioeconomic status and self-ascribed ethnic identity remain deeply intertwined in South Africa. Focusing on the cohort analyzed here, almost all the White and Asian girls live in households in the top fifth of the income distribution. On the other hand, 43 per cent of the girls from such households are African. Similarly, nearly all the no-fees schools attended by cohort members either used to be homeland or Department of Bantu Education schools or are schools established since 1994, but less than half the

African girls attend no-fees schools. While race remains a huge economic, social and political issue in South Africa, this analysis of NIDS provides clearer evidence as to the importance of socioeconomic status in shaping girls' transitions to adulthood: the most important factor influencing the educational and fertility outcomes of a young, middle-class African woman is not that she is African, but that she is middle-class.

Neither residing with their own mother nor having a relatively well-educated mother did much to protect teenage girls from early childbearing. However, young women who lived with their mothers were less likely to drop out of school and more likely to matriculate than other teenage girls. Moreover, both having a co-resident mother and having a well-educated mother helped young women who bore children to get back into school more promptly. Clearly, it is more feasible for a young mother to return to school if her own mother is both able and willing to care for her baby during the day than if she is not. If the educational history of grandmothers affects the value that they place on their daughters' education, it may be indicative of their willingness to provide day care for their grandchildren.

In addition, girls who had babies were much less likely to have re-enrolled in school by 2010 if they lived in urban areas than if they lived in rural areas. This may be because it is more feasible for both young women who have not matriculated and their mothers to find paid work with which to provide for the baby if they are living in an urban than a rural area. Thus, the short-term benefits of the employment opportunities available in urban areas may be damaging in the longer run because they reduce young mothers' chances of completing their schooling (Madhavan and Thomas 2005). On the other hand, it may be that the fertility of young women is similar in urban and rural areas because a higher incidence of conceptions in urban areas is offset by a higher incidence of terminations of pregnancy. If this is the case, more academically-inclined girls will be selected out of the group who proceed to have a birth, either by themselves or by their parents, to a greater extent in urban than rural areas.

Terminations are legal in South Africa and, at least in principle, available on demand in the early months of a pregnancy. However, the only national statistics that are compiled are for the total number of terminations. Neither the ages of women having terminations nor where they live is known. Thus, although it is clear that a significant proportion of pregnancies end in a legal termination, that significant numbers of teenage girls have terminations, and that "backstreet abortions" remain common (Buchmann et al. 2002; Varga 2002), one can only speculate about the demographic impact of induced abortion on the fertility of teenagers in South Africa.

This analysis of national data provided no evidence that living with their fathers protected teenage girls from pregnancy or improved their progress at school, although fathers were found to have a protective effect by two studies conducted at the beginning of the century in KwaZulu-Natal (Timæus and Boler 2007; Grant and Hallman 2008). It is possible that co-resident fathers exert an

influence on their teenage daughters' lives in KwaZulu-Natal that they do not elsewhere in South Africa. NIDS has insufficient statistical power to investigate this hypothesis, but it seems a little unlikely. It is also possible that the two studies in KwaZulu-Natal picked up a transient association, whereby men who died during the early stages of the AIDS epidemic in South Africa came disproportionately from households with unmeasured characteristics that also led to poor outcomes for teenage girls, and that, now that the prevalence of AIDS orphanhood in the country is much higher, this is no longer the case.

NIDS reveals that children born to teenage mothers and the children of poorly-educated women are more likely to grow up in extreme poverty than other children. They are also relatively unlikely to live with their fathers. Other research finds that they have worse health and educational outcomes (Branson et al. 2011, 2013). Thus, poor educational attainment, teenage motherhood, lone parenting and poverty in childhood and early adulthood are an interrelated cluster of social and economic problems in South Africa. Asset ownership and household income have been shown to be related to late enrolment and grade repetition at an earlier stage in children's schooling in other research based on NIDS (Timæus et al. 2013). They are shown here to protect against drop out during the second half of girls' teenage years. However, having controlled for whether they had a baby, it is striking that the home backgrounds of teenage girls played little role in determining whether those of them in Grades 11 and 12 in 2008 passed the senior certificate examination by 2010. While one would like to believe that this implies that secondary schooling in South Africa is meritocratic, other research has suggested the more depressing conclusion that it is no more than a lottery (Lam et al. 2011).

