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Teenage Childbearing in Maine: Positive Trends but More to be Done

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Positive Trends But More to Be Done

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Teen birth rates in Maine have fallen by 34% over the past decade, the fourth highest decline in the nation. However, as King and Marks point out, a low birthrate of 29.8% in 1999 still exceeds the teenage birthrate in most other industrialized countries in the world by a substantial margin. Moreover, when the authors compared Maine's predominantly white population with non-Hispanic whites in other states, Maine's success is not as remarkable. Indeed, the teenage birthrate of Maine's non-Hispanic white population is higher than every other state in the Northeast corridor with the exception of Delaware. All of this is to suggest that more needs to be done in Maine. The authors review the tremendous progress made through school- and community-based family planning programs in Maine. They call for more education, more funding for the Family Planning Association of Maine, and more economic/social supports for our young adults most in need.

INTRODUCTION

In 2000 there were 13,603 births in Maine, 1,272 of them to teen mothers. That year there were 28.7 births per 1,000 women aged 15-19 years, the fifth lowest teen birthrate in the nation (Martin et al. 2002). Teen birthrates have fallen across the United States in the past decade and the decline of Maine's teen birthrate appears to be dramatic. Birthrates among Maine teenagers declined by 34% between 1991 and 2000 (Ventura et al. 2002). This steep decline was the fourth highest in the nation, exceeded only by Alaska (down 35.2%), Vermont (down 38.5%), and California (down 35.1%). These statistics, however, tell only part of a complex story. In this article, we ask how Maine has been doing in its attempts to lower rates of teenage childbearing over the past several decades and, in answering this question, we explore trends in teenage fertility from several angles.

First, we review some of the evidence that shows why teenage childbearing typically is not good for individuals or for the community. Second, we examine why teen birthrates have fallen and we review the programs in Maine that apparently have made a difference. Third, we consider why teen birthrates are higher in some Maine counties than in others. Fourth, because Maine's population consists almost exclusively of non-Hispanic whites, we ask whether the racial/ethnic composition of the state impacts its teen birthrates. To explore this question, we examine teen birthrates by race, confining our analysis to the 11 states comprising the Northeast region. Finally, we show that Maine's decline in teenage births reflects both a national and an international demographic pattern of overall decline. Although Maine represents one of the nation's success stories there is still much to be done.

WHAT'S SO BAD ABOUT TEENAGE BIRTHS?

What makes teenage childbearing problematic? The overall evidence paints a disquieting picture for the adolescent mother and her child (or children), and for society as a whole. Teens with children are less likely than childless women to graduate from high school and to attend college. They are more likely to be poor and/or to receive public assistance (Hoffman et al. 1993). According to the Centers for Disease Control (2001), the public costs for teenage childbearing totaled $120 billion from 1985-1990: "…$48 billion could have been saved if each birth had been postponed until the mother was at least 20 years old."

Within Maine, 1999 data from the Pregnancy Risk Assessment Monitoring System (PRAMS) reveal severe economic and financial stresses on adolescent mothers (Office of Data, Research, and Vital Statistics 1999). These mothers are about three times more likely than older mothers to need Medicaid to pay for their prenatal care and delivery, perhaps in part because they are less likely to have jobs or businesses. They are twice as likely as adult mothers to have lost a job, and are more likely to have their husband or partner lose their job. Not surprisingly, then, teenage mothers are twice as likely as older mothers to have unpaid bills and to require support from public programs such as Temporary Assistance to Needy Families (TANF) and food stamps. In addition, PRAMS data from Maine show violent events to occur more frequently among pregnant teenagers than among older pregnant women. In the year before giving birth, these women were four times more likely than the older women to report having been physically abused by their partner or having been in a physical fight. We should add that some of these negative circumstances might have occurred even if the teen had not become a mother. Lower income, more marital instability, and lower educational attainment may be brought on by other factors as well, such as a disadvantageous family background or personal characteristics (Wolfe et al. 2001).

The impact of teenage childbearing on the children of teen mothers, however, is significant. Wolfe et

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al. (2001, 274) state that "…children born to teenage mothers are more likely to grow up in a poor and mother-only family, live in a poor or underclass neighborhood, and experience high risks to both their health status and school achievements." Moreover, pregnant adolescents in the United States are more likely to smoke than older pregnant women. In fact, smoking among pregnant adolescents has risen since 1994 (Ventura et al. 2000). Due to these and other factors, infants born to adolescents are at a higher risk of being born with low birth weight, and of not surviving the first year of life (Ventura et al. 2000). In general, there is evidence that the children of adolescent mothers are at increased risk for intellectual and social-emotional problems (Sommer et al. 2000).

Maine teens are increasingly abstaining from sex or using contraceptives more often or more effectively.

Of course, not every teen birth is problematic. Although most teenagers are ill-prepared for raising children, research suggests that those women who are more cognitively prepared are less likely to put their child or children at risk for a variety of developmental delays (Sommer et al. 2000). And for teenagers whose earlier life experience was marked by instability, upheaval, and/or dislocation, the arrival of a child may herald a positive turning point. Early parenthood is never a magic potion, but some studies of economically disadvantaged young women have found that it sometimes serves as "a sort of self-administered slap in the face" (Musick 1993, 136).

In addition, although many people associate teen childbearing with non-marital childbearing, 1998 national data show that 22% of teenage births did occur within the context of a marriage (Ventura et al. 2000). In Maine, about 17% of teenage births occur to married teens (*Morbidity and Mortality Weekly Report* 1998). Although marriage itself is no panacea, mothers and their children are typically more economically secure in the context of a marriage or other committed relationship than when they are unattached, and they may also benefit from a partner's involvement in childcare. Still, granting that adolescent motherhood may be beneficial for some individuals, the overall indicators unmistakably show that lower rates of teen childbearing represent a positive trend.

