SOCIAL POLICY EVALUATION: HOW DID THE 1996 WELFARE REFORM LEGISLATION INFLUENCE UNMARRIED TEEN BIRTH RATES IN TEXAS COUNTIES?

A DISSERTATION

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BY

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DENTON, TEXAS

DECEMBER 2000

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October 31, 2000

Date

To the Dean of Graduate Studies and Research:

I am submitting herewith a dissertation written by Barbara J. Blake titled "Social Policy Evaluation: How Did the 1996 Welfare Reform Legislation Influence Unmarried Teen Birth Rates in Texas Counties?" I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Nursing.

Patti Hamilton, Ph.D., Major Professor

We have read this dissertation and recommend its acceptance:

Accepted:

Dean of Graduate Studies and Research

DEDICATION

This work is dedicated to my husband, Paul Thomas Blake, whose never-ending love, support, and dedication gave me the confidence and opportunity to accomplish this goal. Thank you for always listening and for just being there. You are not only my husband, but also my very best friend. Thank you!

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ABSTRACT

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Implementation of the 1996 Welfare Reform Legislation radically changed a 61-year-old policy of providing welfare benefits to eligible low-income mothers and their children. Despite a lack of evidence, current welfare policies are being implemented based on the belief that welfare restrictions and sanctions can change the reproductive behavior of women, particularly teens. The purpose of this quasi-experimental study was to examine and describe the influence of the 1996 welfare reform legislation on unmarried teen childbirth rates in Texas counties and to examine the effect of the counties' teen population density, ethnic homogeneity, and welfare participation on the rate of change in unmarried teen childbirth rates post-welfare reform.

In this study, the 254 counties in Texas represented the population under examination. The variable of interest was the number of births to unmarried women less than 20 years of age from January 1, 1994 through December 31, 1999. Two-stage growth curve modeling was used to examine the pattern of the unmarried teen birthrates pre- and post-welfare reform. During the first stage of the modeling, trajectories that represented the quarterly unmarried teen birthrates were estimated using multiple regression analysis. A paired-sample t-test was used to test for across county differences in the pre- and post-welfare reform

slope estimates. In stage two, hierarchical linear regression was employed using teen population density, ethnic homogeneity, welfare participation, and the post-welfare reform intercepts to determine if they could explain the change in the unmarried teen birth rates post-welfare reform.

The results of the growth curve modeling found that 17 Texas counties had statistically significant changes in their slopes and/or intercept estimates post-welfare reform as compared to the estimates pre-welfare reform. The results of the paired sample t-test revealed no significant difference between the mean of the pre-welfare reform slopes ($\bar{x}$ = .047) and the mean of post-welfare reform slopes ($\bar{x}$ = .045), $t(253) = .053$, $p = .958$. The results of the hierarchical linear regression analysis indicated that the estimate of the post-welfare reform intercept and welfare participation were the only variables that contributed significantly toward predicting the slope of the unmarried teen birth rates post-welfare reform.

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CHAPTER I

INTRODUCTION

The Personal Responsibility and Work Opportunity Reconciliation Act (Public Law 104-193) that was signed into law on August 22, 1996 radically revised existing welfare policies in our nation. This law abolished the Aid to Families with Dependent Children (AFDC) program in favor of a block grant entitled Temporary Assistance to Needy Families (TANF). The aim of this welfare reform legislation was to reduce (a) the number of single parent families, (b) teenage parenting, and (c) subsidies for non-working poor people (Berner, 1996; Videka-Sherman & Viggiani, 1996). The purpose of this quasi-experimental study was to examine and describe the influence of the 1996 welfare reform legislation on unmarried teen childbirth rates in Texas counties and to examine the effect of the counties' teen population density, ethnic homogeneity, and welfare participation on the rate of change (slope) in unmarried teen childbirth rates in Texas post-welfare reform.

The current social concern over teenage childbearing suggests its occurrence has increased significantly over time. Between 1950 and 1970, the birth rates among teenagers in the U.S. were higher than they have been in current years (Weinstein, 1998). Nonetheless, these rates did not attract attention because teenagers who gave birth during that era were usually married at the time of conception or they married before the baby's birth (Luker, 1996; Ventura & Curtin, 1999; Weinstein, 1998). In 1960 the teenage birth rates were 91.0 births per 1,000 women aged 15 to 19 (Luker, 1996) as compared to 51.1 births per 1,000 women aged 15 to 19 in 1998 (Ventura, Martin, Curtin, Mathews, & Park, 2000b).

However, from 1960 to 1992, the birth rate among unmarried women aged 15 to 19 increased from 15 to 45 births per 1,000 unmarried teens (Ventura, Bachrach, & Hill, 1995) and society labeled teenage pregnancy a "problem" (Weinstein, 1998).

Birth rates for unmarried Black teens have consistently been higher than the birth rates for unmarried White teens, but this disparity has been declining (South, 1999). Between 1970 and 1990, the birth rates for White unmarried teens aged 15-19 rose from 10.9 to 29.5 per 1,000 teens as compared to an increase from 96.9 to 110.1 per 1,000 Black unmarried teens (Luker, 1996). Birth data that include marital status for women of Hispanic origin have only been available since 1990. This data indicate that the unmarried birth rate for Hispanic teens aged 15-19 was 65.9 per 1,000 teens in 1990 and in 1997 it rose to 75.2 per 1,000 teens (Ventura, 1995; Ventura, Martin, Curtin, & Mathews, 1999b). In 1998, the birth rate for unmarried Hispanic teens decreased slightly to 73.9 per 1,000 teens (Ventura et al., 2000b).

The national birth rate for teenagers in 1999 was 49.6 per 1,000 births to women aged 15-19 years (Curtin & Martin, 2000b). Texas is one of five states in which the birth rate for teenagers consistently exceeds 70 per 1,000 females aged 15-19 (Ventura, Curtin, & Mathews, 2000a). Approximately 17% of the live births that occurred in Texas in 1998 were to women less than 20 years of age. Among all Texas births, 22.5% of births to Black women and 19.7% of births to women of Hispanic origin were to women less than 20 years of age, compared to 10.9% of births to White women. In 1998, age-specific birth rates indicate that Hispanic and Black adolescents aged 10 to 14 were approximately 5 times as likely as White adolescents to deliver a child and Hispanic and Black adolescents aged 15 to 19 were more than twice as likely as White adolescents to deliver a child. When examining marital status in 1998, 87.7% of the mothers aged 10-14 and 67% of mothers aged 15-19 in Texas reported not being married. Marital status by age and race/ethnicity for women less than 20 years of age living in Texas can be found in Table 1 (Texas Department of Health, 1999).

Table 1

Percent of Adolescent Mothers Not Married by Age and Race/Ethnicity in 1998

Age	White	Black	Hispanic	All Races
10-14	94.2	98.9	86.8	89.6
15-19	63.7	93.7	62.9	68.1

Problem of Study

Teenage pregnancy and out-of-wedlock childbearing became primary issues of the 1996 welfare reform legislation because they are often seen as major contributors to increased welfare costs and caseloads. Ironically, only 5% to 7% of mothers receiving welfare benefits in the U.S. are teenagers, and fewer than 2% are less than 18 years of age (U.S. General Accounting Office, 1994). Despite the fact that the number of teen mothers receiving welfare benefits at any one time is relatively small, the role of teen parenting does become significant over time. This is because a large proportion (42%-55%) of families receiving welfare benefits were begun by a mother who was under the age of 20 when she first gave birth (Sandefur & Cook, 1998; U.S. General Accounting Office, 1994). Women who begin childbearing as adolescents are more inclined to require public assistance for a longer period of time because they tend to have larger families, are less educated, and are therefore less likely to find employment that will lead to self-sufficiency than women who delay childbearing (Alan Guttmacher Institute, 1995).

Historically, nurses have had a strong interest in health policy. In a letter to Francis Galton in 1891, Florence Nightingale wrote:

> Put down what you expect from such and such legislation; after ___ years see where it has given you what you expected, and where it has failed. But you change your laws and your administering of them so fast, and without inquiry after results past or present, that it is all experiment, see-saw, doctrinaire, a shuttlecock between two battledores. (as cited in Nash, 1931, p. 36).

Based on Nightingale's advice, the results of this study can be utilized by community health nursing leaders to provide information to policy makers that could ultimately influence future legislative actions related to welfare reform and unmarried teen childbirth. Involvement in shaping policy that impacts the health of women and children is an expected outcome for the leadership standard of advanced nursing practice (American Nurses Association, 1996).

Rationale for Study

The relationship between unmarried child bearing and welfare benefits has been debated since welfare's inception in 1935. While some experts believe that the availability of welfare benefits provides an incentive for women not to marry if they become pregnant prior to marriage, examination of the relationship between welfare and unmarried childbearing has offered inconclusive evidence to support this belief (Ellwood & Bane, 1985; Lundberg & Plotnick, 1995; Moore & Caldwell, 1977; Murray, 1993; Ozawa, 1989; Plotnick, 1990). In spite of that, welfare polices are being implemented today based on the belief that welfare restrictions and sanctions can change the reproductive behavior of women, particularly teens. In reality, social policies constitute only part of a large set of personal, family, and environmental factors that contribute to the incidence of unmarried childbirth among teenagers. By examining the rate of change (slope) in births to teens pre- and post-welfare reform, the effect of this legislation can be more accurately assessed.

Theoretical Framework

Reference group and social contagion theories allow us to test the hypothesis that welfare benefits are not be associated with the occurrence of unmarried childbearing among adolescents. Reference group theory proposes that the behavior of a person will be consistent with the expectations of the group that serves as a reference point at a given point in time (Mirande, 1968). The family provides the reference point in guiding and shaping behaviors in young children, but during adolescence, peers begin to assume an increasingly more important role. Studies that focus on the risk behaviors of adolescents have found that adolescents and their friends exhibit similar risk behaviors (Brooks-Gunn & Furstenberg, 1989; Dolcini & Adler, 1994; East, Felice, & Morgan, 1993; Evans, Oates, & Schwab, 1992; Fang, Stanton, Li, Feigelman, & Baldwin, 1998). Research findings indicate that adolescents are influenced by the expectations of their peers, but adolescents also will tend to seek those groups that reinforce their personal inclinations (Donohew, Hoyle, Clayton, Skinner, & Colon, 1999). The prevalence of peer influence among groups of adolescents has been found in urban and rural contexts (Chopak, Vicary, & Crockett, 1998; Doljanac & Zimmerman, 1998). These research findings provide evidence that supports Mirande's (1968) original hypothesis that "The sexual behavior of an individual will tend to be the function of the expectations of his peer reference group, irrespective of the direction of the influence" (p. 573).

Social contagion theory also contributes to the understanding of unmarried teenage childbearing. This theory has been used for nearly 2 centuries to explain the clustering and spread of human behavior. Social contagion can be broadly defined as the spread of affect, attitude, or behavior from one person to another where the recipient does not always perceive an intentional influence on the part of the initiator. Social is used as a prefix to contagion to denote the context of the phenomenon (Levy & Nail, 1993).

Social contagion can be characterized as both an individual and a group phenomenon. Social contagion theorists assume that peer modeling and reinforcement contribute to the initiation of a behavior (Ennett, Flewelling, Lindrooth, & Norton, 1997; Jones, 1998; Krishnan, Parakulam, & Zalmanowitz, 1999). Based on social contagion theory, adolescents are influenced by the sexual attitudes and sexual behaviors of others (Rodgers & Rowe, 1993; Rowe & Rodgers, 1991b, 1994; Rowe, Rodgers, & Mesech-Bushey, 1989). At a young age, only a few adolescents in the social network participate in sexual behaviors, but over time, sexual behavior spreads (Rodgers, Rowe, & Buster, 1998).

Rodgers and Rowe operationalized the social contagion process through the development of a model entitled the Epidemic Model of the Onset of Social Activities (EMOSA). This model has been used to examine adolescent transition behaviors such as drinking, smoking (Rowe & Rodgers, 1991a) and sexuality (Rodgers & Rowe, 1993; Rodgers et al., 1998; Rowe & Rodgers, 1991b, 1994; Rowe et al., 1989). Transition behaviors are defined as behaviors in which adolescents engage that signal the approach of adulthood. Initiation of these behaviors is of particular importance to an adolescent because it denotes passage into adulthood (Rodgers & Rowe, 1993).

The EMOSA model was designed to fit prevalence data across time in which prevalences reflect the number or percentage of members of some group who have ever performed a certain behavior. The model does not differentiate between active and passive spread or diffusion of a behavior. One of the assumptions of the model is that the successful spread of ideas, activities, or products through a social environment is dependent on the attractiveness or positive utility attached to its spread. The model simulates the interaction process that helps spread behaviors, therefore, individual risk is highly influenced by group characteristics.

Early social contagion models assumed that females were pubertally mature before they participated in sexual intercourse (Rowe et al., 1989). As evidence to support the postulated relationship between pubertal maturation and the initiation of sexual activity began to appear in the literature (Presser, 1978; Smith, Udry, & Morris, 1985; Udry, Talbert, & Norris, 1986; Zabin, Smith, Hirsch, & Hardy, 1986), the need for maturational filters that could control for females less than 15 years of age who had not achieved pubertal maturity became important. Therefore, in the context of adolescent sexual behavior, the EMOSA model incorporates a unique biological component that mediates for pubertal development in females (Rodgers & Rowe, 1993; Rowe & Rodgers, 1991b, 1994; Rowe et al., 1989).

Rowe et al. (1989) first used their model to fit data on sexual intercourse prevalences from the Adolescent Sexuality data set collected between 1978 and 1982. The results of the study indicated that at age 16, the prevalence of sexual intercourse by race and gender was 20%-30% greater in males than females and greater in Blacks than Whites. Additionally, there is evidence that a racial difference exists in the pubertal maturation between Black and White females. At age 12, Black females were significantly more physically mature than White females. Therefore, after controlling for the difference in physical maturity, race differences in regard to sexual activity disappeared. Based on these results, the "epidemic" process provided a new hypothesis for racial differences in the prevalence of sexual intercourse among adolescents. The hypothesis suggests that racial differences in pubertal maturation rates may lead to an earlier initiation of the social transmission of intercourse among Blacks. This difference then creates a snowballing effect on coitus prevalences at later ages.

In a later study, Rowe and Rodgers (1994) used the National Longitudinal Survey of Youth (NLSY) data collected in 1979, 1984 and 1985 to again examine the prevalence of sexual intercourse among adolescents. Their intent was to compare the latter results, which were obtained from a data set that represented an intact social network of adolescents, with results obtained from a data set that were a nationally representative sample of adolescents. Results from this study supported their previous work. The racial differences (Black and White) in maturational timing again produced large racial differences in the rates of sexual intercourse among adolescents. These results reinforced the researchers' opinion that maturational timing differences between Black and White females has been substantially underestimated in understanding adolescent sexual behavior.

Rodgers and Rowe (1998) have also developed a system of nonlinear EMOSA models that portray adolescent sexuality with pregnancy as an outcome. This model was based on a social psychological model in which adolescents interact, grow older, some have sexual intercourse, and some girls become pregnant. The researchers recognized the advantages and disadvantages of nonlinear modeling, but believed that a nonlinear model had the conceptual advantage of being generated from processes that were more realistic than those for which linear models account. In addition, the nonlinear models have the advantage of being descriptive and predictive.

Sexuality prevalence, pregnancy rates, and maturity rates representing national patterns from 1980 to 1990 for Whites, Black, Hispanics, and the total population were used to fit the nonlinear sexuality/pregnancy models (Rodgers et al., 1998). The pregnancy models that evolved in this study implied that pregnancy rates are a function of the proportion of sexually active girls in the social network. In the context of the models developed, pregnancy probabilities did not differ across age or sexual experience. The least ambiguous estimate of the demographic effect of pregnancy and childbirth found that the probability within a given year that a sexually active adolescent girl would get pregnant and ultimately give birth was .11 for Whites, .23 for Blacks, .26 for Hispanics, and .15 for the total population. Overall, the model that best fit the data predicted that approximately one in seven sexually active adolescent girls would have a pregnancy resulting in a live birth in any given year. The researchers believe that this type of modeling is sensitive to subtle processes and assumptions that are not easy to observe and estimate directly.

Adolescents interact through a variety of social settings and they exert various types of mutual influences on each another. Through these interactions, the social contagion process contributes to the formation of the adolescent's values, attitudes, and expectations regarding sexual behavior and welfare participation. Therefore, if the group norm is accepting of unmarried teen childbearing and welfare participation, then these norms will be more influential on their sexual behavior than a change in social policy. Based on social contagion theory, the informal norms and mores of the adolescent's reference group influence adolescent sexual behavior and not formal social policies.

Within the framework of social contagion theory, the number of potential partners with whom the adolescent comes in contact is also a factor that influences adolescent sexual behavior. It is assumed that the likelihood of frequent social interactions between adolescents and potential partners will be more prevalent in areas that are more densely populated. Therefore, if the reference group and social contagion influence the pattern (either increasing or decreasing) of unmarried teen births, there will be less change in this pattern after the implementation of the 1996 welfare reform in more densely populated areas. But, if a change in social policy contributes significantly to a change in the pattern of the unmarried teen birth rates, an examination of these patterns after the implementation of the policy should provide evidence of a decreasing trend in all groups of adolescents.

Assumptions

The assumptions used in this study included:

1. The number of unmarried teen births not recorded by the Texas Department of Health was too small to effect the conclusions of the study.

2. The demographic data provided by the Department of Rural Sociology at Texas State A&M University was an accurate estimation of the population under investigation.

3. Six years was an adequate length of time for detecting any change in the unmarried teen birth rates.

4. The prevalence of unmarried childbearing among adolescents is a function of the sexual attitudes and behaviors of their reference group.

Hypotheses

The following hypotheses were addressed in this study:

H_1: There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties.

H_2: Teen population density, ethnic homogeneity, and welfare participation are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.

Definition of Terms

The following definitions were used to specify how each concept or variable was operationally defined in this study:

1. Welfare Reform is a change that occurs in the welfare system due to the revision and implementation of social policies. Welfare refers to a government funded program that provides economic support to unemployed or under-employed people. Welfare reform legislation in Texas is represented by House Bill (HB) 1863 and is entitled "Achieving Change for Texas." Texas' welfare reform provisions were initiated in June 1996 and all major provisions of the legislation were implemented throughout Texas' 254 counties by January 1, 1997. The federal welfare reform legislation was signed into law in August 1996 and is entitled the Personal Responsibility and Work Opportunity Reconciliation Act.

2. Unmarried teen birth rate represents the quarterly (3 months) unmarried teen births for each county in Texas from January 1,1994 through December 31, 1999. An unmarried teen birth is a birth that occurs to women less than 20 years of age. The teen was considered unmarried if there was a "no" response to the question regarding her marital status on the infant's birth certificate. The birth rates were based on the total number of unmarried births to women less than 20 years of age living in the county during that quarter divided by the

total number of females aged 12-19 living in the county during that year. Multiplying the result by 1,000 provided the unmarried teen birth rate per 1,000 female teens for that quarter. The population estimates for the number of teens living in each county per year were obtained from the Texas State Data Center.

3. Teen population density was used as a proxy for the theoretical construct of social contagion. It represents the number of adolescents 12 to 19 years of age per square mile in each Texas county. Teen population density was calculated based on the total number of adolescents 12 to 19 years of age living in each county in 1997 divided by the land area in square miles of that county. The number of teens living in each county was obtained from the Texas State Data Center. The 1997 teen population data were selected as the numerator in calculating teen density because they best represent the teen population after the statewide implementation of welfare reform in Texas. The land area in square miles for each county in Texas was obtained from the 2000 State of Texas Almanac (Ramos & Plocheck, 1999).

4. Welfare participation was used as a proxy for the theoretical construct of social contagion. It represents the number of recipients receiving welfare benefits in each county in Texas. Welfare participation was calculated based on the number of recipients in each county receiving welfare benefits divided by the total number of people living in the county. The result was multiplied by 100 to create a percentage of people receiving welfare benefits in a county. The percentage was created using data from 1996 since this year best represents the population receiving welfare benefits prior to the implementation of statewide welfare reform in Texas. The number of welfare recipients for each county in Texas was obtained from the Texas Department of Human Services.

5. Ethnic homogeneity was used as a proxy for the theoretical construct of reference group. It reflects the population of a geographic unit with greater than 50% of persons from a single ethnic background. The number of people in each county from a given ethnic background (White, Black, Hispanic, or Other) was divided by the total number of people living in the county. This number was multiplied by 100 to obtain a percentage of the county's population that represents each ethnic group. Any county with greater than 50% of its population comprised from a single ethnic group was considered to be ethnically homogeneous. The 1997 population estimates were selected as the numerator in calculating ethnic homogeneity for each county because they best represent the county's population at the time of implementation of welfare reform in Texas counties.

Limitations

The limitations that restrict the generalizability of this study to other situations or populations are:

1. The 1996 welfare reform legislation allows each state to develop and control their individual public assistance program. This decreases the ability to generalize these results outside of the State of Texas.

2. Birth certificate data obtained from the Texas Department of Health (TDH) may contain inaccurate or missing data.

3. Population density, ethnic homogeneity, and welfare participation at the county level are constantly fluctuating. This limits the ability to generalize findings from this study to another period in time.

4. The elapsed time post welfare reform may not be of sufficient duration to detect all the possible changes in unmarried teen childbirth rates.

Delimitations

1. Only the information about the unmarried teen births related to adolescents less than 20 years of age in Texas counties were used in this study.

2. Data were obtained for 3 years before and 3 years after the implementation of the 1996 welfare reform legislation.

Summary

Social welfare policies are often blamed for contributing to increasing unmarried teen childbirth rates. Previous studies examining the relationship between welfare and unmarried teen childbirth have provided inconclusive evidence to support the idea that welfare benefits have significantly contributed to the increase in unmarried teen childbirth rates over the last 50 years. Reference group and social contagion theory suggest that the propensity for unmarried teenage childbearing is a function of the sexual attitudes and behaviors that exist within the adolescent's personal and social environment, not an incentive to obtain welfare benefits. These theories provided the framework for testing the hypothesis that welfare benefits will not be associated with the occurrence of unmarried childbearing among adolescents.

One of the major aims of the 1996 welfare reform legislation is to reduce the incidence of unmarried teen parenting. The purpose of this study was to describe the effect of the 1996 welfare reform legislation on unmarried teen birth rates in Texas. The ability for teen population density, ethnic homogeneity, and welfare participation to predict the unmarried teen childbirth rates after the implementation of this legislation was explored. Unmarried teen childbearing is a multidimensional phenomenon that is prevalent within society and this study tested the belief that changing public policies will not significantly reduce the incidence of unmarried teen childbearing.

CHAPTER II

REVIEW OF LITERATURE

Sexual activity among adolescents in the United States has been steadily increasing since the 1970s (Ventura, 1995). Current studies indicate that 76% of young women and 80% of young men in the U.S. have sexual intercourse by age 20 (Ventura et al., 1999b). Approximately one million teenagers in the United States become pregnant each year (Ventura, 1995) and more than 75% of the teens who give birth will not be married (National Campaign to Prevent Teenage Pregnancy, 2000).

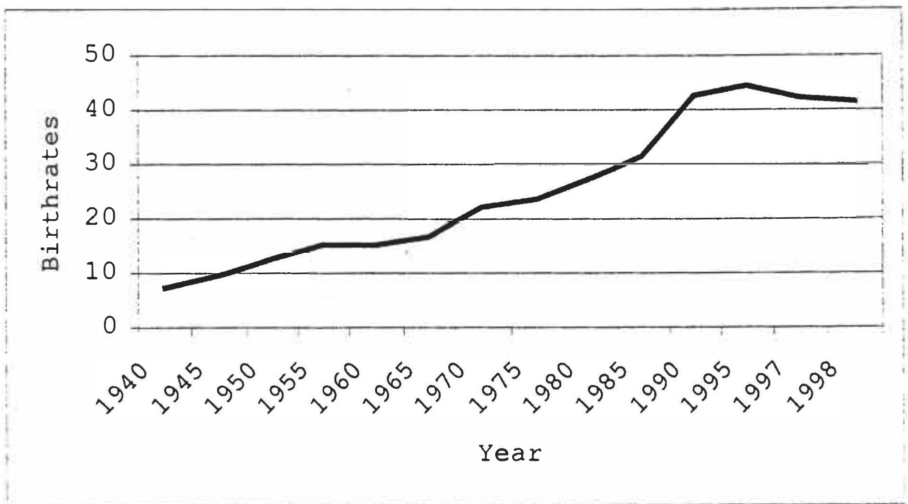
Unmarried teen mothers are characterized in the literature as predominately minority women from poor, urban families, but recent studies dispute the assumption that teenage childbearing is a problem found only among minorities living in urban settings (Ventura, 1995). Unfortunately, few research studies on unmarried teen childbirth include both rural areas and minority populations (Ventura, 1995).

Unmarried teen mothers are also portrayed as being financially dependent on government-sponsored programs to provide them support. This portrayal fueled the debate about the influence of welfare benefits on unmarried adolescent childbearing and prompted the implementation of the 1996 Welfare Reform Legislation. One of the major aims of this legislation was to reduce single parent families--especially among teens. This review of the literature examined the trends in unmarried teen childbirth rates, teen population density, and welfare participation. It also addressed welfare inception and reform and the study of change through growth curve modeling.

Trends in Unmarried Teen Childbirths

The primary measure used to describe and explain the patterns and trends in the incidence of nonmarital childbearing is the birth rate for unmarried mothers. This rate is usually defined as the number of nonmarital births per 1,000 unmarried women from 15-44 years of age. However, the numerator and denominator can be changed to reflect the population of women under study. The birth rate for unmarried mothers provides researchers with a means for measuring the "risk" of pregnancy for an unmarried woman in a particular year (Ventura, 1995).

Researchers have identified distinct periods in the history of unmarried teen birth rates over time (Ventura & Curtin, 1999). Beginning in 1940, the unmarried teen birth rate in the United States was 7.4 per 1,000 teens aged 15-19. From 1940 until 1957, the unmarried teen birth rates steadily increased until they had more than doubled at 15.7 per 1,000 teens. For the next 8 years, the rates remained virtually unchanged. Then, in 1965 the rates began to rise until they reached 22.8 per 1,000 teens in 1972. This change represents approximately a 43% increase from 1965 to 1972 (Ventura et al., 1999b). The unmarried teen birth rates rose again from 1978 until 1991, reaching 44.8 births per 1,000 teens. This change represented an increase in the unmarried teen child birth rate of approximately 80% (Henshaw, 1998). Finally, in 1992 the rates began to decline and from 1992 to 1998 the unmarried teen birth rates decreased from 44.6 to 42.2 births per 1,000 teens (see Figure 1) (Aral & Cates, 1989; Kaufmann et al., 1998).



<u>Figure 1.</u> Unmarried teen birthrates per 1,000 teens aged 15-19 from 1940 to 1998.

Despite a decrease in the unmarried teen birth rates during the 1990s, the number and proportion of births to unmarried teens have continued to increase. In 1940, there were 42,600 births to unmarried women less than 20 years of age (Ventura, 1995; Ventura et al., 1999b) as compared 390,005 births to unmarried women less than 20 years of age in 1998. Preliminary data from 1999 indicate there were 382,655 births to unmarried women less than 20 years old. This represents a decrease in the number of births to unmarried women less than 20 years of age, but it does not represent a change in the percent of births to this particular cohort of women (Curtin & Ventura, 2000).

Along with rising numbers, the proportion of births to unmarried teens has also continued to increase over time. From 1950 to 1997, the proportion of births to unmarried teens aged 15-17 has more than tripled--rising from 23% to 87%. The increase among older teens has been even greater, rising from 9% in 1950 to 72% in 1997 (Ventura & Curtin, 1999). This trend has been the result of the sustained decline in the number of marriages that has occurred since the 1960s (Ventura, 1995). In 1960, about 28% of all 18-19 year old teens married in 1960 compared to 7% in 1997 (Lugaila, 1998; U.S. Census Bureau, 1971). No change in this trend is predicted for the future.

In 1966, population statistics describing marital status among teens aged 15-17 and 18-19 first became available. Researchers then had the opportunity to examine the birth trends in teenage subgroups (Ventura & Curtin, 1999; Ventura et al., 1999b). Between 1966 and 1980, the rates for teens 15-17 years of age rose from 13.1 to 20.7 per 1,000 teens or approximately 57% and the rates for teens 18-19 years of age rose from 25.6 to 38.7 per 1,000 teens or approximately 52%.

From 1980 to 1992 the unmarried teen birth rates for teens 18-19 years of age rose more sharply than for the 15-17 year old teens. During that 12-year time frame, the rate for older teens (18-19 years of age) increased 73% from 39 to 67.3 births per 1,000 teens. The younger teen (15-17 years of age) birth rate increased 50% from 1980 to 1991 and then dropped slightly in 1992 (Ventura, 1995). However, during the time period from 1994 to 1998, the birth rate for unmarried teens aged 15-17 years declined 16% and for teens aged 18-19 years it declined 8%. In 1998, the teen birth rate among unmarried women 15-19 years of age was 41.5 per 1,000 teens and among unmarried women 18-19 years of age it was 64.5 per 1,000 teens (Ventura et al., 2000b).

The higher rates of childbearing among older teens (ages 18-19) compared to younger teens (ages 15-17) may be explained by the findings that indicate that older teens have higher rates of sexual experience and more frequent sexual intercourse (Ventura, 1995; Ventura et al., 1999b). Older teens are also more likely to intentionally want to become pregnant (Ventura & Curtin, 1999). This explanation supports the social contagion premise that young adolescents participate in sexual behaviors less frequently than their older counterparts, but as the adolescent ages, exposure to potential partners increases and the sexual behavior spreads (Abma, Chandra, & Mosher, 1997).

Birth rates for unmarried women by race for both White and Black teens have been available since 1969. Prior to 1980, birth data by race were tabulated based on the race of the child, but beginning with the 1980 data, tabulations are based on the race of the mother. The birth rates for unmarried White teens rose steadily during the 1970s from 9.7 births per 1,000 in 1969 to 16.5 per 1,000 in 1980 (Sonenstein, Ku, & Lundberg, 1998). From 1980 to 1994, the White unmarried teen birth rate more than doubled to 36.2 per 1,000 and then declined to 34.0 per 1,000 from 1995 to 1998. In 1969 the unmarried Black teen birth rate was 90.3 per 1,000 and by 1980 the rate had dropped to 87.9 per 1,000. The rate for unmarried Black teens then rose 20% to 105.9 per 1,000 from 1980 to 1992 (Ventura, 1995), but has since declined to 83.4 births per 1,000 in 1998 (see Figure 2) (Ventura et al., 2000b).

Birth and population data by marital status for women of Hispanic origin have only been available for extraction from birth records since 1990 (Ventura, 1995; Ventura et al., 1999b). The birth rate for unmarried Hispanic teens has increased at a pace similar to that of White teens since 1990 (Ventura & Curtin, 1999). In 1990, the unmarried birth rate for Hispanic teens 15-19 years of age was 65.9 per 1,000. The rate peaked in 1994 at 82.6 per 1,000 and in 1998 it had declined to 73.9 per 1,000. In 1998, the birth rate among unmarried Hispanic teens aged 18-19 was 107.8 per 1,000 as compared to 53.0 per 1,000 among unmarried Hispanic teens aged 15-17 (see Figure 2) (Ventura et al., 2000b).

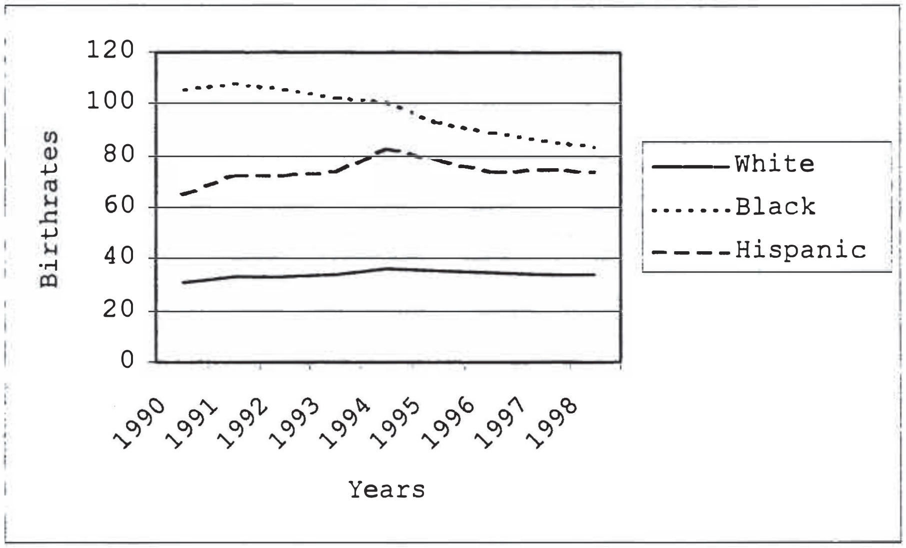


Figure 2. Birthrates per 1,000 unmarried teens aged 15-19 by ethnicity from 1990 to 1998.

