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THE ECONOMICS OF TEENAGE PREGNANCY IN RURAL COMMUNITIES

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Abstract

This paper is concerned with the devastating problem of teen pregnancy in rural Georgia. The paper examines the estimated costs of teen births, develops an economic framework for analysis, identifies determinants of teen pregnancies, and discusses policy implications.

The theoretical framework of this paper is based upon the concept of consumer utility maximization. This study assumes that teens gain utility from the childbearing experience. Young women weigh the costs of having children as opposed to participating in other activities such as education and employment. Relationships between teen pregnancies, income, relative prices, and tastes and preferences are illustrated with indifference curve analysis.

Data for the study were based on one hundred twenty-one rural or non-metropolitan counties in Georgia. Determinants of teen pregnancy were estimated using ordinary least squares (OLS). The dependent variable in the OLS model was teen pregnancy rates by county. The explanatory variables were derived from the theoretical framework. Education and income were inversely related to teen pregnancy rates. Female head of household, support programs and juvenile delinquency were positively related to teen pregnancy rates.

The implications of this study for alternative teen pregnancy intervention programs are examined. The study concluded by recommending that teen pregnancy intervention programs focus on alleviating poverty, providing educational opportunities, and better managing financial support.

PROBLEM SETTING

Across the nation, teenage pregnancy has become a major problem. Many communities are upset because of their youths' introduction to parenting. Families are hoping to avoid teen pregnancy, while community leaders are trying to find solutions to this elusive problem. The state of Georgia, in particular rural Georgia, is having significant problems concerning teenage pregnancy. According to *Thirty* magazine, "Georgia ranked twelfth in the percent of all first born babies whose mothers were nineteen and younger. Of all mothers in Georgia having their first child in 1988, 28.4 percent were teenagers." Of all the women in Georgia between the ages of fifteen to nineteen, 13.2 percent became pregnant as compared to the 11 percent nation-wide.

According to the Cooperative

Extension Service's publication "Teen Childbearing: Public Costs in Georgia, 1988," there were 17,281 babies . . . born to Georgia's young women (age 10-19)(sic). Of these women, 11,134 were unmarried at the time of birth" (Bower and Reinheimer). Sixteen percent of all the children born in Georgia were the offsprings of women age ten to nineteen (*Thirty*, 20). In that same year the teen pregnancy rate for the one hundred twenty-one non-metropolitan counties in Georgia was estimated at 20.5 percent. That is, one in five pregnancies were among teen-agers.

Teen pregnancy statistics have community to help combat the problem. Schools have taken a great deal of pressure from the community to help combat the problem. Churches and civic groups have attempted to solve the crisis. People are concerned about this problem because of the far-reaching effects teen births have on the individual, family, and community as a whole.

Seeing a real need for work in this area, the Cooperative Extension Service (CES) developed a program to reduce teen pregnancies entitled "*Growing Up and Understanding It*". The goal of this program was to "provide factual information about puberty

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and sexuality to serve as a base of increasing communication about sexuality between parents and children." Despite the efforts of the CES, this and other teen pregnancy intervention programs have had limited success. In some areas, the teen pregnancy rates continue to increase. This paper was motivated by the need to better understand teen pregnancies and to develop better programs to address this problem.

OBJECTIVES

The goal of this paper is to examine the economics of teenage pregnancy. The objective of this paper are to:

1. Examine methods for estimating the costs of teen pregnancies,
2. Develop a theoretical framework for teen pregnancy using utility analysis,
3. Identify the determinants of teen pregnancy using ordinary least squares regression, and
4. Discuss the implications for pregnancy intervention programs.

COST ESTIMATIONS

The state of Georgia spends a great deal of money on children born to teen mothers. Presently, there are three ways of looking at the public costs of teen births (Thirty, 20). The first method is called the *single year cost*. According to a recent report, single year cost is "how much was spent in a single year (1988) to support families begun when the mothers were teenagers" (Bower and Reinheimer). The single year cost is the sum of the expenses of all the families whose first birth was a teenage birth. This cost includes those

women who are now considerably older because their children may still receive some financial support from the state. The expense for the nation was \$19.8 billion and Georgia's bill was \$232 million. In essence, the public cost of one child born to a teen mother was \$13,418.

The second method is *single birth costs*. This cost "is how much (on average) one child born to a teen mother will cost taxpayers" (Bower and Reinheimer). The cost computed by this method is the average cost to the public for one family during the first twenty years of a child's life. Every child is considered in this report; although, not every child receives support. The estimated cost to the nation was \$16,410 and to Georgia it was \$15,325. The real figures are three times the amount because "only 1 out of 3 teens does receive such help (national average)" (Bower and Reinheimer).

The final and most simple cost analysis is the *single cohort costs*. It is a basic summing of costs of all families since 1988 started by teen mothers. This cost also includes the projected burden of the family in the next twenty years. The cost to the nation was \$6 billion and Georgia's cost was \$177 million (Bower and Reinheimer).

All of the costs mentioned above were costs borne by the taxpayer. The expense of teen childbirth could easily be reduced. According to the Bower and Reinheimer publication, for every \$1 spent for preventive measures, there is \$3 spent on reactionary strategies. Teen pregnancy is an expensive endeavor. Concerned citizens do have a desire to help these young women and their children.