DECLINES IN TEEN BIRTHRATES

In recent decades, teenage fertility has declined in almost every industrialized country; in many of these countries the rates dropped to half of what they had previously been (Singh and Darroch 2000). The reasons for this decline in virtually every wealthy nation are both socioeconomic and adolescent-specific. The socioeconomic factors center on the job and career opportunities that require a higher education and/or specialized training and skills. Women who delay childbearing and have smaller families can avail themselves more readily of these opportunities, whereas women who mother early may forego these opportunities and find themselves in a position of unwanted dependency on husbands, on other wage-earning companions, or on the state. The adolescent-specific factors have much to do with recent currents of sex education within the schools and perhaps at home, spurred on in large part by the fears associated with the world HIV and AIDS epidemic. Greater knowledge of sexual choices, including the right to abstain, more awareness of contraceptive options and techniques, and greater communication between parents and children all serve to lower the numbers of teenage births (Singh and Darroch 2000).

Some of the same factors at work internationally have contributed to the decline of teen birthrates across the United States in the past decade. While experts claim no certainties of explanation, we do know that more teens across the United States are postponing sexual intercourse and that sexually active teens are using contraceptives more often than in the 1980s. Factors relevant to current trends in sexual activity and contraceptive use include more conservative attitudes

about sex and greater emphasis on abstinence, fear of AIDS, increased use of long lasting contraceptives (such as Norplant and Depo Provera) and the economy (Donovan 1998).

Compared to most other states and to the United States as a whole, the decline in teenage birthrates in Maine in the 1990s has been dramatic; in fact, Maine's rates have fallen fairly consistently since the 1970s. Table 1 shows the teen birthrate in Maine and the United States. In 1970 there were about 65 births per 1,000 Maine women aged 15-19, very close to the national rate of 66 (*Child Trends* 2001). By 1980, Maine's teen birthrate had fallen to 47 per 1,000; and in 1990, although the national rate had been steadily rising again, Maine's rate of 43 births per 1,000 teenage women had declined to well below the national average of 60 per 1,000 (50.8 per 1,000 for white teenagers; 96.5 for non-white teenagers [Alan Guttmacher Institute 1999]). By the year 2000, Maine teen birthrates had declined further, to a rate of 29.1.

Lower rates of childbearing have been mirrored by a similar downward trend in abortion rates, both in Maine and nationally. The teen abortion rate in Maine has fallen more sharply than in the nation as a whole. In 1985 the abortion rate for Maine women age 15-19 was 36 per 1,000, but it fell to 18 per 1,000 in 1996 (nationally, the rate went from 44 to 29 [Alan Guttmacher Institute 1999]). If birthrates are thus falling along with abortion rates, then fewer Maine teens are getting pregnant in the first place.

As in the United States as a whole, Maine teens are increasingly abstaining from sex or using contraceptives more often or more effectively. There is relatively little information on abstinence by Maine teenagers other than that collected by the Centers for Disease Control's Youth Risk Behavior Survey, a biannual survey that asks high school students several questions about sexual activity. In 2001, the survey questionnaire was distributed to 1,351 students, 90% of whom completed it. The results show that of students who had previously had sexual intercourse, 24.7% were currently abstaining (they had not had sexual intercourse in the past three months). Thirty-five percent said they were currently sexually active; this represents almost no change since 1995. The survey also asked students whether they had ever had sexual intercourse. In 2001, 46.3% of students answered "yes"—this is not a significant change from 1995, when 49% answered "yes" (*Youth Risk Behavior Surveillance System* online 2002; *Morbidity and Mortality Weekly Report* 2002). We have even less information on abstinence in the 1980s, since no studies we are aware of regularly addressed such questions. In summary, although these data show a trend toward increasing teen abstinence, the increases are too small to account for the sharp reductions in teenage pregnancy and birthrates in Maine.

Table 1: Teen Birthrates (per 1,000 women, aged 15-19) United States and Maine, Selected Years, 1970-1999

	U.S.	Maine
1970	66.0	65.0
1980	53.0	47.0
1985	51.0	42.0
1990	59.9	43.0
1991	62.1	44.0
1992	60.7	40.0
1993	59.6	37.0
1994	58.9	36.0
1995	56.8	34.0
1996	54.4	31.0
1997	52.3	32.0
1998	51.1	30.4
1999	49.6	29.8

Source: Child Trends 2001

As with data on abstinence, the Youth Risk Behavior Survey only partially illuminates the issue of contraceptive use. The survey shows little change in usage during the 1990s. Results from the 2001 survey reveal that 36.1% of students used birth control pills prior to their last sexual intercourse and 52.2% used condoms the last time they had intercourse. These results were not significantly different from those of 1995.

Information on contraceptive use also may be gleaned from those teens who are seen at family planning clinics. Family Planning Association of Maine clinics see about 22% of females, aged 15-19, each year (about half of all sexually active female teens). Among this population, oral contraceptive use actually declined from 75% of sexually active teens in 1984 to 58% in 1996, but the use of long-term methods such as the injectable Depo Provera (first approved by the FDA in 1992) was up from virtually zero to 11%. Condom use grew from 5.2% of sexually active teens in 1984 to 14.1% in 1996 (*Morbidity and Mortality Weekly Report* 1998).