Sexual activity, contraceptive use, and induced abortions are major factors that affect the unmarried teen childbirth trends. The decline in birth rates for teens since 1991 has been attributed to a change in adolescent sexual behavior. According to the 1995 National Survey of Family Growth (NSFG), the proportion of teens who engage in sexual activity has stabilized as compared to the steady increase in teenage sexual activity that occurred during the prior two decades (Abma et al., 1997). Analysis of data in two surveys limited to teenagers, the National Survey of Adolescent Males (Sonenstein et al., 1998) and the 1997 Youth Risk Behavior Surveillance Survey (Center for Disease Control and Prevention, 1998), revealed a decline in sexual activity among teenagers. In addition, there has been an increase in the consistent long-term use of contraception and condoms among teens (Piccinino & Mosher, 1998; Terry & Manlove, 2000). Perhaps this change also could be attributed to an overall change in normative behavior within specific adolescent reference groups.

Population Density

Unmarried Teen Childbearing

Although the relationship between teenage childbearing and population density has recently gained more attention, it has been studied infrequently. Rural and urban are terms often used in research to describe the population density of a geographical area. The concept of "population density" is operationalized based on the preference of the researcher when it is used as a variable in a study. Therefore, caution needs to be observed when comparing the findings from these studies.

South (1999) conducted a study using data from the Panel Study of Income Dynamics (PSID) to examine whether the impact of previously identified sociodemographic risk factors of a first premarital birth have changed over time. The nationally representative sample included data from 2,794 women aged 15-38 over a 25-year period of time (1968-1993). The study found significant effects of race and ethnicity, family background, and geographic location on the likelihood that a woman will have an unmarried birth. The results of the study found that Black women were 2 1/2 times more likely to have an unmarried birth than White women. In addition, the results indicated that the risk of a first nonmarital birth increased significantly with increases in the level of socioeconomic disadvantage in the respondent's neighborhood. The risk was higher in metropolitan areas than in nonmetropolitan areas and lower in the South than in regions outside of the South.

In a study completed by the USDA Economic Research Service, researchers found a narrowing in the urban-rural difference in nonmarital childbearing from 1980 to 1994. The proportion of nonmarital births among women in urban areas was higher than the proportion of nonmarital births among women in rural areas, but as of 1994, unmarried teenage mothers accounted for 1 in every 9 infants born in rural areas as compared to 1 out of every 10 infants born in urban areas. This small difference suggests that place of residence does not significantly impact the incidence of nonmarital childbearing adolescents (Frenzen & Butler, 1997).

An analysis of the 1990 census and vital statistics data assessed the frequency and outcomes of adolescent pregnancy by rurality for eight southeastern states. Teenage birth rates were higher in rural areas than in metropolitan areas with the exception of Black teens who had higher birth rates in metropolitan areas (Bennett, Skatrud, Guild, Loda, & Klerman, 1997).

Tomal (1999) used population density (population per square mile) as a measure of urbanization to examine its relationship to teenage childbearing in Illinois. The population density at the county level, had no significant impact between urbanization and teenage childbearing. Nonetheless, the study did indicate that the proportion of White population living in a county was a significant factor in determining the teenage birth rate for teens under the age of 18. Other research findings also have found that since the early 1970s there has been a strong relationship between Black nonmarital childbearing and Black population density throughout the United States (Murray, 1993).

In Canada, teenage pregnancy rates declined steadily from the mid-1970s until the mid-1980s. To assess the reasons for the steady decline, researchers conducted a study, using selected sociodemographic variables, to examine the relationship between these variables and the change in teen pregnancy rates over time. One of the variables selected by the researchers was person-average density. Person-average density represented a measurement of the 1981 population density (persons/square kilometer) for Health Units in the province of Alberta. The results of the study confirmed that person-average density played a major role in accounting for the variations in change in teen pregnancy rates across health units. Health units with large person-average densities in 1981 evidenced the greatest decline in teen pregnancy rates or the lowest increase during the period of time being studied (Krishnan et al., 1999).

Welfare Participation

Generally, participation rates in welfare programs among eligible individuals is always below 100%. Participation in these programs is dependent upon three factors: (a) an awareness that the program exists, (b) a belief that they are eligible for the program, and (c) a desire to apply for benefits. Thus, even though an individual might be aware of a program and believe they are eligible, they may choose not to participate (Hirschl & Rank, 1999; Rank & Hirschl, 1988). There is evidence that these three factors vary according to population density, but the role of geographic factors and its effect on participation in welfare programs has not been widely studied.

The most extensive work in studying the relationship between population density and welfare participation has been completed by Hirschl and Rank. Their first study (Rank & Hirschl, 1988) followed 2,796 households in Wisconsin who were receiving public assistance (either AFCD, Food stamps, and/or Medicaid) for 3 years to determine if there is a rural-urban difference in welfare exits. The researchers found that welfare participants from rural counties were more likely to exit welfare programs than participants living in urban counties. After finding that population density affects welfare exits, the researchers used an in-depth qualitative interview to examine the participants' attitudes and experiences concerning welfare use. The urban and rural welfare participants differed in their attitude, perception in receiving public assistance, and patterns of interaction with providers and other recipients. All welfare participants felt stigmatized, but the participants in rural counties felt a greater degree of shame and had less association with individuals who could alleviate these negative feelings.

Recognizing that there were limitations in generalizing the results from the previous study to other rural areas, Hirschl and Rank (1991) replicated the study using a national sample. To test the hypothesis that urbanity influences welfare participation, the researchers used monthly AFDC and Food Stamp participation data for 1980. Data for all 3,137 counties and county equivalents in the U.S. were obtained from the U.S. Department of Health and Human Services and from the U.S. Department of Agriculture. Urbanity was defined based on population density as measured by percent population urban. After controlling for levels of poverty, the results of the study indicated that counties with greater population densities were more likely to have higher participation rates than counties with lower population densities.

These findings supported the results from their earlier study. Regression models were then developed to control for rural/urban differences in educational attainment, labor force participation, work force disability, racial composition, age composition, household composition, and levels of poverty between counties. Several important relationships emerged from these models: (a) population density continued to have a positive and consistent effect on both AFDC and food stamp participation; (b) counties with higher rates of poverty, unemployment, low education attainment, percent Black, and disabled individuals had higher levels of welfare participation; and (c) counties with higher rates of female headed households and higher average AFDC payments revealed greater AFDC participation. These findings suggest that in addition to individual characteristics, spatial and geographic factors influence the national rates of welfare participation.

In two recent studies (Hirschl & Rank, 1999; Rank & Hirschl, 1993) these researchers used the Panel Study of Income Dynamics (PSID), a nationally representative longitudinal sample of households, to examine the relationship between food stamp participation and county population density (measured as a percentage population urban). Selected years from 1976-1987 were included in both studies. Food stamp program participation was selected as the dependent variable representing welfare participation because eligibility standards for this program are similar across the U.S., whereas AFDC eligibility varies widely from state to state. Overall, the results of both studies found that poverty level and population density affect the decision to obtain food stamps.

However, in a sample of non-participating households who were eligible for food stamps, poverty rate within the county had an effect on the transition to participation, but population density did not (Hirschl & Rank, 1999). The results from the household, socioeconomic, and demographic control variables indicated that households headed by a minority were no more likely to participate in the food stamp program than are non-Hispanic Whites (Rank & Hirschl, 1993). The results suggest that population density cannot be ignored, but that the percentage of poverty within a county may be a greater predictor of food stamp participation.

The previous studies demonstrate several methods that have been used by researchers to operationalize population density at different geographic levels. The results provide evidence that population density has an affect on nonmarital childbearing and welfare participation. In addition, several studies argue that the racial or ethnic distribution within an area can also be a strong predictor of the unmarried childbirth rates, but not welfare participation. These studies support the use of reference group and social contagion as theoretical underpinnings for examining the relationship between unmarried teen childbearing, population density and welfare participation. They reinforce the idea that adolescent sexual behavior is a function of the expectations of their peer group and this influence is strongest within densely populated areas.

Welfare

Inception and Reform

In 1935, the Social Security Act included a program entitled Aid to Dependent Families with Children (AFDC). This act allowed states to formulate their own definition for welfare eligibility, to determine the nature and size of their welfare programs and to consider the "moral character" of a woman seeking assistance for her child when determining eligibility for AFDC benefits. The underlying purpose of the program was apparently aimed at providing public money to unmarried mothers (primarily White widows) and their dependent children (Thomas, 1998)

By 1961, the social climate, which reflected higher divorce rates, spousal desertion, rising fertility, and births outside of marriage increased the number of women who were receiving AFDC benefits. Women that were either separated or divorced or single, headed the majority of families who received AFDC benefits. Widowed families comprised just

7.7% of the recipients--down from 61% in 1939 (Gerber & McGuire, 1995; Thomas, 1997; Videka-Sherman & Viggiani, 1996).

During the 1950s and the 1960s, single minority mothers and their children became the target of welfare reform legislation. Lawmakers attributed the shifting AFDC caseload and spiraling welfare costs to the morality of poor women and on their willingness to bear children outside of marriage. According to Solinger (1992), "the White women's illegitimacy was perceived as a treatable individual psychological phenomenon, but African American unwed mothers were mythologized as innately biologically flawed by hypersexuality" (p. 45). Lawmakers across the country began to pass legislation that eliminated benefits for women who were promiscuous, lacked moral and ethical standards and who had children out-of-wedlock. The aim of their legislation was to "clean up" the welfare rolls and to provide an incentive for conforming women's behavior. Instead, these changes created negative attitudes toward the dependent population of indigent women and the treatment of poor mothers receiving public assistance, particularly unwed Black mothers (Jewell, 1993).

In an attempt to encourage AFDC recipients to work for wages rather than receive benefits for domesticity, the federal government passed the Family Support Act (FSA) in 1988. The FSA authorized one billion dollars annually for welfare recipients to receive employment training, education, and related childcare costs. According to the Women's Policy Research, 39% of AFDC recipients were motivated to obtain employment or to combine work with welfare (Rich, 1992). Unfortunately, not every state fully matched the federal investment as required by law and women were often trained for low paying, unstable jobs that did not provide economic security and the provisions for childcare costs broke down (Mink, 1994).

The concept of a benefit cap for women receiving AFDC benefits was initiated in 1992 when President George Bush approved the "Parental and Family Responsibility Initiative." The goal of the initiative was to impose harsh monetary penalties on women who bear children while they are eligible for AFDC benefits. The underlying premise for the benefit cap was that increased AFDC benefits for additional children would "encourage promiscuous behavior, lead to more illegitimate children and make women indifferent to their fault" (Thomas, 1997, p. 359). Opponents of the benefit cap cited that there was no empirical evidence to support the supposition that increased AFDC benefits for additional children encouraged women to conceive and bear additional children.

The major thrust of the welfare reform legislation that was signed into law on August 22, 1996, was to reduce single parent families (especially among teens) and subsidies for non-working poor people (Berner, 1996). The new legislation replaced AFDC with a block grant entitled Temporary Assistance to Needy Families (TANF) and ended a 61-year-old custom of providing welfare benefits to eligible low-income mothers and their children. Welfare reform changed eligibility requirements for potential recipients, but did not change the amount of the benefit the recipient would receive if they applied and were found to be eligible.

Implementation of the new law was to begin in all states by July 1, 1997 (some major provisions, including the end of AFDC, took effect October 1, 1996). However, states were allowed to continue waiver-based programs that were approved before the enactment, even if provisions of the state programs were inconsistent with the new law. Approximately 40 states (including Texas) have waivers that have been approved by the federal government.

The TANF program allows the federal government to provide an annual lump sum of money to each state, regardless of its number of AFDC recipients, instead of providing matching state payments. The size of the grant that a state receives is based on recent federal spending for welfare programs in that state. States are not required to spend their own matching funds in order to receive the TANF funds and the new law authorizes the states to develop and control their own public assistance programs. This flexibility can lead to great variations between states in the implementation of social policies (Berner, 1996; Blank, 1997; Hagen, 1999; Page & Arena, 1994).

There are constraints associated with receiving TANF benefits. These constraints stipulate that: (a) states must require adult recipients to work or do community service, (b) no family may receive TANF federal assistance for more than five years, and (c) no federal funds can be utilized to provide assistance to immigrants or to teen parents who live independently of a parent or adult guardian (Blank, 1997; Page & Larner, 1997; Velsor-Friedrich, 1997). New legally admitted aliens also are disqualified from receiving TANF benefits for the first 5 years after their arrival to the U.S. Additionally, their sponsor's income will be counted in determining whether they are eligible for welfare. Unmarried minor parents will also be ineligible for benefits if they do not have or are not pursuing a high school diploma (Castro, 1997; Knitzer & Bernard, 1997).

There are other responsibilities that recipients must fulfill to maintain TANF benefits. These include: (a) cooperating with the state to establish paternity of children in an effort to secure child support from the absent parent, (b) ensuring that minor children attend school as required by the state laws, and (c) complying with the state in establishing a plan for future employment (Castro, 1997; Hagen, 1999).

The Personal Responsibility and Work Opportunity Reconciliation Act also impacted the Food Stamp and Social Security Income (SSI) programs. Minor parents who live with their own parents are no longer eligible to be treated as a separate household for the purposes of establishing eligibility for Food Stamps. The earned income of students between the ages of 17 and 21 is also calculated when determining eligibility for the program (Castro, 1997). Most legal immigrants are denied Food Stamp benefits (Velsor-Friedrich, 1997) and Medicaid eligibility is no longer linked to AFDC as it was in the past (Page & Larner, 1997).

Under the new law, states are required to provide Medicaid coverage to all families who meet the income and family structure guidelines that applied to the state's AFDC program on July 16, 1996. The states also have the option of lowering the income limits on eligibility to the level that applied on May 1, 1988 and to deny Medicaid benefits to legal immigrants (Moffitt & Slade, 1997). Although adults may lose Medicaid coverage if their cash benefits are terminated, coverage for children and pregnant women should not be affected.

Social Policy and Unmarried Childbearing

Teenage pregnancy was first perceived as a social problem in the 1960s and 1970s. The increasing number of single teen mothers on the welfare rolls contributed to this opinion. During this time frame, polices and legislation that focused on access to abortion, access to contraception, and the role of parents in monitoring sexual decision making and behaviors were enacted (Gilchrist & Schinke, 1983; Montessoro & Blixen, 1996; Rhode, 1993-1994; Weatherley, 1991). The underlying premise of these policies was based on that idea that easier access to information and contraception would decrease the incidence of pregnancy among teens.

Due to the continuing cost to society, unmarried teenage childbearing has remained a concern for politicians and the public. The recent welfare debates have focused on the "welfare incentives" that politicians and others perceive have been affecting unmarried teen birth rates. The hypothesis that the welfare system has encouraged nonmarital childbearing, especially among teenagers, cannot be examined in an experimental study, therefore a variety of less rigorous methods have been used.

Furstenberg (1976) completed one of the first studies that discussed the social consequences associated with adolescent pregnancy. His results were part of a 6-year longitudinal study that began in 1966. The sample consisted almost exclusively of first-time pregnant Black women under the age of 18 who were residing in low-income households. Only 9% said that they had deliberately failed to use contraception in order to get pregnant. At the end of the 5-year study, three out of five mothers were either self-supporting or were non-working women married to wage-earning males. Almost two-thirds of the mothers were on welfare at some time during the study and most of the women who were receiving benefits at the 5-year mark were not long-term recipients. Slightly half these mothers had been receiving welfare benefits for more than 12 months and only one-third had been on welfare for 30 months. Furstenerg believed that one of the major reasons why teenage mothers encounter problems is because they lack the resources to correct the damage caused by a birth during adolescence. He felt that to change the life course of the adolescent parent, society must provide the appropriate economic assistance. This assistance ought to involve stable employment for one or both parents, accessible and affordable childcare that would permit parental educational and/or economic participation, and family planning services.

In 1977, Moore and Caldwell completed one of the earliest studies that examined the relationship between government policies and unmarried childbearing. Survey data from 1,479 Black and 3,132 White females aged 15-19 in 1971 living in households or college dormitories were collected. The survey included questions about sexual attitudes, reproductive attitudes and histories, and personal and family backgrounds. Public policy variables, representing the governmental programs in the respondent's state of residence at the time of the survey, were added to the participant's computer record so that a correlation could be made with the answers to the survey. The major policy conclusion from this study was that the amount of AFDC benefits available and the level of AFDC acceptance rate were not economic incentives for childbearing outside of marriage for either Blacks or Whites.

Ellwood and Bane (1985) completed the most widely cited study that examined the relationship between unmarried women and the differences in AFDC benefits between states. Using data from the 1976 Survey of Income and Education, the researchers found that in states with high AFDC payments, a larger proportion of single women with children lived independently, while single women with children in states with low AFDC payments were more likely to live with a parent. In addition, the results of their study also revealed that young single women who lived in states with high AFDC payments did not have more babies than their peers in states with low AFDC payments.

Murray (1993) reviewed studies that examined the incentive effect of welfare on unmarried childbearing and then used both cross sectional analyses and time series presentations for further exploration into this relationship. The researcher created an illegitimacy ratio based on the number of illegitimate births as a proportion of all live births and operationalized welfare as the mean family AFDC payment plus the food stamp allotment for a family of four in a given state. Between 1960 and 1975, Murray found that the nonmarital birth rates and the data on AFDC benefits tracked each other reasonably well. However, from 1975 until 1984, the nonmarital birth rates continued to increase at a rapid pace while the value of AFDC benefits decreased. A bivariate relationship between the size of the state's welfare benefits and illegitimacy was found for White females, but not for Black females. Murray concluded that a relationship between illegitimacy and AFDC exists, but whether that relationship is causal is still questionable.

Despite more sophisticated statistical analyses, studies continue to find contradictory relationships between welfare incentives and unmarried childbearing. Zimmerman and Gager (1997) used a pooled time series analysis that covered a 30-year period of time to examine the relationship between states' AFDC payments and unmarried teen birth rates. No positive relationship was found between the states' AFDC payments and teen birth rates. Their findings indicated that teen birth rates were higher in states where AFDC rates are lower. The researchers determined that the incentive effect of welfare was not applicable in states where teen birth rates are consistently high.

Winegarden and Bracy (1997) tested a structural model utilizing aggregate time series data (1973-1992) to ascertain the possibility of a link between unmarried childbirth and welfare benefits. In contrast to the previous study, the results of the study revealed a significant positive linkage between AFDC benefits and nonmarital childbearing despite the declining real value of welfare benefits over time. The welfare incentive was found for Black and White unmarried mothers, but the incentive effect was stronger among White females.

The difference in the samples used in these last two studies--childbearing women aged 15-44 (Winegarden & Bracy, 1997) versus unmarried teens aged 15-19 (Zimmerman & Gager, 1997), has to be considered when comparing the results. This caution is suggested because unmarried teens represent only 5% to 7% of the women who receive welfare benefits in the U.S. (Alan Guttmacher Institute, 1995). Different results may have been obtained by either study if another representative sample had been selected.

Studies that find a relationship between the incentive effect of welfare benefits on unmarried childbearing, usually find a relatively weak relationship. But unlike previous studies, a recent study did find a statistically significant and quantitatively large positive welfare incentive effect on nonmarital childbearing among women who were less than 23 years old (Rosenzweig, 1999). Using data from the National Longitudinal Survey of Youth (NLSY), Rosenzweig used a cohort approach and multinomial logit modeling to test whether the AFDC program and marital prospects affect fertility/marital decisions of 6,283 women aged 14-21. The findings indicated that higher AFDC benefit levels have a small effect on the probability of nonmarital childbearing among all young women, but have a substantial effect among women whose parental income is less than $10,000. Among women with poor parents, a 10% rise in welfare benefits increases a woman's probability of having a nonmarital birth before age 22 by 12% and decreases the probability of having no children by 2.3%. The effect of AFDC benefits on the fertility behavior of the nonpoor was insignificant. The findings from this study suggest that welfare programs encourage nonmarital childbearing among young women and aid nonmarital childbearing for young women who have poor marital and labor market prospects.

Hoffman and Foster (1999) replicated the above study using data from the Panel Study of Income Dynamics (PSID). Their sample included 1,806 women who were 22 years of age or less. The researchers were able to reproduce Rosenszwig's main finding that AFDC generosity influences nonmarital childbearing for women less than 23 years of age. But, when they modified the modeling to examine teens only, the effect of a welfare incentive was not evident. In another modification in which the analysis focused only on women in their early 20s, the effect was again present. These results suggest that the sexual behavior of women in their early 20s is more sensitive to welfare generosity than the sexual behavior of teens. Since the results for the PSID and NLSY samples were similar, but contrary to findings in previous research, Hoffman and Foster attributed the significant results to the methodological approach used by Rosenzweig.

The available research that examines the relationship between welfare incentives and nonmarital childbearing varies extensively. The studies differ in the populations they examine (teenagers, all women of childbearing age, different racial and ethnic groups), the way in which they measure welfare benefits, the time period examined, the statistical analyses used, and the individual and state level characteristics they take into account (Acs, 1996). Therefore, the results have been inconsistent and contradictory. Table 2 summarizes many of these studies.

Table 2

Summary of Studies that Examined the Effect of Welfare on Childbearing Decisions

Study	Time Frame	Data Set	Research Question	Results
Moore & Caldwell (1977)	1971, 1974	National sample of 1,479 Black & 3,132 White females aged 15-19	Examined time trends of nonmarital childbearing and AFDC benefits	No effect
Ellwood & Bane (1985)	1976	National sample of over 10,000 unmarried mothers aged 16-44	Likelihood of a nonmarital childbirth and level of AFDC benefits	No effect
Weingarden (1988)	1947-1983	National data on births to unmarried women aged 15-44	Examined time trends of nonmarital childbearing and AFDC benefits	Positive effect for non-White females
Ozawa (1990)	1984	National state by state data for births to unmarried women aged 19 or younger	Examined time trends of nonmarital childbearing and AFDC benefits	Positive effect for White females
Plotnick (1990)	1979-1984	National sample of 1,184 girls aged 14 or 15 in 1979	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect for White females
Duncan & Hoffman (1990)	1968-1985	National sample of 874 Black females aged 14 between 1969 and 1980	Likelihood of a nonmarital childbirth and level of AFDC benefits	No effect
Lundberg & Plotnick (1990)	1979-1985	National sample of 1,181 White females aged 14 in 1979	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect for White females

Table 2 (continued)

Study	Time Frame	Data Set	Research Question	Results
Murray (1993)	1954-1988	National statistics on unmarried childbearing for women aged 15-44	Likelihood of a nonmarital childbirth and level of benefits	Positive effect for White females
Moore, Morrison, & Glei (1995)	1976-1987	National sample of 1,143 youth aged 11-17	Likelihood of a nonmarital childbirth and level of AFDC benefits	No effect
Lundberg & Plotnick (1995)	1979-1986	National sample of 1,718 Black and White women aged 14-16 in 1979	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect for White females
Robins & Fronstin (1996)	1980-1988	National sample of 74,355 never married women aged 18-44	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect for Black and Hispanic females
Zimmerman & Gager (1997)	1960, 1970, 1980, 1985, 1990	National statistics on unmarried childbearing for women aged 15-19	Likelihood of a nonmarital childbirth and level of AFDC benefits	No effect
Winegarden & Bracy (1997)	1973-1992	National statistics on unmarried childbearing for women aged 15-44	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect for Black and White females
Rosenzweig (1999)	1979-1990	National sample of 6,283 women aged 14-22	Likelihood of a nonmarital childbirth and level of AFDC benefits	Positive effect. Effect double in low-income subsample
Hoffman & Foster (1999)	1968-1991	National sample of 1,806 women who were no older than age 12 in 1968 and were no older than 22 by 1991	Likelihood of a nonmarital childbirth and level of AFDC benefits	No effect on teens. Large effect on women in their early 20s

The inconsistent and contradictory research findings in the literature weaken the conclusion that the welfare system increases nonmarital childbearing. Research indicates that nonmarital childbearing is not limited to minority women or women who rely on welfare benefits. The phenomenon is found within all races, ethnic groups, and economic levels. Welfare benefits may discourage pregnant teens from marrying (Ozawa, 1989; Plotnick, 1993), but it has not been found to be the major impetus for adolescents to become pregnant (Moffitt, 1992; Murray, 1993; Winegarden & Bracy, 1997). Researchers have suggested that legislation aimed at removing single mothers from the welfare rolls needs to address broader social issues such as adequate housing, community services, employment opportunities for women, and provisions for adequate childcare rather than focusing on individual behaviors.

Texas and Welfare Reform

In May 1995, Texas' legislatures made the decision to significantly change the state's welfare system by passing House Bill (HB) 1863. Texas submitted its state plan, entitled "Achieving Change for Texas" (ACT), for reforming welfare to the federal government and was provided with a federal waiver in March 1996. The request for Texas' waiver was granted before the federal welfare reform was enacted, therefore, differences exist between Texas' welfare reform legislation and what is required in the federal legislation (see Table 3). Texas' federal waiver will expire in March 2002 and at that time the federal rules will apply (Texas Department of Human Services, 1997, 1998).

Implementation of Texas' welfare reform provisions under the federal waiver began in June 1996. As a condition of the waiver, there is a federal requirement to design and implement an evaluation project that includes both experimental and control groups within selected counties. The control groups' welfare eligibility and benefits are based on policies that were in effect prior to implementation of the waiver. Twenty Department of Human Services (DHS) offices in eight counties were assigned to participate in the evaluation phase. Within each of the 20 offices, clients were randomly assigned to either an experimental or a control group. The eight counties involved are Ector, El Paso, Jefferson, Nueces, Caldwell, Medina, Walker, and Bexar (Texas Department of Human Services, 1998).

Table 3

A Comparison of Texas and Federal Welfare Reform Measures

Key Provision	Texas (ACT)	Federal (PRWORA)
Time limits	Depending on a person's education and work history, time limits may be 12, 24, or 36 months. Five years must pass before TANF benefits can be received again.	Five-year lifetime limit (60 months). States can adopt shorter time limits.
Time limit exceptions	• Child only cases. • People who reside in counties that do not participate in Job Opportunities and Basic Skills (JOBS) programs. • Severe personal or local economic hardships.	• Child only cases. • A state can exempt up to 20% of its TANF caseload. State determines the exemptions.
Mandatory participation in work or work activities	Adult TANF caretakers who live in counties where JOBS is available must participate, with the following exemptions: • Anyone age 15 or younger, or age 60 or older; • Anyone ages 16-18 who attends school full time; • Caretakers of children under age 4 (age 3 in control groups); • Anyone needed in the home to care for an ill or disabled child or adult;	• Adult TANF caretakers, except those who have a child under age 1 (a one-time only exemption) Note. There is no exemption for two-parent families with a child under age 1.

Table 3 (continued)

Key Provision	Texas (ACT)	Federal (PRWORA)
Mandatory participation in work or work activities (continued)	• Anyone who is disabled; • Anyone who lives in an area that is remote from available employment and training resources; and • Anyone who volunteers full time for the Volunteers in Service to America (VISTA) program.	
Allowable work activities	Generally, the same work activities as were formerly allowed under JOBS are still allowed. There is no limit on the number of hours spent in a work activity.	Restrictions are placed on the types of work activities and hours spent in those activities-- such as education, literacy training, and job search--that can be counted in calculating a state's work participation rate.

Note. From the Texas Department of Human Services. (1998). Process evaluation of the Achieving Change for Texans: Welfare reform waiver track one evaluation (p. 25). Austin: Texas Department of Human Services.

The Texas Department of Human Services (DHS) is the department primarily responsible for administering state and federal programs that provide financial, health, and social services to people residing in Texas. Services are provided to the 254 counties in Texas through 10 administrative regions and more than 400 local offices. In the past, the DHS responsibilities included employment and child-care service programs. But, under HB1863, there was a consolidation of all work-related programs into a new state agency entitled the Texas Workforce Commission and responsibility for these programs was transferred to the new agency (Texas Department of Human Services, 1996).

The Temporary Assistance for Needy Families (TANF) program (formerly AFDC) in Texas is one of the programs that DHS is responsible for overseeing. Under the TANF block grant, Texas receives $486 million each year from the federal government (Texas Department of Human Services, 1999). With these funds, TANF provides basic financial assistance for needy children and the parents or caretakers with whom they live. As a condition of their eligibility, caretakers must sign and abide by guidelines outlined in the personal-responsibility agreement. Two-parent households who meet the eligibility criteria also can apply for benefits when the primary wage earner is temporarily unemployed. In addition, households that are currently not receiving TANF, but would otherwise be eligible, can now receive a lump sum payment of $1,000. The purpose behind providing this payment is to help solve a short time crisis and divert households from receiving ongoing TANF benefits. To qualify for this benefit, households must meet the crisis criteria as well as the requirements for TANF eligibility (Texas Department of Human Services, 1998).

The significant drop in the number of welfare recipients since fiscal year (FY) 1994 has been attributed to Texas' welfare reform legislation and its strong economy. In fiscal year (FY) 1999, there was an average of 369,938 TANF recipients per month receiving assistance as compared to 786,395 recipients in 1994. During FY1994, the annual cost to the state for providing welfare benefits was approximately $544.9 million whereas in FY1999 the cost of providing benefits had decreased to 234.8 million dollars (Texas Department of Human Services, 1994; Texas Department of Human Services, 1999).

Study of Change

Change is a continuous process. Studies that examine the association between initial conditions and final outcomes often do not collect enough information to characterize change adequately over time. According to Rogosa, Brandt, and Zimowski (1982), studies of change should ideally be longitudinal with multiple repeated observations.

Techniques for analyzing multiwave data over time include repeated measures analysis of variance (ANOVA), multivariate analysis of variance (MANOVA), and time series analysis. These methods have proven useful, but they do not allow for close exploration of the pattern of change over time and testing whether those patterns are related to other factors.

Growth curve analysis is a method that can be used to examine and measure change over time. Growth curve modeling provides an understanding of how a process unfolds and what variables influence the course of its development. The dependent variable in growth curve analysis does not represent an amount or rate of change, but rather it is a function that describes the process of change (Stoolmiller, 1995). The assumptions associated with using growth curve analysis are (a) the structure of the outcome measure does not change over time, (b) the outcome is measured in the same units over time, (c) the outcome variables has a normal distribution and is measured at an interval or ratio level, (d) homogeneity of variance exists within each analysis group, and (e) an adequate model has been selected to represent the patterns of change (Burchinal, Bailey, & Snyder, 1994). An advantage to using growth curve analysis over other longitudinal methods is that, within reasonable bounds, the estimation of individual growth curves is not jeopardized by the presence of measurement error (Rogosa, 1995).

In growth curve modeling, line segments (trajectories) are constructed that represent change over time. Modeling the occurrence of change in the data can be described as a function of any shape. Researchers have used polynomial, logistic, negative exponential, and nonlinear functions to model change (Karney & Bradbury, 1995). Once the model of change has been specified, the outcome variable is regressed onto a measurement of time or a transformation of time in order to obtain an estimate of the slope and intercept that best summarize the trajectory (Brekke, Long, Nesbitt, & Sobel, 1997). The precision of the estimates will tend to increase as the number of data points per individual increases (Rogosa et al., 1982). The estimate of the slope for these trajectories can then be used as a new outcome variable to be explained by other background or contextual variables.

Major research questions that growth curve modeling can address include: (a) describing the pattern of change in groups and individuals; (b) identifying the different patterns of change; and (c) identifying correlates associated with the patterns of change (Burchinal, Bailey, & Snyder, 1994). This methodology has been used in other disciplines to examine longitudinal change in marital quality (Karney & Bradbury, 1995), to explore the developmental patterns of children (Burchinal et al., 1994), and to assess the functional outcomes of a community support program on patients with schizophrenia (Brekke et al., 1997).

Changes in the U.S. welfare policies have focused on women and teen's sexual behaviors in an attempt to decrease unmarried childbearing (Montessoro & Blixen, 1996; Wilcox, Robbenolt, O'Keeffe, & Pynchon, 1996). Studies to measure the change in unmarried childbearing among teens and the extent to which any change can be attributed to recent changes in public policy need to be completed. Growth curve analysis is a method that can be employed to examine the patterns in unmarried teen births before and after the implementation of welfare reform policies in Texas.

Summary

Research findings indicate that the unmarried teen birth rates have been dropping since 1992, but the number and proportion of births to unmarried teens has continued to increase. Unmarried teen birth rates vary by age, race and ethnicity; however, the rates have remained consistently highest for Black females aged 18-19. Reasons for the geographic variation in unmarried teen childbirth rates and welfare participation are currently not well understood, but studies focusing on population density and race/ethnicity have found that these may be useful in predicting nonmarital childbearing (Krishnan et al., 1999; South, 1999; Tomal, 1999). Further investigation of these variables and their contagion effect on unmarried teen childbearing is therefore warranted.

On August 22, 1996, federal legislation ended a 61-year guarantee of providing welfare benefits to eligible low-income mothers and their children. The major aim of the welfare reform legislation was to reduce single parent families (especially among teens) and subsidies for non-working people. Since the inception of welfare in 1935, there has been an ongoing debate about the relationship between welfare and its influence on unmarried pregnancy and childbirth. There is evidence that welfare may discourage a pregnant teen to marry, but the contradictory findings in the current research studies weaken the conclusion that welfare is an incentive for teens to become pregnant.

