Welfare and Teenage Birthrates: A Study of the Effect of the Personal Responsibility
Work Opportunity Reconciliation Act of 1996 on Teenage Birthrates

By: Anthony Strangia

ABSTRACT: By the 1990's, there were high numbers of welfare recipients as well as an increasing teenage birthrate in the United States. Politicians responded to rising welfare rolls and teen births by arguing that receiving welfare contributed to illegitimacy. In 1996, Bill Clinton signed into law a sweeping welfare reform known as the Personal Responsibility Work Opportunity Reconciliation Act. One of its primary goals was to significantly decrease the number of out-of-wedlock births and teen birthrate. This panel study analyzes the effect of welfare reform in 1996 on the teenage birthrate. Other correlates with the teenage birthrate (i.e.: alcohol consumption, teenage contraceptive use) are controlled for in order to isolate the effects of welfare reform. We find that the PRWORA resulted in a 0.04 drop in the number of live births per 1,000 women aged 15-19. Comparing this to the average teenage birthrate, PRWORA decreased the teenage birthrate by 1.6%. Although it is significant, the effect is modest. The influence of PRWORA on the teenage birthrate became insignificant as the time period was increased, suggesting a diminishing effect over time.

Introduction

      Teenage pregnancy is a significant public issue. Compared to infants born to older mothers, those born to teens have a higher probability of lower birth weights. They also suffer from increased risk of infant mortality, increased risk of hospital admission during early childhood, deficient cognitive development, and less supportive home environments. Female children born to teenage mothers are also at an increased risk of becoming teenage mothers themselves. As compared to other teens, teenage mothers more frequently than other teens become socially isolated, have mental health problems, and find fewer opportunities to attain education or employment (Langille, 2007).

      During the 1990's, The United States saw a significant decline in its teenage birthrate. From 1991 to 2000, the teenage birth rate (defined as the number of live births to women aged 15-19 per 1,000 women aged 15-19 estimated in each area) among 15-19 year olds declined by 27% (Santelli, et al. 2007). This decline started as early as 1992, continuing each year thereafter. In the United States, the decline did not seem to be the result of a decrease in teenage birthrates in any one area or population. For example, the teen birth rate declined in every state in the United States and was statistically significant in every state excluding Delaware, North Dakota, and Rhode Island. Also, the teen birth rate declined for all age groups within teens. This includes 10-14 year olds, 15-17 year olds, and 18-19 year olds. The birth rate also declined for teens in all racial and ethnic groups. Despite these ubiquitous decreases, the teen abortion rate declined as well. This paper analyzes the causes of the decline in the teenage birthrate. This is accomplished by narrowing the research to teenagers in order to evaluate the effectiveness of the Personal Responsibility Work Opportunity Reconciliation Act of

1996 (PRWORA) with respect to one of its main goals: reductions in the teenage

birthrate. This is done by creating an effective proxy for the change in welfare caseloads

occurring after the signing of the PRWORA in 1996. This variable uses the percentage

decrease in welfare caseloads in each state from 1995 to 1997. Prior to 1995, the

percentage change will be labeled as zero in order to isolate changes in the welfare

caseload resulting from the welfare reform. Thus, the purpose of this study is to assess

what effect, if any, the PRWORA had on the teenage birthrate. PRWORA allowed states

to block grants, set time limits for receiving assistance, and work requirements, among

other incentives. Other correlates (such as income, alcohol consumption per capita, and

the unemployment rate) will be controlled for in order to isolate the effect of the change

in welfare caseloads on the teenage birthrate. We find that the PRWORA had resulted in

a 0.04 drop in teenage birthrate levels. Although it is significant, the effect is modest. The

influence of PRWORA on the teenage birthrate became insignificant as the time period

was extended, suggesting a diminishing effect over time.

Background

History

In the early 1990's, when teenage birthrates were near their peak, policy makers

were searching for answers. The Family Support Act of 1988 had proven to be ineffective

in moving many single parents into the workforce. The 1980's had seen a significant

upward trend in the teenage birthrate, peaking in 1991at a record high of 59.17 (US Dept.

HHS). This was up from a 53.2 national teenage birthrate in 1980.

