KRISTIN ANDERSON MOORE, PH.D. • • • • • • OCTOBER 2008

Between 1991 and 2005, the teen birth rate decreased 34% to a record low. Between 2005 and 2006, the teen birth rate increased 3%—the first increase in 15 years.

Teen Births: Examining the Recent Increase

The National Campaign to Prevent Teen and Unplanned Pregnancy

Child TRENDS

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Abstract

In 2006, a fourteen-year decline in the teen birth rate was interrupted by a small increase. The absolute number of births to teens also increased, although there has been some fluctuation in this number in recent years. The increase in the teen birth rate was modest—3 percent—and it is not yet known whether a downward trend resumed in 2007. But we do know that the 2006 uptick was preceded by a slowing in the decline of the teen birth rate in recent years as well as a small rise in the birth rate for women aged 20-24 in 2005.

An examination of available data on teens' sexual activity, contraception, and abortion can shed light on whether any of these "proximal determinants" of the teen birth rate have changed. For example, the proportion of female high school students who report having had sex declined between 1991 and 2001; but, since 2001, percentages have plateaued and perhaps increased slightly but not significantly. Similarly, small declines in contraceptive use occurred among sexually active females in high school, with a small but statistically significant increase in non-use of contraception between 2003 and 2005. Abortion rates have been declining; but up-to-date data are not available past 2004. While the data do not suggest a dramatic turnabout in either sexual activity or contraceptive use, they do indicate a loss of momentum when compared to the steady improvements in the 1990s. Moreover, whether or not 2006 represents a turning point, a new plateau, or a slower decline, the U.S. teen birth rate remains much higher than in other developed nations.

A dearth of research examining the factors responsible for previous trends undermines our ability to understand what may be occurring at present. Hypotheses abound, including changes in the economy, attitudes, anxiety, schooling, public policy, programs and services, families, and media messages. In addition, prevention fatigue and the need for new strategies to reach teens who have not been reached by existing approaches have also been suggested.

Introduction

New data for 2006 from the National Center for Health Statistics indicate that the 14-year decline in the U.S. teen birth rate has reversed, and both the number of births to teens and the teen birth rate have risen. Between 2005 and 2006, the teen birth rate rose 3 percent, from 40.5 to 41.9 births per 1,000 females aged 15-19. The number of births to teens also rose by 20,834, from 414,593 to 435,427 births.

This news was disappointing to parents, policy makers, advocates, service providers, and researchers around the country. Many conversations have ensued—including a meeting convened by the National Campaign to Prevent Teen and Unplanned Pregnancy in January, 2008—to explore whether the data reflect a blip or a true reversal and what factors might explain the apparent loss of momentum. This paper reports on that conversation and considers available evidence on whether and why the teen birth rate rose between 2005 and 2006. It also raises data and research issues that should be explored to sharpen the discussion and strengthen public and private prevention efforts.

Is the increase real?

The good news is that the small increase in the teen birth rate between 2005 and 2006 did not erase the substantial progress that occurred between 1991 and 2005, when the teen birth rate declined by a third. In addition, the number and rate of births among girls 14 and younger continued to decline in 2006. Also, in absolute terms, the increases between 2005 and 2006 are quite small: as shown in Table 1, below, the teen birth rate rose from 40.5 to 41.9, and the number of births increased by 20,834.

Despite steady increases in the number of teens during the past decade, substantial declines in the number of births to teens occurred between 1991 and 2003—a trend driven by the declining teen birth rate. Except for small increases in 1994 and 1998, the annual number of teen births declined each year by between 4,000 and 20,000 births. In fact, there were approximately 100,000 fewer births to teens during 2003 than during 1991. However, these declines essentially stalled between 2003 and 2005, before the number increased in 2006.

The increase of nearly 21,000 births to teens between 2005 and 2006 is the largest single year increase in this number since 1988-89. Of course, an increase in the number of teen births can simply reflect an increase in the number of teens in the population, as alluded to above. And, as shown in Table 1, the number of teens did increase each year. Note, though, that while the teen birth rate rose 3 percent in 2006, the number of births rose even more, by 5 percent. (Also, the number of first births in this age group rose a bit more than 5 percent.) This clearly is a significant increase in the number of teenagers who became mothers.

A close inspection of Table 1 also suggests that the change in teen birth rates between 2005 and 2006 was not a sudden reversal but was preceded by a slowing of the decline in 2004 and 2005. In 2004 and 2005, annual declines that had been in the

Table 1: Number of Females Aged 15-19, Birth Rate and Number of Births to 15-19 Year-olds, from 1991 through 2006, and Year-to-Year Changes

YEAR	Birth Rate to Females 15-19	Annual Percent Change in Birth Rate	Number of Births to Females 15-19	Change in Number of Births	Number of Females 15-19	Change in Number of Females 15-19
1991	61.8		519,577		8,407,394	
1992	60.3	-2.43	505,415	-14,162	8,381,674	-25,720
1993	59.0	-2.16	501,093	-4,322	8,493,101	111,427
1994	58.2	-1.36	505,488	4,395	8,685,360	192259
1995	56.0	-3.78	499,873	-5,615	8,926,303	240,943
1996	53.5	-4.46	491,577	-8,296	9,188,355	262,052
1997	51.3	-4.11	483,220	-8,357	9,419,493	231,127
1998	50.3	-1.95	484,895	1,675	9,640,059	220,566
1999	48.8	-2.98	476,050	-8,845	9,755,122	115,063
2000	47.7	-2.25	468,990	-7,060	9,832,075	76,953
2001	45.3	-5.03	445,944	-23,046	9,844,238	12,163
2002	43.0	-5.08	425,493	-20,451	9,895,186	50,948
2003	41.6	-3.26	414,580	-10,913	9,965,865	70,679
2004	41.1	-1.20	415,262	682	10,103,698	137,833
2005	40.5	-1.46	414,593	-669	10,236,864	133,166
2006	41.9	+3.46	435,427	20,834	10,392,052	155,188

Source: National Center for Health Statistics, CDC, DHHS.

range of 3 to 5 percent each year over the previous decade were replaced by much smaller declines (1.2 and 1.46 percent).