Texas legislatures made the decision to significantly change the state's welfare system by passing House Bill (HB) 1863 in 1995. Implementation of Texas' welfare reform provisions under a federal waiver began in June 1996. The TANF program (formerly AFDC) provides basic financial assistance for needy children and the parents or caretakers with whom they live. The Department of Health and Human Services is the agency responsible for overseeing this program.

Literature regarding the variables of interest in this study were reviewed and discussed. These variables included unmarried teen births, welfare, and population density. Research studies that examined the possible connection between unmarried teen childbearing and welfare benefits were also reviewed. Methodological issues related to the use of population density as a variable, examining the relationship between unmarried teen childbirth and welfare, and measuring change through the use of growth curve analysis were discussed.

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This quasi-experimental study was designed to describe and examine the unmarried teen birth rate pattern before and after the implementation of the 1996 welfare reform legislation in each Texas county. A model that provides an estimate of the effect of welfare reform on the unmarried teen birth rate patterns was developed. Analysis to determine if population density, ethnic homogeneity, or welfare participation in a county are predictors for unmarried teen childbearing was also completed. The study used archival data for analysis and to test the hypotheses.

Setting

The setting for this study included each of the 254 counties in the state of Texas. Located geographically in the southwestern section of the United States, Texas ranks second in size among the 50 United States and it covers a total area of 261,914 square miles (Ramos & Plocheck, 1999). The counties in Texas range in physical size, based on land area, from 112.8 square miles (Rockwall County) to 6,610 square miles (Brewster County). There are 176 counties that cover less than 1,000 square miles of land area, 66 counties cover between 1,000 and 2,000 square miles of land area, and the remainder cover more than 2,000 square miles of land area (see Figure 3).

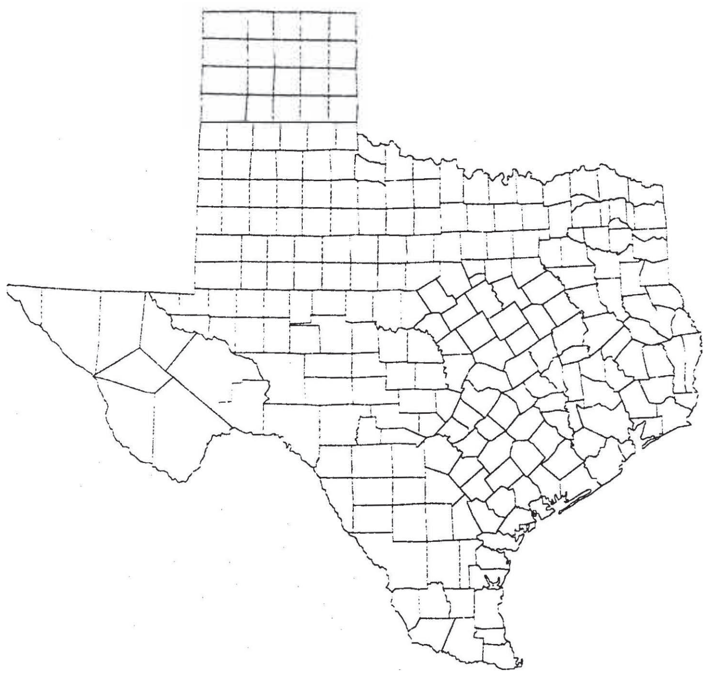


Figure 3. Map outlining the 254 counties in the state of Texas.

According to the Texas State Data Center in the Department of Rural Sociology at Texas A&M University, from 1990 to 1997, 207 of the 254 counties have shown population increases. Counties with the largest percentage increases have tended to be located in the areas around the state's largest cities. The largest numerical increases can be found in Harris, Dallas, Bexar, Tarrant, Travis, and El Paso counties. Rural counties, particularly those in areas with economies based on extractive industries such as gas and oil, have tended to show patterns of slow growth or decline in their populations. Of the counties showing population declines, Terrell, Roberts, Motley, and Loving showed the largest percentage decreases (Murdock, Hoque, & Pecotte, 1999). Harris County is the most populous county with 3,178,995 people while Loving

County is the least populous with only 95 residents (Ramos & Plocheck, 1999).

In 1990, Texas had the second largest Hispanic population and the third largest Black population in the U.S. Minorities accounted for 39% of the population as compared to 24% of the U.S. population. If the current patterns of population growth continue, Texas' population is projected to be 36.7% White, 9.5% Black, and 45.9% Hispanic by 2030 (Murdock, Hoque, Michael, White, & Pecotte, 1997).

Population

In this study, the 254 counties in Texas represented the population under examination. The variable of interest within these counties was the births to unmarried women less than 20 years of age from January 1, 1994 through December 31, 1999. The unmarried teen birth information for each of these counties during this time frame was obtained from birth certificate data that are archived at the Bureau of Vital Statistics (BVS) in the Texas Department of Health (TDH).

Counties were selected as units of analysis because they are the primary legal divisions of every state, except Louisiana and Alaska. Louisiana has parishes, which are essentially similar to counties, and Alaska has boroughs. Despite differences in geographic size and characteristics, counties can be compared nationally because they represent an organizational unit within a state. Counties have also been found to represent a relatively stable measure of the population structure and are less subject to small area variation than other units of measurement (Hirschl & Rank, 1999).

Protection of Human Rights

This study followed the guidelines set forth by the Texas Woman's University Human Subjects Review Committee for a Level 1 study (no risk to the participants). Permission to conduct the study was obtained from the Human Subjects Review Committee and from the Dean of the Graduate School prior to initiation of the formal investigation (see Appendix A). Birth data were obtained from birth certificate data that are archived at the BVS in the TDH. Due to the limited number of variables that were requested by the researcher, it was impossible to link any of information to a specific individual. Therefore, confidentiality was maintained.

Instrumentation and Data Collection

The data on unmarried teen births in this study were compiled from birth certificate information that are electronically stored at the Bureau of Vital Statistics (BVS) at the Texas Department of Health (TDH) in Austin, Texas. The specific variables requested from the birth certificate included the infant's birth date, the mother's age, marital status, mother's ethnicity, and county of mother's residence at the time of the infant's birth. During the time frame of this study, there were no changes in the birth certificate that altered the variables being used (B. Woldman, BVS, personal communication, May 17, 2000). A copy of the birth certificate form can be found in Appendix B. The information requested was sent from TDH to the researcher on a CD-ROM.

To register a birth in the state of Texas, the physician, midwife (or person acting as a midwife), or the mother or the father of the child must file a certificate of birth with the local registrar of the district in which the birth occurred. The birth is to be registered within 5 days of its occurrence. The local registrar in the county keeps a copy of the birth certificate and forwards the original to the Texas Department of Health, Bureau of Vital Statistics. Once the birth certificate is received at the Bureau of Vital Statistics, it is checked for completeness and accuracy by the Records Receiving, Nosology, and

Statistical Branches of the Bureau of Vital Statistics (Texas Department of Health, 1999).

The statistical files for births in Texas are composed of certificates of births that occurred during the calendar year and which are received by the statistical cutoff date (mid-May). Despite the Texas' civil statute requirement for the timely reporting of births, there is a small percentage of births in any given calendar year that are not received in time for inclusion in the statistical data sets for that year (see Table 4) (Texas Department of Health, 1999).

Table 4

Percent of Birth Certificates Received after the Statistical Cut-off Date

Year	Percent
1994	0.12
1995	0.16
1996	0.20
1997	0.10
1998	0.12

Population estimates based on age, ethnicity, and gender at the county level were obtained from the Texas State Data Center in the Department of Rural Sociology at Texas A&M University. Estimates are usually for the past, while projections typically are for future dates. The Texas Population Estimates Program produces annual county estimates of the total population of each county and estimates of the population by age, gender, and race/ethnicity. Estimates are created through mathematical computations using existing data sets that include information on births, deaths, elementary school enrollment, vehicle registration, voter registration, and housing units. County estimates are evaluated for consistency and reasonableness by comparing them to those from other State and local agencies before they are released. These data were used in creating the quarterly unmarried teen birth rates and the predictor variables of teen population density, welfare participation, and ethnic homogeneity. The information requested was sent from the Texas State Data Center to the researcher on a CD Rom.

The number of AFDC recipients in each Texas county during 1996 was obtained from Texas Department of Human Services 1996 Annual Report. The data provided in the report reflect the average monthly number of recipients, including children and caregivers, who received benefits during the year. For fiscal year 1996, the error rate for determining a potential recipient's eligibility was 4.29%. Among the six states in the nation with the largest issuance of welfare benefits, Texas had the second lowest error rate during fiscal year 1996 (Texas Department of Human Services, 1996).

Treatment of the Data

SPSS Graduate Pack 10 for Windows (SPSS, Inc., Chicago, IL) was used for exploratory data analysis, descriptive statistics, growth curve modeling, and regression analysis. Exploratory data analysis using graphical displays of the data allowed for identification of variation and patterns in the unmarried teen birth data. Descriptive statistics were used to examine and describe the unmarried teen birth rate patterns, ethnic homogeneity, teen population density, and welfare participation for each county in Texas. Growth curve modeling was used to examine the influence of the 1996 welfare reform on unmarried teen childbirth rates in each Texas County from January 1, 1994 through December 31, 1999. Ethnic homogeneity, teen population density, and welfare participation were used as predictor variables in hierarchical regression analysis to estimate the slope of the post-welfare reform unmarried teen child birth rates.

Growth curve analysis requires two or more measures over time to create the trajectories. To meet this requirement, the unmarried teen birth data were aggregated into quarterly birth counts based on the county of residence of the teen mother. The quarterly birth counts for each county were then converted into rates using the number of teen births to unmarried female teens as the numerator and the county's female population aged 12-19 as the denominator. The result was multiplied by 1000 to obtain the rate of unmarried teen births per 1,000 female teens. Using a rate rather than the number of births to unmarried teen mothers controlled for the variation in the number of unmarried teen births that occur in each county. Quarterly birth rates for unmarried teens provided 24 different data points for the 6 years under study. Birth certificates that were missing mother's age, marital status, or a Texas county of residence were not included in the aggregated data set.

Growth curve analysis proceeded in two stages. In the first stage, the calculated unmarried teen birth rates were used in a regression equation to estimate the trajectory of the rates for each county pre- and post-welfare reform. These trajectories described the unmarried teen birth rates for each county by estimating the initial levels (the intercept) and the rates of change (a slope). A positive slope indicated that unmarried teen childbirth rates were increasing over time and a negative slope indicated decreasing rates. The two slopes were then compared to determine if there was a significant difference between them. The unmarried teen births that occurred during the first 9 months after the implementation of the welfare reform legislation were considered to be a function of the pregnancies that occurred prior to the change in social policy and were controlled for in the statistical modeling. In stage two, estimates of the slope and intercept of the individual trajectories, or growth curves, were treated as a new outcome variables to be explained by other background or contextual variables in a between county analysis. In this study, teen population density, ethnic homogeneity, and welfare participation were selected to be used as predictor variables in a hierarchical linear regression equation.

Ethnic homogeneity and teen population density were operationalized using 1997 population estimates obtained from the Texas State Data Center. Ethnic homogeneity reflected the population of a geographic unit with greater than 50% of persons from a single ethnic background. The number of people in each county from a given ethnic background (White, Black, Hispanic, or Other) were divided by the total number of people living in the county. This number was multiplied by 100 to obtain a percentage of the county's population that represents each ethnic group. Any county with greater than 50% of its population comprised from a single ethnic group was considered to be ethnically homogeneous.

To calculate the teen population density, the number of teens aged 12-19 living in each Texas county was obtained from the 1997 population estimates and the number of land area in square miles for each county was obtained from the <u>2000 Texas State Almanac</u> (Ramos & Plocheck, 1999). The number of teens living in each county was divided by the land area in square miles for that county. The result represented the number of teens living per square mile of land area in that county.

Welfare participation in each county in Texas during 1996 was based on the 1996 population estimates and the number of people receiving AFDC benefits for that year. The number of people receiving welfare benefits in each Texas county was divided by the total number of people living in the county. The result was then be multiplied by 100 to obtain a percent of the population in each county that received welfare benefits in 1996.

Summary

Growth curve analysis was used in this quasi-experimental study to examine the influence of the 1996 welfare reform legislation on the unmarried teen birth rates in Texas' counties. Quarterly unmarried teen birth rates were calculated for each county in Texas based on the number of unmarried births to women less than 20 years of age from January 1, 1994 through December 31, 1999. These rates provided the measurements needed to create the trajectories for growth curve modeling. Estimates of the slope and intercept that were obtained from these trajectories were then used as outcome variables in hierarchical regression analysis. The predictor variables selected for inclusion in the regression equation were ethnic homogeneity, teen population density, and welfare participation.

CHAPTER IV

ANALYSIS OF DATA

This study used growth curve modeling to examine the effect of the 1996 Welfare Reform Legislation on unmarried teen childbearing rates in Texas. The chapter provides a description of the unmarried teen birth data and the selected county-level predictor variables. The predictor variables were teen population density, ethnic homogeneity, and welfare participation. In addition, this chapter describes the research procedures, presents the results of the statistical analysis, and provides a summary of the findings. The findings are presented in order of the study's hypotheses. The hypotheses were:

H_1: There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties.

H_2: Teen population density, ethnic homogeneity, and welfare participation are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.

Description of the Study Population

In this study, the 254 counties in Texas represented the population under examination. The variable of interest within these counties was the number of births to unmarried women less than 20 years of age from January 1, 1994 through December 31, 1999. The unmarried teen birth information for each of these counties during this time frame was obtained from birth certificate data that are archived at the Bureau of Vital Statistics (BVS) in the Texas Department of Health (TDH). In addition to the date of birth, information on the mother's age, marital status, county of residence, and ethnicity were obtained.

Counties were selected as units of analysis because they are the primary legal divisions of every state, except Louisiana and Alaska. Louisiana has parishes, which are essentially similar to counties, and Alaska has boroughs. Despite differences in geographic size and characteristics, counties can be compared nationally because they represent an organizational unit within a state. Counties have also been found to represent a relatively stable measure of the population structure and are less subject to small area variation than other units of measurement (Hirschl & Rank, 1999).

Birth certificate data were excluded from the analysis if (a) mother's age was unknown, (b) mother's marital status was unknown, or (c) the mother did not identify a Texas county of residence. The data were first examined to identify the number of birth certificates that were missing mother's age. The birth certificates without this information were eliminated from the data set. From the remaining birth certificate data, the ones in which the mother was less than 20 years old were then examined for information on mother's marital status. The birth certificates on which marital status was not indicated were then eliminated. In the final screening, those birth certificates without a Texas county of residence were eliminated from the data set. The final data set contained birth certificate information on the unmarried births to females less than 20 years old who resided in a Texas county. Based on this methodology of identifying missing data, less than 1% of the birth certificates were eliminated from the original data set that was received from the TDH. Lack of a Texas county of residence accounted for the majority of the birth certificates that were excluded. Table 5 provides descriptive information on the number of births to women in

Texas and the number of birth certificates that were excluded because of missing data in the order in which they were identified.

Table 5

Number of Births in Texas and Missing Data for Selected Maternal Variables

Year of Birth	Total Number of Births	Age Missing on First Screening	Marital Status Missing on Second Screening	Texas County of Residence Missing on Third Screening
1994	326,599	32	162	370
1995	327,615	23	72	407
1996	335,125	51	61	414
1997	338,605	60	64	282
1998	347,080	57	70	236
1999	353,976	49	52	227

From 1994 through 1999 there were 324,972 births to women less than 20 years of age who reside in Texas. An examination of the data found that the total number of births to all teens in Texas increased annually from 1994 through 1999 (see Table 6). The number of teen births in 1994 was 52,868. The number of births rose each year until peaking at 55,668 in 1999. The annual mean age for all teen mothers in Texas ranged from 17.55 to 17.67 years of age. Examination of the data indicated that most teens were not married at the time of their child's birth. In each year of the study, over 50% of the births were to Hispanic teens. The percent of births to White and Black teens decreased from 1994 to 1999, while the percent of births among Hispanic teens increased (see Table 6).

Table 6

Births to All Teens in Texas from 1994-1999

Year	Number of Births	Mean Age	Percent Married	Percent Unmarried	Percent White	Percent Black	Percent Hispanic
1994	52,860	17.57	36.5	63.2	30.0	18.3	50.8
1995	53,498	17.55	34.7	65.3	29.6	17.3	52.0
1996	53,553	17.57	33.5	66.5	29.6	17.2	52.3
1997	54,074	17.59	32.5	67.4	29.1	17.2	52.7
1998	55,319	17.63	31.4	68.5	29.0	16.4	53.7
1999	55,668	17.67	31.8	68.1	28.1	15.6	55.3

When examining the unmarried teen birth data over time, the increase in the number of births to unmarried teens was consistent with the increase in the number of births to all teens. From 1994 through 1999 there were 216,076 births to unmarried teens residing in Texas. In 1994 there were 33,402 births to unmarried teens. The number of births to this cohort continued to increase annually until it reached 37,866 in 1999 (see Table 7). The percentage of births to White and Black unmarried teens decreased over the study period while the percent of births to unmarried Hispanic teens increased. These trends in births to teens based on ethnicity are similar to the trends that can be found within the birth data for all teens. The annual mean age for unmarried teen mothers was slightly younger than the annual mean age for all teen mothers and ranged from 17.36 to 17.51 years of age (see Table 7).

The Texas unmarried teen birth data from 1994 - 1999 revealed that the majority of these births were to females between 17-19 years of age. Since 1994, there has been a slight decrease in the total number of births among unmarried teens 16 years of age or younger, while the total number of births among unmarried teens aged 17-19 has increased (see Table 8).

Table 7

Births to Unmarried Teens in Texas from 1994-1999

Year	Number of Births	Mean Age	Percent White	Percent Black	Percent Hispanic
1994	33,402	17.36	27.2	26.6	45.3
1995	34,912	17.36	26.9	24.7	47.5
1996	35,571	17.39	27.0	24.2	48.0
1997	36,433	17.42	27.3	23.8	48.1
1998	37,866	17.47	27.0	22.3	49.9
1999	37,892	17.51	26.4	21.3	51.4

Table 8

Frequency of Unmarried Teen Mothers in Texas by Year and Age

Age	1994	1995	1996	1997	1998	1999
11	1	2	1	0	2	1
12	30	24	19	25	17	23
13	198	198	191	183	182	201
14	998	983	991	843	847	840
15	2,630	2,904	2,743	2,637	2,588	2,501
16	4,977	5,244	5,253	5,205	5,239	5,011
17	7,140	7,344	7,641	8,032	8,064	7,991
18	8,500	8,899	9,004	9,699	10,188	9,919
19	8,928	9,314	9,728	9,808	10,737	11,405

During this study period, the highest percentage of births occurred among Hispanic teens, but Hispanic and White teens in Texas were more likely to be married at the time of their child's birth than Black teen mothers (see Table 9). The Kruskal-Wallis test was employed to determine if there was a statistical difference in the marital status of teen mothers based on ethnicity. This test is the non-parametric counterpart of the one-way analysis of variance (ANOVA). Results from the Kruskal-Wallis test indicated that based on ethnicity, from 1994-1999, there was a significant difference in the marital status of teen mothers in Texas (χ^2 = 11.427, p = .003).

Table 9

Percentage of Teen Mothers Unmarried by Ethnicity in Texas from 1994-1999

Year	Percent White	Percent Black	Percent Hispanic
1994	57.2	92.2	56.2
1995	58.8	92.9	59.5
1996	60.5	93.1	60.9
1997	63.1	93.1	61.2
1998	63.5	93.3	63.3
1999	64.1	92.6	63.2

To further explore where the difference in marital status between ethnic groups occurred, the Dunn procedure, based on Mann Whitney U-testing was employed. When using the Dunn Procedure to make multiple comparisons on the same sample, an adjustment to the alpha is required to prevent a Type I error (Pett, 1997). The adjustment involves revising the significance level such that the desired alpha is divided by the number of pairs being compared. Thus, to test for the difference in marital status between these three ethnic groups at the .05 significance level, .05 was divided by 3 and the alpha was set at .017. The results from the Mann Whitney U-tests indicated that there was no significant difference between the percentage of White and Hispanic teen mothers being unmarried (p = .749), but that there was a significant difference between White and Black teen mothers (p = .004) and Hispanic and Black teen mothers being unmarried (p =.004).

The quarterly unmarried teen birth rates were calculated for each county by first summing the daily unmarried teen birth data in 3 month periods beginning with the first quarter (January 1-March 31, 1994) and ending with the last quarter (October 1, 1999-December 31, 1999). The county's quarterly birth counts were then divided by the estimated female teen population aged 12-19 years living in that county during the year that the unmarried teen births occurred. To obtain the quarterly unmarried teen birth rate per 1,000 female teens, the result was multiplied by 1,000.

The annual population estimates that were obtained from the Texas State Data Center categorized each county's population into groups based on age, gender, and ethnicity. Thus, using the age and gender components of this data set, it was possible to extract the female teen population aged 12-19 for each county and year from 1994-1998. These data were used to create the quarterly unmarried teen birth rates. The 1999 rates were calculated using the 1998 female teen population because the 1999 population estimates by age and gender are not yet available. Population estimates show that the majority of female teens living in Texas from 1994-1998 were White. Hispanic teens comprised the second largest group followed by Black teens (see Table 10). Over the period of time being studied, there has been little change in the frequency distribution of these groups.

For this study, 24 quarterly unmarried teen birth rates were created for each county in Texas. From 1994 through 1999, there were 213 counties that had less than 20 unmarried teen births in at least one quarter. Including Loving County, which had no unmarried teen births, 80 of these 213 counties had no unmarried teen births in one or more quarters. According to the National Center for Health Statistics, rates based on fewer than 20 births are considered to be unstable (Curtin &

Martin, 2000a), but rates based on small numbers are often calculated because research conducted at varying geographic levels require them.

Table 10

Texas Female Teen Population (Ages 12-19 Years)

Year	Female Teen Population	Percent White	Percent Black	Percent Hispanic
1994	1,100,602	51.44	13.16	33.00
1995	1,123,799	51.63	16.09	32.88
1996	1,152,229	51.78	13.01	32.81
1997	1,172,789	51.94	12.96	32.70
1998	1,193,006	52.00	12.90	32.69

The instability that is created by a small number of births in a Texas county is evident in the quarterly unmarried teen birth rates that were created in this study. King County is a prime example. Over the study period, King County had a maximum unmarried teen birth rate of 66.67. This rate was calculated based on one unmarried teen birth that occurred during one quarter in a county where only 15 female teens reside. However, in 21 quarters of this study, the county's unmarried teen birth rate was 0. In counties where a small number of female teens live, the probability of an event such as an unmarried teen birth occurring is small. Therefore, when it does occur, a high teen birth rate results. Examining the rates over time allows the researcher to take this variability into consideration.

Table 11 provides descriptive information on the quarterly unmarried teen birth rates for Texas. It includes the minimum and maximum rates for each quarter. During the period of time being studied, the data indicate that the highest unmarried teen birth rates consistently occurred during the third quarter (July through September) of the year while the lowest rates occurred in the second quarter (April through June). The annual number of unmarried teen births and the annual rate for each county from 1994 -1999 can be found in Appendix C.

Table 11

Quarterly Unmarried Teen Birth Rates per Texas Counties from 1994-1999

Quarter	Mean	Standard Deviation	Minimum	Maximum
1	6.42	4.35	0	26.91
2	6.19	3.87	0	22.42
3	6.97	4.32	0	26.14
4	6.70	3.96	0	22.22
5	6.49	3.78	0	17.86
6	6.37	4.89	0	45.45
7	7.55	5.19	0	35.71
8	7.01	4.32	0	35.71
9	6.52	4.05	0	21.13
10	6.21	4.75	0	55.56
11	7.50	4.45	0	27.03
12	7.00	4.21	0	23.81
13	7.15	5.78	0	66.67
14	6.53	5.02	0	60.00
15	7.43	4.35	0	21.74
16	7.27	4.30	0	30.30
17	7.22	4.42	0	31.25
18	6.66	3.78	0	20.41
19	8.33	4.67	0	31.25
20	7.65	4.76	0	32.79
21	7.59	3.83	0	21.28
22	7.20	4.46	0	31.25
23	7.87	5.20	0	45.05
24	7.33	4.59	0	43.48

Predictor Variables

Growth curve analysis provides a statistical tool that allows the researcher to test hypothesized patterns of change and to determine if those patterns can be predicted based on other related variables (Burchinal et al., 1994; Mitchell, Novins, & Holmes, 1999). Teen population density, ethnic homogeneity, and welfare participation were the variables selected as predictors of the slope of the unmarried teen birth rates in Texas after the implementation of welfare reform.

Teen population density. Teen population density represents the number of adolescents 12 to 19 years of age per square mile in each Texas County during 1997. The data on the number of teens residing in each Texas county were obtained from the Texas State Data Center. The 1997 teen population density data were selected because they best represent the teen population at the time of the statewide implementation of welfare reform in Texas. The land area in square miles for each county in Texas was obtained from the 2000 State of Texas Almanac.

Dallas County was found to be the most densely populated county with 247.37 teens per square mile. Bailey and Loving Counties tied as the sparsest populated counties, with .01 teens per square mile. Approximately 82% of the counties in Texas had less than 10 teens living in a square mile and 16% of the counties had between 10 and 100 teens living in a square mile. Bexar, Tarrant, Harris, and Dallas were the only counties that had more than 100 teens living in a square mile. Descriptive information on the land area, number of teens, and teen density by county can be found in Appendix D.

Ethnic homogeneity. Ethnic homogeneity is a measure of the ethnic distribution within each Texas county during 1997. The ethnicity data from the 1997 population estimates were selected because they best represent the ethnic distribution within Texas at the time of the statewide implementation of welfare reform. The 1997 population estimates with the county level ethnic distribution data were obtained from the Texas State Data Center.

Counties with greater than 50% of their population representing a single ethnic group (White, Black, Hispanic) were considered ethnically homogeneous. In 1997, there were no counties in Texas that were homogeneously Black. Marion County had the highest percentage of Blacks with 35.22%. There were 36 counties identified as homogeneously Hispanic and 210 counties identified as homogeneously White. The counties that were identified as homogeneously Hispanic are located in the southern half of the state and are in close proximity to the Mexican border of Texas. There were eight counties that did not have 50% of their population represented by a single ethnic group. These counties were identified as being ethnically heterogeneous. Figure 4 illustrates the ethnic distribution geographically within the state. Descriptive information on the ethnic distribution within Texas during 1997 can be found in Table 12 and information on each county can be found in Appendix E.

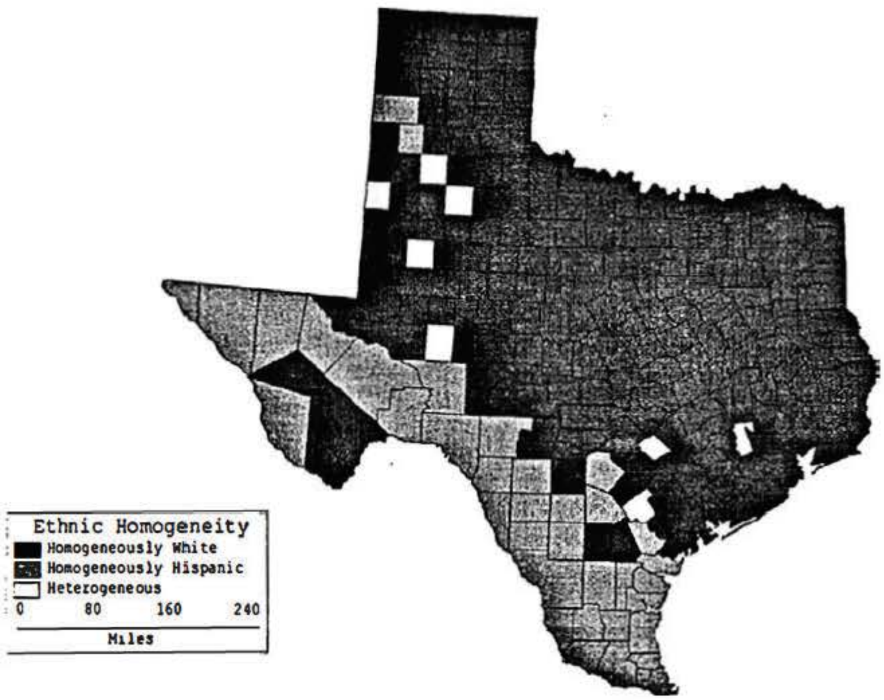


Figure 4. Geographic location of ethnically homogeneous/heterogeneous counties in Texas.

Table 12

Ethnic Distribution in Texas Counties in 1997

Ethnicity	Minimum Percent	Maximum Percent	Mean
White	2.05	96.20	65.85
Black	.00	35.22	7.30
Hispanic	1.24	97.65	25.82

Welfare participation. Welfare participation was measured by the percent of the population who were recipients of welfare benefits in each Texas county during 1996. The year 1996 was selected because it represents the population receiving welfare benefits just prior to the statewide implementation of welfare reform in Texas. The number of welfare recipients for each county in Texas was obtained from the Texas Department of Human Services.

Borden, Kenedy, Kent, and Loving Counties did not have any welfare recipients during 1996. The Texas county with the highest percentage of its population receiving welfare benefits was Zavala County at 12.03%. During 1996, approximately 3.61% of the total Texas population received welfare benefits. The map in Figure 5 shades each county in Texas based on the percentage of the county's population that was receiving welfare benefits during 1996. Information on the number of welfare recipients by county and the percentage of the county's population that this represents can be found in Appendix F.

Research Findings

SPSS Graduate Pack 10 for Windows computer software was used to complete the statistical analysis for this study. The statistical analyses used to test the hypotheses included a two-stage growth curve analysis and a paired-sample t-test. A value of $p < .05$ was used to determine if there was a significant difference between estimates in the slope of the unmarried teen birth rates pre-and post-welfare reform in Texas and in individual counties. Basic assumptions that must be met in order to use these statistical techniques are included in the discussion. Geographical mapping was completed using Maptitude version 4.1 computer software. The results of this study are organized according to the specific hypothesis being tested.

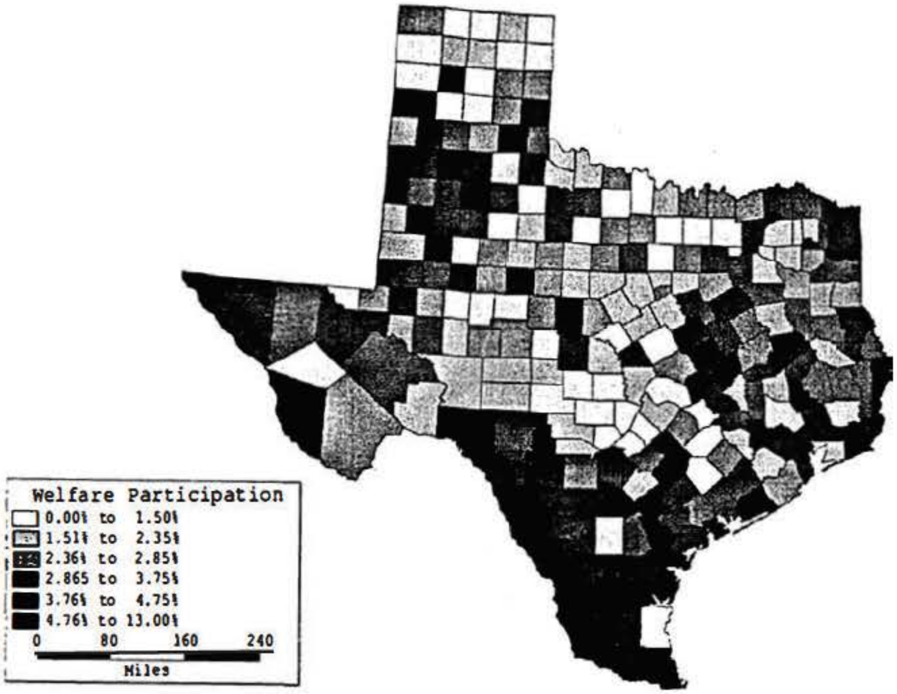


Figure 5. Percentage of county population in Texas receiving welfare benefits.

Hypothesis 1

There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post- welfare reform in Texas counties.

Growth curve modeling. Growth curve analysis allows the researcher to examine and model change as a process rather than the difference between a beginning and an end point. In this study, a two-stage growth curve method was employed to determine if a change in welfare policies had an effect on unmarried teen birth rates in Texas. In stage one, the trajectories of change were estimated using multiple regression and the repeated quarterly observations of each county's unmarried teen birth rates from January 1,1994 through December 31, 1999.

Growth curve modeling requires longitudinal data with at least two measurements to create the trajectories. Quarterly unmarried teen birth data provided 15 measurements of the unmarried teen birth rates pre-welfare reform and 9 measurements post-welfare reform for each county in Texas. Quarterly birth rates allowed for statistical control of the 9-month lag between pregnancy and birth. There was statewide implementation of the welfare reform policies in Texas as of January 1, 1997, but the unmarried teen births that occurred during the first 9 months after the implementation of the welfare reform policies were considered to be a function of the pregnancies that occurred prior to the change in the welfare policies. Therefore, births that occurred during the first 9 months of 1997 were included in the pre-welfare reform analysis.