NIDS has several advantages over alternative datasets for the investigation of the relationship between teenage motherhood and schooling outcomes in South Africa. The data are nationally representative; the study has collected detailed information on children's schooling histories and family backgrounds; and it also gathered some information on the characteristics of their schools. NIDS also has limitations. In particular, it collects no information about teenagers' sexual activity or about family planning. Thus, it is impossible with the data that we analyze to determine whether those girls who are behind at school are more likely than their peers to become mothers because they are relatively likely to be sexually active, relatively unlikely to use contraception, or relatively unlikely to have an abortion if they become pregnant.

Nevertheless, the finding that earlier educational experience plays an important role in determining both who becomes a teenage mother and who drops out of school is consistent with the findings of previous studies of teenage pregnancy and childbearing in more geographically-localized South African populations that have collected information on some of these behavioral variables (Grant and Hallman 2008; Marteleto et al. 2008). These studies also emphasize, however, that attainment may be related to each of these variables in a different way and that these

relationships perhaps vary across the country. For example, Marteleto et al. (2008) find that, in Cape Town, satisfactory attainment is associated with earlier ages at sexual debut. This perhaps results from the girls mixing with more mature classmates than those who are behind at school. They also find, however, that the potential impact of this on teenage motherhood is offset by sexually-active girls of being less likely to become pregnant the more grades they have completed for their age.

Grant and Hallman's (2008) finding that co-residence with their mother does nothing to protect teenage girls from pregnancy is consistent with the evidence from NIDS. However, their results differ from those presented here in that they do not find that living with their mothers plays an important role in helping young women who have had a baby return to school. They do find that teenage mothers are more likely to drop out if they are their child's primary caregiver, but co-residence with the mother is unimportant even in the model that excludes this variable. Thus, perhaps in KwaZulu-Natal a wider range of family members were adopting the role of caregiver, while nationally only mothers commonly do this.

South Africa resembles Western countries in that the association between teenage childbearing and poor educational outcomes is, in part, a selection effect. The girls who are most at risk of becoming teenage mothers also tend to be rather unlikely to have matriculated anyway. In part, this will be because girls who expect to matriculate tend to be more strongly motivated to avoid having a baby than girls who have come to doubt their ability to pass the senior certificate examination. In other ways, however, this and previous research suggest that the situation in South Africa is distinctive. Being behind at school plays a pivotal role in selecting girls into early motherhood. This is because it is relatively common in South Africa for schools to require children to repeat a year if their learning is perceived to be inadequate. Doing so conveys a clear cut, if not necessarily accurate, message to a child that her progress at school is inadequate. It is probably harder to ignore and more de-motivating than the feedback indicating inadequate achievement that children receive in other educational systems. In addition, it may be that girls who are older than their classmates tend to become bored with and disengaged from school for this reason alone, rather than because they are pessimistic about their prospects of matriculating eventually.

Ignorance about human reproductive biology and contraception remains rife among South African teenagers (Mchunu et al. 2012). Thus, notwithstanding the obstacles to doing this effectively in the South African context, one important intervention to reduce teenage pregnancy would be to improve further sex and life skills education (Magnani et al. 2005; Ahmed et al. 2009; Jewkes et al. 2009; Mathews et al. 2012). Provision of dedicated youth-friendly family planning services, including emergency contraception, and readier access to pregnancy termination services would also enable more teenage girls to avoid becoming mothers (Jewkes et al. 2009; Willan 2013).

