

1990

The Social Integration-Deviance Hypothesis in Sociology: The Case of Teenage Fertility.

Stephen Joseph Caldas

Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation

Caldas, Stephen Joseph, "The Social Integration-Deviance Hypothesis in Sociology: The Case of Teenage Fertility." (1990). *LSU Historical Dissertations and Theses*. 5038.
https://digitalcommons.lsu.edu/gradschool_disstheses/5038

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·M·I

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313.761-4700 800.521-0600

Order Number 9128181

**The social integration-deviance hypothesis in sociology: The
case of teenage fertility**

Caldas, Stephen Joseph, Ph.D.

The Louisiana State University and Agricultural and Mechanical Col., 1990

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

NOTE TO USERS

**THE ORIGINAL DOCUMENT RECEIVED BY U.M.I. CONTAINED PAGES
WITH SLANTED AND POOR PRINT. PAGES WERE FILMED AS RECEIVED.**

THIS REPRODUCTION IS THE BEST AVAILABLE COPY.

THE SOCIAL INTEGRATION-DEVIANCE HYPOTHESIS
IN SOCIOLOGY: THE CASE OF TEENAGE FERTILITY

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Administrative
and Foundational Services

by
Stephen J. Caldas
B.A., Louisiana State University, 1979
B.S., Louisiana State University, 1980
M.Ed., Louisiana State University, 1985
December 1990

TABLE OF CONTENTS

Chapter 1. THE RESEARCH PROBLEM	1
Clarification of Definitions	6
Chapter 2. LITERATURE REVIEW	7
Measuring Deviancy	9
Teenage Parenting as Deviancy	12
Chapter 3. CONCEPTUAL FRAMEWORK	18
The Social Integration-Deviance	
Model Operationalized	26
The Mediating Effects of Education	28
Black Teenage Childbearing	32
Nonmarital Teenage Fertility	34
Chapter 4. METHODOLOGY	35
The Study Population	35
Sample Restrictions	36
Nonmarital Fertility Ratio	38
Comparison of White and Black Models.	39
Data Sources	40
Variables, Definitions and	
Measures	41
Dependent Variable	41
Independent Variables	42
Control Variables	45
Statistical Analyses	45
The Sheaf Coefficient	48
Chapter 5. RESULTS AND DISCUSSION	51
Canonical Correlation Analyses.	51
Independent and Dependent Variables.	51
Control Variables Entered.	52
Univariate and Bivariate Statistics:	
White Model.	53
Path Analysis Limitations.	57
White Path Models.	58
Intervening Variable PCTHSED.	58
Path Model with White Teenage Birthrate.	61
Path Model with Nonmarital Fertility Ratio.	66
Restricted White Models.	74
Univariate and Bivariate Statistics:	
Black Model.	75
Black Path Models	80
Intervening Variable PCTHSED.	80
Path Model for Black Teenage Birthrate.	83

Path Model for Nonmarital Fertility Ratio.88
Comparison of White and Black Models.94
Birthrates.	94
Nonmarital Fertility Ratio.	97
Summary of Comparison of White and Black Models.99
 Chapter 6. SUMMARY AND CONCLUSIONS	101
Limitations of Study103
Policy Implications	105
 REFERENCES	109
VITA.121

TABLES

TABLE 1.	Descriptive Statistics for Variables in White Teenage Fertility Model.	54
TABLE 2.	Correlation Matrix for Variables in White Teenage Fertility Model.	55
TABLE 3.	White Model: Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (WTBIRATE and PCTWNMTB), as well as t-values for each Beta (in parentheses).	62
TABLE 4.	Descriptive Statistics for Variables in Black Teenage Fertility Model.	76
TABLE 5.	Correlation Matrix for Variables in Model for Black Teenage Fertility.	77
TABLE 6.	Black Model: Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (WTBIRATE and PCTWNMTB), as well as t-values for each Beta (in parentheses)	81
TABLE 7.	Restricted White Model: Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (WTBIRATE and PCTWNMTB), as well as t-values for each Beta (in parentheses)	82

ABSTRACT

The purpose of this dissertation is to construct and test an elaborated version of the social integration-deviance model. Social integration theory traces its origins to Emile Durkheim, who postulated the existence of two forms of social integration, today known as normative and functional integration. In his classic work Suicide (1897/1951) Durkheim first empirically tested his theory of social integration, though arguably only for normative integration. Others have since elaborated on his theory, and have tested various versions of it (Hirschi, 1969; Collette, Webb, & Smith, 1979).