Graphs with the best fitting trajectory for the quarterly unmarried teen birth rates pre- and post-welfare reform were created for each of the 254 counties in Texas. The graphs provided a visual representation of the change in the slope and intercept of the unmarried teen birth rate trajectories in each county. As an example, in Figures 6 and 7, the quarterly unmarried teen birth rates for Dallas County pre-and post-welfare reform have been graphed and the least squares regression line (trajectory) that best fits the unmarried teen birth rates has been inserted.

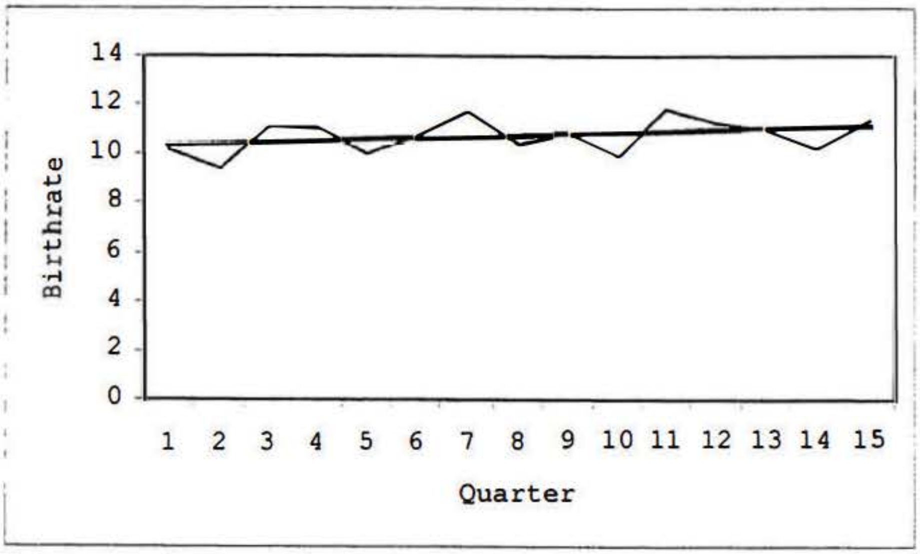


Figure 6. Best fitting regression line for quarterly unmarried teen birthrates in Dallas County pre-welfare reform.

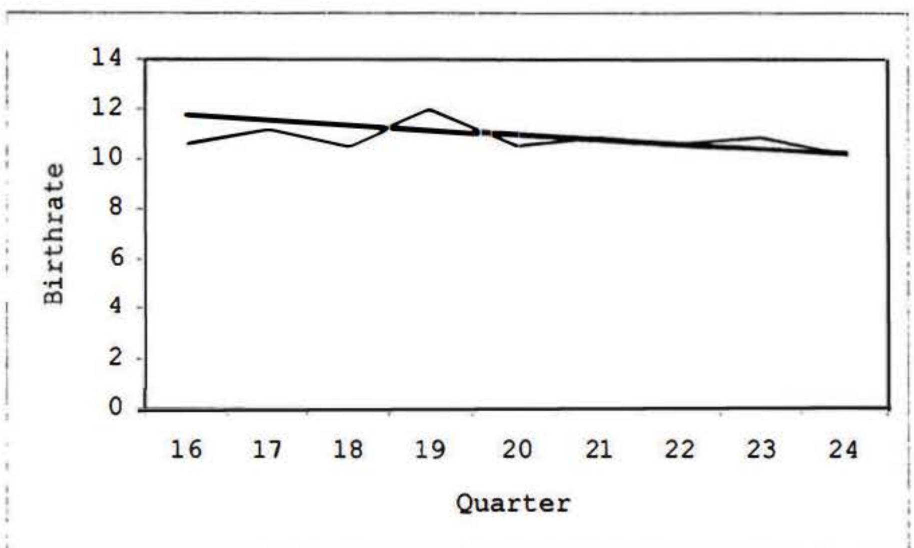


Figure 7 Best fitting regression line for quarterly unmarried teen birthrates in Dallas County post-welfare reform.

The multiple regression equation (see Equation 1) used in this study provided information on the significance, direction, and magnitude of change between the trajectories' slopes and intercepts pre- and post-welfare reform (Trochim, 1984).

$$\hat{Y} = a + b_1x_1 + b_2D + b_3 (x_1 * D) + e \qquad (1)$$

The outcome variable ($\hat{Y}$) is a prediction of the slope of the unmarried teen birth rates in the county post-welfare reform. The intercept (a) and the slope (b_1) denote the estimated values of the pre-welfare reform trajectory. Time (x_1) represents each of the 24 quarters from January 1994 through December 1999 and (e) represents the error term.

Time (D) was dummy coded as 0 to represent the pre-welfare reform quarters and 1 for the post-welfare reform quarters. When D is equal to 0, the interaction variable drops out of the equation and estimates of the pre-welfare reform intercept (a) and slope (b_1) are calculated (see Equation 2).

$$\hat{Y} = a + b_1x_1 + e \qquad (2)$$

When D = 1, then ($a + b_2$) equals the estimate of the intercept post-welfare reform and ($b_1 + b_3$) equals the estimate of the slope post-welfare reform. The change in the intercept is represented by b_2 and the change in the slope is represented by b_3 (see Equation 3).

$$\hat{Y} = (a + b_2) + (b_1 + b_3)\ x_1 + e \qquad (3)$$

The use of multiple regression as an inferential tool is based on several assumptions. One of the assumptions is that the errors of prediction are independent of one another. In this study, the assumption of independence was tested using the Durbin-Watson test. When data are collected over time, the Durbin-Watson statistic can be used to detect autocorrelation (error in one time period is related to error in another period). The value for the Durbin-Watson statistic ranges from 0 to 4. Values close to 0 indicate that successive residuals are positively correlated and values close to 4 indicate a strong negative correlation. As the Durbin-Watson statistic approaches 2, the residuals are more likely to be independent of each other. In this study, the Durbin-Watson statistic at the county level generally ranged from 1.5 to 2.5. Counties that fell out of this range were found to have consecutive quarterly birth rates of zero.

The assumptions of linearity and homoscedasticity between the predicted dependent variable scores and the errors in predictions can be examined through scatterplots of the standardized residuals. The assumption of linearity assumes that there is a linear relationship between all pairs of variables. Homoscedasticity is a property that describes the variability between X and $\hat{Y}$. For every value of X, the distribution of $\hat{Y}$ scores should be evenly dispersed and vice versa (Polit, 1996). When these two assumptions are met, the residuals are distributed approximately in a rectangular form, with a concentration of values along a straight line in the center of the scatterplot (Tabachnick & Fidell, 1996). In this study, graphical exploratory data analysis using scatter plots of the residuals at the county level identified violations to these assumptions.

The assumption of normality of the residuals was tested using normal probability plots of the standardized residuals. If the variable is normally distributed, the plotted points should cluster around a straight line. The normal probability plots identified violations to this assumption in the individual county level data.

When assumptions are violated, transformation of the data is often recommended (Norusis, 1999; Polit, 1996), but this is not a universal recommendation (Tabachnick & Fidell, 1996). The decision not to transform the unmarried teen birth rates in counties that violated these assumptions was based on several reasons. First, multiple regression is a robust statistical test that can tolerate violations to the assumptions (Braden & Bryant, 1990). Failure to meet these assumptions does not invalidate the statistical analysis so much as weakens it. Second, transforming the variables would hinder the ability to interpret the results because the interpretation is dependent on the scale in which it is measured (Tabachnick & Fidell, 1996). Third, violations of the assumptions did not improve after transformation of the variables was attempted. Therefore, based on the strength of the reasons provided in the discussion, the decision not to transform the data was made.

The results of the regression analysis indicated that there were 17 counties that had statistically significant differences between the estimates of their pre- and post-welfare slopes and/or intercepts (see Table 13). Eleven of the counties had a significant increase in the post-welfare reform slope and five counties had significant decreases in their slopes. Four of the 16 counties that had a statistically significant change in their slopes post-welfare reform did not have a statistically significant change in the estimate of their intercept. Two counties with statistically significant changes in their slope estimates had 10 or more quarters with no unmarried teen births. Falls County had a statistically significant decrease between the pre- and post-welfare reform estimate of its intercept, but the increase in the estimate of the slope did not reach statistical significance.

Table 13

Level, Magnitude of Change, and Significance in the Slope and Intercept of Pre- and Post-welfare Reform Trajectories

County	Change in Slope	p Value	Change in Intercept	p Value
Brown	-1.125	.037*	17.147	.069
Clay	- .830	.007*	10.774	.040*
Cottle†	3.214	.047*	-54.461	.056
Dallam	1.393	.023*	-19.734	.062
Dawson	1.048	.003*	-19.277	.002*
Duval	1.142	.016*	-20.506	.015*
Falls	.857	.059	-16.876	.038*
Gillespie	.550	.043*	- 9.407	.050*
Hood	.577	.033*	- 8.942	.060
Hopkins	.803	.003*	-12.454	.007*
Lavaca	- .888	.002*	15.256	.002*
Leon	.796	.034*	-15.379	.022*
Lubbock	.355	.010*	- 6.562	.007*
Madison	-1.426	.027*	23.439	.026*
Reeves	.937	.049*	-11.407	.166
Robertson	-1.370	.015*	21.140	.032*
Terrell†	3.700	.008*	-57.989	.017*

* $p < .05$.
† Counties with 10 or more quarters with no unmarried teen births.

In the counties that did not have a statistically significant change between the estimates of their pre- and post-welfare reform slopes, 111 counties had an increase in the slope of their unmarried teen birth trajectory post-welfare reform and 124 counties had a decrease. Two counties (Henderson and San Patricio) had no change between their pre- and post-welfare reform slopes and Loving county had no unmarried teen births from January 1, 1994 through December 31,1999. The map in Figure 8 illustrates the counties in Texas and shades them according to the change in direction of the post-welfare reform unmarried teen birth rate trajectory. The slope and intercept estimates for the pre- and post-welfare reform trajectories for each Texas county can be found in Appendixes G and H.

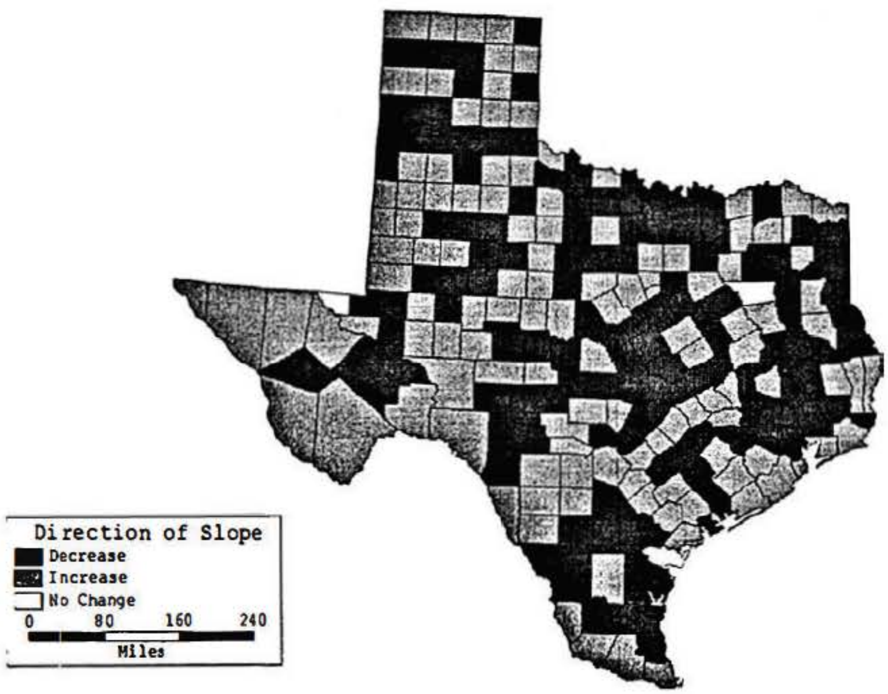


Figure 8. Texas counties and the change in direction of the slope estimates in the post-welfare reform unmarried teen birth rates.

ACT Waiver Counties. Among the eight counties (Ector, El Paso, Jefferson, Nueces, Caldwell, Medina, Walker, and Bexar) that are participating in the evaluation phase of the Achieving Change for Texans (ACT) waiver, a total of 39,116 cases within these counties were assigned to either a control or experimental group from June 1996 through December 1997. The control group's (19,420 cases) eligibility and benefits were based on the policies that were in effect pre-welfare reform (Schexnayder, Olson, Schroeder, Betsinger, & Sim, 1998). During the time frame of this study, there was no significant difference between the pre- and post-welfare reform slope estimates of their unmarried teen birth rates in these counties.

Paired sample t-test. To examine the effect of welfare reform across counties, a paired sample t-test was used to test if there was a difference in the mean of the pre-welfare reform slope estimates with the mean of the post-welfare slope estimates. A slope could not be estimated in counties where there were no unmarried teen births either pre- or post-welfare reform. Therefore, zeros were used in the analysis to represent that a line was not plotted and no slope was calculated. In the 15 pre-welfare reform quarters, there was only one county (Loving) that had no unmarried teen births and in the 9 post-welfare reform quarters there were four counties (Kent, King, Loving, and Motley) with no unmarried teen births.

A paired sample t-test is used in a study when the two means being compared are from the same group. In this study, the same counties in Texas were being used to compare the slope estimates in the unmarried teen birth rate trajectories pre-welfare reform and again after its implementation. This statistical test assumes that the dependent variable is normally distributed and that the variability within the two groups is comparable. The latter assumption is robust to violation when the samples are related (Polit, 1996).

Exploratory data analysis using histograms found evidence that the pre- and post-welfare reform slopes were not normally distributed (see Figures 9 and 10). The distributions were not significantly skewed, but were found to be leptokurtic. The Kolmogorov-Smirnov (K-S) test for normality indicated that these distributions deviated significantly from a normal distribution. The K-S statistic of .137 (N = 254) for the pre-welfare reform slopes and .131 (N = 254) for the post-welfare slopes were significant at p = .000. Kurtosis can produce an underestimate of the variance of a variable and transformations of the data are often recommended to rectify this problem. However, with samples of 200 or more, under-estimation of the variance disappears in positive kurtosis (Tabachnick & Fidell, 1996). In addition, with large samples, if the assumption of normality is violated, the paired sample t-test is robust and the results are considered to be reasonably accurate (Polit, 1996). Based on this rationale, transformations of the estimates of the pre- and post-welfare reform slopes were not performed and parametric testing was used for the across Texas counties analysis.

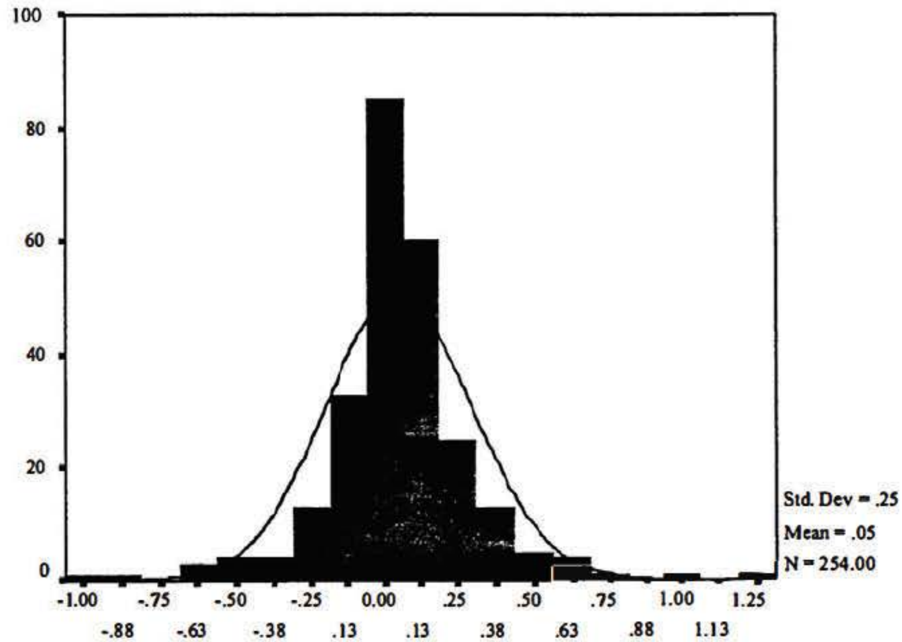


Figure 9. Histogram of the pre-welfare reform slopes.

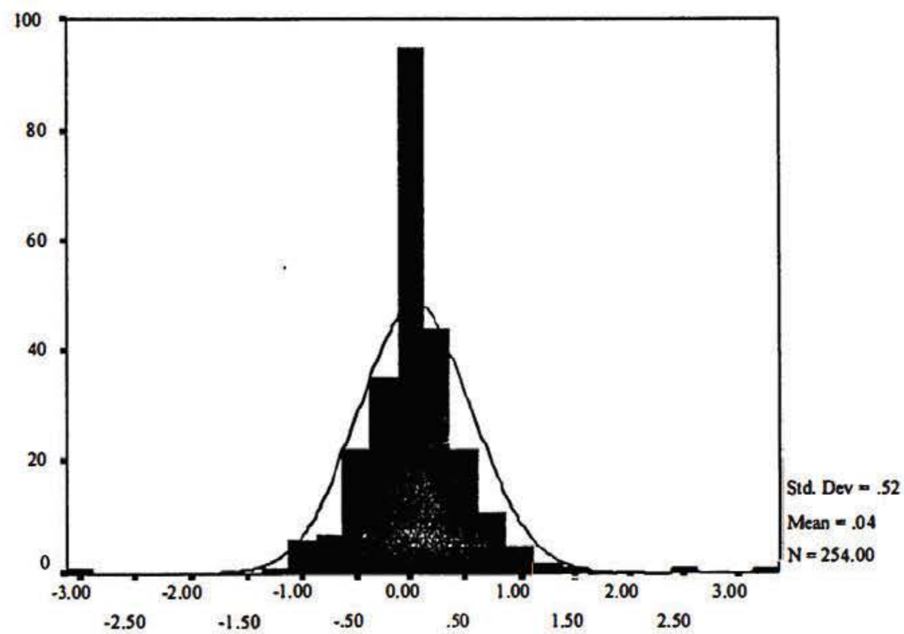


Figure 10. Histogram of the post-welfare reforms slopes.

The results of the paired sample t-test revealed no significant difference between the mean of the pre-welfare reform slopes ($\bar{x}$ = .047) and the mean of post-welfare reform slopes ($\bar{x}$ = .045), t (253) = .053, p = .958 across Texas counties. A separate test was performed to examine the effect of welfare reform across the eight counties that are participating in the evaluation phase of the ACT waiver. Since the assumption of normality was violated in this small sample, the Wilcoxon signed rank test, a non-parametric test for comparing two related samples was used. This non-parametric test was selected because it takes into account both the magnitude and direction of change within the samples. The results of the Wilcoxon signed rank test revealed that five counties (Bexar, Caldwell, El Paso, Medina, and Walker) had an increase in their post-welfare reform slope estimates and three counties (Ector, Jeff Davis, and Nueces) had a decrease. There was no significant difference between the median of the pre-welfare reform slope estimates (Md = 4.40) and the median of the post-welfare reform slope estimates (Md = 4.67), z = -.560, p = .288. Even if different results had been obtained, the control group from the eight counties that are participating in the evaluation phase of the ACT waiver consisted of less than 3% of the state's population who received AFDC benefits in 1996, and therefore they should not influence the across counties' results.

An examination of the state and county level unmarried teen birth data supported Hypothesis 1 that there will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties.

Hypothesis 2

Teen population density, ethnic homogeneity, and welfare participation are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.

Hierarchical linear regression. In stage two of growth curve analysis, the stage-one estimates of the post-welfare reform slopes (N = 254) became the dependent variable and hierarchical linear regression was used with selected predictor variables to determine if they can assist in explaining the change in the unmarried teen birth rates across time. The assumptions to be considered when fitting a regression model were addressed in a previous discussion. The statistical and graphical strategies formerly discussed were used to test for violations to the assumptions of linearity, normality, homoscedasticity, and independence. In stage two, an examination of the residuals through the use of scatter plots identified one county (Martin) as an outlier. Since this outlier was located only slightly beyond three standard deviations (-3.51) of the scatter and it is less than 2% of the N, the recommendation is that it be left in the analysis (Cohen & Cohen, 1983). No other violations to the assumptions were found.

In this study, the predictor variables selected for estimating the post-welfare slope were teen population density, ethnic homogeneity, and welfare participation. The post-welfare reform intercept estimates were also included as a predictor variable for the slope of the unmarried teen birth rates post-welfare reform. Teen population density, welfare participation, and the intercept post-welfare reform were all continuous variables. Ethnic homogeneity was dummy coded. Counties with greater than 50% of their population representing a single ethnic group (White, Black, Hispanic) were considered to be ethnically homogeneous. Since there were no counties in Texas that had a population that was greater than 50% Black, this group was excluded from analysis. The homogeneously Hispanic counties were chosen to be the reference group. Homogeneously White counties (n = 210) were coded with a one and homogeneously Hispanic counties (n = 36) were coded with a zero. Counties that were ethnically heterogeneous (n = 8) were all found to be either predominantly White or Hispanic. In order to include them in the analysis, they were coded based on the dominant ethnic group. Therefore, five counties were coded as White (1) and three counties were coded Hispanic (0). The beta coefficient obtained for the dummy coded variable estimated the difference in the unmarried teen birth rate slopes between homogeneously White counties and homogeneously Hispanic counties.

In hierarchical regression analysis, the predictor variables are entered into the equation in a series of steps that are controlled by the researcher. This control allows the researcher to observe what the independent variable adds to the equation at the point that it is entered (Polit, 1996). The order of entry in this study was based on the theoretical framework of social contagion and reference group influences on behavior. The first variable entered into the equation was the estimated post-welfare reform intercepts that were created in the stage one growth curve analysis. Theoretically, this estimate should contribute to the second-stage analysis because it is an estimation of the unmarried teen birth rates at the point in time when welfare reform was implemented in each county in Texas. By entering the post-welfare reform intercepts first, it was possible to determine how much the selected predictor variables added to the equation (Polit, 1996).

The variables representing teen population density and welfare participation were entered into the regression equation in the second step. These two variables were the observed variables used to represent the theoretical construct of social contagion. The last variable entered into the equation was the dummy code for ethnic homogeneity. This variable was the observed variable for reference group theory. The results of the hierarchical regression analysis are found in Table 14.

Table 14

Hierarchical Regression Results of the Selected Predictor Variables

Predictor Variables	Step 1 Unstandardized (Standardized) Regression Coefficients	Step 2 Unstandardized (Standardized) Regression Coefficients	Step 3 Unstandardized (Standardized) Regression Coefficients
Intercept post-welfare reform	-.049* (-.965)	-.050* (-.979)	-.050* (-.979)
Social Contagion			
Teen population		.000 (.009)	.000 (.009)
Welfare Participation		.034* (.128)	.034* (.128)
Reference Group			
Ethnic homogeneity			.008 (.006)
Adjusted R^2	.932	.948	.948

* $p < .000$.

The post-welfare reform intercept and welfare participation were the only variables selected that contributed significantly ($p < .000$) towards predicting the slope of the unmarried teen birth rates post-welfare reform. The adjusted R^2 for steps 1 and 2 was .932 and .948, respectively. This represents a .016 change in the R^2. Since ethnic homogeneity did not significantly contribute towards predicting the slope of the unmarried teen birth rates, there was no change in the adjusted R^2 from step 2 to step 3. These findings indicate that estimates of the post-welfare reform intercept and welfare participation contribute significantly towards predicting the post-welfare reform slope estimates, but that teen population density and ethnicity do not.

Therefore, Hypothesis 2 is not supported statistically. However, these findings still lend support for the theoretical framework of social contagion and reference group theories. This conclusion is based on the premise that the post-welfare reform intercept estimates represent the unmeasured effects within counties at the point in time when welfare reform was implemented. Therefore, since a change in the welfare policies did not significantly change the slope estimates in the unmarried teen birth rates post-welfare reform, this demonstrates that adolescent sexual behaviors continue to be influenced by the normative behavior within their social environment and their reference groups.

Summary

Unmarried teen childbirth rates in Texas counties were examined to evaluate the effect of a statewide change in welfare policies. Statewide implementation of the welfare reform legislation occurred on January 1, 1997. Findings from data that were obtained from the TDH indicated that the number of unmarried teen births from January 1, 1994 through December 31, 1999 in Texas have continued to rise. This increase can be attributed primarily to the rise in the number of unmarried childbirths among females aged 17-19 years. Among females less than 16 years of age, the number of unmarried teen births has been dropping. The mean age for unmarried teen childbearing from 1994-1999 ranged from 17.36 to 17.51. In Texas, Hispanics have the highest percentage of teen births, but Hispanic and White teens are both more likely to be married at the time of their child's birth than their Black counterparts.

Two-stage growth curve analysis was used to model the unmarried teen birth rates in each Texas county pre- and post-welfare reform. Quarterly birth rates allowed for statistical control of the lag in time between pregnancy and birth. Births that occurred in the first 9 months of 1997 were considered to be a function of the pre-welfare reform influences. In stage one of the growth curve modeling, a multiple regression equation was fit to the 24 quarterly unmarried teen birth rates in all 254 Texas counties. The significance, direction, and magnitude of change between the estimates of the pre-and post-welfare reform slopes and intercepts of the unmarried teen birth rate trajectories were obtained. There were 17 counties that had statistically significant changes between their pre- and post-welfare reform slope and/or intercept estimates. Eleven counties had a statistically significant increase in the slope of the unmarried teen birth rate trajectories post-welfare reform and five counties had a significant decrease. Falls County had a significant decrease in the estimate of its post-welfare reform intercept, but the increase in the estimate of the post-welfare reform slope did not reach statistical significance. In two of the counties with statistically significant changes in their slope estimates, there were 10 or more quarters with no unmarried teen births. Therefore, caution in drawing conclusions about the results in these two counties should be exercised because of the variability that could occur in calculated rates that are based on a small number of births.

A paired sample $\underline{t}$-test was used to determine whether there was a statistically significant difference between the mean of the pre-welfare reform slope estimates ($\underline{N}$ = 254) and the mean of the post-welfare slope estimates ($\underline{N}$ = 254) for the counties in Texas. The results of the test revealed no significant difference between the mean of the pre-welfare slopes ($\bar{x}$ = .047) and the mean of the post-welfare reform slopes ($\bar{x}$ = .045), $\underline{t}$ (253) = .053, $\underline{p}$ = .958. The findings supported Hypothesis 1 that there would be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post- welfare reform in Texas counties.

In stage two of the growth curve analysis, hierarchical linear regression was used to determine whether selected predictor variables could explain the change in the unmarried teen birth rates across time in Texas post-welfare reform. The stage-one estimates of the post-welfare reform slopes ($\underline{N}$ =254) became the dependent variable. The selected predictor variables selected in this study were teen population density, ethnic homogeneity, and welfare participation. The post-welfare reform intercept estimates were also used as a predictor variable in the analysis. By entering the post-welfare reform intercepts into the equation first, it was possible to determine how much the selected predictor variables added to the equation.

The post-welfare reform intercepts and welfare participation were the only two variables selected that contributed significantly ($\underline{p}$ < .000) towards predicting the slope estimates of the unmarried teen birth rates post-welfare reform. The adjusted R^2 for these two steps was .932 and .948, respectively. These findings did not support Hypothesis 2 that teen population density and ethnic homogeneity are predictors of the unmarried teen birth rates in Texas counties' post-welfare reform. However, they lend support for social contagion and reference group as the theoretical framework for this study. This conclusion is based on the premise that the post-welfare reform intercept estimates represent the unmeasured effects within counties that represent normative social behavior within the adolescent's environment and reference group.

CHAPTER V

SUMMARY OF THE STUDY

Since the inception of welfare in 1935, there has been an ongoing debate about the relationship between increasing unmarried childbearing and welfare benefits. Some experts believe that the availability of welfare benefits provides an incentive for women not to marry if they become pregnant outside of marriage (Plotnick, 1993). Studies examining the relationship between welfare and unmarried teen childbirth have offered inconclusive evidence to support the belief that welfare benefits significantly increase unmarried teen childbirth rates (Ellwood & Bane, 1985; Lundberg & Plotnick, 1995; Moore & Caldwell, 1977; Murray, 1993; Plotnick, 1990). Even without evidence to support it, welfare polices are being implemented today based on the belief that welfare restrictions and sanctions can change the reproductive behavior of women, particularly teens.

This quasi-experimental study was designed to examine and describe the influence of the 1996 welfare reform legislation on unmarried teen childbirth rates in Texas counties. In addition, the study investigated the effect of counties' teen population density, ethnic homogeneity, and welfare participation on the rate of change in the unmarried teen childbirth rates in Texas post-welfare. The purpose of this chapter is to provide a summary of the study and a discussion on the findings. Conclusions, implications for nursing practice, and recommendations for future studies are also presented.

Summary

Teenage pregnancy and out-of-wedlock childbearing became primary issues of the 1996 welfare reform legislation because they are believed to be major contributors to increased welfare costs and caseloads. Ironically, only 5-7% of mothers receiving welfare benefits in the U.S. are teenagers, and fewer than 2% are less than 18 years of age (U.S. General Accounting Office, 1994). Despite the fact that the number of teen mothers receiving welfare benefits at any one time is relatively small, the role of teen parenting has become significant over time. There is evidence that a large proportion (42%-55%) of families receiving welfare benefits were begun by a mother who was under the age of 20 when she first gave birth (Sandefur & Cook, 1998; U.S. General Accounting Office, 1994). Research indicates that women who begin childbearing as adolescents are more inclined to require public assistance for a longer period of time because they tend to have larger families, are less educated, and are therefore less likely to find employment that will lead to self-sufficiency than women who delay childbearing (Alan Guttmacher Institute, 1995).

Nurses have a vested interest in the shaping of healthcare policies. Active involvement in developing policies that impact the health of women and children is an expected outcome for the leadership standard of advanced nursing practice (American Nurses Association, 1996). The results of this study can be utilized by community health nursing leaders to provide information to policy makers that could ultimately influence future legislative actions related to welfare reform and unmarried teen childbearing.

Reference group and social contagion theories provided the theoretical framework for this study. These theories predict that the behavior of a person will be consistent with the expectations of the persons who serve as a reference group for that person at a given period in time. Through social interactions, the adolescent's values, attitudes, and expectations regarding sexual behavior and welfare participation are formed. Based on social contagion theory, the influence of these interactions is enhanced by the proximity of the group members. Therefore, if the group norm is accepting of unmarried teen childbearing and welfare participation, then these norms will be more influential on the adolescent's sexual behavior than a change in social policy. But, if a change in social policy yields the desired effect, the rate of change (slope) in unmarried teen birth rates after the implementation of the policy will decline more steeply among densely populated homogeneous adolescent groups.

Reference group and social contagion theories suggested specific hypotheses for testing whether changes in welfare benefits are associated with changes in the number of unmarried childbearing adolescents. These hypotheses were:

H_1: There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties.

H_2: Teen population density, ethnic homogeneity, and welfare participation are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.

A review of the literature seems to suggest that the incidence of teenage childbearing has significantly increased over time. However, between 1950 and 1970, the birth rates among teenagers in the U.S. were higher than they have been in recent years. High teen birth rates during that era did not attract attention because these teens were usually married at the time of conception or they married before the baby's birth.

Implementation of the 1996 Welfare Reform Legislation radically changed a 61-year-old policy of providing welfare benefits to eligible low-income mothers and their children. One of the primary aims of the new legislation is to reduce single parent families--especially among teens. Studies that examine the relationship between welfare incentives and unmarried childbearing differ in the populations they examine, the way in they measure welfare benefits, the time period examined, the statistical analyses used, and the individual and state level characteristics they take into account. Therefore, the results have been inconsistent and contradictory. These incongruent findings in the research weaken the strength of the conclusion that the welfare system increases unmarried childbearing.

Unmarried teen mothers are often categorized as predominantly minority women from poor, urban families. The geographic variations in unmarried teen childbirth rates are currently not well understood, but studies focusing on population density and race/ethnicity have found these variables to be influential in predicting nonmarital childbearing (Krishnan et al., 1999; Tomal, 1999). Studies have also found that population density is connected to the welfare participation rates of an area. Research indicates that people who live in sparsely populated areas are less likely to become welfare recipients and more likely to exit the welfare rolls than people living in densely populated areas (Hirschl & Rank, 1999).

Texas is one of five states in the United States in which teen pregnancies exceed 70 per 1,000 females aged 15-17. Among all Texas births, 22.5% of Black births and 19.7% of Hispanic births were to mothers less than 20 years of age, compared to 10.9% of White births. In 1998, 87.7% of the mothers aged 10-14 and 67% of mothers aged 15-19 in Texas reported not being married (Texas Department of Health, 1999).

The setting for this study was the state of Texas. Texas ranks second in size among the 50 United States and it covers a total area of 261,914 square miles (Ramos & Plocheck, 1999). In 1990, Texas had the second largest Hispanic population and the third largest Black population in the U.S. By the year 2030, it is expected that 45.9% of the population in Texas will be of Hispanic origin (Murdock et al., 1997).

In this study, the 254 counties in Texas represented the population under examination. The variable of interest within these counties was the number of births to unmarried women less than 20 years of age from January 1, 1994 through December 31, 1999. Data on the births for each Texas county during the 6-year period of time were obtained from the Bureau of Vital Statistics in the Texas Department of Health. In addition to the birth data, information on the mother's age, marital status, county of residence, and ethnicity were obtained.