Furthermore, birth rates rose in 2006 for women in all age groups, as shown in Table 2; that is, the teen increases are not unique. Birth rates among women over age 25 have been rising steadily for some time, and birth rates for women in their early 20s have risen for two years (in 2005 and 2006). In other words, teens did not join in the trend toward rising birth rates that occurred among older women in earlier years. What is new is that, in 2006, teen birth rates began to rise and now moved in the same direction as birth rates among women in their early 20s and indeed all women.

In addition, detailed data indicate that the teen birth rate increased in 2006 among whites, blacks, and Hispanics (see Table 3), and among teens aged 15-17 as well as those aged 18-19 (see Table 2). In fact, the birth rate increased slightly among Hispanic teens aged 18-19 between 2003 and 2004 and again between 2004 and 2005. Between 2005 and 2006, rates increased in all age and race/ethnicity groups (except adolescents 14 and younger). While increases between 2005 and 2006 were somewhat larger for older teens and for non-Hispanic black teens, it is important to note that the increase is not concentrated in any single sub-group.

While state-level teen birth rates are not yet available, data from the National Center for Health Statistics (NCHS) on the proportion of all births that occurred to mothers 20 and younger in each state and the District of Columbia indicate that this proportion increased in 37 states, fell in nine states, and stayed the same in five states. While most changes are small and can be affected by multiple factors (such as the number of births to older women), the pattern is in line with a small but widespread increase in teen childbearing. When state birth rate data are available, it will be important to examine whether the teen birth rate and the number of births to teens rose in all states

Table 2. Birth rates by age group, from 1991 to 2006

	AGE GROUP								
YEAR	10-14	15-17	18-19	20-24	25-29	30-34	35-49	40-44	45-54
1991	1.4	38.6	94.0	115.3	117.2	79.2	31.9	5.5	0.2
1992	1.4	37.6	93.6	113.7	115.7	79.6	32.3	5.9	0.3
1993	1.4	37.5	91.1	111.3	113.2	79.9	32.7	6.1	0.3
1994	1.4	37.2	90.2	109.2	111.0	80.4	33.4	6.4	0.3
1995	1.3	35.5	87.7	107.5	108.8	81.1	34.0	6.6	0.3
1996	1.2	33.3	84.7	107.8	108.6	82.1	34.9	6.8	0.3
1997	1.1	31.4	82.1	107.3	108.3	83.0	35.7	7.1	0.4
1998	1.0	29.9	80.9	108.4	110.2	85.2	36.9	7.4	0.4
1999	0.9	28.2	79.1	107.9	111.2	87.1	37.8	7.4	0.4
2000	0.9	26.9	78.1	109.7	113.5	91.2	39.7	8.0	0.5
2001	0.8	24.7	76.1	106.2	113.4	91.9	40.6	8.1	0.5
2002	0.7	23.2	72.8	103.6	113.6	91.5	41.4	8.3	0.5
2003	0.6	22.4	70.7	102.6	115.6	95.1	43.8	8.7	0.5
2004	0.7	22.1	70.0	101.7	115.5	95.3	45.4	8.9	0.5
2005	0.7	21.4	69.9	102.2	115.6	95.9	46.3	9.1	0.6
2006	0.6	22.0	73.0	105.9	116.8	97.7	47.3	9.4	0.6

Source: National Center for Health Statistics, CDC, DHHS.

or just in some states or regions (although any changes in one year in a state may not be statistically significant).

In sum, all of these various patterns and trends suggest that the increase in the teen birth rate is real. Although 2007 birth data may show that it was just a blip, the data presented above suggest a more serious possibility: that the teen birth rate has, at the very least hit a plateau and may in fact have started to increase. Such an increase occurred between 1986 and 1991, so there is a historical precedent for a change in direction.

What may have contributed to an increase in the teen birth rate?

Compositional factors

Compositional changes—such as changes in the representation of high-fertility groups in the overall teen population, as well as variable patterns of immigration—could affect teen birth rates in several ways.

In general, as the U.S. population, especially the population of children and youth, becomes comprised increasingly of high-fertility subgroups such as immigrants from high-fertility countries, this puts upward pressure on the overall teen birth rate, as well as the rate for their particular race/ethnicity subgroup.

As shown in Table 4, the number of Hispanic and black teen females has grown substantially over the past decade. Because Hispanic teens now have the highest rate of teen pregnancy and birth, and are growing as a proportion of the teen population, this might be part of the explanation.

Along these same lines, a large influx of adolescents from a country with higher teen birth rates might explain an increase in teen childbearing. For example, given high levels of immigration from Mexico and teen birth rates in Mexico (80.6 in 2006) that are higher than the United States (41.9 in 2006), immigration from Mexico represents a possible explanation. The earlier rise in the teen birth rate among Hispanic 18-19 year olds also argues for consideration of this hypothesis.

Similarly, if increases in immigration are occurring for adolescents from other high-fertility and early childbearing nations, such as some regions of Africa and Europe, this might account for an overall

Table 3. Teen birth rates, by race/ethnicity, from 1991 to 2006

	RACE/ETHNICITY GROUP		
YEAR	Whites	Blacks	Hispanics
1991	43.4	118.2	104.6
1992	41.7	114.7	103.3
1993	40.7	110.5	101.8
1994	40.4	105.7	101.3
1995	39.3	97.2	99.3
1996	37.6	91.9	94.6
1997	36.0	88.3	89.6
1998	35.3	85.7	87.9
1999	34.1	81.0	86.8
2000	32.6	79.2	87.3
2001	30.3	73.5	86.4
2002	28.5	68.3	83.4
2003	27.4	64.7	82.3
2004	26.7	63.1	82.6
2005	25.9	60.9	81.7
2006	26.6	63.7	83.0

Source: National Center for Health Statistics, CDC, DHHS.

Table 4. Number of teen females, 15-19, by race/ethnicity, from 1991 to 2006, selected years.

