

## Teenage childbearing and its life cycle consequences

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## Teenage pregnancy (1990)

- About 4 million children born in 1990, 1/8 are to teen mothers
- 12% teen women get pregnant/year
- 35-40% of teen women become pregnant before the age of 20
- 25% will be a mother by age 20
- 17% of teens will get pregnant during their 1<sup>st</sup> non-marital intercourse
- 6% of teen women, aged 15-19 give birth in a given year

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- Teen birth rates have changed considerably over time
- Most of these births are out of wedlock
- Rates differ considerably across race

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## Some trends in words

- Teen age pregnancy (15-19) rate fell dramatically between 1990 and 2002
  - 40% for black teens
  - 34% for whites
- Between 1988-2000, teenage pregnancy rates declined in every state and in the District of Columbia.

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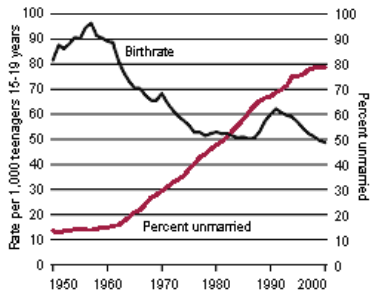
- The teenage birthrate in 2002 was 30% lower than the peak rate of 61.8 births per 1,000 women, reached in 1991.
- By 2002, the teenage abortion rate had dropped by 50% from its peak in 1988.
- From 1986 to 2002, the proportion of teenage pregnancies ending in abortion declined more than one-quarter from 46% to 34% of pregnancies among 15–19-year-olds.

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## In 2000

- States with highest teen birthrate: MS, TX, AZ, AR, NM
- Lowest :NH, VT, VT, MA, ND, and ME
- Teenage abortion rates were highest in the DC, NJ, MD, NV, CA
- Lowest in ND, SD, KY and UT

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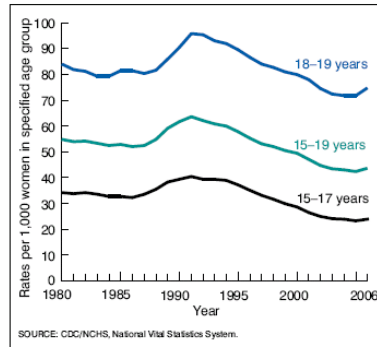
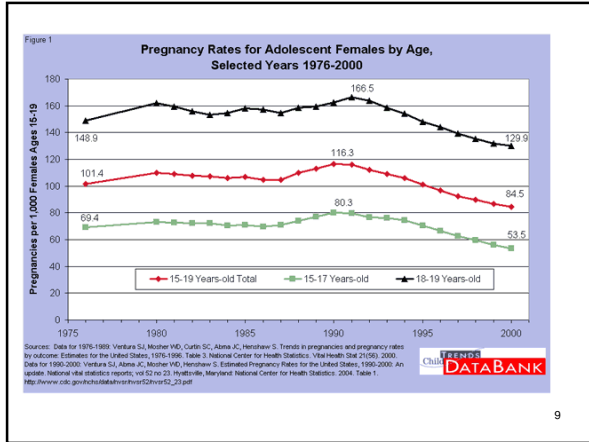
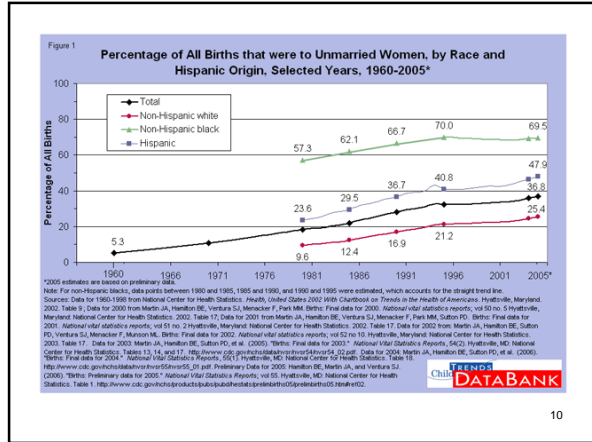


Figure 1. Birth rates for teenagers by age: United States, final 1980–2005 and preliminary 2006