These trends caused policy makers to question the basic design of welfare

programs in the US. At the time, AFDC provided most of the cash support to low income

Americans. AFDC (Aid to Families with Dependent Children) was a social program instituted as part of Franklin Roosevelt's New Deal in 1935. The original purpose of AFDC was to provide support for widows with minor children. AFDC was an entitlement program and did not require recipients to work. Instead, it provided government funding to the unemployed for an undesignated amount of time. This fueled the debate between Democratic and Republican politicians over whether or not welfare programs actually promoted dependency.

This question was first tackled by Sheldon Danziger, et al (1981). Danziger, et al. found evidence confirming that AFDC reduced the number of hours worked by single mothers. Even more startling were the 1983 findings of Mary Jo Bane and David Ellwood. Bane and Ellwood found that of the recipients on welfare at any given time, as many as 65% would eventually receive welfare for a minimum of eight years.

As the 1980's continued, more and more empirical evidence indicated that AFDC contributed to poverty. Republicans began calling for widespread welfare reform. Aside from dependency, many Republicans felt that AFDC contributed to out-of-wedlock births and single parent families. Although there is not a great deal of empirical evidence to support this, illegitimacy and dependency were tied together in the call for change in welfare policy.

The resulting change became known as the Personal Responsibility Work Opportunity Reconciliation Act of 1996. Signed into law by President Clinton on August 22nd, 1996, it was an extensive welfare reform plan that received bipartisan support. It drastically altered the United States' welfare system. The goal was to encourage recipients to seek employment in exchange for assistance during a limited time period.

The bill contains many employment requirements. It also contains performance incentives in order to encourage states to move welfare recipients into the workforce. Simultaneously, it allowed for state management of effort requirements. Provisions were also made for increased and centralized child support enforcement. A main goal of this was to hold fathers responsible for child support when fathers and children lived in different states. There was also additional funding provided to support families in transition from welfare to the workforce. This included increased funding for childcare and guaranteed medical coverage.

The Act contained large monetary incentives for states to decrease their number of teenaged and out-of-wedlock births. At the same time, the Act allowed for states to achieve these goals individually. Each state implemented one or more method to adhere to the Act. Some of these individual methods include time limits, work requirements, sanctions for non-compliance, higher earned-income disregards, and family caps. Twenty-two states implemented family cap policies as a way to achieve these goals. Family caps are welfare provisions that deny additional benefits or reduce cash grants to families who have additional children while receiving welfare. According to the State Policy Documentation Project (a joint project of the Center for Law and Social Policy and the Center on Budget and Policy Priorities) and the National Conference of State Legislatures legislative summaries, 20 states presently still have a family cap policy in place and another two states have a flat cash assistance grant regardless of family size (Wisconsin and Idaho). Most of these state policies were passed in the time period around 1996 - 1997. Since 1997 though, some states have revised their policies. Minnesota first implemented their policy in 2003. Illinois repealed their family cap. The

repeal became effective in January 2004. Like Illinois, Maryland repealed their family cap provision in September 2004.

The PRWORA also provided expenditures for abstinence education. This provision provided funds for "abstinence only" education. As part of this education, students were to be taught that abstinence is the only completely effective prevention against both pregnancy and sexually transmitted diseases. Mention of other forms of contraceptives was only permitted in order to emphasize their failure rates.

At the same time the Act was passed, teenage birth rates were already on the decline. There are many studies hypothesizing possible causes for the decline in the teenage birth rate. Many are in agreement as to major causes.

Literature Review

A series of studies attempt to identify influences on the teenage birth rate and cite a variety of different factors, including increases in contraceptive use, government policy, and environmental factors. Most of these studies use these factors to attempt to explain the decrease in the United States' teenage birth rate during the 1990's.