This desire goes beyond the simple hope of reducing the

expenses incurred by the taxpayer. The public nature of this problem (product) has many negative externalities. These externalities are the initial low private costs of teen childbearing. Once the child is produced, the utility of taking care of the child declines due to the high cost of information and actual care of the child. These factors possibly limit the care the child would receive and hinders the mother's continued education. The externalities of before mentioned factors will cost a community far more than any financial costs of the present.

THEORETICAL FRAMEWORK

The theoretical framework of this paper is based upon the concept of consumer utility maximization. This study assumes that teens gain utility from the childbearing experience. This utility "depends upon the perceived costs and benefits—both psychological and economic—of having a child..." (Leibowitz, et al.). The choice to have a child is an alternative decision among competing opportunities or activities. Young women have to weigh the costs of having children as opposed to participating in other activities such as education and employment. It is true that a women can balance childbearing and other activities; however, this balancing act is much more difficult for teen mothers than it is for adult women. Figure 1 illustrates the choices of teen women. On the x-axis there is the choice to allocate time to childbearing activities. While on the y-axis, there is the consumption of other goods or activities, which can be obtained by education and employment.

The combination of these two goods generates indifference curves. Indifference curves show "various combinations of two goods that yield a constant level of satisfaction or utility" (Peterson, 50). The information provided by these indifference curves gives a more meaningful picture when considered with the budget lines. These budget lines show "various combinations of two goods that cost a given amount of money" (Peterson, 60). In this illustration, budget lines represent the income of the teen woman's family. By increasing the income level, the budget line shifts out to the right. The relationship between income and teen births is shown in Figure 1a. Teens maximize their utility from teen births and other goods for different levels of income at tangency points A, B, and C.

The level of teen births can also be modified by a change in relative prices or a change in tastes and preferences. These effects can be shown in Figure 1b. With a decrease in the price/cost of teen pregnancy the budget line rotates counter-clockwise, resulting in an increase in the equilibrium quantity of births from point E to F. This rotation may result from a change in the relative prices of producing and raising children. For example, an increase in the public's financial support to teen mothers may reduce the price/cost of having a child.

The output level of teenage childbearing can also be influenced by a change in the tastes and preferences of the teen. In Figure 1b, a change in tastes and preferences shifts the indifference curve and reduces the optimum level of teen births from point E to D.

EMPIRICAL MODEL

Data

The data for this empirical model were compiled mostly from the Georgia County Guide; the other source was the report, "Teen Childbearing: Public Costs in Georgia, 1988." These data were the culmination of information from the 1980 Census and the Cooperative Extension Service (CES). Data for the was based on one hundred twenty-one rural or non-metropolitan counties in Georgia, as defined by the U.S. Census Bureau. Determinants of teen pregnancy were estimated using ordinary least squares (OLS). The dependent variable in the OLS model was teen pregnancy rates by county. The explanatory variables were derived from the theoretical framework and included education, poverty level, head of household, government support programs, and juvenile delinquency.

Explanatory Variables

Poverty: In the OLS model, the number of people in a county below the poverty level was used to indicate the economic standing of the people in the counties. According to utility maximizing theory, income plays a major role in determining the level of teen pregnancy. Bernstein suggested that as income rises the number and likelihood of teen pregnancy decreases. More affluent families derive less utility from teen births. The social stigmas attached to teen childbearing and increased opportunity costs are believed to be deterrents to teen pregnancy.

Education: Education was considered a prime factor in much of the literature examined in this study (Cooksey). This model

considers the number of residents who did not finish high school as a determinant. This factor looks at the environment where teen women live. It is believed that educational attainment can serve as proxy for human capital; the greater the education, the higher the stock of human capital. Educational achievements contribute to self-esteem. Education is considered an indifference curve shifter because it affects the tastes and preferences and the perceived opportunity costs of the teens. In the report "Factors in the Resolution of Adolescent Premarital Pregnancies," the education of the parents was considered a "proxy for family socioeconomic status" (Cooksey). Even though this factor does not directly measure the teen's educational level, it does reveal a great deal about the environment in which a teenager was socialized. That same report stated, "The higher the level of parental education, the greater the likelihood that career and education goals will be highly valued by parents and daughters" (Cooksey). It is proposed that the greater the educational level in a county the less likely teens will become pregnant.

Head of household: The percentage of households headed by women was cited in several studies; therefore, it seemed a good choice for this model. The idea that a large percentage of female-headed households in a community socialize women to be single mothers, an effect on the tastes and preferences. Therefore, the likelihood of teen pregnancy would seem to increase because of the predominance of female-headed households.

Aid to Families with Dependant Children (AFDC): According to the study "An Economic Model of Teenage Pregnancy Decision-

Making," it reports, "We . . . hypothesize that teenagers who live in families already on welfare may have known more about the option for supporting a child while remaining unmarried, and by therefore have been more likely to see unmarried motherhood as feasible." (Leibowitz, Eisen, Chow) According to the utility theory, AFDC reduces the price or opportunity cost of teen births, rotates the budget line, and results in a higher level of teen pregnancies. The utility of teen births are maintained because "unmarried motherhood may carry less of a stigma for girls whose families are already on welfare" (Leibowitz, et al.). In this model, the percentage of AFDC households in the county were considered a determinant of teen pregnancy.