Nevertheless, the career prospects of many teenage girls in South African are poor, especially if they live in remote areas, lack scholastic aptitude, or suffer from multiple disadvantages. Opting

for motherhood is neither an irrational nor a completely negative course of action for some young women but an alternative route by which to make the transition to adulthood. As Jewkes et al. (2009) put it, "teenage women infrequently make a decision to get pregnant, but much more commonly take few steps to prevent it. It is impossible to escape a conclusion that part of the reason for this is that they do not see it as such a bad thing for their lives and may perceive it to be desirable or advantageous".

By the time that they reach their mid-teens, it may be too late to motivate girls who have given up on school to practice birth control effectively and consistently. Therefore, multipronged policy initiatives are required to address the "problem" of teenage pregnancy that not only enable young women to avoid unwanted pregnancies and births but also encourage young women who have become mothers to continue to invest in their own education and careers (Madhavan and Thomas 2005). By the same token, however, as Marteleto et al. (2008) have argued, pursuing interventions that address the early roots of educational failure in South Africa would probably not only improve children's attainment at school but have the important knock-on benefit of reducing the incidence of teenage pregnancies.

The other side of the coin is that, notwithstanding the high rate of youth unemployment in South Africa among even those young people who have matriculated, the economic and other benefits of completing school, matriculating, and perhaps proceeding to higher education, can be large. Like the young women from southern Cameroon described by Johnson-Hanks (2004), teenage mothers in South Africa who believe that they are capable of completing their schooling successfully have a strong incentive to postpone their second birth for an extended period in order to do so (Kaufman et al. 2001; Moultrie and Timæus 2003; Timæus and Moultrie 2008). Thus, the continuing high level of teenage fertility in South Africa and other more developed parts of sub-Saharan Africa may exert less of an upward influence on the overall level of fertility in such populations than the experience of other regions of the world might suggest.

Although the girls' socioeconomic background had little direct impact on whether they matriculated by 2010, it did indirectly influence their chances of matriculating by affecting both their risk of becoming mothers and how severe the consequences of this were. Having a baby is more-or-less equally common across the bottom 80 per cent of the income distribution, but much less common in the top quintile, which corresponds approximately to the middle class in South Africa. In Western countries, teenage motherhood plays a role in the intergenerational transmission of disadvantage among those of low socioeconomic status. In South Africa, however, it is not the poorest, but middle-class, families that behave distinctively, either ensuring that their daughters avoid early motherhood by the prevention or termination of pregnancy or, as a fallback strategy, minimizing its disruptive impact by getting their daughters back into school quickly if they have a baby. Of course, the returns to education for today's teenagers may differ from those accrued by

older generations. Until now, however, rather than teenage childbearing contributing to social disadvantage in South Africa, its relative rarity in middle-class families has played a role in the intergenerational transmission of privilege.

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TABLE 1 Differentials in early childbearing and completing secondary school (matriculating) in South Africa, 2010, women aged 20–34

Sub-group	% who gave birth as teenagers	% who have matriculated	Sub-group	% who gave birth as teenagers	% who have matriculated
Total	35	48			
a) Age at first birth			*c) Residence*		
<20 years	100	33	Urban	31	53
20+ years	0	57	Rural	42	42
b) Quintile of household income					
Poorest	42	32	*d) Population group*		
20 – 40%	43	38	African	37	47
40 – 60%	38	46	Coloured	37	41
60 – 80%	31	56	Asian	2	73
Best off	11	84	White	10	74

Source: National Income Dynamics Study.