More frequent and more effective contraceptive use may also explain why Maine has a relatively low percentage of repeat births to teens. Of all teen births in Maine in 1999, 15% were to teens who had already had at least one birth. In the United States as a whole, 22% of teen births were repeat teen births. Only New Hampshire and Vermont have lower percentages of repeat childbearing than Maine; in those states, 12% of all births to teens are births to those who have already have children (*Child Trends* 2001).

If adolescents are using contraceptives more often and/or more effectively, the decline in birthrates may be partially attributed to increased knowledge on the part of teens, as well as to access to contraceptives. The Bureau of Health (2000) credits the decline of Maine's teen birthrate both to Maine's system of family planning and to educational incentives in the schools. We shall consider each of these in turn.

Teen Pregnancy Prevention Through Family Planning

Federal funding for family planning programs and services became available when Congress enacted Title X of the Public Health Services Act in 1970. While some states were slow in making use of federal funding, family planning in Maine got off to a strong start (Mabel Wadsworth Interview 2001). Maine's largest family planning organization, the Family Planning Association of Maine (FPA), has been providing reproductive health services to low-income Maine citizens since the early 1970s. FPA provides low cost contraceptives at 30 family planning clinics around the state. These clinics serve over 30,000 clients per year, 30% of whom are teenagers (FPA brochure). According to the Alan Guttmacher Institute (2000), Maine ranks fifteenth in the nation in the provision of contraceptive services to economically poor women, and many of the 24,340 female teenagers in Maine who need contraceptives fall into this category.

Maine's family planning agencies have long engaged in community outreach. According to family planning pioneer Mabel Wadsworth (Interview 2001), those involved with family planning in the early days used the funding available through the federal government very wisely. In the 1970s, family planning workers drove to rural areas to speak with women and educate them about birth control. Sharon Barker, who worked in family planning in the 1970s, describes driving through rural Maine looking for diapers on the clothesline and toys in the yard; if she saw evidence of children she would stop to talk with the mother about birth control (Sharon Barker Interview 2001). Family planning workers in Maine thus can draw on years of experience in developing programs. Currently, FPA outreach programs include training health care professionals and educators, and helping schools develop curricula geared toward preventing teen pregnancy.

Teen Pregnancy Prevention Programs in Schools

Schools are crucial (albeit sometimes controversial) locations for educating young people about family planning, STDs, abstinence, and other sexuality-related issues. Health Education was mandated by the state of Maine in 1984 and includes 10 broad content areas. One important content area is Family Life Education, which may include information about sexuality, abstinence, prevention of sexually transmitted diseases, and/or pregnancy prevention. Although these topics might also be considered within other content areas ("Disease and Prevention and Control," "Growth and Development," and "Consumer Life"), federal block grants are available for Family Life Education. In Maine, the state uses this money to contract with the Family Planning Association of Maine to help the schools develop this particular area. Family Life Education is an umbrella concept, which may include topics such as marriage and divorce, domestic violence, child rearing, communication skill-building, and family structure, as well as sexuality education, family planning, and reproductive health. The Family Planning Association is tightly interfaced with the Department of Education in implementing FLE, through nine part-time Family Life Education consultants working with schools. These family life education consultants help train educators, develop teaching strategies, offer resources (such as videos, curricula, etc.), provide program evaluation, and serve as guest speakers in schools.

Not surprisingly, some schools are more interested in including information on sexuality and birth control in their curricula than others. Because the mandate to include health education recommends but does not require schools to teach about reproductive health, family planning, or other sexuality-related topics, individual schools may opt not to include these topics in any part of their curriculum. Local school boards determine the curricula content, and the actual curricula vary widely from school to school. Unfortunately, it is difficult to know precisely what each individual school is doing to fulfill the health education mandate. We do know that some schools have strong pregnancy and HIV prevention programs. For example, at Mount Desert Island High School, condoms are available both from the nurse's office and from vending machines in the restrooms. Student leadership groups promote the message that it's "cool" to be protected, and they present skits that encourage other students to think about a broad range of issues bearing on sexual responsibility. High school students also visit the middle school to share their knowledge about safer sex and other issues with younger students. Maranacook High School also has a very active pregnancy prevention program. Sexuality education is taught in the health education course, and condoms are available at the school's health center. The first time Maranacook students come in to get condoms, they participate in a 15-minute educational session about condom use and receive a flyer designed by Mount Desert Island High School students. At the other end of the spectrum, we know that some schools have much weaker programs and have shown little interest in sexuality-related issues.

In an effort to find out more about sex education in Maine high schools, in October 2002 we initiated a survey of high schools and some Maine high school graduates currently attending the University of Maine. Some preliminary findings may be summarized. First, although almost all schools believe they are offering comprehensive sex education, student recollections of having received it are much more uneven. Second, schools vary widely in the time they devote to sex education. Student recollections range from just one day to an entire semester of cumulative materials. Third, students appear highly alert to the comfort level of their teachers.

Additional information on the content of health education in schools is available from a study done for Maine's HIV Prevention Program. According to Joni Foster, who directs the program through Maine's Department of Education, approximately 60% of Maine schools have HIV prevention programs. This is one of the highest percentages in the country (Foster Interview 2000). Many schools use curricula designed and produced by the Centers for Disease Control, such as *Reducing the Risk: Building Skills to Prevent Pregnancy and HIV*, and the CDC provides federal money for training local teachers how to use the curriculum. Unlike some states, Maine does not limit what schools are allowed to teach. The HIV Prevention Program reports that Maine had the highest percentage of teachers discussing condom efficiency and correct condom use in the nation (Foster Interview 2000).

Schools are crucial (albeit sometimes controversial) locations for educating young people about family planning, STDs, abstinence, and other sexuality-related issues.