Juvenile Delinquency:

Peer pressure and family support were thought to affect teen pregnancy rates. Since these variables are difficult to measure, juvenile delinquency is used as a proxy for peer pressure and family support in the regression model. Risky behavior like criminal actions and early unprotected sex are thought to be associated with juvenile delinquency. It is believed that peer pressure changes tastes and preferences, shifts the indifference curve, and leads to more teen pregnancies. High rates of juvenile delinquency indicate a lack of parental supervision. The rate of delinquency in this study is the number of total juvenile court commitments divided by the population of youth ages ten to seventeen.

Regression Results

The results of the OLS estimation is in Table 1. There

is only one unexpected result in this analysis, female-headed households. The t-ratios of all the estimators were significant at alpha levels of 0.10 or less. The positive signs on the poverty, educational deficiency,

Figure 1a. Income and Teen Pregnancies

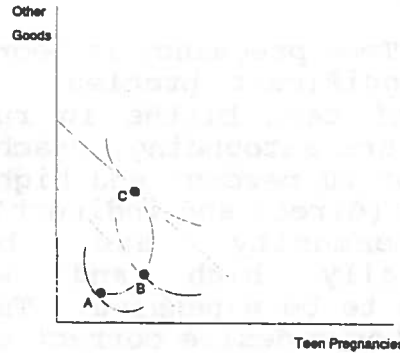
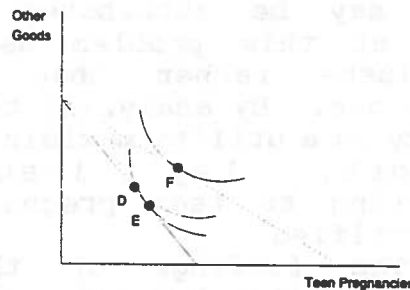


Figure 1b. Prices, Preferences and Teen Pregnancies



and AFDC factors were consistent with expectations from utility maximization theory.

The negative sign on the female head of household was unexpected. This estimator suggests that the more household headed by women the fewer teen births. Possible reasons for this inverse relationship is education. The women who head these households may have firsthand knowledge of teen pregnancy and could possibly educate their daughters on the high opportunity costs of teen childbearing. Another possibility is the limited caring capacity of female-headed households. Having two parents,

teen women might use their parents to assist in the care of the child. Having only one parent reduces this chance which raises the price of producing children and lowers the teen's utility.

DISCUSSION

Teen pregnancy in Georgia is a significant problem. The number of teen births in rural Georgia are astounding, reaching levels of 20 percent and higher. The cost (direct and indirect) to the community has been historically high and will continue to be expensive. There is an intense desire to correct this problem, but there has only been limited success, according to Dr. Mary Anne Pace, CES. The limited success may be attributed to looking at this problem as a moral issue rather than an economic one. By analyzing teen pregnancy as a utility maximizing framework, key issues contributing to teen pregnancy were identified.

The findings of this study suggest that teen pregnancy intervention programs should focus on three major areas. First, these programs should focus on teen poverty. Programs by groups such as the CES cannot be expected to give jobs or money to the needy. They can, however, provide job training on programs to make individual more marketable. By indirectly increasing individual financial status, opportunity cost of teen births are also increased.

Second, these programs should include education. The results of this model indicate that the level of education obtained may play a role in teen birth rates. Programs to discourage drop-out rates and improve literacy in the community

may expose youth to the higher future disutility of teen pregnancy. If nothing else is accomplished, people are exposed to choices never thought possible which would reduce the expected utility of teen child births. Third, these programs should reexamine public support programs. The model suggests that programs such as the AFDC attempt to help ease the burden of teen pregnancy, but they seem to nourish the problem. Support funds, like AFDC, should be accompanied by educational programs.

REFERENCES

Bernstein, Blanch. 1986. Saving a Generation. Priority Press Publication, New York.

Bower, Don, 1991. "Growing Up and Understanding It' Progress Report and Impact," Athens, GA: The Cooperative Extension Service, The University of Georgia.

Bower, Don and Reinheimer, Rich 1991. "Teen Childbearing: Public Costs in Georgia, 1988," Athens, GA: The Cooperative Extension Service, The University of Georgia.

Cooksey, Elizabeth C. "Factors in the Resolution of Adolescent Premarital Pregnancies." Demography. 27(1990):207-218.

Georgia County Guide, 1990. Athens, GA: The Cooperative Extension Service, The Leibowitz, Arleen, Marvin Eisen, and Winston Chow. "An Economic Model of Teenage Pregnancy Decision-Making." Demography. 23(1986):67-77.

Pace, Mary Anne, personal interview, 22 October 1991 University of Georgia.

Peterson, Willis L. 1991.
Principles of Economics - Micro.
Homewood Hills, IL: Irwin.

Thirty, 1989. "Teenage
Childbearing in the U. S.:
Georgia"