TABLE 2 Numbers and characteristics of all young women aged 15–18 who were enrolled in school and childless in 2008, and of those of them who had given birth, left school without matriculating, and matriculated by 2010

Characteristics in 2008	Women who gave birth	Women who dropped out	Women who matriculated	Total
Number of young women	133	120	143	673
Mean age	16.9	16.7	16.7	16.4
Grade	9.2	9.0	10.5	9.2
% 1+ years behind correct grade for age	75	70	19	50
% enrolled in fee-charging school	65	55	66	59
% living in urban areas	56	49	67	54
Median household income per head (rand)	401	321	484	383
% in household in top income quintile	11	7	30	19
Mean housing score	-0.29	-0.80	0.20	-0.31
Mean consumer durable score	-0.79	-1.08	-0.04	-0.55
% living with mother	65	51	73	68
% with mother educated to Grade 7+	61	50	69	61
% living with father	31	22	47	37

Source: National Income Dynamics Study.

TABLE 3 Odds of giving birth between 2008 and 2010, girls aged 15–18 in 2008 who were enrolled and childless at that time, controlling for age in 2008

Characteristics in 2008	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Urban compared with rural residence	1.3	0.7 – 2.4	1.0	0.5 – 1.9
Household income per head in top 20%	0.2	0.0 – 0.9	0.2	0.1 – 0.9
Housing quality score	1.0	0.9 – 1.2	1.0	0.9 – 1.2
Consumer durables score	0.9	0.6 – 1.3	0.9	0.6 – 1.3
Mother resident in household	1		1	
Mother not resident in household	0.8	0.4 – 1.7	0.9	0.4 – 1.8
Mother is dead	1.2	0.5 – 2.9	1.1	0.5 – 2.7
Mother's highest Grade 7+ compared to <7	1.3	0.7 – 2.3	1.3	0.8 – 2.2
Father resident in household	1		1	
Father not resident in household	0.8	0.4 – 1.5	0.7	0.4 – 1.4
Father is dead	1.1	0.6 – 2.2	1.0	0.5 – 2.1
Correct grade for age; no-fees school			1	
Correct grade for age; fee-charging school			0.8	0.3 – 2.1
1+ grades behind; no-fees school			1.2	0.5 – 3.2
1+ grades behind; fee-charging school			2.5	1.1 – 5.6

Source: National Income Dynamics Study.

TABLE 4 Odds of dropping out of school and of failing to matriculate from Grades 11 and 12 by 2010, girls aged 15–18 in 2008 who were enrolled and childless at that time, controlling for grade in 2008

	Dropped out without matriculating		Did not matriculate from Grade 11 or 12 in 2008	
Characteristics in 2008	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Gave birth 2008-2010	4.4	2.4 – 7.9	2.2	0.9 – 5.0
1+ grades behind at school	1.8	0.9 – 3.6	2.4	1.0 – 5.6
Urban compared with rural residence	1.8	0.6 – 5.2	1.2	0.4 – 3.9
Housing quality score	0.9	0.7 – 1.1	0.9	0.7 – 1.2
Consumer durables score	0.4	0.2 – 0.6	0.9	0.6 – 1.3
ln(Household income per head)	1.0	0.7 – 1.4	1.1	0.6 – 2.1
Mother resident in household	1		1	
Mother not resident in household	1.9	0.9 – 3.9	1.9	0.9 – 3.8
Mother is dead	1.6	0.7 – 4.0	1.8	0.6 – 5.3
Mother's highest Grade 7+ compared to <7	0.8	0.4 – 1.5	1.4	0.6 – 3.3
Father resident in household	1		1	
Father not resident in household	1.7	0.8 – 3.6	1.2	0.5 – 2.8
Father is dead	0.9	0.4 – 2.1	0.9	0.3 – 2.9
Fee-charging compared with no-fee school	1.2	0.5 – 2.8	0.5	0.2 – 1.4

Source: National Income Dynamics Study

TABLE 5 Odds of new mothers enrolling in school in 2010, girls aged 15–18 in 2008 who were enrolled and childless at that time and did not matriculate by 2010, controlling for age and the year when they gave birth