Santelli, et al. (2007) found that the decrease in teenage birth rates during the 1990's can be attributed to two key factors: increases in contraceptive use and a decrease in sexual initiation among teens. Between 1971 and 1988, the age of first sexual intercourse fell dramatically. At the beginning of the 1990's, this trend stopped and began to reverse (Santelli, et al. 2007). They found that between 1995 and 2002, the number of young women aged 15 to 19 years who had previously engaged in at least one act of sexual intercourse had dropped by 10%. This change was even greater (22%) in 15-17

year olds. Rates of sexual activity however, did not change. Santelli, et al. also found dramatic increases in contraceptive use. Between 1995 and 2002, use of condoms increased 16%-53% and birth control pill usage increased 24% to 33% among other methods. Also, use of a combination of two or more methods of contraception increased from 11% to 26%. These findings are consistent with findings published in the US Teenage Pregnancy Statistics National and State Trends and Trends by Race and Ethnicity as published by the Guttmacher Institute in September 2006. The Guttmacher Institute found that both increased abstinence and changes in contraceptive practices are responsible for recent declines in teenage pregnancy.

Langille (2007) finds data that suggest that increased contraceptive use may be responsible for similar decreases in the teenage birth rate in Canada as well. Although the Canadian teen pregnancy rate was significantly lower than in the United States (49.2 in 1994 as compared with a 104.6 pregnancy rate for the United States in the same year), Canada has also experienced a large decrease in the teen pregnancy rate since the 1990's. Langille contends that survey data indicate that contraceptive use both individually and combinations of methods is on the rise in Canada as well, and likely contributing to the decreased teen pregnancy rates (Langille, 2007). Thus, increased usage of contraception and combinations of different methods may be the key to explaining variability in teen pregnancy rates. Because contraceptives have been available for some time, we are still left with the question of what caused the increase in contraceptive use.

Other research suggests that government policy has an effect on abortion and birthrates. Sen (2003) assessed whether or not beer taxes affected teen pregnancy and abortion rates. He finds that increased beer taxes have a statistically significant and

negative effect on abortion rates, with an elasticity of approximately -0.10. He did not find a significant effect on the teenage birthrate. The magnitude of the effect of varying beer taxes on the abortion rate is small. This implies that increased beer taxes might prevent the conception of some unwanted pregnancies that otherwise would be terminated via abortions rather than being continued until birth. Again, the small magnitude of the effect shows that increased beer taxes are not an effective way to influence the abortion rate (Sen, 2003).

Joyce, et al. (2004) examined the impact of a family cap on birthrates. To isolate the effect of the cap, Joyce, et al. looked explicitly at the states that implemented family cap provisions to deny welfare recipients some or all assistance after having additional births. They found that in family cap states, birth rates fell more and abortion rates rose more among high-risk females (ie: young, not married, low income, etc.) with at least one prior live birth compared to similar childless women. This appeared to be consistent with the affect of a family cap. However, Joyce et al. found similar trends in birthrates and abortion rates in states that did not implement a family cap. Thus, there was no significant evidence of an independent family cap effect.

In addition to government policy, various market conditions affect birthrates. Lopoo (2003) evaluated the effects of maternal employment on the teenage birth rate. He found that teenagers with non-working mothers who attend relatively poor schools are 18% more likely to have a child as compared to the same teenagers with working mothers (Lopoo, 2003).

Although each of these studies have furthered the discussion over influences on the teenage birthrate, only Santelli, et al. and Lopoo had found significant effects. At the

same time, Joyce, et al. and Sen find themselves in agreement that public policy can have an effect on the abortion rate and possibly birth rates.

This sentiment has been voiced in a few other studies as well. For example, Brindis (2005) finds that some key policies, including comprehensive family life education, access to contraceptives and contraceptive care, and youth development have resulted in delays in first sexual intercourse, increased and more effective usage of contraceptives, and reductions in pregnancies and births. Such policies have also resulted in lowering the abortion rate as well. With this being said, there are still large disparities in the teenage pregnancy, birth, and abortion rates between different ethnicities. Brindis believes that a new, "synergistic" approach to policies will be able to maintain the decreases in the teenage birthrate. Brindis points out that traditional government policy regarding teenage pregnancy prevention (ex: abstinence only education) treats teens as a homogenous group when, in fact, this is not the case. Instead, Brindis believes that different policy approaches should be used to target teens of different ethnicities and income levels.