	RACE/ETHNICITY GROUP			
YEAR	Whites	Blacks	Hispanics	Other
1991	6,308,528	989,902	780,177	310,393
1995	6,509,920	1,061,400	911,035	362,645
2000	6,349,828	1,470,186	1,483,090	525,782
2005	6,433,446	1,598,166	1,676,465	540,689
2006	6,398,913	1,634,388	1,768,030	750,041

Source: National Center for Health Statistics, CDC, DHHS; Census Bureau.

increase in teen births. The top ten countries of origin for immigrants in the U.S. include a number of countries in Latin and South America, the Caribbean, and a number of Asian countries. There were some changes in the country of origin for immigrants coming to the U.S. in 2005 and 2006. The number of immigrants from Mexico, and other Latin American countries, including the Dominican Republic, Columbia, Cuba, and El Salvador, increased between 2005 and 2006. The number of immigrants from some Asian countries, including China and the Philippines, also increased during these years, while the number of immigrants from India, Korea, and Vietnam decreased. However, in absolute terms, the numbers are small. According to the Migration Policy Institute, the number of teens aged 15-19 legally immigrating to the U.S. increased slightly between 2005 and 2006 (from 96,273 to 111,132), following a similar increase between 2004 and 2005 (from 78,069 to 96,273). This represents a net increase of approximately 33,000 teens, half of them male. Moreover, this follows a steep decrease in the number of teens immigrating to the U.S. between 2001 and 2003. In addition, the rates of teen births in the countries of origin for 2006 immigrants are similar to the rates in the countries of origin for earlier years, according to data on teen births collected by the Population Reference Bureau.

Considering how modest these mid-decade changes in immigration were, it seems unlikely that these changes could fully account for the change in the teen birth rate. Moreover, immigration from Mexico and other high-fertility countries was common during the years the teen birth rate was declining. Also, the increase in the teen birth rate between 2005 and 2006, as noted above, occurred among blacks and whites, as well as Hispanics, so immigration from Latin America is unlikely to be the entire explanation. Nevertheless, immigration from high-fertility countries does, as noted, tend to provide upward pressure on rates of early childbearing, reflecting both the immigration of teenagers from countries with high rates of teen childbearing and changes in the composition of the U.S. population that reflect earlier immigration (unless or until immigrants assimilate U.S. patterns regarding the timing of family formation). As more detailed data become available, it would be valuable to examine in depth how the changing composition of the teen population has affected the teen birth rate.

Another possible explanation, though, for how immigration could influence a change in the teen birth rate is that it affects the calculation of the rate. Immigration to the United States includes illegal as well as legal immigrants. If recently arrived illegal immigrants are not adequately captured in population estimates, it could be that the estimates of teens aged 15-19 used for the birth rate denominators are too low. If the population has increased, the number of teen births would be expected to increase. NCHS uses the population count from the most recent Census estimates to calculate birth rates. However, Census population counts have been inaccurate before – the U.S. Census Bureau estimates that it missed 4 million people in the 1990 Census, with low-income and race/ethnicity minority populations being more likely to have been undercounted. Population counts are updated after the following Census, so we will not have an updated population estimate for the current decade until 2010 Census counts come out. If the population denominator is underestimated, which is likely, the measured teen birth rate will be too high. This would primarily affect trends if the under-representation were increasing over time – a pattern most likely for Hispanics. As new data become available, this issue also warrants further analysis.

In sum, changes in population composition cannot be ruled out as a potential explanation. Whether or not adolescents from countries with high rates of teen childbearing are a factor in raising the U.S. teen birth rate in 2006, high rates of teen pregnancy in some immigrant populations are likely to slow declines in some or many states and in the nation overall. On the other hand, if the denominator is too small because of immigration, the reported teen birth rate may be somewhat higher than the rate would be if the denominator could be calculated with precision. Since these factors work in varied directions, they could be having offsetting effects. New research might help, but the influence of illegal immigrants may be difficult to

assess when the change in the birth rate itself is so far quite modest. However, larger changes in the underlying dynamics may be concealed by overall rates, even for race/ethnicity subgroups. Understanding the "proximal" determinants of these patterns seems essential to understanding trends in the teen birth rate.

Proximal factors: Sexual Activity, Contraception and Abortion

Births to teens reflect several behavioral variables, including sexual activity, contraceptive use, or the lack thereof, and abortion (among pregnant teens). These are referred to as proximal factors, since they are directly related to teen childbearing. Changes in the teen birth rate could be driven by changes in any or all of these proximal factors. They are distinguished from distal factors (discussed in the next section), which include a broad set of social and economic influences that might influence the proximal factors.

Sexual activity. Available data from the National Survey of Family Growth (NSFG) are from the 2002 wave, and new NSFG data will not be available until 2009. These interviews will cover June 2006 through December 2008, so concurrent nationally representative data will never be available for all teens for the time period from 2003 through early 2006. However, young adults surveyed in 2006-2008 in the NSFG will be asked to report retrospectively on their first sexual experience, so we will have some information on those who were teens during this time when that data are available.

Data from the Youth Risk Behavior Surveillance System (YRBS) are available every other year through 2007; however, these data only represent public high school students in grades 9 through 12. Thus, if the increase in the teen birth rate is being driven by dropouts or older teens, these data will not capture the pattern. In fact, teens who are not in school are more likely to engage in risky health-related behavior, according to YRBS documentation, so we might expect that these results underestimate the risky sexual behavior of U.S. teens. With that caveat, in general, trends in sexual activity and contraception in the YRBS data have mirrored trends found in the NSFG.