In summary, Maine has relatively strong programs in place to reduce teen pregnancy and childbearing. Maine teens have relatively good access to birth control through family planning clinics, and many schools offer curricula that can help prevent teen pregnancy by empowering young people with knowledge about abstinence, birth control, sexually transmitted diseases and much more. However, there is clearly room for improvement. Some teens, especially those in rural areas, may have difficulty reaching family planning clinics. Many schools do little in terms of pregnancy prevention. Finally, we cannot be certain just how much of Maine's decline in teenage births is due to these programs. Socioeconomic factors also are involved, and in what follows we attempt to untangle their importance.

Table 2: Teen Birthrates (per 1,000 women) and Selected Variables, by County

	Birthrate*, Ages 15-19	Abortion Rate*, Ages 15-19	Percent of Births that are Repeat Births	Total Population	Persons Per Square Mile	Percent Unemployed	H.S. Seniors Desiring Higher Ed.**	Median Household Income	Avg. % Below Poverty
County	**Avg. 1994-98**	**Avg. 1994-98**	**Avg. 1994-97**	**1999**	**1999**	**Avg. 1994-98**	**Avg. 1996-00**	**1997**	**1997**
Androscoggin	40.6	13.1	20	101,337	215.5	5.9	53.4	$34,242	10.7
Aroostook	33.4	6.7	14	75,836	11.4	9.5	66.6	$29,124	15.0
Cumberland	25.4	17.5	15	256,437	306.9	3.4	69.7	$41,393	8.1
Franklin	24.5	11.3	16	28,797	17.0	7.1	64.3	$30,712	12.7
Hancock	29.7	14.3	14	49,670	31.3	6.3	57.1	$33,397	10.1
Kennebec	30.8	14.3	14	115,224	132.8	6.1	67.1	$35,559	10.6
Knox	35.5	18.7	15	38,193	104.5	4.1	61.3	$33,478	10.8
Lincoln	34.4	16.9	17	31,947	70.1	4.3	56.3	$35,696	9.6
Oxford	42.1	13.2	16	54,288	26.1	4.2	57.8	$30,688	12.3
Penobscot	27.7	13.9	16	144,432	42.5	5.9	64.4	$33,574	12.1
Piscataquis	37.0	12.4	17	18,077	4.6	8.0	59.3	$28,599	13.6
Sagadahoc	33.0	17.5	15	36,267	142.8	4.0	60.2	$39,991	7.8
Somerset	45.6	12.3	19	52,630	13.4	8.9	52.7	$28,300	14.9
Waldo	43.7	16.9	21	36,965	50.7	6.5	63.5	$29,812	14.3
Washington	35.5	9.9	17	35,352	13.8	10.4	59.6	$25,673	17.7
York	33.9	13.8	12	177,588	179.2	4.2	60.6	$39,288	8.0
	1994-1997			**2000**					
State of Maine	30.35	12.87	16	1,274,923	41.3	5.6	62.5	33,140	10.7

*Rates are the number of events per 1,000 women in the specified age group. **Public high schools only

Sources: Maine Dept. of Human Services 2001; U.S. Census Bureau 2001; Maine Dept. of Education 2002; Maine Dept. of Labor 2002

TEENAGE CHILDBEARING IN MAINE, COUNTY-BY-COUNTY

Much of the literature on teen childbearing points to economic factors as important correlates of teen childbearing. As one analyst put it, "early motherhood is attractive [for poor adolescent girls] because it promises to resolve issues of identity, intimacy, and achievement better than anything else in their experience" (Musick 1993, 124). Another analyst adds that "in a poor neighborhood squeezed by a declining economy, there are often few opportunities to be responsible. But motherhood provides that opportunity, as well as a spur for a young woman to try to make something of herself" (Luker 1996, 178). Recent studies have found that higher levels of poverty in the community or neighborhood are strongly related to higher teen birthrates (Kirby, Coyle, and Gould 2001; South and Baumer 2001).

Can economic factors explain variations of the teen birthrate within Maine, and also the teen birthrate differences between Maine and other states? To explore the first question, we tested the hypothesis that wealthier counties in Maine would have lower teen birthrates than poorer counties. In Table 2 we show variations across Maine counties, using the most recent data available for relevant variables. Because the number of births and abortions is quite small in a given year for some counties, we computed a five-year average rate for each county, spanning the years 1994 through 1998. The table shows the highest teenage birthrate to be in Somerset County, with 45.6 births per 1,000 teenage

women over the five-year period. Close behind Somerset were Waldo and Oxford counties with rates of 43.7 per 1,000 and 42.1 per 1,000, respectively. The lowest rate was in Franklin County, with 24.5 births per 1,000 teenage women, followed closely by Cumberland, with 25.4.

We tested the economic hypothesis through a series of bivariate correlations of the five-year birthrate with several socioeconomic variables. We computed average rates for each of the socioeconomic variables for the period just prior to the 1994-1998 teen birthrate period. Unemployment rates are available from Maine's Department of Labor (2002) for every year after 1990, whereas poverty rates and median household income are available from the U.S. Census Bureau (2002a) only for 1989, 1993, 1995, and 1997. We thus used the 1990-1994 average unemployment rate and the 1989, 1993, and 1995 average median household income and poverty rates to predict the 1994-1998 birthrates. Our reasoning was that there might be a time lag in the impact of the economic climate on teenagers. For example, a 12-year-old whose father and/or mother are involuntarily unemployed may grow up with a dim view of job opportunities, and this may affect her likelihood of early parenthood later on.