Counties were selected as units of analysis because they are the primary legal divisions of every state, except Louisiana and Alaska. Despite differences in geographic size and characteristics, counties can be compared nationally because they represent an organizational unit within a state. Counties also have been found to represent a relatively stable measure of the population structure and are less subject to small area variation than other units of measurement (Hirschl & Rank, 1999).

Population estimate data obtained from the Texas State Data Center in the Department of Rural Sociology at Texas A&M University were used to create quarterly unmarried teen birth rates and the selected predictor variables of teen population density, welfare participation, and ethnic homogeneity. The number of people receiving AFDC benefits in each Texas county was obtained from Texas Department of Human Services

1996 Annual Report. The land area in square miles for each county in Texas was obtained form the 2000 State of Texas Almanac.

The statistical techniques used to test the study's hypotheses included two-stage growth curve modeling and a paired sample t-test. Tables, graphs, and maps were used to illustrate the findings.

Discussion of the Findings

A discussion on the Texas teen birth data set and findings related to the hypotheses for this study is presented.

Texas Teen Birth Data Set

From 1994 through 1999 there were a total of 324,972 births to women less than 20 years of age in Texas. An examination of the data indicates that the total number of births to all teens in Texas increased annually from 1994 through 1999. The number of births to teens in 1994 was 52,860. The number rose each year until reaching 55,668 in 1999. The increase in the number of teen births in Texas from 1994 through 1999 is not consistent with the national trend in the number of births to all women 15-19 years of age. From 1990 to 1998, the total number of births to women aged 15-19 years in the United States declined from 521,826 to 484,975. This represents an approximate 7% decrease in the number of births to teens aged 15-19 years (Ventura, Mathews, & Curtin, 1999a). In contrast to the national statistics on the number of births to teens, Texas had no decrease during the time frame of this study and instead a slight increase in the number of teen births occurred.

When examining the Texas unmarried teen birth data, there also is evidence of an upward trend in the number of births to unmarried teens. From 1994 through 1999 there was a total of 216,076 births to unmarried females less than 20 years of age. In 1994 there were 33,402 unmarried teen births as compared to 37,892 in 1999. These findings are consistent with national statistics that identify an increasing trend in the number of births to unmarried women less than 20 years old. However, preliminary findings from the 1999 national birth data indicate that there was a slight decrease in the number of births to unmarried women less then 20 years of age from 1998 to 1999 (Curtin & Ventura, 2000). This decrease is not reflected in the Texas unmarried teen birth data. Instead, Texas had a modest increase in the number of unmarried teen births from 1998-1999.

From 1994-1999, the majority of teen births in Texas was to females between 17-19 years of age. Since 1994, there has been a slight decrease in the number of births among unmarried teens 16 years of age or younger, but the number of births among unmarried teens aged 17-19 has increased. These findings are consistent with the national trends in teenage childbearing based on age. In the United States, the number of births to teens 15-17 years old decreased 4% from 1997 to 1998, while the number of births to all teens 18-19 years old increased 3%. The rise in the number of births to older teens in the U.S. has been attributed to the 5% increase in the number female teenagers aged 18-19 years from 1997 to 1998 (Ventura et al., 2000b).

During the time frame of this study, the highest percentage of teen births in Texas occurred among Hispanic teens. This high percentage of Hispanic teen births is a reflection of the ethnic composition of the state's population. Despite the high percentage of Hispanic teen births, findings indicate that Hispanic and White teens in Texas were more likely to be married at the time of their child's birth than Black teen mothers. These findings are consistent with the national statistics that examine the marital status of teen mothers based on ethnicity and age (Ventura et al., 2000b).

Hypothesis 1

There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties.

To test this hypothesis, growth curve modeling was used to evaluate the effect of welfare reform within each county and a paired sample *t*-test was used to evaluate the effect across counties. Growth curve modeling is a method that is used to examine and measure change over time. It provides an understanding of how a process unfolds and what variables influence the course of its development. The analysis proceeded in two stages.

During the first stage of the growth curve modeling, quarterly pre- and post-welfare reform unmarried teen birth rates for each county in Texas were created. Using these rates, trajectories that represented the rates from January 1,1994 through December 31, 1999 were estimated using multiple regression analysis. The intercept and slope estimates of the trajectories for each county pre- and post-welfare reform were calculated and compared. The unmarried teen births that occurred during the first 9 months post-welfare reform were considered to be a function of the pregnancies that occurred prior to the change in policy and were included in the pre-welfare reform trajectory.

The results of the first stage growth curve analysis found that 17 of 254 Texas counties had statistically significant changes in their slopes and/or intercept estimates post-welfare reform as compared to the estimates pre-welfare reform. Eleven of the counties had a significant rise in their slope post-welfare reform and five had a significant decrease in their slopes. Four of these 16 counties did not have a statistically significant change in the estimate of their intercepts. Two counties with statistically significant changes in the estimate of their slopes had 10 or more quarters with no unmarried teen births. The significant findings within counties that have a small number of unmarried teen births per quarter should be regarded cautiously. This caution is suggested because when the numbers used to calculate rates are small, large swings in the rates can occur which do not reflect real changes.

In the counties that did not have a statistically significant change in the estimate of their slopes, there were 111 counties that had a rise in the slope of their post-welfare reform unmarried teen birth rate trajectory and there were 124 that had a decrease. Two counties (Henderson and San Patricio) had no change and one county (Loving) had no births from January 1, 1994 through December 31,1999.

The results of the paired sample t-test found no significant difference between the mean of the pre-welfare reform slopes ($\bar{x}$ = .047) and the mean of post-welfare reform slopes ($\bar{x}$ = .045) t (253) = .053, p = .958). The findings from the paired sample t-test support the hypothesis that there would be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties. These findings support those experts who believe that changes in welfare policies do not significantly influence the reproductive behaviors of women and that welfare does not provide an incentive effect for unmarried childbearing among teenage women. Therefore, if a change in policy does not significantly change the pattern in the unmarried teen birth rates, it is conceivable that social contagion and reference group theory will contribute towards understanding the phenomenon of unmarried teen childbearing in Texas.

Hypothesis 2

Teen population density, ethnic homogeneity, and welfare participation are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.

In stage two of the growth curve analysis, estimates of the slope for the post-welfare reform trajectories were treated as new outcome variables to be explained by other background variables in an across county analysis. Based on the theoretical framework provided by social contagion and reference group theory, teen population density, ethnic homogeneity, and welfare participation were selected as predictor variables to be used in a hierarchical linear regression analysis. The estimates of the post-welfare reform intercept were also included as a predictor variable in the regression equation. Theoretically, the intercept should contribute to the second-stage analysis because it is an estimation of the unmarried teen birth rates at the point in time when welfare reform was implemented in each county in Texas.

Estimates of the post-welfare reform intercept and welfare participation were the only two selected predictor variables that contributed significantly towards predicting the slope of the unmarried teen birth rates post-welfare reform. The increase in the adjusted R^2 when welfare participation was included in the equation with the estimates of the post-welfare reform intercept was only .016. Therefore, based on the results of this study, the most parsimonious model for predicting the slope of the unmarried teen childbirth rates post-welfare reform simply requires knowing what the intercept was when the change in policy was implemented.

These findings did not support the second hypothesis that teen population density and ethnic homogeneity are predictors of the post-welfare reform unmarried teen birth rates in Texas counties. But, these findings do demonstrate support for social contagion and reference group as theoretical underpinnings for understanding the phenomenon of unmarried teen childbearing. This conclusion is based on the premise that estimates of the post-welfare reform intercept represent the effects within the social environment that are influencing the sexual behaviors of adolescents at the time in which a change in the welfare policies occurred. Since there was no significant change in the pattern of the unmarried teen birth rates post-welfare reform, this strengthens the belief that the social norms of the reference group and social contagion within the adolescent's environment are more influential on a teen's sexual behavior than a change in policy. It is possible to conceive that other proxy variables that represent social contagion and reference group theory could provide additional explanatory power to the equation.

Conclusions and Implications for Nursing

The 1996 welfare reform legislation was intended to promote employment and marriage, and to prevent and reduce unmarried births, especially among teens. The focus of this study was to examine the effect of welfare reform on unmarried teen childbearing in Texas. Social contagion and reference group theories provided the theoretical framework for this study. These theories predict that the behavior of a person will be consistent with the social norms of the persons who serve as a reference group at a given period in time and that the proximity of group members heightens the effect of this influence.

The change in our outlook on smoking is a prime example of contagious behavior. When smoking was popular, individuals who chose to quit because of health warnings were chastised for not conforming. Now, it is the smokers and not the non-smokers who receive social disapproval (Sawhill, 2000). Once social trends are set in motion, and are then promoted by the media and peer culture, they have a tendency to acquire their own momentum. Therefore, it is possible to presume that the sexual behavior of teens can also be influenced by the accepted social norms within their environment. Social norms that once condemned sex outside of marriage have become much more permissive, but recent findings indicate that sexual activity among teens has been declining and the use of contraception among teens has been rising (Terry & Manlove, 2000). It is these changes in adolescent sexual behaviors that have been credited for contributing to the decreasing birth rates among teens in the 1990s.

This study found that the 1996 welfare reform policy to date, have not significantly changed the pattern of the unmarried teen birth rates in Texas, but it did provide support for social contagion and reference group theories as a theoretical framework for studying the phenomenon of unmarried teen childbearing. This conclusion is based on the premise that the post-welfare reform intercept estimates represent the unmeasured effects within counties at the point in time when welfare reform was implemented. Welfare participation was used to represent social contagion, and although it was not a strong predictor of the estimate of the slope post-welfare reform, it did provide additional support for the theoretical framework. Therefore, since a change in the welfare policies did not significantly change the estimates of the slope for the unmarried teen birth rates post-welfare reform, this suggests that adolescent sexual behaviors continue to be influenced by the normative behavior within the social environment and reference groups. In future studies, variables that would be more representative of social contagion and reference group theories need to be identified.

Despite a lack of statistical difference between the pre- and post-welfare slope estimates in most counties, there were 124 out of 254 Texas counties that did have a decrease in the slope of their unmarried teen birth rates post-welfare reform. In an effort to reduce unmarried teen childbirth rates over time, closer examination of these counties is warranted to determine what role the change in welfare polices versus other factors, such as increased access to birth control, or comprehensive sex and abstinence education programs, had on reducing the unmarried teen birth rates.

A large proportion of women who begin childbearing as teenagers eventually end up on the welfare rolls, therefore the avoidance of an unwanted birth could possibly prevent a lifetime of poverty. Unmarried teen mothers who receive welfare benefits for a limited amount of time are provided with the opportunity to finish their education and obtain job skills that can lead to self-sufficiency. Restricting welfare eligibility and implementing sanctions to reduce benefits can hinder an adolescent mother's ability to provide an adequate environment in which to care for her child, reduce her chances of becoming self-sufficient, and increase the probability of dependency on governmental agencies for support.

Revisions in the welfare policies could inadvertently put mothers and children at risk for other problems in the future. Children born into poverty, especially those of adolescent mothers, are more likely to be hospitalized because of infectious diseases, to experience chronic health problems such as asthma, anemia, and lead poisoning, and to suffer from accidents and injuries, including abuse from immature parents (Aber, Brooks-Gunn, & Maynard, 1995; Collins & Aber, 1996). Nurses who practice in community settings are the often the healthcare professionals who identify these problems and intervene in coordinating the appropriate services.

Legislators who want to reduce teenage childbearing are more likely to be successful with policies and programs that are targeted directly towards the behaviors that lead to teenage pregnancies rather than restricting welfare eligibility and reducing benefits. Therefore, community health nurse leaders can use the findings from this study to identify those communities where teens would benefit from educational programs and/or family planning services. These results also have implications for disciplines such as sociology, psychology, and health education. Hence, they provide a foundation for collaborative research between nursing and other disciplines to further examine the influence of social policy on unmarried teen childbearing. The next appropriate step would be to work with community agencies in developing services and programs for teens within their communities and to set up methods for evaluating and measuring the expected outcomes.

Community health nurse leaders need to become politically involved and communicate with their local legislators about how changes in policies and programs have positively or negatively influenced the health and well being of their constituents. Unfortunately, at this time, there is often little or no interaction between those legislators who enact social policies and the individuals who provide services and evaluate programs. Until the many disadvantages faced by teen mothers before they become pregnant are addressed, delaying births past the teen years will not prevent all the negative outcomes associated with unmarried teen childbearing.

Recommendations for Further Study

As a result of the findings of this study, the following recommendations for further study are suggested.

1. A continuation of the study to determine if there is a time lag between a change in welfare policies and its effect on unmarried teen childbearing.

2. Replication of the study using the birthrates for unmarried adult females.

3. During the time frame of this study, the increase in the unmarried teen birthrates has occurred among older teens, therefore, replication of the study with the rates sorted by age is suggested. Since the rates have also been found to be different among ethnic groups, sorting by both age and ethnicity might provide different results.

4. Replication of the study within other geographical units in which density or urbanization is more definitive.

5. Replication of the study in states that have a different ethnic diversity than Texas. Re-operationalizing ethnicity to provide more information on the distribution of ethnic groups within a geographical area might provide better insight into its influence on unmarried teen childbearing.

6. Future studies should include additional or other predictor variables that have been linked to unmarried teen childbearing. Suggested additional variables include economic indicators, religiosity, and percent of population that consists of single parent households or unmarried couples with children.

7. In order to generalize the results to national vital statistics, future studies examining rates should consider using women aged 15-19 as the denominator for calculating the unmarried teen birth rates.

8. The pattern in the unmarried teen birth data over time includes peaks and valleys. This variability suggests that nonlinear analysis techniques might provide more information about the phenomenon.

REFERENCES

Aber, J. L., Brooks-Gunn, J., & Maynard, R. (1995). Effects of welfare reform on teenage parents and their children. The Future of Children, 5(2), 53-71.

Abma, J. C., Chandra, A., & Mosher, W. D. (1997). Fertility, family planning, and women's health: New data from the 1995 National Survey of Family Growth (Vol. Series 23). Hyattsville, MD: National Center for Health Statistics.

Acs, G. (1996). The impact of welfare on young mother's subsequent childbearing decisions. Journal of Human Resources, 31(4), 898-915.

Alan Guttmacher Institute. (1995). Teenage pregnancy and the welfare reform debate. New York: Author.

American Nurses Association. (1996). Scope and standards of advanced practice registered nursing. Washington, DC: Author.

Aral, S. O., & Cates, W. (1989). The multiple dimensions of sexual behavior as risk factor for sexually transmitted disease: The sexually experienced are not necessarily the sexually active. Sexually Transmitted Diseases, 16, 173-177.

Bennett, T., Skatrud, J., Guild, P., Loda, F., & Klerman, L. V. (1997). Rural adolescent pregnancy: A view from the south. Family Planning Perspectives, 29(6), 256-262.

Berner, M. (1996, Fall). Welfare reform: Testing the ability of the block grant to meet states' needs. Spectrum, 38-51.

Blank, R. M. (1997). Policy watch: The 1996 welfare reform. Journal of Economic Perspectives, 11(1), 169-177.

Braden, J. P., & Bryant, T. J. (1990). Regression discontinuity designs: Applications for school psychologists. School Psychology Review, 19(2), 232-240.

Brekke, J. S., Long, J. D., Nesbitt, N., & Sobel, E. (1997). The impact of service characteristics on functional outcomes from community support programs for persons with schizophrenia: A growth curve analysis. Journal of Consulting and Clinical Psychology, 65(3), 464-475.

Brooks-Gunn, J., & Furstenberg, F. F. (1989). Adolescent sexual behavior. American Psychologist, 44, 249-257.

Burchinal, M., Bailey, D., & Snyder, P. (1994). Using growth curve analysis to evaluate child change in longitudinal investigations. Journal of Early Intervention, 19(3), 403-423.

Castro, K. (1997). Welfare reform: How the new law affects LHAs. Journal of Housing and Community Development, 54, 42-53.

Center for Disease Control and Prevention. (1998). Trends in sexual risk behaviors among high school students--United States, 1991-1997. Morbidity and Mortality Weekly Report, 47(36), 749-752.

Chopak, J., Vicary, J., & Crockett, L. (1998). Predicting alcohol and tobacco use in a sample of rural adolescents. American Journal of Health Behavior, 22(5), 334-341.

Cohen, J., & Cohen, P. (1983). Applied multiple regression/ correlation analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Collins, A., & Aber, L. (1996). State welfare evaluations: Will they increase our understanding of the impact of welfare reform on children? New York: Columbia University School of Public Health, National Center of Public Health.

Curtin, S. C., & Martin, J. A. (2000a). Births: Preliminary data for 1999 (No. 14). Hyattsville: U.S. Department of Health and Human Services.

Curtin, S. C., & Martin, J. A. (2000b). Births: Preliminary data for 1999 (No. 14). Hyattsville: National Center for Health Statistics.

Dolcini, M. M., & Adler, N. E. (1994). Perceived competencies, peer group affiliation, and risk behavior among early adolescents. Health Psychology, 13, 496-506.

Doljanac, R., & Zimmerman, M. (1998). Psychosocial factors and high-risk sexual behavior: Race differences among urban adolescents. Journal of Behavioral Medicine, 21(5), 451-467.

Donohew, R. L., Hoyle, R. H., Clayton, R. R., Skinner, W. F., & Colon, S. E. (1999). Sensation seeking and drug use by adolescents and their friends: Models for marijuana and alcohol. Journal of Studies in Alcohol, 60(5), 622-31.

East, P. L., Felice, M. E., & Morgan, M. C. (1993). Sisters' and girlfriends' sexual and childbearing behavior: Effects on early adolescent girls' sexual outcomes. Journal of Marriage and the Family, 55, 953-963.

Ellwood, D., & Bane, M. J. (1985). The impact of AFDC on family structure and living arrangements. In R. G. Ehrenberg (Ed.), Research and labor economics (pp. 137-207). Greenwich, NY: JAI.

Ennett, S., Flewelling, R., Lindrooth, R., & Norton, E. (1997). School and neighborhood characteristics associated with school rates of alcohol, cigarette, and marijuana use. Journal of Health and Social Behavior, 38(1), 55-71.

Evans, W. N., Oates, W. E., & Schwab, R. M. (1992). Measuring peer group effects: A study of teenage behavior. Journal of Political Economy, 100(5), 966-991.

Fang, X., Stanton, B., Li, X., Feigelman, S., & Baldwin, R. (1998). Similarities in sexual activity and condom use among friends with groups before and after a risk-reduction intervention. Youth and Society, 29(4), 431-450.

Frenzen, P. D., & Butler, M. A. (1997). Births to unmarried mothers are rising faster in rural areas. Rural Conditions and Trends, 8(2), 66-69.

Furstenberg, F. F. (1976). The social consequences of .teenage parenthood. Family Planning Perspective, 8(4), 148-164.

Gerber, D. E., & McGuire, S. L. (1995). Understanding contemporary health and welfare services: The Social Security Act of 1935 and the Public Health Service Act of 1944. Nursing Outlook, 43(6), 266-272.

Gilchrist, L. D., & Schinke, S. P. (1983). Teenage pregnancy and public policy. Social Service Review, 307-322.

Hagen, J. L. (1999). Public welfare and human services: New directions under TANF? Families in Society, 80(1), 78-90.

Henshaw, S. K. (1998). Unintended pregnancy in the United States. Family Planning Perspectives, 30, 24-29, 46.

Hirschl, T. A., & Rank, M. (1999). Community effects on welfare participation. Sociological Forum, 14(1), 155-174.

Hoffman, S., & Foster, E. M. (1999). AFDC benefits and nonmarital births to young women. Journal of Human Resources, 35(2), 376-393.

Jewell, K. S. (1993). From mammy to Miss America and beyond: Cultural images and the shaping of U.S. social policy. New York: Routledge.

Jones, M. (1998). Behavioral contagion and official delinquency. Society for the Study of Social Biology, 45(1-2), 134-142.

Karney, B., & Bradbury, T. (1995). Assessing longitudinal change in marriage: An introduction to the analysis of growth curves. Journal of Marriage and the Family, 57, 1091-1108.

Kaufmann, R. B., Spitz, A., M., Strauss, L. T., Morris, L., Santelli, J. S., Koonin, L. M., & Marks, J. S. (1998). The decline in U.S. teen pregnancy rates, 1990-1995. Pediatrics, 102(5), 1141-1148.

Knitzer, J., & Bernard, S. (1997). The new welfare law and vulnerable families: Implications for child welfare/child protections systems. New York: Columbia University School of Public Health, National Center of Public Health.

Krishnan, V., Parakulam, G., & Zalmanowitz, H. (1999). Changing patterns of teen pregnancy in Canada, 1981-1990. International Journal of Sociology of the Family, 29(1), 39-52.

Levy, D., & Nail, P. (1993). Contagion: A theoretical and empirical review and conceptualization. Genetic, Social, & General Psychology Monographs, 119(2), 235-285.

Lugaila, T. A. (1998). Marital status and living arrangements: March 1997 (P20-506). Washington, DC: U.S. Bureau of the Census.

Luker, K. (1996). Dubious conceptions: The politics of teenage pregnancy. Cambridge, MA: Harvard University Press.

Lundberg, S., & Plotnick, R. D. (1990). Effects of state welfare, abortion, and family planning policies on premarital childbearing among white adolescents. Family Planning Perspectives, 22, 246-251, 275.

Lundberg, S., & Plotnick, R. D. (1995). Adolescent premarital childbearing: Do economic incentives matter? Journal of Labor Economics, 13(2), 177-200.

Mink, G. (1994). Welfare reform in historical perspective. Social Justice, 21(1), 114-131.

Mirande, A. (1968). Reference group theory and adolescent sexual behavior. Journal of Marriage and Family Living, 30, 572-577.

Mitchell, C., Novins, D., & Holmes, T. (1999). Marijuana use among American Indian adolescents: A growth curve analysis from ages 14 through 20 years. Journal of American Academy of Child and Adolescent Psychiatry, 38, 72-78.

Moffitt, R. (1992). Incentive effects in the U.S. welfare system. Journal of Economic Literature, 30, 1-61.

Moffitt, R., & Slade, E. (1997). Health care coverage for children who are on and off welfare. The Future of Children, 7(1), 87-98.

Montessoro, A. C., & Blixen, C. E. (1996). Public policy and adolescent pregnancy: A reexamination of the issues. Nursing Outlook, 44(1), 31-36.

Moore, K. A., Morrison, D. R,, & Glei, D. (1995). Welfare and adolescent sex: The effects of family history, benefit levels, and community context. Journal of Family and Economic Issues, 6(2/3), 207-237.

Moore, K. A., & Caldwell, S. (1977). The effect of government policies on out-of-wedlock sex and pregnancy. Family Planning Perspectives, 9, 164-169.

Murdock, S., Hoque, M. N., & Pecotte, B. (1999). Twenty million Texans and growing. In M. Ramos & R. Plocheck (Eds.), 2000-2001 Texas almanac (pp. 285-288). Dallas: Dallas Morning News.

Murdock, S., Hoque, N., Michael, M., White, S., & Pecotte, B. (1997). The Texas challenge: Population change and the future of Texas. College Station, TX: Texas A&M University Press.

Murray, C. (1993). Welfare and the family: The U.S. experience. Journal of Labor Economics, 11, S224-S226.

Nash, R. (1931). A short life of Florence Nightingale. New York: MacMillan.

Norusis, M. J. (1999). SPSS 9.0 Guide to data analysis. Upper Saddle River, NY: Prentice-Hall.

Ozawa, M. N. (1989). Welfare policies and illegitimate birth rates among adolescents: Analysis of state-by-state data. Social Work Research and Abstracts, 14, 5-11.

Page, N. E., & Arena, D. M. (1994). Rethinking the merger of the clinical nursing specialist and the nurse practitioner roles. IMAGE, 26(4), 315-318.

Page, S. B., & Larner, M. B. (1997). Introduction to the AFDC program. The future of children, 7(1), 20-27.

Pett, M. (1997). Nonparametric statistics for health care research. Thousand Oaks, CA: Sage.

Piccinino, L. J., & Mosher, W. D. (1998). Trends in contraceptive use in the United States: 1982-1995. Family Planning Perspectives, 30(1), 4-10,46.

Plotnick, R. D. (1990). Welfare and out-of-wedlock childbearing: Evidence from the 1980s. Journal of Marriage and Family, 52, 735-746.

Plotnick, R. D. (1993). The effect of social policies on teenage pregnancy and childbearing. Families in Society: The Journal of Contemporary Human Services, 74, 324-328.

Polit, D. F. (1996). Data analysis & statistics for nursing research. Stamford, CT: Appleton & Lange.

Presser, H. B. (1978). Age at menarche, sociosexual behavior, and fertility. Social Biology, 25, 94-101.

Ramos, M. G., & Plocheck, R. (Eds.). (1999). 2000-2001 Texas almanac. Dallas, TX: Dallas Morning News.

Rank, M., & Hirschl, T. (1988). A rural-urban comparison of welfare exits: The importance of population density. Rural Sociology, 53(2), 190-206.

Rank, M., & Hirschl, T. (1993). The link between population density and welfare participation. Demography, 30(4), 607-622.

Rhode, D. L. (1993-1994). Adolescent pregnancy and public policy. Political Science Quarterly, 108(4), 635-669.

Rich, S. (1992, May 18). Mothers on aid rolls and payrolls. Washington Post, p. A19.

Robins, P. K., & Fronstin, P. (1996). Welfare benefits and birth decisions of never-married women. Population Research and Policy Review, 15, 21-43.

Rodgers, J., & Rowe, D. (1993). Social contagion and adolescent sexual behavior: A developmental EMOSA Model. Psychological Review, 100(3), 479-510.

Rodgers, J., Rowe, D., & Buster, M. (1998). Social contagion, adolescent sexual behavior, and pregnancy: A nonlinear dynamic EMOSA model. Developmental Psychology, 34(2), 1096-1113.

Rogosa, D. (1995). Myths and methods: "Myths about longitudinal research" plus supplemental questions. In G. John (Ed.), The analysis of change (pp. 3-66). Mahwah, NJ: Lawrence Earlbaum Associates.

Rogosa, D., Brandt, D., & Zimowski, M. (1982). A growth curve approach to the measurement of change. Psychological Bulletin, 92(3), 726-748.

Rosenzweig, M. (1999). Welfare, marital prospects, and nonmarital childbearing. Journal of Political Economy, 107(6), S3-S34.

Rowe, D., & Rodgers, J. (1991a). Adolescent smoking and drinking: Are they epidemics? Journal of Studies in Alcohol, 52, 110-117.

Rowe, D., & Rodgers, J. (1991b). An "epidemic" model of adolescent sexual intercourse: Applications to national survey data. Journal of Biosocial Science, 23, 211-219.

Rowe, D., & Rodgers, J. (1994). A social contagion model of adolescent sexual behaviors: Explaining race differences. Social Biology, 41, 1-18.

Rowe, D., Rodgers, J., & Mesech-Bushey, S. (1989). An "epidemic" model of sexual intercourse prevalances for Black and White adolescents. Social Biology, 36(3-4), 127-145.

Sandefur, G. D., & Cook, S. T. (1998). Permanent exits from public assistance: The impact of duration, family, and work. Social Forces, 77(2), 763-787.

Sawhill, I. (2000, Winter). Welfare reform and reducing teen pregnancy. Public Interest, pp. 40-51.

Schexnayder, D. T., Olson, J. A., Schroeder, D. G., Betsinger, A. M., & Sim, S. C. (1998). Achieving change for texans evaluation: Net impacts through December 1997. Austin, TX: Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs.

Smith, E., Udry, J. R., & Morris, N. M. (1985). Pubertal development and friends: A biosocial explanation on adolescent sexual behavior. Journal of Health and Social Behavior, 26, pp. 183-192.

Solinger, R. (1992). Wake up little Susie: Single pregnancy and race before Roe v. Wade. New York: Routledge.

Sonenstein, F. L., Ku, L., & Lundberg, L. D. (1998). Changes in sexual behavior and condom use among teenaged males: 1988 to 1995. American Journal of Public Health, 88(6), 956-959.

South, S. J. (1999). Historical changes and life course variation in the determinants of premarital childbearing. Journal of Marriage and Family Living, 61, 752-763.

Stoolmiller, M. (1995). Using latent growth curve models to study developmental processes. In J. M. Gottman (Ed.), The analysis of change (pp. 103-138). Mahwah, NJ: Lawrence Erlbaum Associates.

Tabachnick, B. G., & Fidell, L. S. (1996). Using multivariate statistics (3rd ed.). New York: Harper Collins.

Terry, E., & Manlove, J. (2000). Trends in sexual activity and contraceptive use among teens. Washington, DC: National Campaign to Prevent Teenage Pregnancy.

Texas Department of Health. (1999). Texas vital statistics. Austin, TX: Texas Department of Health.

Texas Department of Human Services. (1994). 1994 annual report (20600-FY94). Austin, TX: Texas Department of Human Services.

Texas Department of Human Services. (1996). 1996 annual report (DHS-600-FY96). Austin, TX: Texas Department of Human Services.

Texas Department of Human Services. (1997). Journey to success: 1997 annual report (DHS-600FY97). Austin, TX: Texas Department of Human Services.

Texas Department of Human Services. (1998). Process evaluation of the achieving change for Texans: Welfare reform waiver track one evaluation. Austin, TX: Texas Department of Human Services.

Texas Department of Human Services. (1999). 60 years of progress: 1999 annual report (Annual Report). Austin: TX: Department of Human Services.

Thomas, S. L. (1998). Race, gender, and welfare reform. Journal of Black Studies, 28(4), 419-447.

Thomas, S. L. (1997). Women, welfare reform and the preservation of a myth. The Social Science Journal, 34(3), 351-368.

Tomal, A. (1999). Determinants of teenage birth rates as an unpooled sample. Age matters for socioeconomic predictors. American Journal of Economics and Sociology, 58(1), 57-69.

Trochim, W. M. (1984). Reseach desigh for program evaluation: The regression discontinuity approach (Vol. 6). Beverly Hills, CA: Sage.

U.S. Census Bureau. (1971). Marital status and family status: March 1970 (P20-212). Washington, DC: U.S. Bureau of the Census.

U.S. General Accounting Office. (1994). Families on welfare: Teenage mothers least likely to become self-sufficient (Vol. GAO/HEH-94-115). Washington DC: Author.

Udry, J. R., Talbert, L. M., & Norris, N. S. (1986). Biosocial foundations for adolescent female sexuality. Demography, 23, 217-231.

Velsor-Friedrich, B. (1997). Welfare reform: Will it break the cycle of dependency? Journal of Pediatric Nursing, 12(1), 55-56.

Ventura, S., Mathews, T. J., & Curtin, S. (1999a). Declines in teenage birth rates, 1991-1998: Update of national and state trends (26). Hyattsville, NJ: U.S. Department of Health and Human Services.

Ventura, S. J. (1995). Vital and health statistics. Births to unmarried mothers: United States, 1980-1992 (No. 53). Hyattsville, NJ: U.S. Department of Health and Human Services.

Ventura, S. J., Bachrach, C. B., & Hill, L. (1995). The demography of out-of-wedlock childbearing. Report to Congress on Out-of-Wedlock Childbearing. Hyattsville, MD: U.S. Department of Health and Human Services.

Ventura, S. J., & Curtin, S. C. (1999). Recent trends in teen births in the United States. Statistical Bulletin, 80(1), 2-12.

Ventura, S. J., Curtin, S. C., & Mathews, T. J. (2000a). Variations in teenage birth rates, 1991-1998: National and state trends (No. 6). Hyattsville: U.S. Department of Health and Human Services.

Ventura, S. J., Martin, J. A., Curtin, S. C., & Mathews, T. J. (1999b). National vital statistics report, births: Final data for 1997 (No. 18). Hyattsville: U.S. Department of Health & Human Services.

Ventura, S. J., Martin, J. A., Curtin, S. C., Mathews, T. J., & Park, M. M. (2000b). Births: Final data for 1998 (No. 3). Hyattsville: U.S. Department of Health and Human Services.

Videka-Sherman, L., & Viggiani, P. (1996). The impact of federal policy changes on children: Research needs for the future. Social Work, 41(6), 594-600.

Weatherley, R. A. (1991). Comprehensive services for pregnant and parenting adolescents: Historical and political considerations. Evaluation and Program Planning, 14, 17-25.

Weinstein, M. (1998). The teenage pregnancy "problem": Welfare Reform and the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. Berkley Women's Law Journal, 13, 117-152.

Wilcox, B. L., Robbenolt, J. K., O'Keeffe, J. E., & Pynchon, M. E. (1996). Teen nonmarital childbearing and the welfare: The gap between research and political discourse. Journal of Social Issues, 41(6), 594-600.

Winegarden, C. R. (1988). AFDC and illegitimacy ratios: A vector autoregressive model. Applied Economics, 20, 1589-1601.

Winegarden, W. R., & Bracy, P. (1997). Welfare benefits and illegitimacy in the U.S.: Reconciling contradictory trends. Southern Economic Journal, 64, 167-179.