Youth Risk Behavior Surveillance data on sexual activity among students are shown in Table 5. Considering first whether high school students report ever having had sex, there is a small in-

Table 5: Trends in Sexual Activity Among Female High School Students, by race/ethnicity, According to Youth Risk Behavior Surveillance System Data

	EVER HAD SEX				CURRENTLY SEXUALLY ACTIVE			
YEAR	Total	Whites	Blacks	Hispanics	Total	Whites	Blacks	Hispanics
1991	50.8%	47.1%	75.9%	43.3%	38.2%	35.9%	55.3%	32.8%
1993	50.2%	47.4%	70.4%	48.3%	37.5%	35.2%	53.2%	37.9%
1995	52.1%	49.0%	67.0%	53.3%	40.4%	38.5%	50.6%	39.3%
1997	47.7%	44.0%	65.6%	45.7%	36.5%	35.1%	47.3%	33.2%
1999	47.7%	44.8%	66.9%	45.5%	36.3%	34.7%	50.3%	34.0%
2001	42.9%	41.3%	53.4%	44.0%	33.4%	32.3%	39.5%	34.5%
2003	45.3%	43.0%	60.9%	46.4%	34.6%	33.1%	44.2%	35.8%
2005	45.7%	43.7%	61.2%	44.4%	34.6%	33.5%	43.8%	33.7%
2007	45.9%	43.7%	60.9%	45.8%	35.6%	35.1%	43.5%	35.3%

Source: Centers for Disease Control and Prevention, DHHS

crease in the proportion who have ever had sex (that is, they are "sexually experienced") between 2001 and 2003, but only a very small and non-statistically significant increase between 2003 and 2007 in the proportion of students who report that they have ever had sex. Moreover, slight increases between 2003 and 2007 are apparent among white students but not among black or Hispanic students. Given the large standard errors for these estimates, it is not possible to definitively conclude that changes have occurred. Indeed, while the proportion of female high school students who have had sex in 2003 and 2005 appears to be slightly higher than in 2001, even this difference is not statistically significant.

However, the percentage of female high school students who ever had sex is a less relevant measure than the proportion of teens who report having had sex in the last three months (referred to as "currently sexually active"). Compared with 2001, it again appears that there were very small increases between 2001 and the years from 2003 to 2007 in the proportion of girls who have had sex in the past three months. This increase was sustained in 2005 and increased very slightly again in 2007. However, these changes are not statistically significant. Moreover, an increase after 2001 is not likely to explain an increase in the birth rate between 2005 and 2006.

Table 6. Contraceptive Use at Last Sex Reported by Sexually Active Female High School Students, Youth Risk Behavior Surveillance data

YEAR	% Used a Condom	% Used Birth Control Pill
1991	38.0%	25.0%
1993	46.0%	22.3%
1995	48.6%	20.4%
1997	50.8%	20.5%
1999	50.7%	20.4%
2001	51.3%	21.1%
2003	57.4%	20.6%
2005	55.9%	20.6%
2007	54.9%	18.7%

Source: Centers for Disease Control and Prevention, DHHS, Youth Risk Behavior Survey.

Because trend data are not available for all sub-groups of interest (e.g., race/ethnicity, gender and grade together), it would be useful to conduct additional analyses of the YRBS data for girls by age and race, to explore whether a pattern emerges that more clearly suggests a role for increased sexual activity (which particularly assess the percentage who have had sex in the last three months in the uptick in the teen birth rate noted in 2006). For example, among 10-12th grade girls (the grades that correspond most closely to ages 15-19), by race/ethnicity, what is the increase in sexual activity from 2001 to 2007? This information would help assess whether a particular sub-group (e.g., older black females) showed especially large changes in sexual activity while another group showed important changes in the use of contraception.

In sum, based on available information, we cannot conclude that an increase in the teen birth rate was caused by increases in sexual activity among teens. Slight increases between 2001 and mid-decade in the proportion of teen females who are currently sexually active are suggestive; but they fall short of being statistically significant. On the other hand, little evidence of ongoing declines in sexual activity is seen. Rather, the data suggest either a small increase or a plateau with fluctuations.

Contraceptive use. As with sexual activity, data on contraceptive use for this time period are currently only available from the Youth Risk Behavior Surveillance Survey.

A substantial increase in reliance on condoms among high school girls is very apparent in Table 6 between 1991 and 2003. This increase plateaus in the middle of the decade, however. Reliance on the birth control pill at last intercourse appears to have declined between 1991 and 2007. However, more detailed analyses are needed that include all types of methods. For example, data from a recent analysis of the YRBS conducted by Professor John Santelli are shown in Table 6 for the years 1999 through 2005.

These data indicate a slight, but statistically significant, increase in the proportion of high school

Table 7: Contraceptive Use at Last Sex Among Sexually Active Female High School Students, Youth Risk Behavior Surveillance data

YEAR	% Used Condom Only	% Used Birth Control Pill Only	% Used Pill & Condom	% Used Injectables	% Used No Method at Last Sex	% Not Sure
1999	44.6%	15.2%	4.9%	3.9%	16.0%	.9%
2001	44.0%	15.7%	5.2%	3.5%	14.1%	.8%
2003	49.3%	14.2%	6.1%	3.2%	11.6%	.5%
2005	46.7%	13.8%	6.9%	2.5%	13.7%	1.9%

Source: Professor John Santelli, Columbia University

girls who report using no method the last time that they had sex (from 11.6 percent in 2003 to 13.7 percent in 2005). Also, slight changes in the mix of methods used are found, including a non-significant decline in reliance on injectables (from 3.2 percent in 2003 to 2.5 percent in 2005 among girls). There was no significant change in either reliance on the pill among girls (14.2 percent in 2003 to 13.8 percent in 2005) or in joint use of pills and condoms (6.1 percent in 2003 to 6.9 percent in 2005). The proportion who reported using condoms at last sex, either alone or in combination with another method, went from 57.4 to 55.9 (not significant) between 2003 and 2005.

Adding to a pattern of small changes that are difficult to interpret is a slight increase in the proportion of female students who reported that they were not sure whether contraception was used the last time they had sex (from .5 percent in 2003 to 1.9 percent in 2005). Whether this reflects use of substances that impair memory, language issues, a reluctance to report either use or non-use, or some other factor is not clear. This report reminds us, though, that these data are self-reported by teens and, as such, may reflect subtle changes in the overall culture of a school, community or larger social environment.

Information on the consistency of contraceptive use as well as the frequency of sex would be necessary to assess the role of changes in contraceptive use in trends in teen birth rates. In addition, up-to-date information on the entire adolescent population, not just those enrolled in school, is needed. Having said that, the data in Table 6 suggest a plateau and possibly a non-significant mid-decade decline in condom and pill use; and the data in Table 7 suggest that non-significant declines in the use of injectables and condoms may have aggregated into the small but significant increase in the proportion not using a method or saying that they are not sure a method was used in 2005. This change may have played some role in the 2006 increase in the teen birth rate.