The pattern of results supports the economic hypothesis. We used one-tailed tests of significance and found that those counties with higher unemployment rates had significantly higher teen birthrates ($r = .49$, $p = .03$). Counties with higher median household incomes had significantly lower birthrates ($r = -.44$, $p = .05$). And counties with higher rates of poverty had higher teen birthrates ($r = .40$, $p = .06$), although this relationship was only marginally significant.

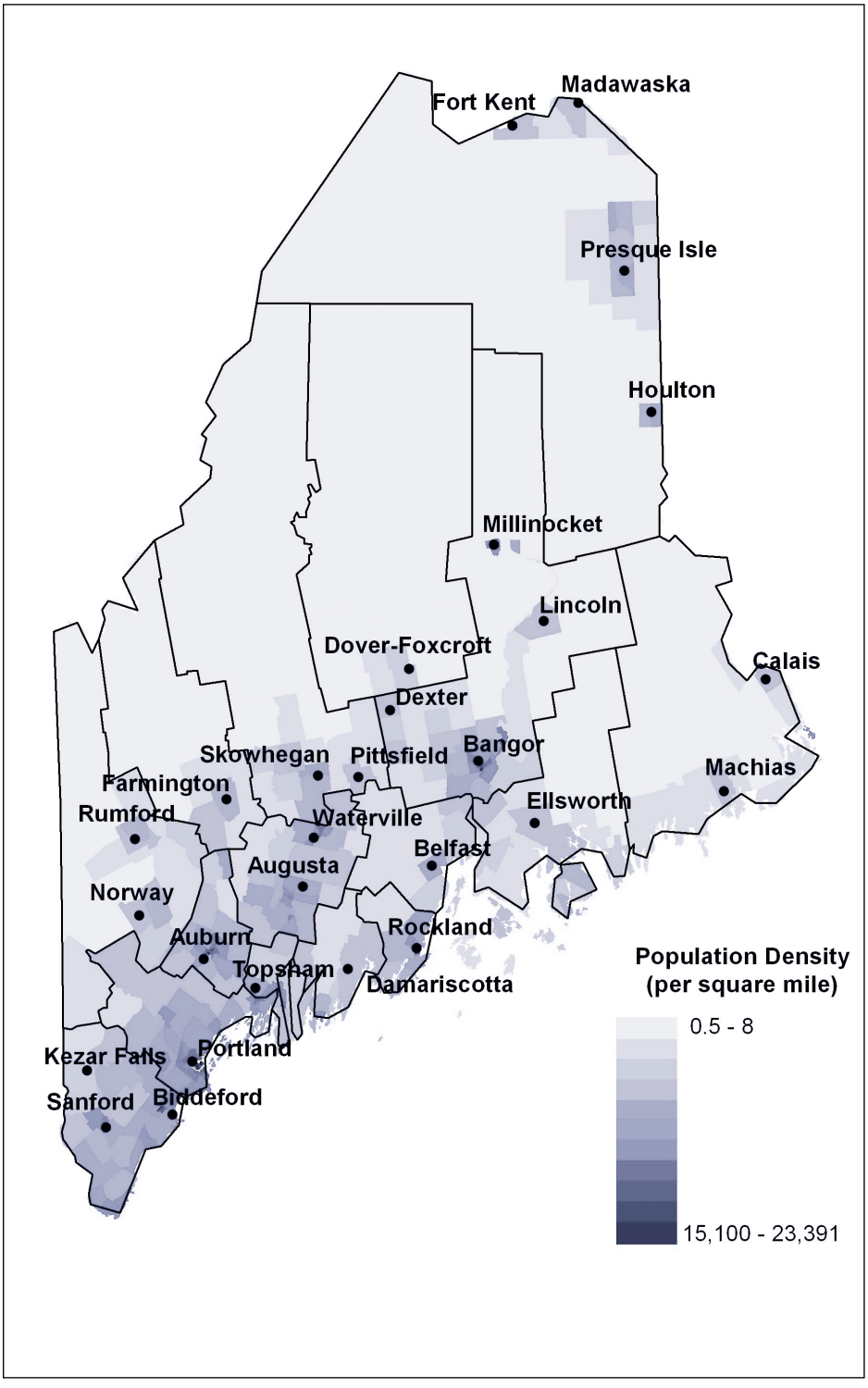
Finally, because many teenagers may use education as a vehicle for upward social mobility, educational plans following high school may have a more direct impact on teenage birth decisions than parental incomes. If this is true, then counties with a higher percentage of high school graduates intending to pursue some higher education should have lower teenage birthrates, as higher education and a career orientation are not easily integrated with early childbearing. Using a five-year average rate (1995-2000) of high school seniors' intentions we found a fairly robust confirmation of this hypothesis across Maine counties ($r = -.64$, $p = .004$), and we also confirmed this inverse relationship when we substituted teenage pregnancy rates for teenage birthrates ($r = -.57$, $p = .011$).

Our abortion rate data offer another opportunity, perhaps more precise, to explore the relationship between economic conditions and teen childbearing. Using data from the National Survey of Children, South and Baumer (2001) recently found that pregnant teens in poor neighborhoods are less likely to have abortions than pregnant teens living in wealthier neighborhoods. Similarly, we wondered whether counties in Maine with a more favorable economic climate have higher abortion rates than counties with a less favorable economic situation. Specifically, the economic hypothesis would predict that whatever the variations in people's moral scruples about abortion, teens who get pregnant in the context of a more favorable economic climate will more likely get an abortion, as early parenthood would forestall their ability to avail themselves of these alternative opportunities.