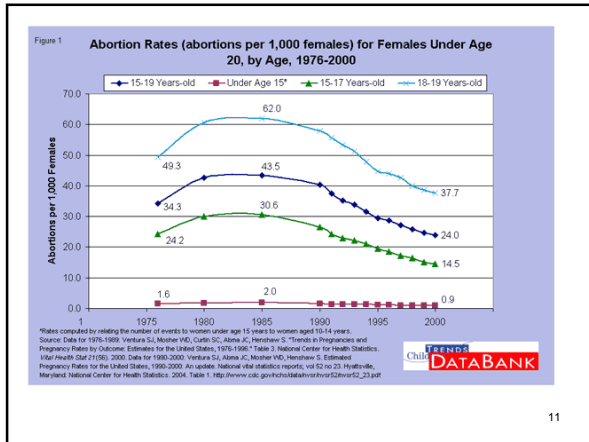
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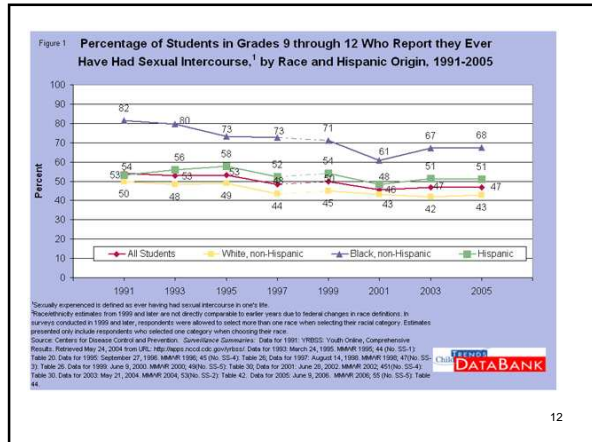
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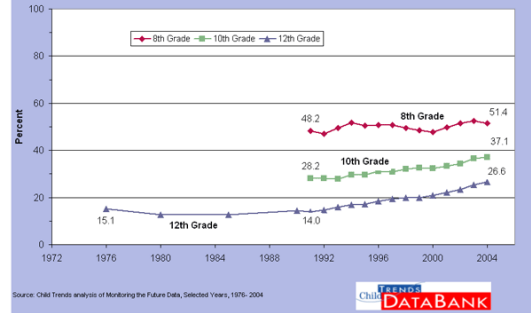
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### % Students, Grades 9-12 who have had Intercourse in the past 3 months

	1991	1993	1995	1997	1999	2001	2003	2005
<b>All Students</b>	37.5	37.6	37.9	34.8	36.3	33.4	34.3	33.9
<b>Race/Ethnicity<sup>2</sup></b>								
White, non-Hispanic	33.9	34.0	34.8	32.0	33.0	31.3	30.8	32.0
Black, non-Hispanic	59.3	59.1	54.2	53.6	53.0	45.6	49.0	47.4
Hispanic	37.0	39.4	39.3	35.4	36.3	35.9	37.1	35.0
<b>Grade</b>								
9	22.4	24.8	23.6	24.2	26.6	22.7	21.2	21.9
10	33.2	30.1	33.7	29.2	33.0	29.7	30.6	29.2
11	43.3	40.0	42.4	37.8	37.5	38.1	41.1	39.4
12	50.6	53.0	49.7	46.0	50.6	47.9	48.9	49.4

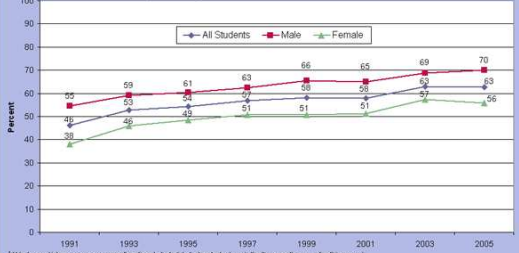
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### Percentage of 8th, 10th, and 12th Grade Students who Never Date, by Grade, Selected Years 1976-2004



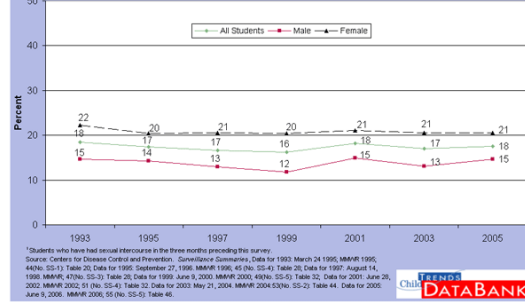
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### Condom Use<sup>1</sup> as Reported by Sexually Active Students in Grades 9 through 12, by Gender, Selected Years, 1991-2005

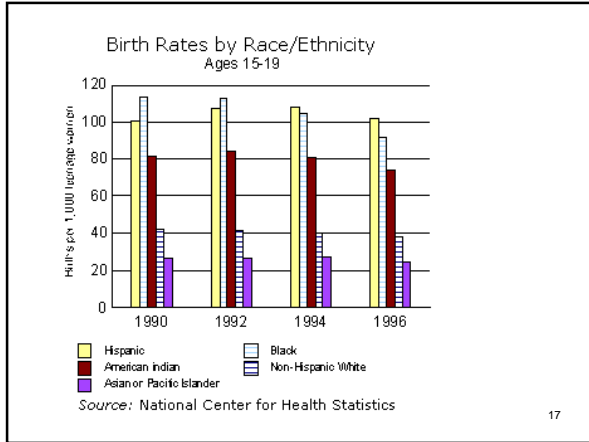


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### Percentage of Sexually Active<sup>1</sup> High School Students Who Reported Using Birth Control Pills at Most Recent Intercourse, by Gender, Selected Years 1993-2005