The current work conceptualizes teenage childbearing in the United States as deviancy from an American parenting schedule. It postulates that education is a key socializing instrument for securing conformity to societal parenting norms. It is hypothesized that the mechanisms of normative and functional social integration operate through the educational system to restrict teenage childbearing.

The study uses 1980 county level information obtained from U.S. Vital Statistics data, and U.S. Census data (County Statistics File-3) that were in part made available for use by the Inter-University Consortium for Political and Social Research (ICPSR). Path models for white and black teenage fertility showing the direct effects of independent

on dependent variables were created using SAS computer software.

It was found that decreasing normative and increasing functional integration positively affected the county level of education, which in turn had a negative effect of teen birthrates. Education had an inverse effect on white nonmarital teenage fertility: as educational level increased, so did the proportion of nonmarital white teen births. Though the findings were in a similar direction for both models, the magnitude of the effects was much stronger for whites than for blacks.

Overall, a substantial proportion of the variance of white teenage fertility was explained by this study's version of the social integration-deviance model. The model explained a statistically significant, yet substantially smaller proportion of the variance of black teenage fertility. This was not unexpected, since it is postulated that social integrative forces exercise weakened influence on black parenting behavior.

Chapter 1

THE RESEARCH PROBLEM

This dissertation constructs and tests a version of the social integration-deviance model. Throughout sociology's history, one of its central concerns has been the question of how social order, or integration, is possible among populations comprised of individuals whose natural self-serving appetites and drives would seem to logically preclude social harmony and unity.

Sociology has approached this fundamental question in essentially three ways. Collins (1985) refers to these as sociology's three traditions, and classifies them as the Durkheimian (consensus) tradition, the conflict tradition, and the microinteractionist tradition. This study is conducted in the Durkheimian tradition.

Briefly, the conflict tradition, which has included such renowned social theorists as Karl Marx and Max Weber, emphasizes class conflict and domination in its explanation of the origin of social order. The microinteractionist tradition, which counts the American scholars George Herbert Mead and Charles H. Cooley among its early founders, stresses the individual's adoption of a social role for himself/herself in society in its explanation of social order.

The Durkheimian perspective, which includes the sociologists Robert K. Merton and Talcott Parsons, emphasizes that social order, as opposed to anarchy, is possible due to the existence of a social bond that develops among individuals and becomes the basis of a society. This cohesion, or integration, is a consequence of the socialization process whose outcome is widespread adherence to popularly accepted notions of what constitutes acceptable behavior within a given society. Concerning this process, Stark (1976) notes that ". . . education [socialization in the broadest sense] introduces social control into the individual, and it becomes firmly anchored there" (vol.1, p.182). This "social control" is the power of norms operating to influence individual behavior.

Various definitions of the concept of "norm" have been suggested (Gibbs, 1981). However it is the following definition of Bierstedt's (1963) that most closely captures the essence of this concept as it will be used in this work:

"A norm. . . is a rule or a standard that governs our conduct in the social situations in which we participate. It is a societal expectation. It is a standard to which we are expected to conform whether we actually do so or not" (p. 222).

Most (though not all) behavior that does not conform to popular notions in a society of what is acceptable or appropriate, is defined sociologically as "deviancy." Conflict theorists are concerned with how certain behaviors have come to be regarded as deviant in the first place, underscoring that ". . .conformity and deviance are merely matters of the standard adopted by a particular group, community, or society" (Traub & Little, 1985, p.xv), particularly the power elites. Within the tradition of microinteractionism, the labeling hypothesis stresses the importance that a society's labeling of an individual as a deviant has on that individual's perception of himself/herself (Caldas, 1990).

Inasmuch as the Durkheimian tradition holds that adherence, or conformity to social norms is explicable in terms of the social bond between the individual and society, deviancy, or non-conformity, is explained in terms of a weakened social bond (Durkheim, 1897/1951; Hirschi, 1969; 1985). The sociological conceptualization of the relationship between social integration and deviancy has come to be known as the "social integration-deviance model" (Collette, Webb, & Smith, 1979).