Can economic factors explain variations of the teen birthrate within Maine…

Once again, we explored this economic hypothesis by averaging the 1989, 1993 and 1995 median household income for each county, and we did the same thing with poverty rates. For unemployment, we again used an average of the rates between 1990 and 1994 for each county. We tested the associations of each of these averages with two different abortion rate figures for the 1994-1998 period—the rate of abortions per 1,000 teenagers aged 15 to 19, and the ratio of abortions to pregnancies. All of the correlations were not only statistically significant but quite robust. Counties had higher rates of abortion when they had higher median household income, lower poverty rates, or lower unemployment rates in the years just prior to this period. Statistical significance was generally at the .01

Figure 1: Maine Towns with Family Planning Clinics



or .001 level, and these findings held whether we measured the abortion rate as a ratio of teen abortions per 1,000 teenage women or as a ratio of teen abortions to teen pregnancies.

Some cautions of interpretation are warranted. First, available county-by-county data are quite limited, and without controlling for additional variables through multivariate statistics, the results are tentative. For example, population density may be a confounding factor. More densely populated counties may have lower teenage birthrates than more rural counties not simply because the latter are economically poorer but because their residents' access to clinics, contraceptives, and other services may be more limited. Figure 1 shows a map of Maine with each Family Planning Association clinic represented by a bold dot. The map clearly shows that clinic services are sparser wherever population density is lowest. We tested the association between population density and teenage birthrates across Maine counties, but the correlation was not statistically significant, perhaps because of the mixed density of several Maine counties. That is, when a county has one or more urban areas plus a surrounding rural population, the county-wide population-density statistic may not be sensitive enough to reflect how issues of population density are actually affecting the population.

A second limitation of our analysis of Maine counties is that these group-level data and relationships provide only an indirect line of evidence. That is, the fact that economically poorer counties have higher teen birthrates does not tell us what the proximal processes are through which the economic climate makes its impact on the specific teens who give birth. Third, we cannot be

Table 3: Teenage Birthrates, 1998 (per 1,000 women, aged 15-19) and Median Household Income, 2000, Northeast Region

State	Population Density	Birthrates				Median Income			
		All Races	White, Non-Hispanic	Black	Hispanic	All Races	White, Non-Hispanic	Black	Hispanic
Connecticut	702.9	35.8	17.1	77.3	117.7	53,935	58,564	35,104	32,075
Delaware	401.1	53.9	34.2	104.0	112.1	47,381	50,668	35,517	36,290
Maine	41.3	30.4	29.9	*	*	37,240	37,405	30,758	36,224
Maryland	541.9	43.1	27.6	73.5	52.6	52,868	58,005	41,652	48,257
Massachusetts	809.8	30.8	19.9	71.3	106.3	50,502	53,031	33,727	27,300
New Hampshire	137.8	27.1	26.7	*	*	49,467	49,746	43,474	39,985
New Jersey	1,134.40	34.6	13.6	80.4	76.2	55,146	60,600	38,513	39,609
New York	401.9	38.5	21.6	61.4	75.2	43,393	49,474	31,364	30,499
Pennsylvania	274.0	36.9	25.7	98.8	114.7	40,106	41,742	27,415	26,930
Rhode Island	1,003.20	41.0	27.3	74.2	129.1	42,090	45,314	24,973	22,851
Vermont	65.8	24.4	24.9	*	*	40,856	41,077	31,585	38,728

* Populations are too small for the calculation of a rate.

Sources: Ventura et al 1999; U.S. Census Bureau 2002c

utterly consistent in the way we compute our socioeconomic variables, because some data are not available for the same years as other data.

In summary, we found considerable variation in teen birth and abortion rates across Maine counties. We also found support for the economic hypothesis. A consistent pattern of overall findings emerged, suggesting a relationship between the economic climate and the tendency of teen girls to give birth or to have abortions. We were not able to directly test the hypothesis that school programs are linked to lower birthrates because we lack comprehensive information on what individual schools are doing. Finally, we are unable to disentangle the impact of rural/urban differences from the impact of economic factors on birthrates.

RACE, REGION AND INCOME

In this section, we continue to explore the economic hypothesis by adding region and race/ethnicity as complicating factors. Maine's population, like that of New Hampshire, Vermont, Montana, South Dakota, and North Dakota, consists mainly of non-Hispanic whites. In the United States, although teenage birthrates have decreased dramatically for African Americans and Hispanics in the past decade (Ventura et al. 2000), these rates have not declined to the level of non-Hispanic whites. In part, this is because the rates of higher educational attainment for African Americans and Hispanics continue to lag behind the rates for non-Hispanic whites. Earlier, we saw that Maine counties in which more high school seniors intend to pursue a higher education are statistically more likely to have lower teen birthrates. However, on the national level, Maine as a whole does not compare well to other states in higher educational attainment. As shown elsewhere in this issue, Maine lags 18% behind the national average for attaining a bachelor's degree. However, when comparing non-Hispanic whites, Maine lags behind the national average by 26%; and when comparing Maine only to the rest of New England, Maine lags behind by fully 37% (Trostel 2003).