In this matter, Brindis concurs with Santelli, et al. Santelli, et al. believe that the empirical evidence supporting increased contraceptive use as the primary influence on the teenage birthrate call into question the US government policies promoting abstinence from sexual activity until marriage. Santelli, et al. also justify this by pointing to the lack of statistical data supporting the effectiveness of abstinence education. They instead argue that abstinence only education might indeed undermine the government's goal to reduce the teen birthrate. Santelli, et al. hypothesizes that abstinence only education might make teens less likely to seek out contraception or use it during sexual intercourse.

Like Brindis, Santelli, et al. also believes that adolescents are not uniform in their life circumstances or sexual choices. Thus, a more effective way of further decreasing birth rates may be to tailor sexual education programs differently for different groups of teens (Santelli, et al. 2007).

In spite of such lengthy analyses of correlates with the decreased teen birth rates and speculations as to the effects of public policy, only Joyce, et al. (2004), explicitly looked at the effects of 1990's welfare reform on birthrates. Their study singled out women that they believed to be at high risk for receiving welfare benefits. This study shall take this further by narrowing the research to teenagers in order to tie together the Personal Responsibility Work Opportunity Reconciliation Act of 1996 with one of its main goals: reductions in the teenage birthrate. This is done by creating an effective proxy for the change in welfare caseloads occurring after the signing of the PRWORA in 1996. This variable uses the percentage decrease in welfare caseloads in each state from 1995 to 1997. Prior to 1995, the percentage change will be labeled as zero in order to isolate changes in the welfare caseload resulting from the welfare reform.

Empirical Model and Data
Model

Although empirical studies have been conducted to assess various causes of the decline in the teenage birthrate in the US (Joyce, et al. 2004, Lopoo 2004, Sen 2003), none have assessed the effects of the PRWORA of 1996. I employ a fixed effects panel data model to analyze the effects of PRWORA on the teenage birthrate in the United States for the period 1992-2000.

The fixed-effects model considers that time invariant differences in cross-sections will be captured by differences in the constant term.

(1) $\text{Birthrate}_{it} = \beta_1 \Delta\text{caseloads}_{it} + \beta_2\text{income}_{it} + \beta_3\text{alconspc}_{it} + \beta_4\text{unemployment}_{it} + \alpha_i + u_{it,}$

Where i indexes states; t indexes year; Birthrate_{it} represents the teenage birthrate;

$\Delta\text{caseloads}_{it}$ represents the initial change in welfare caseloads after the implementation of

PRWORA; income_{it} represents per capita income; alconspc_{it} represents alcohol

consumption per capita; α_i is the unobserved state effects (time invariant); and u_{it} is the

random error term capturing variations across both time periods and states.

We capture the effect of welfare reform in each state after the enactment of

PRWORA by subtracting the number of welfare caseloads in each state in 1995 (one year

prior to the PRWORA being passed) from the number of welfare caseloads in 1997 and

divided this change by the number of welfare caseloads in 1995, then multiplying by 100

to convert the change into a percentage. We then held this change to be representative of

the severity of welfare reform enacted in each state and thus include it for years 1997-

2000 in the data set. For years prior to the enactment of the PROWRA (1992-1996), the

caseloads variable was set at 0. This was done in order to avoid capturing the effect of

natural variation in the quantity of welfare caseloads in each state rather than the effects

of the PRWORA itself. The equation for change in the percentage of welfare caseloads is

as follows:

$$\Delta \% \text{ welfare caseloads} = \frac{\text{\# of 1997 caseloads - \# of 1995 caseloads}}{\text{\# of 1995 caseloads}} \times 100$$

Following Sen (2003), alcohol consumption per capita (alconspc) was controlled

for. The variable standardizes consumption of beer, wine, and other spirits into a total

ethanol level. The total ethanol consumption level was then divided by the corresponding

population to create alcohol consumption per capita.

Table 1 (see attached) displays a summary table of the means and standard deviations for the data. The dependent variable is measured as the number of live births per 1,000 women aged 15-19. Δ Welfare caseloads is the percentage change in the number of welfare caseloads from 1995-1997 in state$_i$ for year$_t$. Income is defined as real income per capita in thousands of 1996 dollars in state$_i$ for year$_t$. Alcohol consumption per capita is the per capita annual consumption of alcohol (ethanol equivalent) in gallons for state$_i$ in year$_t$. Unemployment is the unemployment rate for state$_i$ in year$_t$ as reported by the Bureau of Labor Statistics.