Zabin, L. S., Smith, E. A., Hirsch, M. B., & Hardy, J. B. (1986). Ages of physical maturation and first intercourse in Black teenage males and females. Demography, 23, 595-605.

Zimmerman, S., & Gager, C. (1997). A potential case of social bankruptcy; States' AFDC payments and their teen birth rates. Policy Studies Journal, 25(1), 109-123.

APPENDIX A

Graduate School Permission to Conduct Study

TEXAS WOMAN'S
UNIVERSITY
DENTON / DALLAS / HOUSTON

THE GRADUATE SCHOOL
P.O. Box 425649
Denton, TX 76204-5649
Phone: 940/898-3400
Fax: 940/898-3412

July 27, 2000

Ms. Barbara J. Blake

Dear Ms. Blake:

I have received and approved the prospectus entitled **"Social Policy Evaluation: How did the 1996 Welfare Reform Legislation Influence Unmarried Teen Childbirth Rates in Texas Counties?"** for your *Dissertation* research project.

Best wishes to you in the research and writing of your project.

Sincerely yours,

Leslie M Thompson

Leslie M. Thompson
Associate Vice President for Research and
Dean of the Graduate School

LMT/sgm

cc Dr. Patti Hamilton, Nursing
Dr. Carolyn Gunning, Nursing

APPENDIX B

Sample of State of Texas Certificate of Birth

STATE OF TEXAS — **CERTIFICATE OF BIRTH** — **BIRTH NUMBER**

SAMPLE

NEWBORN

1. Name First | Middle | Last | 2. Date of Birth | 3. Sex

4a. Place of Birth - County | 4b. City or Town (If outside city limits, give precinct no.) | 5. Time of Birth | 6a. Plurality - Single, Twin, Triplet, etc. | 6b. If Plural Birth, Born 1st, 2nd, 3rd, etc.

7a. Place of Birth ☐ Clinic / Doctor's Office ☐ Licensed Birthing Center ☐ Hospital ☐ Residence ☐ Other (Specify): | 7b. Name of Hospital or Birthing Center (If Not Institution, Give Street Address)

ATTENDANT / CERTIFIER

8a. Attendant's Name and Mailing Address | 9a. Certifier - I certify that this child was born alive at the place and time and on the date as stated

Signature and Title | Date Signed

8b. ☐ MD ☐ DO ☐ CNM ☐ Midwife ☐ Other (Specify): | 9b. ☐ Attendant ☐ Facility Administrator / Designee ☐ Other (Specify):

MOTHER

10. Name First | Middle | Maiden Surname | 11. Date of Birth | 12. Birthplace (State or Foreign Country)

13a. Residence - State | 13b. County | 13c. City or Town | 13d. Street Address or Rural Location

13e. Inside City Limits ☐ Yes ☐ No | 14. Mother's Mailing Address (If Same As Residence, Enter Zip Code Only)

FATHER

15. Name First | Middle | Last | 16. Date of Birth | 17. Birthplace (State or Foreign Country)

REGISTRAR

18a. Registrar's File Number | 18b. Date Received by Local Registrar | 18c. Signature of Local Registrar

CONFIDENTIAL INFORMATION FOR MEDICAL AND PUBLIC HEALTH USE - THE FOLLOWING INFORMATION WILL NOT BE SHOWN ON CERTIFIED COPIES

19a. Mother Married? ☐ Yes ☐ No | 19b. I consent for my baby's immunization information to be included in the statewide Immunization Registry and to share the immunization information with registered providers. ☐ Yes ☐ No | 19c. SSN for your new baby? ☐ Yes ☐ No | 19d. SSN of Mother | 19e. SSN of Father

SIGNATURES

20a. Signature of Mother | 20b. Signature of Father – I affirm that I am the father and consent to be named on the birth certificate.

21. Father's mailing address (If Same as Mother enter "Same")

22. Race (For example: American Indian, black, white, etc.) | 23. Hispanic Origin? If Yes, Specify (Mexican, Cuban, Puerto Rican, etc.) | 24. Education - highest grade completed (0 - 17+) | 25a-c. Usual Occupation (homemaker, student, teacher, clerk, programmer, attorney, realtor, artist, nurse, etc.) | 25c-d. Type of Business / Industry (ranching, retail, consulting, education, farming, government, manufacturing, etc.)

MOTHER 22a. Mother | 23a. ☐ Yes ☐ No Specify: | 24a. Mother | 25a. Mother | 25b. Mother

FATHER 22b. Father | 23b. ☐ Yes ☐ No Specify: | 24b. Father | 25c. Father | 25d. Father

PREGNANCY HISTORY — LIVE BIRTHS | OTHER PREGNANCIES

26a. Now Living Number ___ ☐ None | 26b. Now Dead Number ___ ☐ None | 26d. Number ___ ☐ None

26c. Date of Last Live Birth | 26e. Date Last Other Pregnancy Ended

27. Source of Prenatal Care (check all that apply) ☐ Hospital Clinic ☐ Public Health Clinic ☐ Private Physician ☐ Midwife ☐ None ☐ Unknown ☐ Other (specify)

28. Mother's Medicaid Number

29. Hepatitis B Immunization Given ☐ Yes ☐ No | 30. Birthweight G. or LB. OZ.

31. Date Last Normal Menses Began | 32. Clinical Estimate of Gestation (Weeks)

33. Prenatal Care Began During 1st, 2nd, 3rd, etc. month. Specify: | 34. Number of Prenatal Visits

35a. HIV Test Done Prenatal ☐ Yes ☐ No | 35b. HIV Test Done at Delivery ☐ Yes ☐ No | 36. Serologic Test Done at Delivery ☐ Yes ☐ No

37a. Mother Transferred Prior to Delivery ☐ No ☐ Yes (Specify Facility): | 37b. Infant Transferred After Delivery ☐ No ☐ Yes (Specify Facility): | 37c. Hospital Use

38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY (Check all that apply) 1 ☐ Anemia (Hct. <30/Hgb. <10) 2 ☐ Cardiac disease 3 ☐ Acute or chronic lung disease 4 ☐ Diabetes 5 ☐ Hydramnios / Oligohydramnios 6 ☐ Hemoglobinopathy 7 ☐ Hypertension, chronic 8 ☐ Hypertension, pregnancy-associated 9 ☐ Eclampsia 10 ☐ Incompetent cervix 11 ☐ Previous infant 4000+ grams 12 ☐ Previous preterm or small - for - gestational-age infant 13 ☐ Preterm labor 14 ☐ Renal disease 15 ☐ Blood group isoimmunization 16 ☐ Preterm rupture of membranes (<37 wks.) 17 ☐ STD 18 ☐ Zidovudine administered during pregnancy 19 ☐ NONE 20 ☐ Other (specify): 21 ☐ UNKNOWN

38b. OTHER RISK FACTORS FOR THIS PREGNANCY (Complete all items) ☐ Yes ☐ No Tobacco use during pregnancy ___ Average number of cigarettes per day ☐ Yes ☐ No Alcohol use during pregnancy ___ Average number of drinks per week ___ lbs. Weight gained during pregnancy

38c. OBSTETRIC PROCEDURES (Check all that apply) 1 ☐ Amniocentesis 2 ☐ Electronic fetal monitoring 3 ☐ Induction of labor 4 ☐ Augmentation of labor 5 ☐ Tocolysis 6 ☐ Ultrasound 7 ☐ NONE 8 ☐ Other (specify):

38d. COMPLICATIONS OF LABOR AND/OR DELIVERY (Check all that apply) 1 ☐ Febrile (>100° F. or 38° C.) 2 ☐ Meconium, moderate / heavy 3 ☐ Premature rupture of membrane (>12 hours) 4 ☐ Abruptio placenta 5 ☐ Placenta previa 6 ☐ Other excessive bleeding 7 ☐ Seizures during labor 8 ☐ Precipitous labor (<3 hours) 9 ☐ Prolonged labor (>20 hours) 10 ☐ Dysfunctional labor 11 ☐ Breech / Malpresentation 12 ☐ Cephalopelvic disproportion 13 ☐ Cord prolapse 14 ☐ NONE 15 ☐ Other (specify):

38e. METHOD OF DELIVERY Check one of 1 - 4. 1 ☐ Vaginal 2 ☐ Vaginal birth after previous C-section 3 ☐ Primary C-section 4 ☐ Repeat C-section | Check 5 and/or 6 if applicable 5 ☐ Forceps 6 ☐ Vacuum

38f. ABNORMAL CONDITIONS OF THE NEWBORN (Check all that apply) 1 ☐ Anemia (Hct. <39/Hgb. <13) 2 ☐ Fetal alcohol syndrome 3 ☐ Hyaline membrane disease / RDS 4 ☐ Meconium aspiration syndrome 5 ☐ Assisted ventilation <30 min. 6 ☐ Assisted ventilation ≥30 min. 7 ☐ Seizures 8 ☐ Sepsis 9 ☐ UABG pH < 7.2 10 ☐ NONE 11 ☐ Other (specify):

38g. CONGENITAL ANOMALIES OF CHILD (Check all that apply) 1 ☐ Anencephalus 2 ☐ Spina bifida / Meningocele 3 ☐ Hydrocephalus 4 ☐ Microcephalus 5 ☐ Other central nervous system anomalies (specify) 6 ☐ Heart malformations 7 ☐ Other circulatory / respiratory anomalies (specify) 8 ☐ Rectal atresia / stenosis 9 ☐ Tracheo-esophageal fistula / Esophageal atresia 10 ☐ Omphalocele / Gastroschisis 11 ☐ Other gastrointestinal anomalies (specify) 12 ☐ Malformed genitalia 13 ☐ Renal agenesis 14 ☐ Other urogenital anomalies (specify) 15 ☐ Cleft lip / palate 16 ☐ Polydactyly / Syndactyly / Adactyly 17 ☐ Limb reduction(s) 18 ☐ Club foot 19 ☐ Diaphragmatic hernia 20 ☐ Other musculoskeletal / integumental anomalies (specify) 21 ☐ Down's syndrome 22 ☐ Other chromosomal anomalies (specify) 23 ☐ NONE 24 ☐ Other (specify)

WARNING: THE PENALTY FOR KNOWINGLY MAKING A FALSE STATEMENT IN THIS FORM CAN BE 2-10 YEARS IN PRISON AND A FINE OF UP TO $5000.

STATE COPY
VS-111 REV. 10/97

APPENDIX C

Number of Unmarried Teen Births and Annual Unmarried Teen Birth Rates per 1,000 Females Aged 12-19 Years for Counties in Texas

Number of Unmarried Teen Births and Annual Unmarried Teen Birth Rates per 1,000 Females Aged 12 - 19 Years for Counties in Texas

County Name	1994		1995		1996		1997	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Anderson	94	37.48	75	29.67	75	29.50	88	34.04
Andrews	29	27.94	31	30.39	29	27.70	25	23.61
Angelina	133	28.79	135	28.53	148	31.42	168	34.53
Aransas	22	19.61	32	28.99	34	29.26	44	37.64
Archer	8	16.03	10	19.31	6	11.26	11	20.60
Armstrong	5	39.68	2	15.38	4	28.78	2	14.93
Atascosa	51	21.87	48	20.16	52	21.44	80	32.28
Austin	33	25.78	29	22.05	39	28.30	36	26.69
Bailey	10	20.96	16	35.24	18	38.54	24	51.95
Bandra	6	9.12	6	8.78	11	14.25	11	13.89
Bastrop	78	31.55	72	27.78	74	26.77	87	30.96
Baylor	3	15.08	4	18.52	2	9.35	12	54.55
Bee	60	38.99	65	39.51	60	35.82	70	41.74
Bell	364	29.67	382	30.62	400	30.75	427	32.56
Bexar	2,575	33.35	2,533	32.34	2,363	29.63	2,505	30.90
Blanco	1	2.59	1	2.42	5	11.96	6	13.36
Borden	1	22.22	0	0.00	0	0.00	3	60.00
Bosque	16	18.85	15	16.80	20	21.74	25	27.38
Bowie	204	40.70	205	40.61	207	40.76	188	38.17
Brazoria	346	26.92	349	26.52	371	27.49	390	28.10
Brazos	205	19.59	197	18.70	221	20.66	209	19.34
Brewster	9	16.22	15	25.86	14	24.05	10	17.06
Briscoe	3	22.90	3	21.13	2	13.99	2	15.27
Brooks	28	51.57	37	66.43	38	68.22	27	48.56
Brown	70	32.63	56	24.84	70	30.29	156	67.89
Burleson	32	36.24	31	34.25	39	43.14	30	32.79
Burnet	29	22.19	36	26.16	33	21.50	51	32.50
Caldwell	61	36.12	57	32.70	72	39.56	59	30.18
Calhoun	50	37.99	57	43.48	67	49.70	76	56.34
Callahan	11	14.44	13	16.56	11	13.50	22	26.32
Cameron	663	30.23	743	34.12	619	28.16	650	30.34
Camp	25	36.13	25	36.82	16	23.88	29	45.38
Carson	4	8.06	6	12.05	6	12.45	2	4.23
Cass	53	27.10	50	25.73	57	29.84	62	32.27
Castro	18	28.21	16	25.36	32	52.29	31	49.36
Chambers	35	22.98	31	19.34	25	15.38	36	21.82
Cherokee	64	25.33	77	29.66	89	34.48	81	30.35
Childress	18	44.67	9	22.90	11	29.02	17	45.58
Clay	3	4.94	11	17.46	13	20.34	15	22.32
Cochran	7	22.08	10	32.68	8	26.23	5	17.12
Coke	4	20.73	3	16.13	4	20.73	6	30.77
Coleman	9	17.82	22	42.23	20	39.06	12	22.73
Collin	243	13.00	274	13.82	299	14.09	276	12.16
Collingsworth	6	31.91	8	39.80	5	23.70	2	10.31
Colorado	26	23.05	30	24.81	42	33.10	49	37.96

Comal	79	24.31	102	29.82	89	24.66	108	29.20
Comanche	17	25.76	11	16.01	16	22.70	12	15.94
Concho	2	13.51	3	18.63	2	11.76	1	5.78
Cooke	50	26.57	43	22.02	57	28.49	54	26.15
Coryell	78	19.68	56	14.01	70	16.96	72	17.05
Cottle	4	35.40	5	44.64	4	36.04	1	8.93
Crane	3	9.17	5	15.02	10	30.03	5	14.97
Crockett	10	34.13	9	30.82	8	26.76	10	31.75
Crosby	20	42.55	13	28.32	14	29.91	14	30.57
Culberson	16	71.75	7	31.82	7	32.56	4	18.35
Dallam	18	45.80	17	39.91	11	27.64	12	30.08
Dallas	4,214	41.81	4,371	42.80	4,554	43.78	4,614	43.32
Dawson	38	41.04	37	40.22	34	37.44	30	32.86
Deaf Smith	62	44.03	55	38.98	67	55.28	51	36.59
Delta	3	10.99	13	47.10	7	25.74	7	25.45
Denton	255	13.18	279	13.55	336	15.35	324	13.69
De Witt	45	37.07	37	29.62	35	28.88	40	32.89
Dickens	1	7.63	3	22.73	2	16.53	2	15.75
Dimmitt	19	22.65	19	23.69	31	38.85	23	29.26
Donley	8	29.85	6	23.26	8	29.20	2	7.25
Duval	40	43.34	35	38.55	44	49.05	27	29.97
Eastland	24	21.24	11	18.55	29	24.29	36	31.09
Ector	302	38.39	314	39.13	311	38.25	362	43.88
Edwards	2	8.62	6	28.71	4	18.87	5	23.26
Ellis	176	29.22	200	33.06	181	28.29	212	31.59
El Paso	1,438	34.03	1,563	37.06	1,496	35.35	1,518	35.87
Erath	23	13.32	42	21.92	26	13.56	37	18.50
Falls	40	44.30	46	49.84	35	37.35	42	44.21
Fannin	35	26.28	31	22.30	38	25.90	48	32.19
Fayette	28	23.61	15	12.31	23	18.23	22	17.31
Fisher	5	18.94	7	26.42	7	26.02	9	33.58
Floyd	7	12.17	15	25.25	20	33.73	15	26.09
Foard	3	30.30	2	18.35	4	34.48	3	24.00
Fort Bend	288	15.97	332	17.40	353	17.53	314	14.83
Franklin	5	10.04	11	22.13	10	19.34	7	13.86
Freestone	30	32.75	19	20.95	24	25.26	31	32.94
Frio	47	44.93	40	38.24	47	45.02	44	42.84
Gaines	32	29.99	27	25.94	31	28.65	28	26.39
Galvestone	476	34.54	457	32.19	468	31.98	463	31.82
Garza	5	14.12	9	27.03	16	45.07	10	28.17
Gillespie	24	25.10	21	21.43	19	18.79	14	13.36
Glasscock	0	0.00	0	0.00	0	0.00	2	18.35
Goaliad	11	30.56	10	26.11	9	22.17	10	24.21
Gonzales	40	38.95	34	32.72	38	35.38	47	42.46
Gray	49	33.93	50	34.84	26	18.03	36	24.88
Grayson	140	24.90	144	24.75	144	23.87	175	27.87
Gregg	219	32.96	237	35.13	271	39.09	250	35.73
Grimes	36	31.47	47	40.14	43	35.39	54	43.90
Guadalupe	128	29.66	128	28.83	123	26.47	132	28.18
Hale	78	32.53	71	29.89	84	34.20	99	40.42
Hall	5	22.52	13	60.47	10	45.87	7	34.31

Hamilton	6	14.85	5	11.74	9	20.59	5	11.36
Hansford	4	10.81	5	13.44	5	12.85	7	17.50
Hardeman	8	28.27	12	41.24	10	32.89	9	31.14
Hardin	60	20.01	64	21.23	74	24.34	66	21.35
Harris	5,630	32.80	5,781	33.28	5,942	33.48	6,086	33.69
Harrison	103	25.89	110	27.40	118	28.68	108	26.73
Hartley	2	8.40	2	9.48	2	9.17	12	55.56
Haskell	4	10.72	6	16.30	10	26.67	2	5.36
Hays	109	17.78	113	17.19	119	16.92	128	17.10
Hemphill	2	6.94	1	3.52	1	3.38	1	3.53
Henderson	95	27.28	102	28.18	116	31.46	102	26.40
Hidalgo	946	26.73	1,054	29.59	1,110	30.68	990	27.38
Hill	61	36.72	47	27.53	54	30.96	59	33.13
Hockley	44	24.11	43	24.06	50	26.84	46	24.57
Hood	32	18.36	39	21.51	38	19.60	32	15.76
Hopkins	54	30.95	48	27.44	41	23.16	34	18.87
Houston	35	29.09	31	25.66	41	33.55	37	29.48
Howard	52	27.73	80	41.78	76	38.46	73	36.61
Hudspeth	10	44.84	12	50.00	5	20.83	7	28.46
Hunt	125	33.03	123	31.75	153	38.17	143	34.37
Hutchinson	44	26.76	47	27.76	36	20.99	34	20.35
Irion	2	22.47	2	22.47	2	23.81	0	0.00
Jack	9	21.13	6	13.89	1	2.21	9	19.03
Jackson	14	15.56	29	31.56	26	28.45	29	31.25
Jasper	49	23.75	74	35.12	78	35.76	70	32.68
Jeff Davis	0	0.00	1	7.87	1	9.09	1	10.20
Jefferson	533	37.92	513	36.40	511	36.30	495	34.58
Jim Hogg	5	15.58	14	39.77	8	24.32	13	42.76
Jim Wells	97	36.34	102	37.82	97	35.74	120	44.78
Johnson	139	20.97	177	25.89	167	23.87	164	22.83
Jones	33	42.04	23	26.29	18	19.31	33	35.29
Karnes	32	39.02	30	35.59	28	33.29	33	42.97
Kaufman	120	33.32	91	24.75	90	23.01	111	27.45
Kendall	11	12.29	10	10.72	13	12.94	14	13.37
Kenedy	0	0.00	2	71.43	1	27.03	1	30.30
Kent	0	0.00	1	17.24	0	0.00	1	15.87
Kerr	69	33.09	51	23.29	52	22.44	67	28.10
Kimble	4	16.95	10	39.22	11	41.20	9	35.86
King	0	0.00	1	45.45	1	55.56	1	66.67
Kinney	3	16.30	3	16.30	1	4.83	8	40.20
Kleberg	64	32.54	75	37.41	62	29.81	74	35.54
Knox	11	40.44	6	21.13	6	20.76	3	10.87
Lamar	88	34.63	112	42.73	104	39.39	93	35.05
Lamb	28	27.81	33	32.04	34	32.08	21	19.83
Lampassas	26	29.12	37	38.03	37	35.47	38	36.54
La Salle	14	40.94	19	51.49	21	54.83	12	30.38
Lavaca	25	22.85	25	22.30	32	27.95	30	27.25
Lee	25	29.00	26	30.09	27	30.65	20	22.73
Leon	20	26.74	11	14.18	25	30.79	18	21.35
Liberty	116	30.92	101	26.59	140	36.56	138	35.42
Limestone	55	44.90	45	36.09	34	26.90	35	26.99

Lipscomb	1	5.56	5	25.91	2	10.10	2	10.15
Live Oak	11	17.30	13	20.06	26	39.27	15	23.51
Llano	7	14.83	17	34.55	12	23.53	11	20.95
Loving	0	0.00	0	0.00	0	0.00	0	0.00
Lubbock	455	30.73	423	28.37	467	31.26	469	31.41
Lynn	8	19.23	10	23.70	12	27.03	13	30.30
McCulloch	13	25.15	16	29.96	22	40.89	23	43.81
McLennan	554	42.46	511	38.37	475	35.17	469	34.36
McMullen	0	0.00	0	0.00	0	0.00	1	21.74
Madison	14	28.81	23	44.49	17	31.31	31	55.96
Marion	12	23.21	23	42.99	17	32.69	24	45.54
Martin	11	30.05	6	15.67	11	30.14	8	21.98
Mason	3	18.40	4	22.60	2	10.47	2	9.80
Matagorda	89	33.82	93	37.17	81	31.78	97	38.26
Maverick	67	19.24	75	22.12	68	20.81	63	19.53
Medina	41	22.59	39	20.56	52	26.24	59	28.61
Menard	5	37.59	2	14.71	0	0.00	3	22.06
Midland	211	29.02	248	32.97	250	32.38	259	32.45
Milam	56	37.31	51	34.86	60	39.81	49	31.84
Mills	5	19.69	1	3.62	1	3.69	5	17.24
Mitchell	17	34.91	18	39.05	17	34.34	20	44.25
Montague	21	22.32	17	17.42	32	31.53	26	25.29
Montgomery	300	21.88	313	21.86	334	22.31	326	20.86
Moore	37	29.79	46	36.60	60	44.78	66	49.74
Morris	28	34.31	30	36.76	30	35.34	32	37.56
Motley	1	13.51	0	0.00	0	0.00	1	16.95
Nacogdoches	106	23.58	108	23.80	96	19.98	96	20.00
Navarro	96	39.06	110	43.38	111	43.11	126	47.95
Newton	23	25.56	29	30.40	21	21.88	30	31.15
Nolan	32	30.59	50	46.43	38	35.55	42	41.26
Nueces	741	37.70	865	43.94	783	39.92	886	45.32
Ochiltree	18	29.95	8	12.82	14	20.86	15	22.90
Oldham	7	45.75	0	0.00	2	13.42	0	0.00
Orange	130	24.09	152	28.12	144	26.66	150	28.76
Palo Pinto	38	25.55	38	26.28	60	38.56	59	37.53
Panola	21	13.67	30	20.24	31	20.74	34	23.08
Parker	72	16.82	75	17.11	82	18.10	94	20.06
Parmer	16	24.24	20	30.12	18	26.16	22	33.43
Pecos	35	34.28	37	36.03	48	44.44	40	39.37
Polk	49	24.60	66	34.32	69	33.19	63	30.35
Potter	288	48.77	333	54.97	341	53.81	271	42.19
Presidio	19	36.26	16	32.06	16	32.59	15	29.64
Rains	8	19.32	10	22.94	14	31.82	7	15.95
Randall	100	15.94	84	13.13	105	15.90	106	15.91
Reagan	4	11.43	4	11.56	3	8.96	6	1
Real	6	45.11	3	22.22	7	49.30	4	28.57
Red River	33	38.73	29	34.90	29	35.32	29	36.20
Reeves	45	42.13	38	34.83	42	38.82	32	29.33
Refugio	18	34.88	17	33.20	23	43.15	19	36.47
Roberts	1	14.49	0	0.00	0	0.00	0	0.00
Robertson	53	62.87	48	57.55	53	60.23	56	61.27

Rockwall	23	11.90	29	14.21	35	16.07	46	19.97
Runnels	22	32.45	22	32.45	25	36.98	22	32.98
Rusk	88	31.47	75	26.49	85	29.95	86	30.11
Sabine	19	37.85	18	34.35	14	26.47	11	21.57
San Augustine	17	38.37	19	40.17	20	40.16	23	46.37
San Jacinto	23	23.40	24	23.48	31	28.47	22	19.70
San Patricio	161	36.29	188	41.62	175	37.97	187	40.68
San Saba	11	42.80	10	36.50	4	13.65	4	14.49
Schleicher	6	23.62	0	0.00	3	12.10	5	20.75
Scurry	21	16.54	34	26.34	36	28.44	38	30.35
Shackelford	3	14.42	2	9.35	1	4.69	2	9.43
Shelby	39	29.46	52	39.42	48	36.14	44	32.52
Sherman	4	18.52	7	32.71	2	9.66	4	20.62
Smith	273	29.09	271	28.48	309	31.85	320	32.07
Somervell	6	17.00	14	37.94	7	17.95	8	20.36
Starr	68	18.35	57	15.43	65	18.00	61	16.94
Stephens	17	30.30	15	26.09	13	22.11	21	36.14
Sterling	1	8.55	4	38.10	1	9.17	3	25.86
Stonewall	2	17.39	2	18.18	1	8.77	2	18.18
Sutton	5	16.03	7	22.73	8	26.23	6	20.27
Swisher	14	31.46	19	39.01	20	38.68	27	55.44
Tarrant	1,862	27.95	2,068	29.89	2,096	28.91	2,260	30.18
Taylor	267	34.17	261	32.37	246	29.63	267	31.60
Terrell	4	38.83	0	0.00	2	22.22	0	0.00
Terry	39	41.45	37	38.70	35	37.27	48	51.61
Throckmorton	0	0.00	3	26.32	0	0.00	2	23.81
Titus	41	27.15	53	34.39	69	43.53	62	39.62
Tom Green	198	30.66	179	26.55	202	29.00	214	30.35
Travis	949	26.02	1,090	28.17	1,010	25.38	1,160	28.43
Trinity	22	34.48	26	39.94	27	39.94	19	27.70
Tyler	34	35.79	24	25.26	24	25.13	25	26.65
Upshur	44	20.58	36	16.31	63	27.84	54	23.90
Upton	5	15.48	4	12.16	7	21.60	11	33.95
Uvalde	43	25.84	74	44.47	62	36.82	56	33.55
Val Verde	77	27.68	70	25.66	87	32.40	69	26.62
Van Zandt	42	18.95	49	21.49	63	26.60	52	21.46
Victoria	191	37.55	195	37.75	220	41.99	193	36.06
Walker	75	22.62	80	23.09	65	18.11	71	19.39
Waller	50	23.39	44	19.90	71	31.64	60	26.17
Ward	27	31.25	28	31.78	16	17.84	28	31.35
Washington	39	20.72	50	25.13	49	23.96	41	19.62
Webb	434	36.58	472	38.57	501	40.77	425	33.66
Wharton	84	32.00	89	33.53	97	35.56	95	34.71
Wheeler	6	17.54	7	20.90	8	23.74	5	14.29
Wichita	254	34.37	256	33.54	285	35.40	250	31.44
Wilbarger	31	37.53	26	30.70	33	38.15	38	44.97
Willacy	36	23.09	41	26.80	36	24.26	45	32.89
Williamson	162	14.67	183	15.21	196	15.17	208	15.18
Wilson	28	16.62	36	21.00	33	18.26	29	15.19
Winkler	21	33.28	15	24.08	16	25.72	24	38.96
Wise	45	20.27	51	22.24	61	25.77	75	30.69

Wood	39	23.35	30	17.57	36	20.37	37	20.89
Yoakum	15	20.75	12	17.05	16	22.70	17	24.32
Young	23	22.53	25	23.88	26	24.53	26	24.44
Zapata	15	19.23	14	18.79	20	26.88	14	19.44
Zavala	43	47.46	40	46.73	27	33.09	31	39.79

County Name	1998		1999	
	Number	Rate	Number	Rate*
Anderson	94	36.66	88	34.32
Andrews	31	29.52	34	32.38
Angelina	165	34.52	160	33.47
Aransas	41	34.86	34	28.91
Archer	12	22.10	12	22.10
Armstrong	2	17.09	4	34.19
Atascosa	79	31.39	84	33.37
Austin	52	38.72	41	30.53
Bailey	19	44.81	24	56.60
Bandra	21	24.91	25	29.66
Bastrop	80	27.10	105	35.57
Baylor	7	32.86	10	46.95
Bee	89	53.84	79	47.79
Bell	449	33.44	422	31.42
Bexar	2,561	31.10	2,632	31.96
Blanco	4	9.11	11	25.06
Borden	0	0.00	2	42.55
Bosque	15	16.67	27	30.00
Bowie	191	39.73	199	41.39
Brazoria	365	25.99	404	28.77
Brazos	204	18.45	233	21.07
Brewster	13	22.81	18	31.58
Briscoe	1	8.26	0	0.00
Brooks	35	61.73	24	42.33
Brown	144	63.07	114	49.93
Burleson	37	40.09	43	46.59
Burnet	55	34.31	37	23.08
Caldwell	71	35.25	76	37.74
Calhoun	64	48.48	69	52.27
Callahan	14	16.67	19	22.62
Cameron	758	36.67	777	37.59
Camp	30	47.17	17	26.73
Carson	11	23.50	7	14.96
Cass	57	30.05	39	20.56
Castro	29	46.70	30	48.31
Chambers	21	12.60	32	19.20
Cherokee	96	36.12	97	36.49
Childress	19	53.98	15	42.61
Clay	6	9.12	6	9.12
Cochran	11	38.87	12	42.40
Coke	5	25.77	10	51.55
Coleman	12	23.76	22	43.56
Collin	311	12.89	312	12.93
Collingsworth	3	15.08	2	10.05
Colorado	36	28.53	46	36.45
Comal	98	25.69	109	28.58
Comanche	24	32.43	21	28.38
Concho	4	24.10	2	12.05
Cooke	64	30.96	52	25.16

Coryell	71	16.66	69	16.19
Cottle	0	0.00	7	63.06
Crane	9	25.50	10	28.33
Crockett	11	35.14	15	47.92
Crosby	19	44.60	18	42.25
Culberson	4	18.87	4	18.87
Dallam	11	28.06	21	53.57
Dallas	4,898	44.44	4,702	42.66
Dawson	30	33.86	44	49.66
Deaf Smith	57	40.92	60	43.07
Delta	13	47.27	11	40.00
Denton	337	13.39	363	14.42
De Witt	46	38.37	41	34.20
Dickens	4	32.00	4	32.00
Dimmitt	34	46.01	32	43.30
Donley	6	22.73	2	7.58
Duval	37	42.63	46	53.00
Eastland	30	26.91	32	28.70
Ector	377	44.57	400	47.29
Edwards	7	30.57	6	26.20
Ellis	216	30.99	248	35.58
El Paso	1,551	36.71	1,573	37.23
Erath	35	17.69	54	27.29
Falls	33	36.22	42	46.10
Fannin	37	24.39	44	29.00
Fayette	22	17.25	17	13.33
Fisher	8	32.92	7	28.81
Floyd	12	22.02	19	34.86
Foard	2	15.63	2	15.63
Fort Bend	347	15.61	329	14.80
Franklin	10	19.49	8	15.59
Freestone	19	20.47	20	21.55
Frio	46	45.10	53	51.96
Gaines	21	19.77	31	29.19
Galvestone	448	30.75	461	31.65
Garza	14	43.08	6	18.46
Gillespie	15	14.18	20	18.90
Glasscock	0	0.00	1	8.55
Goaliad	9	21.43	13	30.95
Gonzales	52	46.72	43	38.63
Gray	41	29.73	35	25.38
Grayson	207	32.79	196	31.05
Gregg	257	36.25	274	38.65
Grimes	46	36.62	51	40.61
Guadalupe	166	34.03	165	33.83
Hale	79	32.10	101	41.04
Hall	10	48.78	10	48.78
Hamilton	8	20.30	6	15.23
Hansford	8	20.05	11	27.57
Hardeman	9	31.47	13	45.45
Hardin	58	19.45	45	15.09