It follows that a more realistic assessment of how Maine is currently doing in lowering teen births requires a comparison of Maine's white teenage birthrate with the same population of teenagers in other states. In 2000 only four states had teen birthrates lower than Maine's (Ventura et al. 2002),

Table 4: Changes in Teen Birthrates for Non-Hispanic Whites, aged 15-19 Northeastern United States, 1991-1998

	1991	1998	% change
Connecticut	20.4	17.1	-16.2
Delaware	37.5	34.2	-8.8
Maine	43.3	29.9	-30.9
Maryland	36.2	27.6	-23.8
Massachusetts	25.3	19.9	-21.3
New Hampshire	NA	26.7	NA
New Jersey	18.2	13.6	-25.3
New York	26.3	21.6	-17.9
Pennsylvania	33.1	25.7	-22.7
Rhode Island	33.5	27.3	-18.5
Vermont	39.5	24.9	-37.0

Source: Ventura et al. 2000

and we saw earlier that the decline in births among Maine's teens between 1991 and 2000 likewise appeared to be dramatic, exceeded only by the declines in three other states. However, when limiting the comparison to non-Hispanic white teens, Maine's success is not as remarkable. In 1998, the most recent year for which statistics are available, 17 states had lower rates than Maine (Ventura et al. 1999). Table 3 shows that when we further limit the comparison to Maine's regional neighbors, Maine's non-Hispanic white teenage birthrate was not only the highest among the six New England states but it was also higher than that of every other state in the Northeast corridor except Delaware.

Why does Maine continue to lag behind its regional neighbors? One possible reason is that Maine's population is poorer than the other northeastern states and, in keeping with the economic hypothesis discussed earlier, less affluence and more poverty may result in fewer perceived alternatives to early childbearing as a road to a meaningful adult life. To explore this possibility, a good measure of economic standing is median household income. Table 3 shows that of the 11 states in the northeast corridor, Maine ranked last in its median household income in 2000. When one compares the median household incomes of non-Hispanic whites, regional economic disparities become even more striking. For example, median household income for non-Hispanic whites in New Jersey, the state with the lowest white teen birthrates, is $60,600; this is compared with Maine's $37,405.

When we switch our focus from state-by-state birthrates to state-by-state rates of decline of birthrates, a lingering question remains: Why has Maine, a relatively poor state, had a larger decline in teenage fertility than its wealthier regional neighbors? Table 4 shows the rates of decline for the 11 Northeast states from 1991 to 1998, again confining the analysis to non-Hispanic whites. It is obvious that every state has shown a decline in teen birthrates, typically a substantial one; nevertheless, Maine's decline of 30.9% was larger than that of every Northeast state except Vermont. Perhaps the economic boom of the nineties had some impact on lowering the teen rates within Maine, but we find no consistent evidence that the economic upturn in Maine was greater than elsewhere (U.S. Census Bureau 2002b). We believe that a closer scrutiny of Table 4 provides an answer to the puzzle of why a poor state could show a more dramatic rate of decline than its neighbors. In 1991 all of Maine's neighbors were already reporting much lower rates of white teenage fertility than Maine. Put simply, Maine had more "catch-up" to accomplish. If the rates of decline for these other states over the seven-year period to 1998 were not as steep as Maine's, perhaps it is because they had less distance to travel to bring their rates closer to zero. For example, the decline in Massachusetts of 21% appears less impressive than Maine's 31% decline, until we recognize that Massachusetts's decline brought it all the way down to 20 births per 1,000 teenagers, while Maine's decline brought it down to 30 per 1,000.

In this section we have suggested that Maine's white teenage birthrates might be higher than that of its neighbors because of its relative economic disadvantage. However, it is possible that population density also has implications for teenage childbearing, much as we noted earlier in our assessment of birthrate differences between different Maine counties. Maine has fewer people per square mile than any of the

northeastern states listed in Table 3. More research must be done on the particular relationship between population density and teen birthrates, but it is possible that cultural and structural factors (including but not limited to economic factors) might work to make teen childbearing in rural states more likely than in states with more urban populations. For example, there may be fewer activities for teens in rural areas, which may lead them to engage in risky behavior. In addition, as with all types of health care services, it may be more challenging to provide family planning services in rural locations.

AN INTERNATIONAL PERSPECTIVE

How close to zero might reasonable policymakers set their targets for teenage births in Maine and elsewhere? Here, comparisons with other postindustrial nations offer some useful perspective on the realm of possibilities. The teenage birthrate for the United States in the year 2000 had fallen to 48 per 1,000 teenage women. This is twice the level of Canada's rate of 24, and almost twice the level of England and Wales, rate of 28. Table 5 shows that every other wealthy nation has lower rates than the United States; in Japan the teen birthrate was just 3.9 per 1,000 in 1995. As for Maine, its "low" rate of 29.9 per 1,000 in 1998 was at least three times higher than that of Belgium, Denmark, France, Italy, Japan, Holland, Sweden, and Switzerland.

The higher rates of the United States cannot be explained by the relatively high birthrates of its minority populations. In the United States, the adolescent birthrate in 1999 was 49.6 for all races; the non-Hispanic white teen birthrate was 44.6 (Ventura et al. 2001), which was still far higher than every other wealthy nation.

One explanation of why teen birthrates in the United States remain higher than in other wealthy nations is again to be found in economic factors. A recent study comparing Canada, France, Great Britain, Sweden and the United States found that socioeconomic disadvantage (which included, among other things, being poorly educated or living in poverty) was linked to teenage childbearing (Singh et al. 2001). The proportion of the U.S. population that is poor is much larger than that of many other wealthy nations. Table 6 provides a context for this issue by looking at 17 wealthy nations, and it considers the extent to which child poverty is lessened through government programs. The table shows that before any public assistance, child poverty in the United States is third highest among the 17 nations. However, what is still more striking, is that after public assistance is taken into account, child poverty in the United States remains far higher than in any of these other nations—fully one-third greater than in the next highest nation (Australia). A good point of comparison is Canada. Before public assistance, Canada's percent of children living in poverty was 22.5%, not much lower than the United States, 25.9%. After public assistance, however, Canada's proportion of children living in poverty declines to 13.5%, compared to the United States decline to 21.5%. Through public assistance, Canada had trimmed its child poverty by 40%, while the United States had trimmed its own by only 17%. Italy is the only other country in which the decrease resulting from government programs was so modest. Italian children, however, had far less need for government assistance to begin with, as only 11% of them lived in poverty before such assistance, less than half the percentage of children in poverty in the United States.