The nature of this bond, or social integration, is not one-dimensional. The bond differs not only in degree, but also in kind. Emile Durkheim (1893/1964) identified two types of social integration, or social solidarity as he

termed it. He referred to these as mechanical and organic solidarity. Mechanical solidarity, or normative integration as it is now known, is social cohesion that results from the similarity of group members' functions, and shared values, especially religious ones. This type of social integration was characteristic, stated Durkheim, of primitive, typically rural societies where the division of labor was not yet extensive. Organic solidarity, or functional integration, on the other hand, is social cohesion that results from the division of labor, and the resultant interdependency of functions it engenders. Durkheim postulated that it was functional, not normative integration, which more closely bound or integrated individuals together in society (Durkheim, 1893/1964).

An important postulate of Durkheim's work is that the more cohesive the social group, the less likely there is to be deviancy from group norms (although he acknowledged that there would always be deviant behavior [Durkheim, 1927/1966, pp. 68-69]). Deviancy, so the Durkheimian argument goes, is (in part) the result of imperfect, or weak bonding between the individual and society. Put another way, the social control resulting from adherence to norms is weakened as social integration decreases, resulting in increasing deviancy from those norms.

Durkheim and others have empirically explored the link between social integration and deviant behavior. Durkheim

(1897/1951) used suicide rates to demonstrate the relative intensity of social integration among various groups.

Others have examined suicide and alcoholism (Collette et al., 1979) as well as juvenile delinquency (Hirschi, 1969), and teenage fertility (Caldas & Pounder, 1990) in their attempts to explore and explain the social integration-deviancy relationship.

There are, however, various theoretical and methodological weaknesses in these researchers' projects that leave the social integration-deviance model vulnerable to criticisms. Durkheim himself made no distinction between normative and functional integration in his seminal empirical work on social integration and suicide. Researchers believe his theory is essentially concerned with normative integration (Miley & Micklin, 1972). Hirschi likewise failed to clearly differentiate these two types of social integration. Moreover, he confined his work entirely to one urban metropolitan area. Whereas Collette et al. did make a distinction between measures of normative and functional integration, they too used only data from urban areas. Furthermore, their use of a small sample size (18 urban areas) in a regression analysis casts all of their findings in a dubious light. Caldas and Pounder's work is exploratory in nature, and does not explicitly design a model differentiating normative from functional integration. Consequently, none of these studies tested a

normative/functional integration-deviance model in both rural and urban areas.

The purpose of the present study is to investigate conceptually and empirically a version of the social integration-deviance model that clearly distinguishes between normative and functional integration. Specifically, the study conceptualizes teenage fertility as deviancy from an American parenting norm, and constructs a model to determine how measures of normative and functional integration operate through education to affect levels of teenage childbearing.

Clarification of Definitions

It is important at the outset to clarify the usage of several terms central to this work. Social integration, social cohesion, social solidarity, and the social bond are, for the purposes of this work, synonymous terms that are used interchangeably throughout this study. The concept of "social control," arguably sociology's "central notion" (Gibbs, 1989), is used in its broadest sense to mean the adherence or conformity to social norms that is the result of social integration. The terms "social control theory" and "social bonding theory" are used in the same sense as the term "social integration theory."

Chapter 2

LITERATURE REVIEW

Social Integration and Deviance

Interest in the nature of social integration can be traced back to Toennies who, like Durkheim, argued that there were two types of social integration. He termed these Gemeinschaft (community) and Gesellschaft (society) [1887/1957]. For Toennies, Gemeinschaft represented an enduring familial type of relationship among group members, and was particularly characteristic of small rural communities. Gesellschaft, on the other hand, represented for Toennies a transitory relationship of convenience among group members: it existed only so long as members were personally benefiting from the commercial type exchanges that characterized this dimension of social organization. Toennies contended that Gesellschaft was a characteristic of modern, urban societies.