Data

Data was collected from the Centers for Disease Control website (teenage birthrate) and the Statistical Abstract of the US (per capita income). Data on the unemployment variable is taken from the Bureau of Labor Statistics website. Welfare caseload data was compiled from the National Conference of State Legislatures website. Data on the total ethanol consumption was located at the National Institute on Alcohol Abuse and Alcoholism at the National Institutes of Health website. The per capita alcohol consumption calculation includes members of the population 14 years of age or older.

The data contains annual observations in each variable across all 50 US states for each year during the time period from 1992-2000. This results in 50 cross-sections and 8 time periods.

Results

Table 2 shows the fixed effects regression results for teenage birthrate. Column I displays the coefficient estimates and standard deviations for change in state welfare caseloads, per capita income, per capita alcohol consumption, the unemployment rate, and the intercept term for the years 1992 to 2000. Column II displays the same regression

with an added dummy variable for states that enacted some type of family cap policy for welfare recipients. Column III regresses the same variables on the teen birthrate for the years 1992-2002. This was done to test whether the effect of PRWORA as measured by our Δ caseloads variable carried further into the future. Changes in welfare caseloads proved to be significant at the .05 α level for the years 1992-2000. When the regression is extended to cover up to 2002, welfare caseloads loses its significance. This suggests that the effect of PRWORA on the teenage birth rate has diminished over time. Per capita alcohol consumption is significant at the .1 α level. For years 1992-2002, the significance of per capita alcohol consumption increases. Per capita income, unemployment, and the intercept term are all significant at the .01 level when implementation of the family cap is included in the regression. Interestingly enough, the family cap variable was not significant in either time period.

For instance, the state of California experienced an 8% drop in the number of welfare caseloads from 1995-1997. In 1997, per capita income in California was $26,490, alcohol consumption was 1.75 gallons per capita (ethanol equivalent), and the state unemployment rate was 6.3%. Applying the least squares regression equation results in a predicted teenage birthrate of 49.65 for the state of California in 1997. This compares to an observed teenage birthrate of 55.7. This leaves a 6.05 difference between the observed and predicted values of the teenage birthrate. Each coefficient is statistically significant at the .05 α level. Using these parameter estimates, changes in the unemployment rate appears to have the greatest impact on the teenage birthrate.

Considering Δ caseloads, the estimates in *Table 2* (Column 1) reveal a .04 decrease in the teenage birthrate associated with the decrease of 1 percentage point for

the 1995-1997 period in state welfare caseloads. Worthy of mention, the expected sign on the welfare caseloads coefficient is manifested as positive. This is because the change in welfare caseloads from PRWORA was evaluated as 1997 (after) levels minus 1995 (before) levels. This resulted in the welfare caseloads variable being represented by almost entirely negative values (Hawaii being the lone exception). With this in mind, the positive coefficient is being multiplied by a negative value for change in welfare caseloads, accounting for a resulting decrease in the teenage birthrate.

The average drop in welfare caseloads after the implementation of PRWORA was approximately 20.5%. Multiplying this by the OLS coefficient estimate of .04 for Δ caseloads yields a 0.8 reduction in the birthrate for women 15-19 years of age due to welfare reform (20.5 x 0.04 = 0.8). From 1992 – 2000, the mean teenage birthrate in the US was 50.05. Thus, welfare reform caused a 1.6% reduction in the birthrate. As a result, the PRWORA can be viewed as having a modest effect on the teenage birthrate. The coefficient has the expected (negative) influence on the teenage birthrate. It can be concluded that the PRWORA can be viewed as influencing one of its target goals: reductions in the teenage birthrate, albeit modestly. Other known influences on the teenage birthrate not specifically addressed by the PRWORA also proved to be statistically significant. A one percentage point increase in the unemployment rate resulted in a one unit increase in the teenage birthrate. Given that the mean value of the teen birthrate is 50.05, a one percentage point increase in the unemployment rate increases the teenage birthrate by 2%. A $1,000 increase in real income per capita results in a 0.72 drop in the teenage birthrate. Evaluated at the mean teenage birthrate, this implies that a $1,000 increase causes the birthrate to fall about 1.4%. Finally, a one

gallon increase in alcohol consumption per capita leads to a 3.68 increase in the number

of live births per 1,000 mothers 15-19 years. This results in a 7.35% increase in the

teenage birthrate.