Whatever the source of reluctance on the part of U.S. policymakers to institute strong programs to alleviate child poverty, one thing seems clear: A public

Table 5: Teenage Birthrates for Selected Countries, 1995* (rates per 1,000 women, aged 15-19)

Country	Birth Rate
Australia	19.8
Austria	15.6
Canada	24.2
England & Wales	28.4
Finland	9.8
France	10.0
Germany	12.5
Greece	13.0
Israel	18.0
Italy	6.9
Japan	3.9
Netherlands	8.2
New Zealand	34.0
Norway	13.5
Poland	21.1
Portugal	20.9
Spain	7.8
Sweden	7.7
Switzerland	5.7
United States	54.4
U.S. White** (non-Hispanic)	50.1

*Dates vary slightly by country

**Ventura et al. 1998

Source: Singh and Darroch 2000

Table 6: Child Poverty in Seventeen Wealthy Nations

	Percent of Children in Poverty		Percent of Children Lifted Out of Poverty Through Government Assistance
	Before Assistance	After Assistance	
United States	25.9	21.5	17
Australia	19.6	14	29
Canada	22.5	13.5	40
Ireland	30.2	12	60
Israel	23.9	11.1	54
United Kingdom	29.6	9.9	67
Italy	11.5	9.6	17
Germany	9	6.8	24
France	25.4	6.5	74
Netherlands	13.7	6.2	55
Norway	12.9	4.6	64
Luxembourg	11.7	4.1	65
Belgium	16.2	3.8	77
Denmark	16	3.3	79
Switzerland	5.1	3.3	35
Sweden	19.1	2.7	86
Finland	11.5	2.5	78

Source: Coltrane and Collins 2001

that does not spend enough money investing in the future of its children may eventually spend more money on these individuals as adults—in the form of financial payments to people who can ill afford to have children but have them anyway, and in countless other expenditures that arise whenever meaningful adult opportunities fail to materialize.

CONCLUSION

What, then, is to be done in Maine to continue to reduce the incidence of teenage childbearing? We offer three suggestions: expand educational programs, such as family life education; increase funding for the Family Planning Association of Maine; and implement or expand programs to provide more social and economic support for those who need it.

First, we believe educational programs can make an important contribution. A recent review of studies assessing pregnancy-prevention programs nationwide finds that, in many cases, curricular programs have shown strong evidence of success (Kirby 2001). However, while certain sex and HIV education programs reduce sexual activity among teens, short-term curricula have no measurable impact; thus a "quick" lesson lasting a few days is generally not sufficient. The quality of the educators and their enthusiasm for the subject also was found to be important to the success of sexuality-related curricula.[1]

Recent legislation in Maine states that Family Life Education will "promote responsible sexual behavior with an emphasis on abstinence," but will also address family planning and contraception. This is an important first step. The bill that codified the definition of Family Life Education would originally have provided increased funding for sexuality education in Maine schools from $250,00 to $750,000. However, the final version provided no additional funding. We believe increased funding is essential in order to implement the most current and effective curricula with the best trained educators possible.

Second, organizations such as Family Planning Association of Maine should be given the financial resources to further expand their outreach. Many teens cannot afford the high cost of doctor visits and prescription contraceptives. The Family Planning Association (FPA) and other women's health clinics are important in that they provide contraceptives at low cost. In Maine, the FPA sees about 50% of sexually active teens annually. We need to explore ways the FPA and organizations like it might reach more of the remaining 50%. Some European countries have programs that could serve as templates. For example, in Sweden special "youth clinics" provide a full range of services and offer hotlines to call for information or appointments. In France, many family planning clinics offer sessions just for adolescents one afternoon per week (Alan Guttmacher Institute 2001). In more urban areas of Maine, special youth clinics might be consid-

ered. To serve teens in rural areas, we must think of creative new ways to provide information and services. While this would be expensive in the short term, such services have the potential to be cost effective in the long term if they help avert teenage births.

Finally, too many children in Maine and the United States continue to grow up in economically disadvantaged conditions, which we have seen is often a stimulus to teenage fertility. Every other wealthy country continues to offer public assistance to lift children out of poverty, and at levels that are much greater than within the United States. Compared to many states, Maine provides social benefits at more generous levels. Thus, the percentage of children without health insurance in Maine is lower than the national average. Still, according to the Maine Planning Office (2002), there are an estimated 41,750 children under 18 living below the poverty line. Maine, and the United States as a whole, must address poverty and social disadvantage if we want to reduce teenage child bearing. In addition to more financial support to poor families, we need programs to help disadvantaged adolescents make the transition to adult roles. The same review of effective pregnancy prevention programs mentioned above (Kirby 2001) also identified as successful certain initiatives that address the broader societal reasons why teens get pregnant or cause someone to get pregnant, such as detachment from school, lack of self-confidence, and/or lack of close supportive relationships with adults. For example, participation in certain service learning initiatives apparently reduced teen pregnancy by helping teens build relationships with adults and develop a greater sense of autonomy. Another successful program developed by the Children's Aid Society includes reproductive health as well as (among other things) education and job-related components. This program has been shown to reduce teen pregnancy rates. Tall order though it is, both Maine and the United States should invest more public money in our children.

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ENDNOTE

1. Not enough studies have been done to date on abstinence-only programs, so it is too early to know whether they are effective.

Please turn the page for references.

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