Toennies' notions were extended and elaborated upon in Emile Durkheim's concepts of mechanical and organic solidarity, which appeared in his first work, The Division of Labor in Society (1893/1964). For Durkheim, primitive societies were characterized by mechanical solidarity. This type of social solidarity was the result of each member's attachment to and similarity of shared group values and

norms. As the populations of societies increased in size and density, with a resultant increase in the division of labor, organic solidarity replaced mechanical solidarity as the most important cohesive force binding a society together. This type of social solidarity was the result of the interdependence of the different functions of the various parts of the society. While Durkheim never intimated that mechanical solidarity was ever completely supplanted, he postulated that organic solidarity was the stronger and more cohesive of these two social forces. Mechanical and organic solidarity have come to be referred to in the contemporary literature as normative and functional integration (Collette et al., 1979).

In his classic study of suicide, Durkheim (1897/1951) was the first to empirically demonstrate a relationship between deviant behavior and social integration, or the lack thereof. For Durkheim suicide represented the ultimate act of individualism and estrangement from society. It was a result, he postulated, of the lack of integration between the individual and his/her society. He hypothesized that in communities characterized by a high degree of social cohesiveness (read "normative integration" [Collette et al., 1979]), individuals derived a great deal of "social support" for themselves. Since suicide for Durkheim represented the ultimate manifestation of weakened bonding between individual and group, incidences of this type of deviancy

should increase, he hypothesized, as social integration decreased. Interestingly, however, in his study of suicide he did not distinguish between the two types of social integration that he himself had earlier espoused.

More recently, Travis Hirschi (1969) formulated a control theory (which he also refers to as a "bonding theory" [Gibbs, 1981, p.147]) explanation to account for juvenile delinquent behavior in terms of weakened social control over the individual. For Hirschi, the greater the degree of integration between the individual and society, the greater the social control exercised by society over the individual. In other words, society in a sense compels conformity to its norms through the mechanism of social integration. Where social integration is decreased, so is social control. Where the bonds of social control are relaxed, deviance to social norms increases.

Measuring Deviancy

There is no single universally agreed upon notion of what constitutes deviancy, nor how the term is defined (Gibbs, 1981; Sagarin & Kelly, 1987). However it is safe to state that before about 1960, most sociologists agreed on a norm-based definition of the term, exemplified in Merton's (1966) statement that deviancy ". . . refers to conduct that departs significantly from the norms set for people in their social statuses" (p. 805). Since 1960, there has been a

divergence of views regarding the concept of deviancy, with the "labeling perspective" achieving some measure of ascendancy. According to Sagarin and Kelly (1987), for those who subscribe to the labeling perspective ". . .it is not the act or behavior per se that is significant, but the societal reaction and its consequences for the norm transgressor" (p. 16).

In the spirit of Sagarin and Kelly's 1987 article, this work acknowledges the "polymorphous" nature of the concept of deviancy. While a "normative-based" perspective of deviance is central to the sense of the term as it is used in this study, the labeling-perspective notion of "negative societal reactions" is also a constituent component of the notion of deviance as employed in this work. In other words, deviancy is not only deviation from societal norms, but "socially unapproved" deviation.

The appropriateness of traditional measures of deviance to adequately test the integration-deviance model is questionable. Suicide, though a theoretically defensible measure of deviancy, poses certain serious problems when used as an operational measure of deviance. For example, it has been demonstrated that deaths by suicide are less likely to be reported in rural than in urban areas, making comparisons across geographical areas with differing population densities problematical (Douglas, 1967). Furthermore, it is conceivable that many suicides, for

example those that result from an automobile accident, can never be identified as suicides.

The use of alcoholism rates as a measure of deviance poses similar measurement problems. The data which researchers have traditionally used have come from either alcohol treatment programs (Collette et al., 1979) or death rates from cirrhosis of the liver (Ross et al., 1979). Since the availability of treatment centers differs wildly from one community to the next, and many alcoholics likely never seek treatment anyway, official rates must be viewed with skepticism. Where alcoholism rates are extrapolated from deaths attributed to cirrhosis of the liver, it is equally likely that accurate and consistent reporting problems exist. First of all, many alcoholics do not die of cirrhosis of the liver (e.g., consider automobile accidents). Also, it is conceivable that many alcoholics who do die of cirrhosis of the liver had many other concurrent serious physical problems, any one of which may be listed as the cause of death. Finally, as with suicide, it is not hard to imagine that health officials in certain communities are more reluctant than their counterparts in other communities to be forthright about the cause of death when there is pressure by living family members to protect the deceased's reputation.