Abortion. A recurrent survey of abortion providers is conducted by the Guttmacher Institute, and findings for 2005 indicate that the number of abortions among women of all ages continues to decline in the United States. In addition, data tracking the ratio of abortions to pregnancies are available through 2005. The ratio of abortions per 100 pregnancies has been experiencing a long-term decline over the past few decades and this decline has continued in recent years. The ratio declined slightly, from 24.5 in 2000 to 22.8 in 2004 and 22.4 in 2005, for women aged 15-44.

A recent report from the National Center for Health Statistics provides data on the pregnancy, abortion and birth rates and ratios, by age of woman for 1990 through 2004. These data indicate steady and fairly parallel declines in abortion rates for older and younger teens among whites, blacks and Hispanics. The primary exception, interestingly, is a tiny uptick in the abortion rate for Hispanic 18-19 year olds. Despite this small increase in abortion for older Hispanic teens, the birth rate in this group also rose, reflecting an

increase in the pregnancy rate in this group. In all other groups, abortion rates continued to decline, at least through 2004.

To explain the increase in the teen birth rate in 2006 would require, however, a larger reduction in abortion in 2006 among teens, or among subgroups of teens, or a substantial change in the composition of the population toward groups less likely to obtain abortions if they become pregnant. Without data available for 2006, it is not yet possible to know what role the trend in abortions played in the increase in teen births; however, data from 2004 do not suggest a steepening of the decline in abortion among teens.

Summary. The proximate determinants of teen childbearing all changed substantially during the years of decline in teen birth rates between 1991 and 2005. For example, the proportion of teens who were sexually experienced declined over the 1990s, and the use of contraception, especially condoms, increased dramatically. Reflecting these trends, there were large declines in the pregnancy rate and in abortion, and there was a one-third decline in the teen birth rate.

But what about the last several years? The teen birth rate is a leading indicator in the sense that we have data on births well ahead of other data. The lack of detailed data on proximal behaviors for all teens since 2002 undermines our ability to understand the full picture and reach a definite answer. However, data for high school students through 2007 do not suggest statistically significant increases in sexual activity and only a small increase in the non-use of contraception through 2005. Data on abortion rates among teens through 2004 suggest an ongoing decline in abortion but not an accelerating decline in abortion.

These data gaps highlight the need for more recent data and for new data from the National Survey of Family Growth (NSFG). However, it is worth noting that important trends in sexual activity and contraception in the 1990s appeared in both the YRBS and the NSFG. This suggests that, although the YRBS data miss the oldest teens and out-of -school teens, the YRBS may nevertheless pick up major trends among U.S. teens. Even so, the magnitude of the 2006 increase in the teen birth rate is small enough that it could be driven by large changes within a small subgroup.

Distal factors: Social and Economic Changes

How can social or economic changes account for an increase in the teen birth rate? Distal factors can potentially influence the teen birth rate by causing change in one or more of the proximal factors discussed above (sexual activity, contraceptive use and abortion). For example, if it is becoming more difficult for teens to gain access to abortion services, this could directly influence abortion rates, and in turn influence the rate of live births among teens. Alternatively, changes in attitudes or economic outlook may influence an individual's overall motivation to avoid pregnancy, and thus have an effect on sexual activity, contraceptive use, and/or abortion. If a compelling case exists that major societal changes have occurred that are likely to result in more frequent early sex, less consistent contraceptive use, fewer abortions, or any combination of these, then it may be more likely that the small increase in the number and rate of teen births in 2006 represents not a blip but the beginning of a real change.

Considering the possible influence of broader socio-economic factors is also important for policy makers and the public. If the increase in the rate is not temporary but the beginning of ongoing increases in the teen birth rate, understanding the underlying factors is essential so that appropriate policy and program remedies can be developed.

Societal changes

Some potential explanations are amenable to rigorous examination, while others are much more speculative. Both types are considered here, so that a reasonably complete set of hypotheses can be laid out. Unfortunately, relatively little work has been done to understand why the teen birth fell over the preceding fourteen years. Such work would have been helpful now. As it is, we under-

stand much more about trends in sexual behavior, contraception and abortion than why they changed as they did.

Economic changes. While unemployment and recession were not particularly high in 2005 - 2006, economic uncertainty was high. According to the University of Michigan's Survey of Consumers, consumer confidence has been relatively high since 2000; however, in 2005 – 2006, Americans were more positive about their current economic condition than they were about their future prospects in 2005 and 2006. In particular, consumers increasingly became convinced that the pace of economic growth would slow, and that few new jobs would be produced; additionally, people reported serious concern about home prices. Whether this uncertainty has been experienced by adolescents is not known.

In addition, economic disparities have increased steadily over time. Research consistently finds early and non-marital childbearing to be more frequent among disadvantaged populations. Compared with the late 1990s, the last several years have not been years of strong economic opportunity for more disadvantaged individuals, who may see less to be gained from delaying parenthood when their prospects for employment, income, marriage, and home ownership look increasingly dim.

Moreover, the dollar costs associated with contraception may loom larger when incomes are low and employment is uncertain. Given that the cost of contraception has risen during the economic decline following the late 1990s (due to both the rising cost of oral contraception and the increasing popularity of more expensive longer-acting methods), we would expect that affording contraception may have become increasingly difficult for low-income groups. Furthermore, such economic conditions might result in timing changes, such that births that would have occurred later now occur earlier, when the opportunity costs are lower. (Also, early childbearing has been found to be related to larger eventual family size, so a change in timing may also lead to more children over time.)

Public policies. Numerous changes have occurred that may have affected teen sex, contraception, and childbearing. Funding for family planning services through Title X (a grant program that includes providing family planning services to adolescents) decreased from 2005 to 2006 by nearly 3 million dollars (from $286 to $283 million) but there has been greater reliance on funding from Medicaid. However, neither Medicaid nor SCHIP (the State Children's Health Insurance Program) covers all lower income young people. In addition, SCHIP only covers teens through age 18. Moreover, while most states cover contraception under SCHIP, programs vary across the states and fewer states cover emergency contraception, so contraceptive services for teens are not uniformly available.