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## Outcomes of teen mothers

- Teen mothers are
  - Twice as likely to not complete high school
  - 90% less likely to attend college
- At age 28 – teen mothers
  - 50% more likely to be on poverty in their 20s
  - Have lower wages
  - Have more children
  - Have lower labor supply
  - Less likely to be married

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- Bill Clinton's State of the Union Address, 1995
- "We've got to ask our community leaders and all kinds of organizations to help us stop our most serious social problem: the epidemic of teen pregnancies and births where there is no marriage. "

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## Are poor economic outcomes 'caused' by early childbearing?

- Teen mothers are not a random sample of the population
- Teen mothers are more likely to come from situations that would predict poorer economic outcomes anyway

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Table 1: Rates of Early Childbearing by Disadvantage Factor

	% with Disadvantage	% Gave Birth before Age 20	% Gave Birth before Age 18
All	---	0.24	0.12
Born to mother less than age 20 (n=1,797)	0.14	0.46	0.26
Born to mother less than age 18 (n=1,797)	0.04	0.43	0.24
Born to unmarried mother (n=1,743)	0.28	0.45	0.23
Born to mother with less than HS degree (n=1,266)	0.28	0.44	0.26
Born into Poverty (n=1,611)	0.13	0.49	0.26
Not living with married parents at age 15 (n=1,412)	0.45	0.39	0.21
Living in poverty at age 15 (n=1,553)	0.04	0.53	0.38

Notes: The sample is comprised of women age 20-35 in the 2003 PSID. Estimates are similar when we use a uniform sample size across measures.

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	Dep. Var: Gave Birth by Age 20	
	(1)	(2)
Born to Mom < 20 (col. 1&2) or 18 (col. 3&4)	0.250 (0.041)	---
Born to Mom < 20 (col. 1&2) or 18 (col. 3&4)	0.014 (0.045)	-0.001 (0.049)
Born to Single Mom	0.186 (0.031)	0.092 (0.037)
Born to Mom < HS grad	0.198 (0.030)	0.191 (0.033)
Born into Poverty	0.075 (0.041)	0.112 (0.028)
Age 15- Not living w/ married parents	-	0.112 (0.028)
Age 15 - Living in poverty	-	0.093 (0.068)
constant	0.138 (0.014)	0.112 (0.017)
sample size	1,213	1,022
Adjusted R <sup>2</sup>	0.116	0.117

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- On average, teen mothers are more likely to come from:
  - families with lower income and education
  - poorer neighborhoods and lower quality schools
  - Families with a teen mother
  - Have Lower test scores
  - Racial and ethnic minorities

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Table 1  
Background Characteristics of Teenage Mothers and Women Who Delayed Childbearing until after Age 18

Characteristic	Teenage Mothers		Not Teenage Mothers	
	Mean	Standard Duration	Mean	Standard Duration
Black	0.33	0.47	0.12	0.33
White	0.58	0.49	0.82	0.39
Hispanic	0.09	0.29	0.06	0.24
Family on welfare in 1978 <sup>a</sup>	0.19	0.39	0.11	0.31
Family income in 1978 <sup>b</sup>	\$30,532	\$22,401	\$50,717	\$31,841
In female-head household at age 14	0.20	0.40	0.12	0.33
In intact household at age 14	0.69	0.46	0.84	0.37
Mother's education	9.88	2.86	11.67	2.76
Father's education	9.94	3.37	11.91	3.56
AFQT score <sup>a</sup>	25.81	21.39	49.58	27.49
Number of observations	603		4,323	

- Consider an alternative explanation of results
  - Women with lowest opportunity cost of having children have more children
  - Women from poorer backgrounds have lower opportunity cost of having children because they have lower economic prospects
- In this example, teen motherhood does not 'cause' poor outcomes, but instead, is a signal of the same problem – poor future prospects

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## Natural experiment

- If this were a clinical setting – could determine long run consequences of teen motherhood through an experiment
- Randomly assign babies to teens and follow the families over time
- Problem – would not pass human subjects review!!!