The use of crime rates as empirical measures of deviance are subject to the same limitations and weaknesses

as the use of suicide and alcoholism rates. Crime detection and reporting practices are notoriously inconsistent (Barlow, 1987), rendering a comparison between geographic regions extremely difficult. Furthermore, white collar crime, which is obviously more prevalent in communities with white collar jobs, is much less likely to be reported than violent crime (Barlow, 1987), which is more prevalent in other communities. Again, this fact complicates studies that use crime rates as a measure of deviance.

Teenage Parenting as Deviancy

The use of teenage fertility (childbearing) rates as an indicator of deviancy avoids some of the measurement difficulties encountered in using suicide, crime, and alcoholism rates. First of all, birth is a concrete, unambiguous, difficult to conceal fact. Furthermore, one can safely assume that given American birth certifying procedures, almost every live birth in every part of the United States is meticulously recorded and reported. Also, teenage parenting, like suicide, crime, and alcoholism, has quickly become a focus of concern for government policy makers and implementors. However teenage pregnancy rates, which are essentially calculated by adding teenage births plus teenage abortions, would be an even more precise measure. The reason for this is that abortion, for whatever reasons, is simply not a viable option for many teenagers

once they have become pregnant. Unfortunately abortion data detailed enough for a study of this type are unavailable, and thus a teenage pregnancy rate cannot be satisfactorily computed.

Parenting is clearly norm-influenced behavior (Furstenberg, 1976; Weeks, 1986). In other words, bearing and rearing children are behaviors that are subject to societal constraints and expectations. Teenage childbearing in the United States has only very recently been characterized as a "problem," or in other words, deviancy. The reason for this is, in a sense, simple: the childbearing rates of American women still in their teens, while among the highest of any industrialized country (Abrahamse, Morrison, & Waite, 1988), have decreased dramatically since 1960 (Weeks, 1986, p.289). This shift in fertility behavior, and the reasons for the shift, have resulted in an alteration in people's perceptions about what constitutes an "appropriate" American parenting timetable. It is suddenly "inappropriate," or in a sense "deviant behavior" to bear children while still a teenager.

While there has been a fair amount of work in the classical and contemporary sociological literature on the integration-deviance relationship, researchers interested in teenage parenthood have rarely paid attention to it. For example, lack of adequate sex education is often cited as an important factor explaining teenage pregnancy (Dickman,

1982). Though sex education has been linked to decreased teenage pregnancy rates (Dickman, 1982; Senderowitz & Paxman, 1985; Singh, 1986), Zelnick, Kantner and Ford (1981) and Dawson (1986) have found that a large majority of sexually active American teenage girls is apparently knowledgeable of effective contraceptive techniques. Therefore, as Zelnick et al. (1981) have discovered, knowledge of effective contraception in and of itself seems to be an insufficient deterrent to preventing teenage pregnancy, and ultimately for many, teenage parenthood.

Other studies have discussed teenage pregnancy in terms of changing sexual norms (Senderowitz & Paxman, 1985; Weeks, 1986; Jones et al., 1986). However, where it may be the case that norms regarding sexual behavior have been relaxing, it is not true that overall rates of teenage childbearing have simultaneously been increasing. In fact, as previously mentioned, the birthrate for American teenagers has been in steady decline for two to three decades (Henshaw, Kenney, Somberg, & Van Vort, 1989; Weeks, 1986), an indicator that teenage parenting is becoming increasingly "abnormal." However it must be noted that much of the decline in the teenage fertility rate is attributed to decreased fertility among 18 and 19 year olds (Weeks, 1986). There is evidence that fertility rates among 15-17 year olds have been on the increase since the mid-1980's (National Center for Health Statistics, 1990).

Important discussions of black teenage parenting have likewise been framed in terms of cultural and sub-cultural norms. It is claimed that there is a significantly different normative orientation to teenage sexuality and parenting in the Afro-American community (Ladner, 1987; Staples, 1972). Teenage birthrates among blacks are twice as high as rates among similar white teenagers (Henshaw & Van Vort, 1989; Ladner, 1987). (It should likewise be noted that even white American teenage birthrates are far higher than teenage birthrates in the vast majority of developed countries [Jones et. al., 1986].) Whereas it is generally accepted that teenage parenting is a violation of an American parenting timetable (Furstenberg, 1976), Staples (1972) and Ladner (1987) argue that there are modified parenting norms operating within the black community. Both authors note that historically, blacks have expressed greater tolerance and acceptance of teenage pregnancy and childbearing than have whites. Ladner contends that black teenage childbearing may be interpreted as a sort of right of passage to womanhood within the black community. Thus, the strength of the argument for differentiating black from white teenage childbearing in an analysis of the type attempted here is compelling.