There has also been a movement toward abstinence-only education in federal policy over the past 10 years. As yet, evidence is lacking that abstinence-only programs prevent teen pregnancy, and a rigorous federal evaluation of well-implemented abstinence-only programs showed no significant impacts on sexual behavior. In addition, an analysis of data from the 1995 and 2002 NSFG found that fewer young women reported having received formal education about contraception, declining from 87 percent to 70 percent.

Other public policies may also be relevant. For example, Professor Joseph Price suggests that Title IX, which increased girls' exposure to sports, may have reduced teen childbearing, though it is unclear whether recent reversals have occurred, and that desegregation has been related to lower teen childbearing for black females, though again whether recent reversals have occurred is unknown.

Given that public policies are malleable, it is important to better understand what state and Federal policies are and how they might be related to adolescent sexual, contraceptive and abortion behavior. This requires that information on public funding for contraception, the availability of abstinence-only or comprehensive sex education, and

other public policies at the state level be expanded and updated, so that trends by state in public policies and programs can be examined.

Education. It is not clear what the effects are of increased pressure from state and Federal expectations for improved test scores and performance under No Child Left Behind legislation enacted in 2002. If marginal students are feeling discouraged or unsuccessful, they may find early parenthood to be relatively more attractive. In fact, some evidence suggests declines in children's reported engagement in schoolwork between 1996 and 2001; but more recent data on school engagement are not available.

Dropout rates, however, are available, and while dropout rates are high, some data indicate that these rates have been declining since 2000, albeit with a slight increase between 2003 and 2004. These dropout rates have declined among all race/ethnic groups. However, there are a number of problems with the calculation of dropout rates, and different sources produce vastly different estimates. For example, some calculate the graduation rate by asking men and women in their twenties whether they have a high school diploma, while others follow students from 9th grade to see how many graduate in 4 or 5 years, and still others follow only those who begin 12th grade to see how many graduate at the end of the year. Professors James Heckman and Paul LaFontaine have identified numerous shortcomings in assessments of graduation and dropout rates, finding evidence that high school graduation rates have been declining for four decades. Given the differences between dropout rates reported in different times and places, we cannot say with confidence that dropout rates have changed recently, though. Also, data for specific states and cities might be required, since education policies tend to be local or state.

In addition, an increased focus on academic performance may have reduced other offerings, such as art, music and counseling, that kept marginal students in school. The focus on academic performance driven by No Child Left Behind may also have caused schools to reduce funding for or drop altogether health education classes and other services, which may have once helped students see the value in postponing pregnancy.

Media. In addition to family and community, the media provide role models for adolescents. In fact, in a 2003 survey conducted by the Kaiser Family Foundation, 72 percent of young people reported that they gained at least "some" of their knowledge of sexual health from the media. However, research on exactly what young people learn from the media and how it affects their behavior is lacking; furthermore, little recent work has examined whether or how new forms of media available through the internet might be affecting adolescent knowledge, attitudes or behavior.

One possibility for how the media may have influenced sexual behavior and attitudes towards teen pregnancy over the last couple years is its stronger focus on pregnant or parenting celebrities. The media focus on stars who are pregnant or who had babies in the last couple of years has not gone unnoticed. For example, after describing the movie *Juno*, Laura Sessions Stepp, in an article in *The Washington Post* on February 12, 2008, decried "That about sums up Hollywood's attitudes toward being young, single, and pregnant by mistake. It's not a big deal". If these stars serve as role models for adolescents, this may have had an effect on some teens.

Other societal changes. The years since 2001 have been particularly challenging for the generation that has grown up during this time. Terrorism and war have affected the entire population, if not directly then in terms of general anxiety. While hard data are lacking, evolutionary research indicates that childbearing increases when life feels uncertain. However, it is not clear why this would be manifest in teen fertility in 2006 rather than 2002 or 2003.

Prevention fatigue among the policymakers and program providers. Each year, a new cohort of adolescents comes of age; and continued efforts are needed to discourage early and unprotected sexual activity. As the teen birth rate declined year after year, one can speculate that perhaps these efforts appeared less critical to Federal, state and

local officials, or perhaps the intensity of local and state advocacy efforts seeking to reduce teen pregnancy decreased due to complacency.

Changes in teens' relationships

Parents and other adults. Even among adolescents, parents are a critical influence in their efforts to help set goals and values for their children, monitor behavior, arrange daily activities, and provide role models. Although there is no regular monitoring system that assesses parental knowledge, attitudes and behavior regarding their teens' relationships, sexual activity or contraceptive use, the NSFG has some information available on parent-teen conversations about sex and contraceptives over time. Even so, trend data exist for only a limited set of topics about which teens talked to parents, so it is difficult to assess the implications of any trends in parent-teen discussions. Given that teens report that their parents have the most influence on their sexual behaviors, even more than media and peers, it would be very useful to know exactly how parents address (or do not address) their teens' sexual behavior over time.

In addition, non-marital childbearing and marital disruption remain common among adults, especially among low-income, disadvantaged adults, and the frequency of these patterns among adults may reduce adolescents' incentives to delay their own sexual activity and childbearing. Again, however, it is not clear that these contextual factors changed enough mid-decade to help explain the increase in the teen birth rate.

Changes in teens' attitudes

Prevention fatigue among teens. There are a number of ways in which teens themselves may have grown weary with policies and programs aimed at preventing pregnancy. In particular, if child support enforcement has become less stringent for teens in recent years, as some suggest, teen males may be less motivated to avoid pregnancy.

If adolescent fathers have come to feel that child support obligations are not going to be imposed on them, one can speculate that their motivation to prevent pregnancy may have waned slightly. And in fact, according to NSFG survey data, younger fathers are less likely to pay their total assigned child support contribution and more likely to pay none compared to older fathers. It is possible that increased child support enforcement efforts, coinciding with welfare reform, contributed to declines in teen births during the late 1990s. If child support enforcement has become more lax during the current decade, or if teen boys and young men are less informed or concerned about child support, it is possible that this could have contributed to an increase in teen births; but evidence on this is currently lacking.