One implication of the model is a possible interaction between the change in

welfare caseloads variable and the unemployment rate. Intuitively, changes in the number

of welfare caseloads would impact the unemployment rate. To test for this, the regression

was run without unemployment. This did not alter the sign or the significance of any of

the variables in the model. The magnitude of each variable was approximately the same.

Thus, the PRWORA can be viewed as a somewhat effective piece of legislation

contributing to the overall decline in the US teenage birthrate during the 1990's.

Conclusion

During the 1990's, the United States experienced a significant drop in its teenage

birthrate. From 1991 to 2000, the teenage birth rate declined by 27% (Santelli, et al.

2007). Various sources attribute this drop to a variety of factors. Among them, increased

contraceptive use (Santelli, et al. 2007), family cap provisions resulting from the

PRWORA (Joyce, et al. 2004), maternal employment (Lopoo 2004), and beer taxes (Sen

2003) have all been linked to this decline. This paper finds significant evidence to

attribute part of this decline to the sweeping federal welfare reform enacted in 1996.

The PRWORA of 1996 was an extensive welfare reform plan that received

bipartisan support in both houses of Congress. It greatly altered the United States'

welfare system. The bill had many goals, including a reduction in the number of teenaged

and out-of-wedlock births. It contains performance incentives in order to entice states to

move welfare recipients into the workforce. The Act contained large monetary incentives

for states to decrease their number of teenaged and out-of-wedlock births. At the same time, the Act allowed for states to achieve these goals individually.

I have found that the PRWORA resulted in varying degrees of enforcement by different states. Overall, states compliance with the Act decreased teenage birthrates during this time. This was accomplished by creating a proxy variable measuring the percentage decrease in welfare caseloads in each state from 1995 to 1997. I have found that a one percentage point decrease in the number of welfare caseloads stemming from the PRWORA resulted in a 0.04 drop in the number of live births per 1,000 women 15-19 years of age. The average drop in welfare caseloads after the implementation of PRWORA was approximately 20.5%. Multiplying this by the OLS coefficient estimate of .04 for Δ caseloads yields a 0.8 reduction in the birthrate for women 15-19 years of age due to welfare reform (20.5 x 0.04 = 0.8). From 1992 – 2000, the mean teenage birthrate in the US was 50.05. Thus, welfare reform caused a 1.6% reduction in the birthrate. Although this is not a large effect, it is statistically significant.

I find this to be causally important to the explanation of the decline in the US teenage birthrate. While studies (Santelli, et al. 2007) attribute such declines to increased contraceptive use, questions arise about the causes of increased contraceptive use. Logically, the causality flows from welfare reform to increased contraceptive use rather than vice versa. It follows that welfare reform may have indeed contributed to increased contraceptive use though increased contraceptive use could not have caused welfare reform. Thus, increased contraceptive use may be the means, though not necessarily the cause, explaining the decline in the teenage birthrate.

Future studies may wish to directly evaluate the link between the PRWORA and reports of increased contraceptive use during the 1990's. Also, work needs to be done analyzing the effect of the PRWORA on the abortion rate (specifically, the teenage abortion rate) during the same period. Other variables of interest might include out-of-wedlock births and the overall birthrate. Another possible study might seek to elaborate the link between the PRWORA and the unemployment rate.

In conclusion, the PRWORA has negatively impacted the teenage birthrate. Other correlates of the teenage birthrate (per capita income, per capita alcohol consumption, and the unemployment rate) proved to be statistically significant as well. Changes in welfare caseloads resulting from the PRWORA had only a modest influence on the teen birthrate, though the effect is in the expected direction.