Harris	6,061	32.88	5,978	32.42
Harrison	138	34.36	103	25.65
Hartley	4	18.02	6	27.03
Haskell	9	24.93	9	24.93
Hays	142	17.62	149	18.49
Hemphill	5	17.24	4	13.79
Henderson	129	33.15	124	31.87
Hidalgo	1,157	32.30	1,132	31.61
Hill	62	33.44	54	29.13
Hockley	52	27.48	60	31.71
Hood	51	24.76	56	27.18
Hopkins	37	20.40	59	32.52
Houston	49	38.10	37	28.77
Howard	103	51.29	75	37.35
Hudspeth	2	9.22	4	18.43
Hunt	135	32.90	138	33.63
Hutchinson	54	33.09	26	15.93
Irion	1	10.87	1	10.87
Jack	9	20.09	8	17.86
Jackson	29	30.66	30	31.71
Jasper	71	34.60	83	40.45
Jeff Davis	0	0.00	1	10.75
Jefferson	470	32.84	543	37.94
Jim Hogg	12	37.97	7	22.15
Jim Wells	101	37.77	107	40.01
Johnson	207	27.81	195	26.20
Jones	29	29.50	31	31.54
Karnes	33	43.36	39	51.25
Kaufman	101	23.85	121	28.58
Kendall	17	15.36	12	10.84
Kenedy	2	62.50	1	31.25
Kent	0	0.00	0	0.00
Kerr	71	29.15	75	30.79
Kimble	10	39.84	10	39.84
King	0	0.00	0	0.00
Kinney	7	35.00	5	25.00
Kleberg	69	33.33	69	33.33
Knox	11	40.59	9	33.21
Lamar	97	36.11	102	37.97
Lamb	34	33.24	30	29.33
Lampassas	22	21.38	36	34.99
La Salle	16	40.61	11	27.92
Lavaca	41	38.00	19	17.61
Lee	25	27.32	18	19.67
Leon	12	14.27	30	35.67
Liberty	148	38.26	135	34.90
Limestone	45	33.96	31	23.40
Lipscomb	5	26.88	3	16.13
Live Oak	17	28.38	16	26.71
Llano	11	19.96	11	19.96
Loving	0	0.00	0	0.00

Lubbock	463	30.58	568	37.52
Lynn	17	39.26	10	23.09
McCulloch	20	37.17	16	29.74
McLennan	534	39.01	485	35.43
McMullen	2	40.82	0	0.00
Madison	35	64.10	22	40.29
Marion	22	40.74	21	38.89
Martin	9	23.44	7	18.23
Mason	2	11.36	2	11.36
Matagorda	93	37.39	93	37.39
Maverick	65	20.28	71	22.15
Medina	71	34.35	74	35.80
Menard	4	27.78	5	34.72
Midland	286	35.16	291	35.78
Milam	51	32.95	44	28.42
Mills	6	20.20	5	16.84
Mitchell	18	36.73	21	42.86
Montague	25	23.92	26	24.88
Montgomery	334	20.36	334	20.36
Moore	68	51.83	60	45.73
Morris	36	43.32	19	22.86
Motley	0	0.00	0	0.00
Nacogdoches	82	17.35	100	21.16
Navarro	101	38.30	82	31.10
Newton	26	28.63	29	31.94
Nolan	38	38.15	42	42.17
Nueces	804	41.38	789	40.60
Ochiltree	15	24.67	15	24.67
Oldham	3	20.69	2	13.79
Orange	144	27.94	121	23.48
Palo Pinto	73	46.62	55	35.12
Panola	38	26.21	41	28.28
Parker	106	21.62	118	24.07
Parmer	26	40.19	19	29.37
Pecos	55	53.09	51	49.23
Polk	69	32.86	54	25.71
Potter	310	47.67	305	46.90
Presidio	16	31.62	14	27.67
Rains	9	20.22	6	13.48
Randall	114	16.73	102	14.97
Reagan	5	14.25	9	25.64
Real	2	14.81	4	29.63
Red River	23	29.60	28	36.04
Reeves	39	36.90	58	54.87
Refugio	15	29.07	26	50.39
Roberts	3	49.18	1	16.39
Robertson	49	52.46	29	31.05
Rockwall	43	18.14	43	18.14
Runnels	17	26.15	25	38.46
Rusk	74	25.92	85	29.77
Sabine	14	28.63	10	20.45

San Augustine	19	40.69	20	42.83
San Jacinto	25	22.77	26	23.68
San Patricio	183	39.19	195	41.76
San Saba	8	30.30	6	22.73
Schleicher	5	21.65	7	30.30
Scurry	30	23.81	38	30.16
Shackelford	3	14.22	3	14.22
Shelby	46	35.06	32	24.39
Sherman	6	32.97	3	16.48
Smith	299	29.43	314	30.91
Somervell	8	19.90	7	17.41
Starr	68	18.96	81	22.58
Stephens	16	28.67	14	25.09
Sterling	0	0.00	2	16.67
Stonewall	6	59.41	4	39.60
Sutton	11	37.41	9	30.61
Swisher	23	48.52	22	46.41
Tarrant	2,391	30.82	2,476	31.92
Taylor	271	31.97	290	34.21
Terrell	2	28.99	4	57.97
Terry	44	48.25	46	50.44
Throckmorton	1	11.63	2	23.26
Titus	71	44.46	54	33.81
Tom Green	246	35.03	234	33.32
Travis	1,205	28.68	1,175	27.97
Trinity	29	42.40	20	29.24
Tyler	24	27.00	31	34.87
Upshur	54	23.95	66	29.27
Upton	11	34.38	11	34.38
Uvalde	67	41.10	75	46.01
Val Verde	95	36.78	91	35.23
Van Zandt	70	28.52	59	24.04
Victoria	246	45.67	226	41.95
Walker	71	19.99	73	20.55
Waller	78	34.27	60	26.36
Ward	30	33.52	30	33.52
Washington	48	22.89	49	23.37
Webb	454	34.72	396	30.29
Wharton	104	38.17	105	38.53
Wheeler	11	31.07	8	22.60
Wichita	256	31.77	283	35.12
Wilbarger	31	36.38	29	34.04
Willacy	49	38.04	46	35.71
Williamson	216	14.81	212	14.53
Wilson	35	17.59	45	22.61
Winkler	25	41.12	22	36.18
Wise	52	21.18	75	30.55
Wood	51	28.46	44	24.55
Yoakum	13	18.92	18	26.20
Young	26	23.90	38	34.93
Zapata	17	23.71	20	27.89

Zavala	32	41.29	33	42.58

*1999 birth rates were calculated using 1998 population estimates for females 12 - 19 years old

APPENDIX D

Texas Teen Population Density by County for 1997

Texas Teen Population Density by County for 1997

County Name	Land Area in Square Miles	1997 Teen Population	Teen Density
Anderson	1,070.90	5,819	5.43
Andrews	1,500.70	2,168	1.44
Angelina	801.60	9,882	12.33
Aransas	252.00	2,383	9.46
Archer	909.80	1,222	1.34
Armstrong	913.70	299	.33
Atascosa	1,232.20	5,039	4.09
Austin	652.70	2,849	4.36
Bailey	82,637.00	946	.01
Bandera	791.80	1,636	2.07
Bastrop	888.50	6,016	6.77
Baylor	870.80	489	.56
Bee	880.20	3,596	4.09
Bell	1,059.00	27,853	26.30
Bexar	1,246.90	167,157	134.06
Blanco	711.30	923	1.30
Borden	898.90	100	.11
Bosque	989.30	1,895	1.92
Bowie	887.90	9,972	11.23
Brazoria	1,386.90	28,560	20.59
Brazos	585.80	22,278	38.03
Brewster	6,193.00	1,197	.19
Briscoe	900.30	250	.28
Brooks	943.30	1,157	1.23
Brown	944.00	4,774	5.06
Burleson	665.60	1,883	2.83
Burnet	995.30	3,274	3.29
Caldwell	545.80	4,008	7.34
Calhoun	512.40	2,651	5.17
Callahn	898.70	1,717	1.91
Cameron	905.60	43,182	47.68
Camp	197.50	1,300	6.58
Carson	923.20	930	1.01
Cass	937.50	3,993	4.26
Castro	898.40	1,317	1.47
Chambers	599.40	3,452	5.76
Cherokee	1,052.30	5,473	5.20
Childress	710.40	867	1.22
Clay	1,097.90	1,357	1.24
Cochran	775.20	574	.74
Coke	898.90	415	.46
Coleman	1,272.90	1,121	.88
Collin	847.70	46,218	54.52
Collingsworth	918.80	403	.44
Colorado	963.00	2,534	2.63
Comal	561.50	7,631	13.59
Comanche	937.80	1,597	1.70

Concho	991.50	342	.34
Cooke	873.80	4,277	4.89
Coryell	1,051.90	11,247	10.69
Cottle	901.20	264	.29
Crane	785.60	712	.91
Crockett	2,807.60	646	.23
Crosby	899.60	957	1.06
Culberson	3,812.70	468	.12
Dallam	1,504.80	755	.50
Dallas	879.90	217,657	247.37
Dawson	902.10	1,898	2.10
Deaf Smith	1,497.40	2,885	1.93
Delta	277.20	555	2.00
Denton	888.50	46,458	52.29
De Witt	909.30	2,467	2.71
Dickens	904.30	240	.27
Dimmitt	1,331.00	1,614	1.21
Donley	929.80	545	.59
Duval	1,792.90	1,810	1.01
Eastland	926.10	2,538	2.74
Ector	901.10	16,976	18.84
Edwards	2,119.90	419	.20
Ellis	940.00	13,499	14.36
El Paso	1,013.10	87,424	86.29
Erath	1,086.40	4,061	3.74
Falls	769.10	2,074	2.70
Fannin	891.60	3,115	3.49
Fayette	950.10	2,566	2.70
Fisher	901.20	539	.60
Floyd	992.30	1,125	1.13
Foard	706.70	254	.36
Fort Bend	875.00	44,066	50.36
Franklin	285.70	1,034	3.62
Freestone	885.30	2,120	2.39
Frio	1,133.10	2,058	1.82
Gaines	1,502.40	2,207	1.47
Galvestone	398.70	29,611	74.27
Garza	895.60	695	.78
Gillespie	1,061.20	2,217	2.09
Glasscock	900.80	207	.23
Goaliad	853.60	840	.98
Gonzales	1,067.90	2,375	2.22
Gray	928.30	3,084	3.32
Grayson	933.70	12,629	13.53
Gregg	274.10	14,217	51.87
Grimes	793.80	2,742	3.45
Guadalupe	711.20	9,686	13.62
Hale	1,004.70	4,988	4.96
Hall	903.10	430	.48
Hamilton	835.80	926	1.11
Hansford	919.90	817	.89

Hardeman	695.40	598	.86
Hardin	894.40	6,380	7.13
Harris	1,729.00	368,688	213.24
Harrison	898.80	8,261	9.19
Hartley	1,462.40	483	.33
Haskell	903.00	775	.86
Hays	677.90	14,188	20.93
Hemphill	909.70	540	.59
Henderson	874.40	7,952	9.09
Hidalgo	1,569.10	72,819	46.41
Hill	962.40	3,638	3.78
Hockley	908.30	3,737	4.11
Hood	421.60	4,163	9.87
Hopkins	784.80	3,738	4.76
Houston	1,231.00	2,605	2.12
Howard	902.90	4,631	5.13
Hudspeth	4,571.30	474	.10
Hunt	841.20	8,553	10.17
Hutchinson	887.40	3,527	3.97
Irion	1,051.60	180	.17
Jack	917.40	990	1.08
Jackson	829.50	1,949	2.35
Jasper	937.50	4,436	4.73
Jeff Davis	2,264.60	223	.10
Jefferson	903.60	29,902	33.09
Jim Hogg	1,136.20	732	.64
Jim Wells	864.70	5,522	6.39
Johnson	729.40	14,726	20.19
Jones	931.10	2,127	2.28
Karnes	750.30	1,683	2.24
Kaufman	786.10	8,208	10.44
Kendall	662.50	2,328	3.51
Kenedy	1,456.90	124	.09
Kent	902.40	125	.14
Kerr	1,106.30	4,743	4.29
Kimble	1,250.80	530	.42
King	912.30	42	.05
Kinney	1,363.50	394	.29
Kleberg	871.10	4,281	4.91
Knox	854.20	563	.66
Lamar	917.10	5,381	5.87
Lamb	1,016.30	2,123	2.09
Lampassas	712.10	2,099	2.95
La Salle	1,489.00	833	.56
Lavaca	970.00	2,321	2.39
Lee	628.60	1,834	2.92
Leon	1,072.10	1,728	1.61
Liberty	1,159.80	8,279	7.14
Limestone	908.90	2,677	2.95
Lipscomb	932.20	437	.47
Live Oak	1,036.40	1,304	1.26

Llano	934.90	1,046	1.12
Loving	673.10	10	.01
Lubbock	899.60	30,122	33.48
Lynn	891.90	906	1.02
McCulloch	1,069.40	1,064	.99
McLennan	1,041.90	27,572	26.46
McMullen	1,113.10	89	.08
Madison	469.70	1,569	3.34
Marion	381.20	1,239	3.25
Martin	914.90	767	.84
Mason	932.10	436	.47
Matagorda	1,114.50	5,317	4.77
Maverick	1,280.20	6,458	5.04
Medina	1,327.90	4,342	3.27
Menard	902.00	291	.32
Midland	900.30	16,228	18.03
Milam	1,016.80	3228	3.17
Mills	748.20	611	.82
Mitchell	910.10	976	1.07
Montague	930.70	2,108	2.26
Montgomery	1,044.30	32,046	30.69
Moore	899.70	2,633	2.93
Morris	254.50	1,733	6.81
Motley	989.40	142	.14
Nacogdoches	946.80	9,196	9.71
Navarro	1,071.20	5,577	5.21
Newton	932.80	1,966	2.11
Nolan	912.10	2,095	2.30
Nueces	835.90	40,333	48.25
Ochiltree	917.60	1,341	1.46
Oldham	1,500.70	338	.23
Orange	356.40	10,667	29.93
Palo Pinto	953.00	3,188	3.35
Panola	801.00	3,005	3.75
Parker	903.60	9,669	10.70
Parmer	881.70	1,450	1.64
Pecos	4,764.00	2,190	.46
Polk	1,057.40	5,068	4.79
Potter	909.40	13,297	14.62
Presidio	3,855.80	993	.26
Rains	232.10	937	4.04
Randall	914.50	13,322	14.57
Reagan	1,175.40	722	.61
Real	700.00	281	.40
Red River	1,050.20	1,634	1.56
Reeves	2,636.10	2,201	.83
Refugio	770.30	1,008	1.31
Roberts	924.10	122	.13
Robertson	854.60	1,906	2.23
Rockwall	128.80	4,574	35.51
Runnels	1,054.50	1,457	1.38

Rusk	923.60	5,802	6.28
Sabine	490.30	1,008	2.06
San Augustine	527.90	977	1.85
San Jacinto	570.70	2,553	4.47
San Patricio	691.80	9,349	13.51
San Saba	1,	640	.56
Schleicher	1,310.70	494	.38
Scurry	902.60	2,591	2.87
Shackelford	914.00	445	.49
Shelby	794.20	2,713	3.42
Sherman	923.10	397	.43
Smith	928.50	20,066	21.61
Somervell	187.20	860	4.59
Starr	1,223.10	7,337	6.00
Stephens	894.70	1,372	1.53
Sterling	923.40	214	.23
Stonewall	918.70	216	.24
Sutton	1,453.90	577	.40
Swisher	911.50	1,059	1.16
Tarrant	863.50	153,218	177.44
Taylor	915.70	17,272	18.86
Terrell	2,357.90	160	.07
Terry	889.90	1,923	2.16
Throckmorton	912.40	166	.18
Titus	410.60	3,118	7.59
Tom Green	1,522.20	14,380	9.45
Travis	989.40	83,256	84.15
Trinity	692.90	1,373	1.98
Tyler	923.00	2,088	2.26
Upshur	587.70	4,608	7.84
Upton	1,241.80	676	.54
Uvalde	1,556.60	3,357	2.16
Val Verde	3,170.70	5,423	1.71
Van Zandt	848.80	4,998	5.89
Victoria	882.60	10,962	12.42
Walker	787.50	7,531	9.56
Waller	513.60	4,543	8.85
Ward	835.60	1,830	2.19
Washington	609.30	4,373	7.18
Webb	3,357.00	25,562	7.61
Wharton	1,090.20	5,632	5.17
Wheeler	914.30	737	.81
Wichita	627.70	17,458	27.81
Wilbarger	971.10	1,832	1.89
Willacy	596.70	2,813	4.71
Williamson	1,124.40	27,630	24.57
Wilson	807.20	3,915	4.85
Winkler	841.10	1,222	1.45
Wise	904.70	5,125	5.66
Wood	650.30	3,860	5.94
Yoakum	799.80	1,337	1.67

Young	922.40	2,188	2.37
Zapata	996.80	1,468	1.47
Zavala	1,298.60	1,602	1.23

APPPENDIX E

1997 Texas Population and Percent White,
Black, and Hispanic

1997 Texas Population and Percent White, Black, and Hispanic

County Name	1997 Total Population	Percent White	Percent Black	Percent Hispanic
Anderson	52,949	65.58	23.80	9.84
Andrews	14,662	60.94	1.73	35.70
Angelina	78,115	72.73	14.80	11.44
Aransas	21,023	73.31	1.55	20.32
Archer	8,657	96.20	.20	3.01
Armstrong	2,137	93.40	.00	4.12
Atascosa	34,810	43.05	.37	56.00
Austin	22,862	71.76	12.91	14.84
Bailey	6,794	54.93	1.38	43.38
Bandera	14,598	88.29	.18	10.49
Bastrop	48,178	69.30	9.45	20.23
Baylor	4,313	85.69	4.59	9.04
Bee	27,633	40.16	6.74	51.84
Bell	225,419	61.77	19.69	14.97
Bexar	1,334,722	39.52	6.79	51.82
Blanco	7,645	80.85	1.20	16.85
Borden	759	83.40	.00	15.15
Bosque	16,436	85.25	2.06	12.19
Bowie	83,591	74.73	22.79	1.71
Brazoria	224,910	68.85	8.07	21.22
Brazos	139,352	68.82	10.75	15.91
Brewster	9,279	55.17	1.00	42.83
Briscoe	1,958	74.62	3.32	21.86
Brooks	8,362	7.69	.01	91.89
Brown	37,233	79.75	5.58	13.84
Burleson	15,214	67.79	18.99	12.59
Burnet	30,272	83.65	2.12	13.31
Caldwell	30,707	48.88	11.85	38.38
Calhoun	20,761	55.36	2.72	38.52
Callahn	12,709	94.91	.07	4.27
Cameron	316,542	15.54	.25	83.66
Camp	10,886	65.85	23.49	10.08
Carson	6,657	93.04	.21	5.95
Cass	31,056	75.65	22.37	1.45
Castro	8,581	44.81	2.54	52.15
Chambers	25,028	70.67	15.73	11.75
Cherokee	44,736	71.79	17.43	9.84
Childress	7,457	69.67	13.14	16.37
Clay	10,771	93.34	.96	4.01
Cochran	4,118	47.33	4.57	47.79
Coke	3,567	84.58	.14	14.52
Coleman	9,941	81.77	4.48	13.07
Collin	401,443	84.14	3.94	7.83
Collingsworth	3,449	74.08	6.32	18.61
Colorado	19,600	62.83	17.84	18.97
Comal	71,043	77.02	.65	21.55
Comanche	14,470	77.95	.14	21.32

Concho	3,127	55.55	.70	43.30
Cooke	33,857	88.23	3.76	6.58
Coryell	75,521	63.83	22.75	10.49
Cottle	2,112	71.45	10.13	18.04
Crane	4,603	57.53	2.45	39.43
Crockett	4,652	48.19	.84	50.58
Crosby	7,083	48.68	2.96	48.00
Culberson	3,299	21.73	.09	77.27
Dallam	5,852	73.77	2.14	23.12
Dallas	2,021,087	57.73	19.76	19.47
Dawson	14,947	46.94	8.33	44.40
Deaf Smith	19,250	43.58	1.27	54.66
Delta	5,098	86.99	9.14	2.53
Denton	371,518	83.89	4.75	7.99
De Witt	20,586	59.58	12.74	27.30
Dickens	2,334	72.75	4.58	5.40
Dimmitt	10,806	13.85	.49	85.28
Donley	3,810	89.71	4.91	4.70
Duval	13,826	11.84	1.92	85.95
Eastland	19,181	88.42	1.88	9.17
Ector	123,795	59.22	4.54	35.17
Edwards	2,937	47.57	.00	50.97
Ellis	100,100	74.98	9.06	15.14
El Paso	683,657	22.89	3.34	72.49
Erath	31,425	86.73	.74	11.65
Falls	18,375	58.49	28.08	12.91
Fannin	27,832	86.35	8.98	3.26
Fayette	21,759	79.76	7.93	11.97
Fisher	4,484	73.73	3.81	22.30
Floyd	8,221	50.99	3.43	45.09
Foard	1,849	78.10	5.90	15.36
Fort Bend	316,686	50.11	22.90	19.31
Franklin	8,741	86.72	5.22	7.28
Freestone	17,834	72.54	20.55	6.29
Frio	15,751	24.70	4.72	69.90
Gaines	14,412	64.06	1.74	33.75
Galvestone	242,133	63.65	17.77	16.01
Garza	4,974	62.08	6.11	31.24
Gillespie	20,160	82.27	.14	17.05
Glasscock	1,380	72.32	.00	27.10
Goaliad	6,576	57.27	6.36	35.66
Gonzales	17,896	51.35	9.54	38.53
Gray	24,864	83.87	5.14	9.29
Grayson	102,998	84.01	7.62	5.85
Gregg	112,399	75.07	19.19	4.75
Grimes	21,950	59.94	23.54	16.03
Guadalupe	75,155	61.78	4.71	32.29
Hale	36,079	46.84	5.71	46.65
Hall	3,951	68.97	8.38	21.99
Hamilton	8,254	88.20	.02	10.75
Hansford	5,540	74.96	.00	24.42

Hardeman	5,048	80.41	5.82	12.82
Hardin	47,178	86.18	11.47	1.76
Harris	3,157,875	50.96	18.56	26.17
Harrison	60,681	68.52	28.03	2.80
Hartley	4,979	75.48	13.88	9.96
Haskell	6,433	74.23	3.37	21.79
Hays	84,800	69.55	2.81	26.50
Hemphill	3,690	86.40	.19	12.60
Henderson	67,645	86.56	7.25	5.59
Hidalgo	511,324	11.12	.21	88.02
Hill	29,885	79.08	9.85	10.57
Hockley	24,130	61.17	3.97	34.63
Hood	34,142	93.16	.19	5.45
Hopkins	31,143	83.44	8.60	7.05
Houston	21,876	63.19	30.86	5.39
Howard	33,090	66.09	3.69	29.08
Hudspeth	3,397	32.94	.62	65.97
Hunt	70,443	82.57	10.73	5.66
Hutchinson	25,709	84.71	2.62	11.11
Irion	1,533	77.56	.33	21.72
Jack	7,626	93.61	.97	4.73
Jackson	14,559	66.29	9.99	23.52
Jasper	34,159	76.08	21.02	2.30
Jeff Davis	2,028	59.47	.39	39.05
Jefferson	247,646	59.06	32.23	6.15
Jim Hogg	4,929	6.76	.08	92.78
Jim Wells	39,865	24.87	.45	74.18
Johnson	113,052	86.92	2.61	9.49
Jones	18,129	72.01	8.78	18.54
Karnes	14,679	42.95	11.66	45.02
Kaufman	62,941	78.44	12.61	8.00
Kendall	20,386	80.56	.42	18.27
Kenedy	419	22.43	.00	75.89
Kent	941	85.87	.96	13.07
Kerr	42,874	78.27	1.91	19.00
Kimble	4,346	73.95	.25	24.53
King	343	84.55	.00	15.45
Kinney	3,366	44.89	1.66	52.08
Kleberg	31,440	31.25	3.07	64.01
Knox	4,606	66.61	7.01	25.99
Lamar	45,746	81.78	15.56	1.24
Lamb	15,186	53.89	5.03	40.65
Lampassas	16,755	79.96	2.70	15.23
La Salle	6,061	20.34	5.97	73.07
Lavaca	20,040	79.39	10.35	9.72
Lee	14,380	72.04	12.29	15.31
Leon	14,044	82.59	11.78	5.14
Liberty	65,044	73.13	14.51	11.21
Limestone	21,449	69.38	20.71	9.21
Lipscomb	3,244	84.43	.03	14.30
Live Oak	10,268	61.83	.05	37.17

Llano	13,129	94.17	.24	5.13
Loving	95	84.21	.00	15.79
Lubbock	232,458	65.63	7.58	25.21
Lynn	6,644	51.52	3.30	44.64
McCulloch	8,753	67.43	1.85	30.34
McLennan	203,788	68.	15.79	14.36
McMullen	763	58.58	.00	40.37
Madison	12,307	59.97	24.82	13.88
Marion	10,594	62.36	35.22	1.89
Martin	5,123	55.18	1.62	42.69
Mason	3,646	74.36	.80	23.45
Matagorda	38,304	56.75	13.32	27.33
Maverick	45,218	7.44	.06	90.57
Medina	35,051	53.90	3.38	41.65
Menard	2,353	61.24	.72	37.06
Midland	118,634	66.67	7.34	24.71
Milam	24,939	67.91	13.41	18.31
Mills	5,223	84.28	.61	14.13
Mitchell	9,183	54.87	14.48	30.32
Montague	18,188	91.91	.10	7.07
Montgomery	253,744	83.98	3.79	10.84
Moore	19,643	60.75	.46	36.75
Morris	13,465	71.93	25.20	2.28
Motley	1,360	84.63	4.34	10.00
Nacogdoches	59,699	75.70	16.02	7.25
Navarro	42,803	70.76	18.60	9.45
Newton	14,356	73.35	24.63	1.31
Nolan	16,674	66.71	4.55	28.24
Nueces	311,496	40.46	3.84	54.66
Ochiltree	9,267	77.48	.02	21.31
Oldham	2,375	87.66	.38	9.98
Orange	84,603	87.76	8.82	2.56
Palo Pinto	26,474	83.29	3.42	12.21
Panola	22,832	78.57	18.50	2.44
Parker	76,267	93.39	.86	4.84
Parmer	10,308	52.35	1.04	46.10
Pecos	15,883	35.32	6.09	58.09
Polk	42,358	77.31	12.89	6.79
Potter	109,316	64.72	9.15	22.29
Presidio	7,484	15.69	.03	83.93
Rains	7,552	92.35	4.01	3.01
Randall	100,829	89.23	1.36	8.16
Reagan	4,240	48.68	1.63	49.53
Real	2,671	72.44	.00	26.13
Red River	14,549	75.29	21.54	2.50
Reeves	15,329	17.82	2.00	79.82
Refugio	8,091	50.27	7.82	41.61
Roberts	881	95.69	.00	3.97
Robertson	15,484	57.87	27.79	14.09
Rockwall	36,618	88.66	2.73	7.32
Runnels	11,753	71.23	1.74	26.68

Rusk	45,568	73.14	20.85	5.58
Sabine	10,776	85.68	12.75	1.32
San Augustine	8,237	66.20	31.31	2.22
San Jacinto	19,332	82.36	13.86	3.21
San Patricio	66,796	45.98	1.42	51.84
San Saba	5,608	75.20	3.80	20.60
Schleicher	3,358	60.42	1.22	38.12
Scurry	18,827	68.13	5.19	26.06
Shackelford	3,410	89.82	.32	9.33
Shelby	23,122	73.40	22.53	3.71
Sherman	3,075	78.34	.13	20.94
Smith	165,705	70.81	20.32	7.95
Somervell	5,941	81.27	.37	17.32
Starr	50,380	2.05	.02	97.65
Stephens	9,905	83.09	5.33	10.86
Sterling	1,397	69.86	.00	29.49
Stonewall	1,826	81.00	13.36	13.36
Sutton	4,482	52.86	.02	46.63
Swisher	8,551	58.98	7.36	33.12
Tarrant	1,328,732	70.90	11.86	13.93
Taylor	127,909	76.10	6.39	15.93
Terrell	1,194	35.76	.08	63.57
Terry	13,322	52.15	4.65	42.59
Throckmorton	1,695	91.21	.00	7.85
Titus	26,220	69.87	12.95	16.51
Tom Green	105,416	65.55	3.97	28.91
Travis	693,517	62.54	10.51	23.26
Trinity	12,628	81.65	14.93	2.98
Tyler	19,797	78.46	18.03	3.17
Upshur	34,579	83.33	13.06	3.04
Upton	4,061	52.67	1.90	44.87
Uvalde	25,057	35.25	.15	63.89
Val Verde	42,976	24.08	1.68	73.41
Van Zandt	42,802	90.24	3.61	5.51
Victoria	82,580	56.61	6.74	35.52
Walker	57,346	63.21	22.79	12.82
Waller	28,277	48.64	33.35	17.47
Ward	12,797	54.79	3.39	40.98
Washington	29,785	73.13	19.88	5.65
Webb	184,980	6.31	.12	92.87
Wharton	41,309	56.54	15.22	27.78
Wheeler	5,839	88.41	2.79	7.84
Wichita	129,232	78.86	9.47	9.48
Wilbarger	15,516	73.16	9.00	16.80
Willacy	19,332	12.24	.40	87.12
Williamson	207,123	78.47	4.39	15.15
Wilson	28,562	63.76	1.02	34.76
Winkler	8,335	55.16	1.46	42.71
Wise	41,521	87.55	1.99	9.46
Wood	33,359	87.03	8.39	4.00
Yoakum	8,560	57.57	.69	41.33

Young	17,813	90.38	1.44	7.58
Zapata	10,558	15.30	.01	84.31
Zavala	11,842	5.01	1.97	92.76

APPENDIX F

Texas County Information on AFDC Recipients in 1996

Texas County Information on AFDC Recipients in 1996

County Name	1996 County Population	Number of AFDC Recipients	Number of AFDC UP Recipients	Percent of Population Receiving AFDC
Anderson	52,031	1,387	31	2.73
Andrews	14,532	489	14	3.46
Angelina	75,924	1,994	30	2.67
Aransas	20,854	857	93	4.56
Archer	8,594	81	1	0.95
Armstrong	2,192	11	1	0.55
Atascosa	34,152	1,631	130	5.16
Austin	22,969	378	0	1.65
Bailey	6,841	232	27	3.79
Bandera	14,373	219	10	1.59
Bastrop	46,738	1,076	31	2.37
Baylor	4,289	104	20	2.89
Bee	27,590	1,561	90	5.98
Bell	222,146	5,705	55	2.59
Bexar	1,318,431	57,605	734	4.42
Blanco	7,352	48	2	0.68
Borden	762	0	0	0.00
Bosque	16,595	329	30	2.16
Bowie	85,080	3,206	42	3.82
Brazoria	219,898	5,274	10	2.40
Brazos	138,093	3,327	51	2.45
Brewster	9,290	213	9	2.39
Briscoe	2,038	43	6	2.40
Brooks	8,331	822	127	11.39
Brown	37,283	1,042	19	2.85
Burleson	15,136	658	4	4.37
Burnet	29,426	563	13	1.96
Caldwell	29,558	1,101	20	3.79
Calhoun	20,505	751	19	3.76
Callahn	12,442	272	7	2.24
Cameron	312,064	21,699	3,950	8.22
Camp	10,965	367	8	3.42
Carson	6,592	55	4	0.90
Cass	30,725	1,208	31	4.03
Castro	8,395	361	36	4.73
Chambers	24,330	552	17	2.34
Cherokee	43,611	1,397	15	3.24
Childress	7,462	215	44	3.47
Clay	10,566	83	9	0.87
Cochran	4,250	215	18	5.48
Coke	3,529	41	0	1.16
Coleman	9,888	352	24	3.80
Collin	373,095	2,725	15	0.73
Collingsworth	3,657	137	24	4.40
Colorado	19,574	546	0	2.79

Comal	68,525	875	15	1.30
Comanche	14,072	304	14	2.26
Concho	3,170	46	0	1.45
Cooke	33,196	839	17	2.58
Coryell	74,119	813	22	1.13
Cottle	2,117	77	10	4.11
Crane	4,648	111	6	2.52
Crockett	4,544	100	0	2.20
Crosby	7,187	371	73	6.18
Culberson	3,290	101	2	3.13
Dallam	5,765	159	1	2.78
Dallas	1,999,926	71,661	122	3.59
Dawson	15,011	672	54	4.84
Deaf Smith	19,403	1,013	47	5.46
Delta	5,014	220	19	4.77
Denton	350,905	2,857	11	0.82
De Witt	20,546	807	42	4.13
Dickens	2,372	82	9	3.84
Dimmitt	10,681	869	299	10.94
Donley	3,905	91	16	2.74
Duval	13,543	978	113	8.06
Eastland	19,498	420	24	2.28
Ector	123,211	5,707	87	4.70
Edwards	2,878	105	13	4.10
Ellis	95,990	2,282	16	2.39
El Paso	673,893	37,538	1,976	5.86
Erath	30,769	615	12	2.04
Falls	18,457	931	10	5.10
Fannin	27,435	689	5	2.53
Fayette	21,756	313	1	1.44
Fisher	4,516	94	0	2.08
Floyd	8,398	383	50	5.16
Foard	1,845	34	1	1.90
Fort Bend	302,017	4,841	8	1.61
Franklin	8,724	131	1	1.51
Freestone	17,757	508	23	2.99
Frio	15,841	1,052	15	6.74
Gaines	14,742	314	10	2.20
Galvestone	241,981	8,955	35	3.72
Garza	4,954	186	5	3.86
Gillespie	19,700	111	1	0.57
Glasscock	1,460	9	0	0.62
Goaliad	6,570	224	38	3.99
Gonzales	17,754	915	40	5.38
Gray	24,819	582	9	2.38
Grayson	100,611	2,619	25	2.63
Gregg	111,509	3,371	53	3.07
Grimes	21,721	658	6	3.06
Guadalupe	73,679	2,103	71	2.95
Hale	36,253	1,667	98	4.87
Hall	3,972	185	29	5.39