Alternatively, as HIV/AIDS treatment becomes more advanced with new drugs offering survival, if not a cure, to those who suffer from HIV/AIDS, it may be that teens feel less motivated to use condoms consistently. Teens today may be less concerned with contracting the disease compared to their counterparts ten years ago, and thus less likely to remain abstinent or use condoms.

Gender roles. The roles and expectations of young men and women have changed substantially over recent decades and may be continuing to change; but it is not clear whether or how they have changed for adolescents most at risk of becoming teen parents. Several scenarios are possible. For example, imbalanced sex ratios that reflect the scarcity of males in many communities, particularly men with good jobs, may alter gender power dynamics. High levels of dropout and unemployment among at-risk populations reduce prospects for establishing economically viable marriages and may thereby also reduce the motivation to delay parenthood until marriage. High rates of incarceration have disproportionately affected minority populations and may further reduce the likelihood of forming stable relationships before having children. Qualitative research, such as studies by Professors Kathryn Edin and Maria Kefalas, has identified an ongoing desire for marriage in disadvantaged communities, but it is accompanied by strong gender distrust and high levels of unplanned pregnancy. This work has tended to focus on couples older than 20. Further

research might explore this issue among adolescents. But the question of timing remains – what would have increasingly affected teens during this mid-decade time period?

Concerns about infertility. Some have suggested that, given the media attention to the difficulties older women have of conceiving and the risks associated with pregnancy among older women, younger women may be increasingly concerned about infertility. These concerns could encourage young women to become pregnant earlier than they might choose to otherwise, and thus increase the rate of teen pregnancy. Alternatively, given the technological advances in fertility treatment and such processes as in vitro fertilization, it could be argued that women may increasingly believe that they will be able to get pregnant at any age. It is possible that teens today expect that by the time they reach 35, the technology will have become so advanced that conceiving will not be a problem. Some suggest that actual fertility problems may be increasing (perhaps due to health problems, such as rising rates of obesity and sexually transmitted diseases that affect fertility, and due to increasing environmental risks).

Findings from the NSFG address both reported impaired fecundity (which includes women who have difficulty getting pregnant and/or carrying a pregnancy to term) and infertility (which is defined as having been sexually active without using contraception for one year without becoming pregnant). These data show that while self-reported impaired fecundity is increasing, actual infertility has been decreasing. Thus, it appears that although women are actually experiencing a rise in fertility levels, they are increasingly convinced that they will have trouble getting pregnant or not be able to conceive at all.

On a related front, there is evidence from a number of surveys that teens underestimate their ability to become pregnant, although we do not know whether this has changed over time. It is also possible that the black box warning issued in late 2004 by the FDA on Depo Provera, a long-acting injectable contraceptive method (the warning cautioned against use of Depo because studies began to show that long-term use of Depo could cause loss of bone density), contributed to a decline in use of this method, which in turn might have contributed to the rise in the birth rate.

Changes in other attitudes and values. Policy makers' and the media's increased attention to religious conservatism in recent years has created an impression that the country has become more religiously observant and conservative over time. However, survey data from the Child Trends DataBank show that religiosity has actually declined modestly among high school student since 2000, after increasing throughout much of the 1990s.

Moreover, Americans' attitudes about such topics as homosexuality, gender roles, and sexual behavior became less conservative over these years as well. And, overall, later generations are reaching adulthood with less conservative attitudes than preceding generations. In sum, while many have hypothesized that increasing religiosity and social conservatism throughout our society may help explain a higher teen birth rate in 2006, presumably through reduced contraceptive use or less abortion, the existing survey data do not provide enough support for this assertion.

Although overall changes in attitudes towards religion and general social issues may not have caused a rise in the teen birth rate, teens' attitudes about sexual behavior specifically may be changing. Trends in attitudes about sexual behavior, contraceptive use and pregnancy are harder to document however, as there is little information on these attitudes over time. Survey data from the National Campaign to Prevent Teen and Unplanned Pregnancy's "With One Voice" show that the percentage of teens who strongly agree that sex should occur only in a long-term committed relationship has risen over the last several years (from 62 percent in 2002 to 66 percent in 2004), and that more sexually experienced teens wished they had waited longer to have sex (66 percent in 2004, compared with 63 percent in 2002). These results suggest that teens are becoming more conservative in their attitudes towards sex. However, results from recent studies show that many teens still feel pressure to have sex, feel uncomfortable com-

municating about contraception/condoms, and are reluctant to use contraception/condoms for other reasons (such as thinking that purchasing contraception is a hassle, misperceptions about side effects associated with some contraceptive methods or concerns that contraception/condoms would reduce enjoyment). It is likely that teens have always had some of these feelings, but it would be important to know whether these attitudes changed enough during recent years to cause an increase in teen births.

There will be more opportunities to explore changes in attitudes in the future, in particular from the next rounds of the NSFG, which is being conducted between 2006 and 2008 and includes a number of questions on attitudes towards sexual behavior. These data will allow researchers to explore any changes in attitudes that occurred between 2002 and 2006.

It is apparent, however, that attitudes towards HIV/AIDS have changed over the last several years. It seems that while HIV/AIDS prevention in the United States was a major focus of health, education, and policy efforts in the 1990s, this focus may have diminished over the past few years. Although we have not found relevant surveys of teens, surveys of adults conducted by the Kaiser Family Foundation have shown that HIV ranked as the most urgent health problem facing the nation in 1995 and 1997: in 2006, however, it was ranked third (behind cancer and heart disease). If teens, too, have become less concerned about HIV/AIDS, this might in turn have led to less condom use and/or more sexual activity—both of which could help to explain the recent increase in the teen birth rate.

The difficult task that remains. Childbearing during the adolescent years is uncommon among advantaged adolescents. These adolescents are more likely to: (1) delay first sex, (2) use contraception if they have sex, and (3) obtain an abortion if they become pregnant—all of which reflect, in part, the greater opportunity costs that early pregnancy and family formation pose for them. It also probably reflects their greater access to contraceptive services, their more numerous opportunities such as post-secondary education and their having been reached effectively by a range of prevention messages.