Works Cited

Bane, Mary Jo, & Ellwood, David. "Slipping Into and Out of Poverty: The Dynamics of Spells." *Journal of Human Resource.* Volume 21: pp. 1-23. 1986.

Brindis, Claire D. A Public Health Success: Understanding Policy Changes Related to Teen Sexual Activity. *Annual Review of Public Health*. Vol 27, Issue 1: pp. 227-247. 2006.

Danziger, Sheldon, Haveman, Robert, Plotnick, Robert. "How Income Transfers Affect Work, Savings, and the Income Distribution." *Journal of Economic Literature*. Volume 19, Issue #3: pp. 975-1028. 1981.

Guttmacher Institute. US Teenage Pregnancy Statistics, National and State Trends & Trends by Ethnicity. Guttmacher Institute. September, 2006.

Joyce, Ted, Kaestner, Robert, Korenman, Sanders, Henshaw, Stanley. Family Cap Provisions and Changes in Births and Abortions. *Population Research and Policy Review*. Vol 23: pp. 475-511. 2004.

Langille, Donald B. Teenage Pregnancy: Trends, Contributing Factors, and the Physician's Role. *Canadian Medical Association Journal*. Vol. 176, Issue 2: pp. 1601-1602. 2007.

Lopoo, Leonard M. The Effect of Maternal Employment on Teenage Childbearing. *Journal of Population Economics*. Vol 17, Issue #4: pp. 681-702. 2004.

Santelli, John, Duberstenin-Lindberg Laura, Finer, Lawrence, Singh, Susheela. Explaining Recent Declines in Adolescent Pregnancy in the US: The Contribution of Abstinence and Improved Contraceptive Use. *Contemporary Sexuality*. Vol 41, Issue 7: pp. 8-12. 2007.

Sen, Bisakha. Can Beer Taxes Affect Teen Pregnancy? Evidence Based on Teen Abortion Rates and Birth rates. *Southern Economic Journal*. Vol. 70, Issue 2: pp. 328-343. 2003.

Table 1. Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
TBirthrate	50.05425	13.62741	23.3	82.2
WCaseloads	-20.5538	8.557784	-38.25535	0.161026
Income	23.99213	4.285824	15.290	41.489
AlconsPC	1.807	0.3843	0.902	3.497
Unemployment	4.90475	1.38893	2.3	10.9

Tbirthrate$_{it}$ = number of live births per 1,000 women aged 15-19 in state$_i$ for year$_t$; dependent variable
WCaseloads$_{it}$ = percentage change in the number of welfare caseloads from 1995-1997 in state$_i$ for year$_t$
Income$_{it}$ = real income per capita in thousands of 1996 dollars in state$_i$ for year$_t$
AlconsPC = per capita annual consumption of alcohol (ethanol equivalent) in gallons for state$_i$ in year$_t$
Unemployment$_{it}$ = unemployment rate for state$_i$ in year$_t$

Table 2. Fixed-effects regression results for teenage birthrate

	I	II	III
Dependent Variable:	Teen Birthrate	Teen Birthrate	Teen Birthrate
Welfare Caseloads	.0400702*** (0.0137108)	.0347141** (.0149289)	.0251144 (.0163319)
Family Cap		-.3425299 (.3772153)	-.2554716 (.4136379)
Income	-0.7186*** (0.078)	-0.7087*** (0.0788)	-.1.1808 *** (0.0522)
AlconsPC	3.67704* (2.042035)	3.896176* (2.056759)	9.801676*** (1.918163)
Unemployment	1.094281** (0.1822992)	1.09559*** (.1823511)	-.0282962 (.1368842)
Constant	55.69726*** (4.165214)	55.08495*** (4.220487)	60.95541*** (3.549946)
n	400	400	500
R^2 (Within)	0.7647	0.7653	0.7813
R^2 (Between)	0.2507	0.2359	0.0958
R^2 (Overall)	0.2391	0.2307	0.172
F-value	281.15	224.97	317.89
Prob > F	0.0000	0.0000	0.0000

I	II	III
	w/ family	Effect over
w/o family cap	cap	time

* = significant at .1 alpha
** = significant at .05 alpha
*** = significant at .01 alpha

Standard Errors in parentheses ( )