Characteristics in 2008	Odds ratio	95% C.I.
1+ grades behind at school	1.3	0.4 – 4.4
Urban compared with rural residence	0.3	0.1 – 1.2
ln(Household income per head)	0.8	0.4 – 1.3
Housing quality score	1.2	0.8 – 1.7
Consumer durables score	1.1	0.5 – 2.3
Mother resident in household	1	
Mother not resident in household	0.3	0.1 – 1.0
Mother is dead	0.3	0.1 – 1.2
Mother educated to Grade 7+	2.8	1.0 – 8.3
Father resident in household	1	
Father not resident in household	1.0	0.3 – 3.1
Father is dead	2.5	0.8 – 8.0
Fee-charging compared with no-fee school	1.1	0.3 – 3.8

Source: National Income Dynamics Study

TABLE 6 Percentage of young people aged <20 living with their father in 2010

Mother's age at birth of her child	Presence of father			
	Resident	Absent	Dead	Total
<20	22	66	13	100
20+	43	43	14	100
Total	38	48	14	100

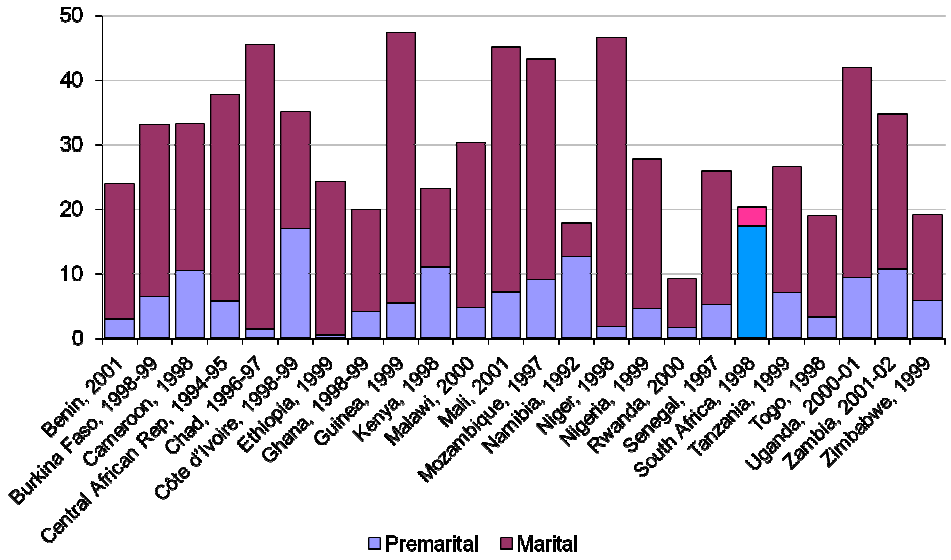
Source: National Income Dynamics Study

TABLE 7 Odds of living in extreme poverty (households with monthly expenditure <R287 per head), young people aged <20 in 2010

Characteristics in 2008	Odds ratio	95% C.I.	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Mother aged < 20 at the child's birth	1.4	1.2 - 1.6	1.2	1.1 – 1.4	1.2	1.1 – 1.4
Urban compared with rural residence			0.4	0.3 – 0.5	0.4	0.4 – 0.6
African			1		1	
Coloured			0.4	0.2 – 0.7	0.4	0.2 – 0.7
Asian			0.0	0.0 – 0.2	0.1	0.0 – 0.4
White			0.0	0.0 – 0.0	0.0	0.0 – 0.0
Mother's schooling: ≤ Grade 3					1	
Grades 4 – 6					1.0	0.6 – 1.5
Grades 7 – 9					0.6	0.4 – 0.9
Grades 10 – 11					0.5	0.4 – 0.7
Grade 12+					0.2	0.2 – 0.3
Father resident in household					1	
Father not resident in household					1.8	1.5 – 2.2
Father is dead					1.7	1.4 – 2.2

Source: National Income Dynamics Study.

FIGURE 1 Percentage of women aged 20–24 who had a birth before age 18 by whether the birth occurred before first marriage, selected African countries



Source: Authors' calculations from tabulations of Demographic and Health Survey data in Lloyd (2005).