Those teens who remain at risk are probably harder to reach with messages and services. And for the most disadvantaged teens who may see few reasons to avoid early childbearing, some new approaches are no doubt needed in order to continue or resume the overall decline in teen childbearing.

Needed Research

The sheer range of hypotheses for the recent increase in the teen birth rate is stunning, and the lack of hard data makes it difficult to even rank-order the various distal and proximal influences noted in this paper. It is important that research be completed that fills this gap in order to identify the factors that underlie trends in teen childbearing in the past as well as in the present. Such information would do much to shape useful policies in both the public and private sectors and to generate new ideas for program initiatives. If we do not understand the past, it is much harder to learn from it.

What analyses could be done immediately?

- Youth Risk Behavior Surveillance System data can be analyzed for detailed subgroups over time to provide a more fine grained understanding of trends in the proximal determinants of teen childbearing.
- Estimates of illegal immigration could be examined to explore whether an under-estimate of the teen populations used as the denominator for teen birth rates might account for a bump in the teen birth rate that is more apparent than real.
- Analyses that assess the implications of changes in population composition could be conducted, e.g., population standardization analyses.
- When the needed data become available, analyses of abortion and pregnancy among teens through 2006 could be conducted in order to assess trends in pregnancy and abortion.

- Detailed descriptions and examination of trends in public policies, and in the social and economic contexts of adolescents (including public policies regarding funding for contraception, adolescent attitudes, educational engagement and dropout rates among various sub-populations of teens, prevention fatigue, and family environments) could be conducted. Each of these descriptions could include a more detailed literature review than has been possible here of how each issue is associated with teenage childbearing and its proximate determinants and a discussion of potential implications for teenage childbearing.

What new information will be available in the coming year that can inform this discussion?

- Teen birth rates for 2007 will most likely become available late in 2008, allowing an assessment of whether the national teen birth rate has increased for a second year. State-level teen birth rates for 2006 will likely become available in late 2008 as well, permitting analysis of whether increases were concentrated in specific states in that one year.
- Abortion data for 2005 will be available in the fall of 2008 and may help clarify whether the pregnancy rate increased in 2005, or whether less reliance on abortion among pregnant teens contributed to an increase in the teen birth rate in 2006.
- Data from Cycle 7 of the NSFG covering 2006-2008 will become available in the fall of 2009 and will provide information on sexual activity and contraceptive use for all teens, both those in school and those who are not.
- All such new data could be incorporated into an agent-based model in order to assess the effect of changes in proximal determinants—and to estimate the potential effect of other specified changes—on rates of teen childbearing.

What new research and data could enhance understanding of trends in teen childbearing?

- Information is needed on state policies, programs, and funding over time that might be related to increases and decreases in teen childbearing.
- State-level analyses using multivariate models are needed that examine not just current patterns but birth rates going back through the 1980s, to assess the associations among state-level policies, programs, funding, social characteristics, and economic circumstances and the teen birth rate.
- Multivariate analyses could also be conducted with YRBS data over time, to explore the correlates of sexual activity and contraceptive use.
- Multivariate analyses could be conducted with multiple cohorts of NSFG data to specifically focus on changes in the context of adolescence and how changes are linked to trends in teenage childbearing, as well as changes in the characteristics of teen parents over time.

Conclusions

Studies of trends in teen childbearing will need to address a number of considerations. One is the need to identify whether and how proximal and distal factors associated with teenage childbearing have changed. It is important to better understand the factors that affect both the incidence of teen childbearing and changes in teen childbearing over time so that prevention efforts can be more effective.

Factors that are correlated with a higher risk of teen childbearing in any given year may or may not be related to an uptick in the rate over time. Indeed, factors that have not changed are unlikely to explain a rising rate.

Another caution is that social change is unlikely to be driven by a single factor, and there may be complex interactions among several—even many—factors that are critical. For example, anxiety about the economy may combine with worry about infertility, a perceived glamour attached to motherhood, and an increase in the cost of contraception might combine and result in a greater probability of early childbearing.

Also, subgroup differences must be expected. The factors that are influential among Hispanics, for example, may not be as salient to whites and blacks. Similarly, different factors may affect males than females or teens with lower versus higher family socioeconomic status. In addition, even if the factors that affect teen childbearing have not changed, shifts in the composition of the teen population could alter patterns of sexual behavior, contraceptive use, and abortion, and thus alter the trend in the teen birth rate.

Finally, it is critical to remember that the available data indicate only a very modest increase in the teen birth rate for one year. It may turn out to be a pause or a blip. Based on current data, declines in sexual activity and improvements in contraception have at the least plateaued; but the changes in mid-decade are not statistically significant. Changes in contraception appear to be a slightly stronger explanation than changes in sex or abortion; but the magnitude of change is very small, and data gaps are so great that this can only be a very tentative conclusion.

However, the current plateau or increase is a reminder that teen childbearing is rooted in behavior, and behavior can change. Even without an increase, levels of teen childbearing are higher in the United States than in other countries. The occurrence of a pause or an uptick in the rate should serve as a warning to keep up our collective efforts to prevent teen pregnancy.

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About The National Campaign to Prevent Teen and Unplanned Pregnancy

The National Campaign to Prevent Teen and Unplanned Pregnancy seeks to improve the lives and future prospects of children and families and, in particular, to help ensure that children are born into stable, two-parent families who are committed to and ready for the demanding task of raising the next generation. Our specific strategy is to prevent teen pregnancy and unplanned pregnancy among single, young adults. We support a combination of responsible values and behavior by both men and women and responsible policies in both the public and private sectors.

If we are successful, child and family well-being will improve. There will be less poverty, more opportunities for young men and women to complete their education or achieve other life goals, fewer abortions, and a stronger nation.

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Child Trends is a nonprofit, nonpartisan research center that studies children at every stage of development. Our mission is to improve outcomes for children by providing research, data, and analysis to the people and institutions whose decisions and actions affect children, including policy makers, program providers, foundations, and the media.

Founded in 1979, Child Trends helps keep the nation focused on children and their needs by identifying emerging issues; evaluating important programs and policies; and providing data-driven, evidence-based guidance on policy and practice. Its work is supported by government, foundation, and private sector funders.

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