Hamilton	8,218	138	7	1.76
Hansford	5,478	38	2	0.73
Hardeman	5,133	88	6	1.83
Hardin	46,367	1,034	23	2.28
Harris	3,117,376	117,757	402	3.79
Harrison	60,838	2,177	55	3.67
Hartley	4,895	5	0	0.10
Haskell	6,463	192	8	3.09
Hays	81,563	1,188	19	1.48
Hemphill	3,805	13	0	0.34
Henderson	65,144	1,978	51	3.11
Hidalgo	496,485	35,561	6,376	8.45
Hill	29,538	988	26	3.43
Hockley	24,209	841	26	3.58
Hood	33,113	529	21	1.66
Hopkins	31,012	468	1	1.51
Houston	21,362	1,103	13	5.22
Howard	33,285	1,305	51	4.07
Hudspeth	3,245	134	1	4.16
Hunt	69,176	2,228	21	3.25
Hutchinson	25,907	469	18	1.88
Irion	1,550	41	0	2.65
Jack	7,435	188	12	2.69
Jackson	14,329	388	24	2.88
Jasper	33,944	1,235	27	3.72
Jeff Davis	2,061	13	0	0.63
Jefferson	245,849	11,655	146	4.80
Jim Hogg	5,164	279	15	5.69
Jim Wells	39,941	2,585	219	7.02
Johnson	109,463	2,431	22	2.24
Jones	18,422	436	20	2.48
Karnes	15,259	732	39	5.05
Kaufman	61,646	1,935	7	3.15
Kendall	19,835	205	10	1.08
Kenedy	418	0	0	0.00
Kent	939	0	0	0.00
Kerr	42,168	950	35	2.34
Kimble	4,504	67	0	1.49
King	357	1	0	0.28
Kinney	3,389	111	25	4.01
Kleberg	31,805	2,188	191	7.48
Knox	4,708	151	5	3.31
Lamar	45,656	1,646	25	3.66
Lamb	15,162	691	11	4.63
Lampassas	16,707	473	16	2.93
La Salle	5,911	338	27	6.17
Lavaca	20,450	283	13	1.45
Lee	14,189	157	0	1.11
Leon	13,775	387	13	2.90
Liberty	63,173	2,506	45	4.04
Limestone	21,307	850	19	4.08

Lipscomb	3,210	16	0	0.50
Live Oak	10,476	294	12	2.92
Llano	12,852	154	0	1.20
Loving	97	0	0	0.00
Lubbock	233,496	9,075	291	4.01
Lynn	6,769	238	30	3.96
McCulloch	8,862	270	1	3.06
McLennan	202,679	8,285	10	4.09
McMullen	766	14	3	2.22
Madison	12,283	458	0	3.73
Marion	10,405	548	4	5.31
Martin	5,056	156	596	3.14
Mason	3,578	39	8	1.31
Matagorda	38,184	1,750	76	4.78
Maverick	44,107	3,520	2	7.99
Medina	33,471	1,124	64	3.55
Menard	2,339	45	0	1.92
Midland	116,767	3,123	60	2.73
Milam	24,556	965	33	4.06
Mills	4,964	64	8	1.45
Mitchell	8,862	233	13	2.78
Montague	18,194	345	18	2.00
Montgomery	241,855	4,955	19	2.06
Moore	19,759	296	6	1.53
Morris	13,485	483	8	3.64
Motley	1,436	24	1	1.74
Nacogdoches	59,250	1,735	43	3.00
Navarro	42,257	1,595	15	3.81
Newton	14,209	585	21	4.26
Nolan	16,793	700	39	4.40
Nueces	310,561	16,100	717	5.42
Ochiltree	9,298	148	4	1.63
Oldham	2,372	15	0	0.63
Orange	85,433	3,091	125	3.76
Palo Pinto	26,380	836	1	3.17
Panola	22,643	600	15	2.72
Parker	73,897	873	4	1.19
Parmer	10,401	143	14	1.51
Pecos	16,515	497	22	3.14
Polk	41,959	1,453	47	3.57
Potter	108,765	5,348	73	4.98
Presidio	7,285	427	5	5.93
Rains	7,457	156	1	2.11
Randall	100,400	859	15	0.87
Reagan	4,277	72	1	1.71
Real	2,740	167	16	6.68
Red River	14,662	448	11	3.13
Reeves	15,309	624	27	4.25
Refugio	8,198	350	11	4.40
Roberts	875	4	0	0.46
Robertson	15,355	997	16	6.60

Rockwall	34,287	359	1	1.05
Runnels	11,928	306	8	2.63
Rusk	45,572	1,119	11	2.48
Sabine	10,892	346	11	3.28
San Augustine	8,193	378	3	4.65
San Jacinto	18,625	939	42	5.27
San Patricio	66,005	3,269	214	5.28
San Saba	5,565	123	7	2.34
Schleicher	3,325	69	0	2.08
Scurry	19,027	495	3	2.62
Shackelford	3,413	74	6	2.34
Shelby	22,857	961	38	4.37
Sherman	3,068	37	0	1.21
Smith	164,547	4,268	71	2.64
Somervell	5,961	153	2	2.60
Starr	49,206	4,151	1,218	10.91
Stephens	9,938	239	11	2.52
Sterling	1,394	14	0	1.00
Stonewall	1,885	37	2	2.07
Sutton	4,531	75	0	1.66
Swisher	8,801	300	14	3.57
Tarrant	1,306,287	32,054	131	2.46
Taylor	127,440	3,247	80	2.61
Terrell	1,256	25	0	1.99
Terry	13,361	686	18	5.27
Throckmorton	1,842	16	0	0.87
Titus	26,264	531	5	2.04
Tom Green	104,973	2,813	45	2.72
Travis	680,541	15,167	163	2.25
Trinity	12,553	580	13	4.72
Tyler	19,604	593	5	3.05
Upshur	34,520	906	38	2.73
Upton	4,144	127	7	3.23
Uvalde	25,012	1,257	55	5.25
Val Verde	43,291	2,213	125	5.40
Van Zandt	42,067	898	74	2.31
Victoria	81,023	2,777	78	3.52
Walker	56,253	1,511	42	2.76
Waller	26,577	1,159	1	4.36
Ward	12,886	479	26	3.92
Washington	29,295	876	7	3.01
Webb	177,147	10,486	397	6.14
Wharton	41,385	1,257	4	3.05
Wheeler	5,584	134	6	2.51
Wichita	131,661	3,215	73	2.50
Wilbarger	15,863	344	12	2.24
Willacy	19,584	1,512	483	10.19
Williamson	196,190	1,810	23	0.93
Wilson	26,989	718	42	2.82
Winkler	8,297	198	15	2.57
Wise	40,212	589	9	1.49

Wood	33,312	741	38	2.34
Yoakum	8,646	190	7	2.28
Young	17,796	430	22	2.54
Zapata	10,662	629	53	6.40
Zavala	12,000	1,136	307	12.03
Total	19,128,261	665,981	24,040	3.61

APPENDIX G

Initial Level, Change, and Significance in the Slope of the Pre- and Post-Welfare Reform Trajectories in Texas

Initial Level, Change, and Significance in the Slope of the Pre-and Post-Welfare Reform Trajectories in Texas

County Name	Before	After	Change	p Value
Anderson	-.014	.004	.018	.950
Andrews	-.037	.051	.087	.807
Angelina	.145	-.098	-.243	.180
Aransas	.349	.415	.066	.939
Archer	.039	-.068	-.107	.808
Armstrong	-.136	.855	.991	.260
Atascosa	.166	.103	-.063	.782
Austin	.118	.039	-.078	.837
Bailey	.664	.615	-.049	.933
Bandera	.109	.602	.494	.094
Bastrop	-.043	.156	.199	.424
Baylor	.670	.489	-.181	.848
Bee	.040	-.059	-.099	.818
Bell	.036	-.133	-.169	.137
Bexar	-.061	.087	.149	.106
Blanco	.289	.494	.205	.615
Borden	.968	1.419	.450	.824
Bosque	.151	.120	-.031	.945
Bowie	-.072	.102	.174	.456
Brazoria	.021	.040	.019	.895
Brazos	.012	.159	.147	.085
Brewster	-.006	.331	.337	.486
Briscoe	-.305	-.784	-.479	.483
Brooks	-.012	-.342	-.330	.605
Brown	.715	-.410	-1.125	.037*
Burleson	-.058	.283	.342	.363
Burnet	.293	-.057	-.351	.395
Caldwell	.059	.070	.052	.884
Calhoun	.441	.194	-.247	.434
Callahan	.006	-.282	-.288	.431
Cameron	-.034	.112	.146	.421
Camp	-.209	-1.095	-.886	.175
Carson	-.066	-.283	-.216	.523
Cass	.156	-.371	-.528	.109
Castro	.625	-.286	-.910	.087
Chambers	-.064	-.015	.049	.871
Cherokee	.164	.109	-.055	.842
Childress	.116	-.063	-.179	.831
Clay	.334	-.496	-.830	.007*
Cochran	.034	.647	.613	.416
Coke	.269	1.204	.935	.314
Coleman	.179	1.293	1.114	.102
Collin	-.002	-.013	-.011	.873
Collingsworth	-.331	-.092	.239	.753
Colorado	.339	.410	.071	.842
Comal	.073	-.077	-.150	.483
Comanche	-.038	.228	.267	.588

Concho	-.127	-.301	-.174	.755
Cooke	-.003	-.185	-.182	.565
Coryell	-.024	-.140	-.116	.516
Cottle	-.661	2.553	3.214	.047*
Crane	.167	-.126	-.294	.604
Crockett	.021	.855	.834	.371
Crosby	-.248	.161	.409	.598
Culberson	-1.043	.244	1.287	.089
Dallam	-.490	.903	1.393	.023*
Dallas	.060	-.060	-.120	.196
Dawson	-.040	1.008	1.048	.003*
Deaf Smith	-.049	-.131	-.082	.848
Delta	.068	-.060	-.128	.863
Denton	.044	.031	-.013	.861
De Witt	-.005	.075	.080	.829
Dickens	.326	.667	.340	.628
Dimmitt	.281	.619	.338	.458
Donley	-.411	-.178	.233	.727
Duval	-.090	1.083	1.142	.016*
Eastland	.296	.534	.239	.510
Ector	.052	.050	-.002	.987
Edwards	.144	.054	-.090	.883
Ellis	.018	.245	.226	.318
El Paso	.047	.083	.036	.770
Erath	.080	.339	.259	.329
Falls	-.071	.786	.857	.059
Fannin	.079	.208	.129	.694
Fayette	-.097	-.275	-.179	.548
Fisher	.177	-.017	-.194	.769
Floyd	.323	.069	-.254	.574
Foard	-.072	-.937	-.864	.401
Fort Bend	.005	.012	.007	.932
Franklin	.082	.128	.046	.904
Freestone	.087	.114	.027	.935
Frio	-.076	.530	.606	.204
Gaines	-.116	.267	.383	.417
Galvestone	-.044	.014	.059	.388
Garza	.466	-.768	-1.234	.084
Gillespie	-.189	.361	.550	.043*
Glasscock	.197	-.326	-.523	.239
Goaliad	-.039	.674	.713	.164
Gonzales	-.032	-.500	-.467	.275
Gray	-.247	-.151	.095	.807
Grayson	.010	-.143	-.153	.365
Gregg	.099	.060	-.039	.832
Grimes	.296	.241	-.054	.884
Guadalupe	-.076	.034	.110	.662
Hale	.174	.282	.108	.674
Hall	.440	-.001	-.441	.672
Hamilton	-.058	-.327	-.270	.457
Hansford	.172	.355	.183	.762

Hardeman	.157	.995	.838	.206
Hardin	.029	-.222	-.251	.242
Harris	.030	-.021	-.051	.536
Harrison	.057	-.168	-.225	.276
Hartley	.577	-.409	-.986	.300
Haskell	.065	.416	.351	.530
Hays	-.029	-.094	-.065	.652
Hemphill	-.049	.000	.049	.886
Henderson	.022	.022	.000	.999
Hidalgo	.030	.051	.021	.848
Hill	-.032	-.067	-.035	.924
Hockley	-.016	.171	.187	.453
Hood	-.062	.515	.577	.033*
Hopkins	-.236	.567	.803	.003*
Houston	-.020	-.430	-.411	.125
Howard	.223	-.461	-.684	.153
Hudspeth	-.854	-.685	.421	.647
Hunt	.124	.221	.086	.686
Hutchinson	-.132	-.565	-.433	.158
Irion	-.061	.544	.605	.538
Jack	-.208	-.304	-.096	.810
Jackson	.347	.171	-.176	.581
Jasper	.131	.184	.053	.856
Jeff Davis	.264	.179	-.085	.876
Jefferson	-.058	.120	.178	.332
Jim Hogg	.459	-.492	-.951	.231
Jim Wells	.041	-.247	-.288	.264
Johnson	.048	.018	-.030	.870
Jones	-.088	.549	.637	.201
Karnes	-.052	.140	.192	.614
Kaufman	-.196	.071	.268	.167
Kendall	.064	.053	-.011	.964
Kenedy	.162	-3.062	-3.224	.134
Kent	.212	.000	-.212	.760
Kerr	-.117	.168	.285	.224
Kimble	.103	.000	-.103	.896
King	1.262	.000	-1.263	.647
Kinney	.192	-1.007	-1.198	.240
Kleberg	-.031	-.133	-.102	.710
Knox	-.546	-.487	.058	.944
Lamar	.041	.017	-.023	.933
Lamb	-.065	.288	.352	.374
Lampassas	.119	.055	-.064	.864
La Salle	-.243	-1.057	-.814	.332
Lavaca	.186	-.702	-.888	.002*
Lee	-.043	.022	.065	.854
Leon	.038	.833	.796	.034*
Liberty	.206	.039	-1.670	.449
Limestone	-.347	-.461	-.113	.802
Lipscomb	-.120	-.588	-.468	.512
Live Oak	.291	.021	-.270	.631

Llano	-.078	-.362	-.284	.595
Loving	.000	.000	.000	n/a
Lubbock	.038	.393	.355	.010*
Lynn	.272	-.542	-.814	.235
McCulloch	.312	-.459	-.771	.228
McLennan	-.164	-.016	.148	.288
McMullen	.544	-1.021	-1.564	.125
Madison	.401	-1.026	-1.426	.027*
Marion	.338	.324	-.013	.984
Martin	-.169	-.689	-.521	.339
Mason	-.159	-.189	-.031	.960
Matagorda	.015	.074	.059	.830
Maverick	.029	.148	.119	.547
Medina	.210	.240	.030	.918
Menard	-.596	.088	.685	.381
Midland	.079	.090	.012	.926
Milam	.011	-.025	-.026	.947
Mills	-.087	-.235	-.148	.807
Mitchell	.130	-.023	-.153	.800
Montague	.164	.089	-.074	.795
Montgomery	-.014	-.091	-.077	.456
Moore	.325	-.344	-.670	.129
Morris	.114	-.474	-.588	.283
Motley	-.035	.000	.035	.957
Nacogdoches	-.086	.108	.194	.100
Navarro	.198	-.242	-.440	.181
Newton	.035	.121	.086	.824
Nolan	.186	.430	.244	.596
Nueces	.118	-.080	-.197	.189
Ochiltree	-.055	.078	.133	.787
Oldham	-.672	.230	.903	.306
Orange	.121	-.099	-.220	.137
Palo Pinto	.342	-.083	-.425	.204
Panola	.171	-.142	-.312	.218
Parker	.059	.126	.066	.705
Parmer	.230	-.043	-.273	.531
Pecos	.169	.133	-.036	.949
Polk	.104	-.165	-.268	.368
Potter	-.087	-.052	.035	.882
Presidio	-.066	.264	.330	.501
Rains	.000	-.566	-.566	.295
Randall	.015	-.069	-.085	.511
Reagan	.063	.223	.160	.675
Real	-.186	-.229	-.043	.970
Red River	-.077	.342	.419	.361
Reeves	-.312	.624	.937	.049*
Refugio	.276	.939	.663	.279
Roberts	-.311	.000	.310	.790
Robertson	.047	-1.323	-1.370	.015*
Rockwall	.141	-.137	-.278	.260
Runnels	-.028	.557	.585	.367

Rusk	-.017	.129	.146	.587
Sabine	-.256	-.421	-.165	.781
San Augustine	.104	-.058	-.163	.809
San Jacinto	-.009	-.144	-.136	.687
San Patricio	.077	.077	.000	.999
San Saba	-.550	.138	.688	.400
Schleicher	.139	.794	.655	.320
Scurry	.338	.250	-.088	.753
Shackelford	-.291	-.394	-.102	.874
Shelby	.161	-.508	-.669	.052
Sherman	-.089	.000	.088	.902
Smith	.099	.043	-.057	.734
Somervell	-.055	-.633	.581	.341
Starr	-.014	.275	.289	.053
Stephens	.111	.074	-.037	.938
Sterling	.264	.694	.430	.612
Stonewall	-.054	.054	.108	.906
Sutton	.137	.115	-.022	.978
Swisher	.354	.062	-.292	.706
Tarrant	.049	.071	.022	.786
Taylor	-.071	.091	.162	.400
Terrell	-.560	3.140	3.700	.008*
Terry	.166	.564	.398	.486
Throckmorton	.172	-.406	-.578	.505
Titus	.219	-.497	-.716	.078
Tom Green	-.005	-.090	-.086	.437
Travis	.044	-.006	-.050	.566
Trinity	-.098	-.656	-.557	.364
Tyler	-.051	.687	.738	.070
Upshur	.094	.119	.025	.920
Upton	.408	.526	.119	.818
Uvalde	.151	.268	.117	.749
Val Verde	.062	.092	.030	.912
Van Zandt	.101	.009	-.092	.717
Victoria	.014	.070	.056	.772
Walker	-.090	-.032	.058	.748
Waller	.221	-.027	-.248	.415
Ward	-.119	-.076	.043	.922
Washington	-.056	.142	.198	.449
Webb	.010	-.208	-.219	.263
Wharton	.082	.173	.091	.721
Wheeler	.050	-.381	-.431	.424
Wichita	-.012	.153	.165	.304
Wilbarger	.125	-.241	-.366	.306
Willacy	.209	.023	-.186	.629
Williamson	-.015	-.093	-.079	.277
Wilson	-.051	.178	.229	.416
Winkler	.141	-.538	-.680	.143
Wise	.220	.167	-.052	.810
Wood	-.065	-.079	-.013	.954
Yoakum	.232	.390	.158	.670

Young	.120	.621	.501	.220
Zapata	.101	.698	.597	.246
Zavala	-.404	-.274	.130	.812

NB = No unmarried teen births in county

* = $p < .05$

APPENDIX H

Initial Level, Change, and Significance in the Intercept of the Pre- and Post-Welfare Reform Trajectories in Texas

Initial Level, Change, and Significance in the Intercept of the Pre- and Post-Welfare Reform Trajectories In Texas

County Name	Before	After	Change	p Value
Anderson	8.322	8.627	.306	.952
Andrews	7.187	6.542	-.645	.919
Angelina	6.639	10.354	3.715	.245
Aransas	4.684	1.625	-3.059	.832
Archer	3.828	6.823	2.995	.703
Armstrong	7.534	-10.544	-18.078	.246
Atascosa	4.603	6.269	1.665	.679
Austin	5.536	7.767	2.231	.741
Bailey	4.410	.782	-3.628	.726
Bandera	2.139	-5.105	-7.244	.162
Bastrop	7.467	5.069	-2.398	.586
Baylor	1.204	.578	-.626	.970
Bee	9.330	13.746	4.416	.566
Bell	7.418	10.683	3.264	.107
Bexar	8.310	6.228	-2.083	.196
Blanco	.002	-5.586	-5.584	.441
Borden	-1.297	-22.226	-20.929	.562
Bosque	4.014	3.878	-.136	.986
Bowie	10.459	8.299	-2.159	.601
Brazoria	6.583	6.227	-.356	.887
Brazos	4.810	1.919	-2.891	.058
Brewster	5.247	.316	-4.931	.565
Briscoe	6.511	16.662	10.150	.403
Brooks	14.776	19.662	4.887	.666
Brown	4.589	21.705	17.147	.069
Burleson	9.515	5.340	-4.175	.529
Burnet	4.514	7.889	3.375	.642
Caldwell	7.377	7.552	-1.146	.856
Calhoun	8.623	8.820	.197	.972
Callahan	3.879	11.044	7.165	.273
Cameron	7.834	7.099	-.735	.818
Camp	9.794	30.924	21.130	.073
Carson	2.777	9.882	7.105	.243
Cass	6.048	13.543	7.495	.194
Castro	5.128	17.401	12.273	.186
Chambers	5.303	4.553	-.750	.889
Cherokee	6.213	7.039	.826	.867
Childress	8.129	12.828	4.698	.752
Clay	1.504	12.277	10.774	.040*
Cochran	6.303	-3.270	-9.573	.474
Coke	3.661	-13.719	-17.381	.292
Coleman	6.743	-16.877	-23.620	.054
Collin	3.328	3.496	.167	.889
Collingsworth	9.024	5.110	-3.913	.772
Colorado	4.936	.463	-4.473	.483
Comal	6.617	8.369	2.202	.561
Comanche	5.453	2.711	-2.742	.753

Concho	4.202	9.732	5.530	.577
Cooke	6.290	10.780	4.490	.426
Coryell	4.336	6.892	2.556	.420
Cottle	12.965	-41.496	-54.461	.056
Crane	2.840	9.371	6.531	.517
Crockett	7.659	-6.308	-13.967	.398
Crosby	9.912	7.555	-2.357	.864
Culberson	17.291	.067	-17.224	.192
Dallam	12.492	-7.242	-19.734	.062
Dallas	10.316	12.000	1.684	.303
Dawson	10.020	-9.257	-19.277	.002*
Deaf Smith	11.233	13.100	1.867	.807
Delta	6.085	12.050	5.965	.651
Denton	3.193	2.857	-.336	.792
De Witt	8.216	7.271	-.945	.886
Dickens	1.891	-5.556	-7.447	.551
Dimmitt	5.155	-.986	-6.140	.447
Donley	8.605	7.155	-1.449	.902
Duval	10.917	-9.589	-20.506	.015*
Eastland	3.988	-3.495	-7.482	.250
Ector	9.422	10.687	1.265	.623
Edwards	3.979	5.749	1.815	.867
Ellis	7.470	3.656	-3.814	.343
El Paso	8.559	7.644	-.915	.674
Erath	3.724	-1.110	-4.834	.305
Falls	11.786	-5.090	-16.876	.038*
Fannin	5.889	3.095	-2.794	.633
Fayette	5.126	9.157	4.031	.446
Fisher	5.263	8.010	2.747	.815
Floyd	3.526	6.160	2.634	.741
Foard	6.582	23.042	16.461	.368
Fort Bend	4.112	3.538	-.575	.680
Franklin	3.654	1.688	-1.966	.772
Freestone	6.501	3.103	-3.397	.560
Frio	11.028	2.238	-8.790	.296
Gaines	7.519	1.527	-5.992	.473
Galvestone	8.477	7.552	-.925	.444
Garza	3.801	22.369	18.568	.138
Gillespie	6.439	-2.968	-9.407	.050*
Glasscock	-.764	8.169	8.933	.256
Goaliad	7.141	-6.995	-14.135	.122
Gonzales	9.290	20.481	11.191	.145
Gray	8.805	9.614	.809	.907
Grayson	6.094	10.809	4.714	.124
Gregg	8.233	8.174	-.059	.985
Grimes	7.448	4.896	-2.552	.698
Guadalupe	7.481	7.895	.414	.926
Hale	7.340	3.721	-3.620	.430
Hall	7.472	11.407	3.934	.831
Hamilton	3.851	10.927	7.076	.275
Hansford	3.134	1.409	-1.725	.872

Hardeman	7.342	-9.596	-16.938	.152
Hardin	5.098	8.886	3.788	.317
Harris	8.088	8.640	.552	.706
Harrison	6.504	10.444	3.940	.282
Hartley	.232	14.289	14.597	.385
Haskell	3.483	-2.355	-5.837	.555
Hays	4.472	6.343	1.871	.465
Hemphill	1.498	3.450	1.952	.746
Henderson	6.920	7.613	.693	.865
Hidalgo	6.898	6.986	.088	.964
Hill	8.217	9.160	.942	.884
Hockley	6.252	4.165	-2.087	.635
Hood	5.250	-3.691	-8.942	.060
Hopkins	8.048	-4.406	-12.454	.007*
Houston	7.351	16.670	9.319	.054
Howard	7.505	19.557	12.051	.156
Hudspeth	14.238	19.190	-.661	.968
Hunt	7.824	4.186	-3.638	.338
Hutchinson	7.037	16.652	9.616	.081
Irion	5.014	-7.911	-12.925	.459
Jack	4.640	10.927	6.288	.381
Jackson	4.040	4.162	-.242	.966
Jasper	6.887	5.980	-.908	.861
Jeff Davis	-.035	-2.210	-2.174	.820
Jefferson	9.385	6.767	-2.618	.419
Jim Hogg	4.512	16.753	12.241	.380
Jim Wells	9.052	14.950	5.898	.200
Johnson	5.514	6.319	.804	.805
Jones	8.598	-3.294	-11.892	.180
Karnes	9.557	9.305	-.251	.970
Kaufman	8.085	5.349	-2.735	.418
Kendall	2.713	2.109	-.604	.887
Kenedy	5.429	71.995	66.526	.084
Kent	.723	.000	-.723	.953
Kerr	7.497	4.207	-3.290	.424
Kimble	7.095	10.623	3.529	.802
King	2.339	.000	-2.339	.962
Kinney	2.495	28.027	25.532	.162
Kleberg	8.501	11.158	2.657	.584
Knox	9.789	17.862	8.072	.585
Lamar	9.237	8.916	-.321	.947
Lamb	7.586	2.010	-5.577	.427
Lampassas	7.080	6.284	-1.517	.820
La Salle	12.360	25.257	12.897	.385
Lavaca	4.960	20.216	15.256	.002*
Lee	7.420	5.442	-1.978	.751
Leon	5.626	-9.753	-15.379	.022*
Liberty	6.594	8.393	1.799	.644
Limestone	11.062	15.727	4.665	.562
Lipscomb	3.608	17.070	13.462	.292
Live Oak	4.330	6.253	1.923	.846

Llano	6.171	12.381	6.210	.513
Loving	.000	.000	.000	n/a
Lubbock	7.408	.845	-6.562	.007*
Lynn	4.469	17.739	13.271	.274
McCulloch	6.117	17.844	11.728	.299
McLennan	10.616	9.506	-1.110	.650
McMullen	-2.355	23.925	26.280	.145
Madison	7.058	32.496	25.439	.026*
Marion	6.635	3.739	-2.896	.801
Martin	6.970	18.944	11.974	.218
Mason	5.196	6.122	.926	.932
Matagorda	8.560	8.135	-.425	.930
Maverick	4.937	2.429	-2.508	.475
Medina	4.604	3.984	-.620	.903
Menard	8.641	6.081	-2.560	.852
Midland	7.378	7.041	-.337	.880
Milam	9.018	8.236	-.782	.911
Mills	3.099	9.357	6.258	.562
Mitchell	8.524	10.514	1.991	.852
Montague	4.902	4.375	-.527	.917
Montgomery	5.494	6.910	1.416	.439
Moore	7.393	19.139	11.746	.133
Morris	8.485	16.871	8.386	.386
Motley	2.276	.000	-2.276	.844
Nacogdoches	6.063	2.828	-3.235	.120
Navarro	9.468	13.496	4.028	.483
Newton	6.539	5.237	-1.302	.850
Nolan	8.430	1.625	-6.805	.408
Nueces	9.505	11.953	2.448	.353
Ochiltree	5.875	4.504	-1.344	.877
Oldham	8.652	-.537	-9.189	.553
Orange	5.934	8.255	2.322	.367
Palo Pinto	5.622	11.503	5.881	.318
Panola	3.489	9.577	6.088	.178
Parker	4.079	3.211	-.867	.780
Parmer	5.483	9.388	3.905	.612
Pecos	8.497	9.824	1.328	.896
Polk	6.956	10.436	3.479	.508
Potter	13.120	12.854	-.265	.949
Presidio	8.903	2.015	-6.888	.429
Rains	5.697	15.008	9.311	.331
Randall	3.680	5.294	1.614	.482
Reagan	2.481	.857	-1.624	.811
Real	10.504	10.079	-.425	.984
Red River	9.549	1.902	-7.647	.348
Reeves	11.067	-.340	-11.407	.166
Refugio	7.661	-8.588	-16.248	.140
Roberts	3.140	7.286	4.146	.841
Robertson	14.850	35.990	21.140	.032*
Rockwall	2.783	7.262	4.479	.305
Runnels	8.487	-2.231	-10.718	.352

Rusk	7.470	4.591	-2.879	.546
Sabine	9.283	14.319	5.036	.632
San Augustine	9.473	11.717	2.244	.850
San Jacinto	5.981	8.602	2.621	.661
San Patricio	9.130	8.818	-.312	.930
San Saba	10.774	3.676	-7.098	.622
Schleicher	2.794	-9.309	-12.103	.301
Scurry	4.093	1.777	-2.316	.641
Shackelford	4.252	11.164	6.912	.549
Shelby	7.648	16.921	9.272	.123
Sherman	5.732	5.499	-.234	.985
Smith	6.849	6.817	-.032	.991
Somervell	6.068	17.012	10.944	.312
Starr	4.402	-.143	-4.545	.083
Stephens	6.520	5.134	-1.385	.869
Sterling	3.596	-11.338	-14.934	.325
Stonewall	3.942	10.984	7.042	.664
Sutton	4.505	5.755	1.250	.930
Swisher	7.536	10.972	3.436	.803
Tarrant	6.926	6.492	-.434	.764
Taylor	8.442	6.586	-1.856	.585
Terrell	7.987	-50.002	-57.989	.017*
Terry	9.317	1.570	-7.747	.444
Throckmorton	1.342	12.907	11.565	.452
Titus	7.261	19.559	12.298	.088
Tom Green	7.274	10.193	2.919	.143
Travis	6.409	7.222	.813	.598
Trinity	9.478	21.551	12.073	.270
Tyler	7.666	-5.818	-13.484	.063
Upshur	4.721	4.541	-.179	.968
Upton	2.281	-1.678	-3.959	.667
Uvalde	7.803	5.448	-2.355	.718
Val Verde	6.540	7.107	.567	.906
Van Zandt	4.862	6.212	1.350	.764
Victoria	9.515	9.423	-.092	.979
Walker	5.830	5.687	-.142	.964
Waller	4.844	7.826	2.982	.579
Ward	7.641	10.010	2.369	.760
Washington	5.939	3.136	-2.803	.544
Webb	9.250	12.263	3.011	.382
Wharton	7.894	6.208	-1.687	.709
Wheeler	4.365	13.831	9.467	.325
Wichita	8.556	5.376	-3.179	.266
Wilbarger	8.425	13.722	5.297	.402
Willacy	5.089	8.727	3.638	.594
Williamson	3.793	5.577	1.784	.168
Wilson	4.712	1.731	-2.981	.550
Winkler	6.389	20.076	13.687	.099
Wise	4.513	3.477	-1.035	.789
Wood	5.560	8.014	2.454	.553
Yoakum	3.933	-2.233	-6.166	.352

Young	5.208	-4.741	-9.950	.172
Zapata	4.823	-7.368	-12.191	.184
Zavala	12.855	16.380	3.526	.716

NB = No unmarried teen births in county
* = $p < .05$

APPENDIX I

Summary of Study Findings

Summary of Study Findings

Hypothesis	**Variables**	**Statistical Test Employed**	**Findings**
H_1: There will be no significant difference in the rate of change (slope) of the unmarried teen birth rates pre- and post-welfare reform in Texas counties	Quarterly unmarried teen birth rates Time Time dummy coded Interaction between time and the dummy code of time	Two-stage growth curve analysis. First stage: Multiple regression.	Hypothesis supported. Sixteen counties had statistically significant changes in their slope estimates. Eleven counties had a statistically significant rise in their slopes post-welfare reform and five counties had a significant decrease. One county had a statistically significant decrease in their intercept post-welfare reform.
	Mean of the pre- and post welfare reform slopes	Paired sample *t*-test	There was no significant difference between the mean of the pre-welfare reform slopes and the mean of the post-welfare slopes.
H_2: Teen population density, welfare participation, and ethnic homogeneity are predictors of the unmarried teen birth rates in Texas counties post-welfare reform.	Post-welfare reform slopes Predictor Variables Post-welfare reform intercepts Teen population density Welfare Participation Ethnic Homogeneity	Second stage: Hierarchical linear regression	Hypothesis not fully supported. The post-welfare reform intercept and welfare participation were the only predictor variables that contributed significantly towards predicting the slope of the unmarried teen birth rates post-welfare reform.