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- Solution – natural experiment
- Find something that acts like a random assignment clinical trial – randomly assigns higher or lower birth probability to a women

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## Examples of natural experiments in this case

- Abortion reform
  - Abortion became available in 1970 in CA and NY (and some other states)
  - Compare women who turned 19 before 1970 in CA and NY with women who turned 19 by 1973
  - One was exposed to abortion (and had lower birth rates) the other group was not

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- Heat waves
  - High summer temperatures reduce fertility
    - Decrease sexual activity
    - Decrease sperm counts
    - Increase miscarriage rates
  - Some teens are more exposed to high summer temperatures
  - The ones who are are a treatment – lower births

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## This paper

- Miscarriages as an experiment
- Miscarriages are mostly random -- determined by genetic malformation
- Take a sample of teen women who all get pregnant
  - Some miscarriage (treatment)
  - Some do not (control)

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- All women in the survey are 'representative' of women who get pregnant during teen years

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- If teen motherhood is bad economically, we would expect to find better outcomes for women whose teen pregnancy was halted by a miscarriage
- The test has the ability to reject the null

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	First Pregnancy before 18 ended in Birth (2)		First Pregnancy before 18 ended in Abortion (4)		First Pregnancy before 18 ended in Miscarriage (5)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	Black	0.30	0.46	0.16	0.36	0.26
White	0.61	0.49	0.79	0.41	0.63	0.49
Hispanic	0.09	0.29	0.05	0.22	0.11	0.32
Family on welfare in 1978*	0.19	0.39	0.09	0.28	0.11	0.32
Family income in 1978*	\$32,267	\$23,217	\$52,774	\$34,999	\$27,441	\$16,919
In female-headed family at age 14	0.19	0.39	0.14	0.34	0.23	0.42
In intact household at age 14	0.71	0.45	0.78	0.42	0.64	0.48
Mother's education	10.00	2.84	11.70	2.15	10.15	2.07
Father's education	9.93	3.33	11.89	2.93	10.70	3.23
AFQT score	27.30	21.92	44.38	24.52	31.59	22.30
Number of observations	778		192		72	
Percent of those pregnant before age 18	74.7%		18.4%		6.9%	

**Table 3**  
Change in Outcomes Due to Not Delaying Childbearing Measured at Age 28

	OLS		IV (on Teen Pregnancy Sample)			Sample Mean for Teen Mother at Age 28
	All Covariates,* All Women Sample	All Covariates,* Teen Pregnancy Sample	No Covariates	Covariates Correlated with Miscarriages <sup>b</sup>	All Covariates <sup>a,b</sup>	
	(1)	(2)	(3)	(4)	(5)	
<b>Education Outcomes:</b>						
1. High school diploma (HSD) by age 28	-0.46*** (18.66)	-0.19*** (4.45)	-0.05 (0.51)	-0.07 (0.70)	-0.11 (1.31)	0.31
2. General educational development (GED) by age 28	0.17*** (7.15)	0.09** (2.50)	0.11 (1.61)	0.12* (1.75)	0.13** (1.99)	0.25
3. HSD or GED by age 28	-0.28*** (10.77)	-0.10*** (2.79)	0.05 (0.54)	0.05 (0.47)	0.01 (0.14)	0.55

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	(1)	(2)	(3)	(4)	(5)	
<b>Work Outcomes:</b>						
8. Annual hours worked at age 28	-170*** (2.96)	-21 (0.24)	405** (2.26)	420** (2.24)	317* (1.67)	1,039
9. Cumulative number of hours worked by age 28	-2,009*** (5.19)	-969 (1.56)	2,600** (2.24)	2,790** (2.36)	2,031 (1.49)	7,759
10. Hourly wage rate at age 28 (in 1994\$) <sup>c</sup>	-0.88** (2.03)	-0.91 (1.42)	1.82 (1.53)	2.07* (1.65)	2.72** (2.07)	7.90
<b>Earnings-Related Outcomes:</b>						
11. Woman's annual earnings at age 28 (in 1994\$)	-3,780*** (3.50)	-2,599*** (2.68)	4,677*** (2.93)	5,075*** (2.95)	4,218** (2.47)	\$7,500
12. Annual earnings of spouse at age 28 (in 1994\$)	-2,213** (2.67)	115 (0.06)	1,177 (0.31)	1,029 (0.28)	1,668 (0.45)	\$10,742
13. Fraction living in poverty at age 28	0.15*** (5.36)	0.06 (1.42)	-0.14 (1.40)	-0.14 (1.43)	-0.13 (1.41)	0.47
<b>Public Assistance Outcomes:</b>						
14. On AFDC while age 28	0.11*** (4.85)	0.02 (0.57)	-0.05 (0.62)	-0.06 (0.65)	-0.02 (0.21)	0.27
15. Received food stamps while age 28	0.14*** (5.76)	0.04 (1.07)	-0.07 (0.81)	-0.07 (0.82)	-0.03 (0.33)	0.36
16. Annual public assistant benefits at age 28 (in 1994\$)	1,159*** (4.84)	230 (0.69)	-510 (0.57)	-455 (0.53)	53 (0.07)	\$2,787

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