An exception to the pattern of excluding the concept of social integration from discussions of teenage childbearing is work done by Singh (1986), and Caldas and Pounder (1990).

Singh states that "The general social milieu in which teenagers live is the most important factor associated with their rates of birth, abortion, and pregnancy. . ." (p.218). Concerning the relationship between social integration and teenage parenting, Singh states that ". . .a more integrated community and social structure. . .are conducive to lower rates of teenage pregnancy and birth" (p.219).

However there are three important limitations to Singh's study. The first is his imprecise use of the concept "social integration," and his failure to differentiate "functional" from "normative" integration. The second (which he noted) is his use of the state as the unit of analysis. The tremendous heterogeneity and variation of social "climates" within states make generalizations about any one state's degree of social integration suspect. Thirdly, he ventures no explanation to account for why he has found a negative relationship between social integration and teenage childbearing. In other words, why is it that there are lower rates of teenage childbearing in social settings characterized by a higher degree of social integration?

Caldas and Pounder note that in Louisiana, teenage fertility rates in urban areas are more highly correlated with measures of functional integration, whereas in rural areas teenage fertility rates are more highly correlated with measures of normative integration. Using parishes

(counties) as their unit of analysis, they overcome much of the aggregation bias associated with using state level data. Nevertheless their integration measures are relatively unrefined, and their sample size (64 parishes) small and geographically limited. The present work attempts to overcome the identified weaknesses of these studies.

Chapter 3

CONCEPTUAL FRAMEWORK

The present study constructs and tests a more highly refined version of the social integration-deviance model than those of its predecessors. A concept central to a theory of social integration, or social control (two terms that are used interchangeably in this study) is that deviance from social norms can be understood in terms of a weakened bond between the individual and the community (Durkheim, 1897/1951; 1893/1964; Hirschi, 1969; Stark, 1976). By contrast, the stronger the bond, or greater the attachment between individual and community, the more likely it is that certain behavior (in our case delaying parenthood beyond the teenage years), will conform to the norms of that community.

What specifically is this bond? It is what elicits virtually effortless "appropriate" or "normal" social behavior from the individual. It is the product of culture, the result of the socialization and enculturation process, of which formal education plays a central part. It has been likewise noted that individuals are bonded to their families, sub-cultures, peers, etc., as well as to the larger society. In fact, it is within the context of an individual's peer group, sub-cultural environment, and

especially family that the socialization process takes place (Coser, 1982). To the extent that the norms, values, and goals of these social entities reflect those of the larger society, these groups are performing the essential role of integrating the individual into society.

The fact that the black American "sub-culture" is so large (there are 20 million blacks in the United States), and has an arguably different normative orientation to the behavior in question (teenage parenting) forces us to take this group into account in the present study. It is contended that for the purposes of this work, the black population in America is more closely akin to a culture, than to a sub-culture. Though it is not within the scope of this work, one avenue of research in deviant behavior is occupied with explaining it exclusively in terms of the deviant's conformity to some group's sub-cultural norms (e.g., the criminal sub-culture). There is, however, an important point that is often overlooked by those who emphasize that what is deemed deviant behavior by most, is simply conformity to an alternative set of standards. If the behavior is deviancy from the larger societal expectations, then its occurrence, almost by definition, marks (for better or worse) diminished social control: the result of a weakened bond between the individual and society. Commenting on his research findings, Hirschi (1969) notes:

". . .the idea that delinquents have comparatively warm, intimate social relations with one another (or with anyone) is a romantic myth. . .The 'evidence' for the cohesiveness of delinquents is in many cases simply an assertion on the part of the investigator" (pp.159-160).

It is argued here that social control, a function of society that operates through the social bond between the individual and society, will, in fact must, when weakened result in deviancy to societal normative expectations. According to the social integration-deviance model, adherence to societal norms is not accidental (see figure 1).

SOCIAL INTEGRATION $\xrightarrow{-}$ DEVIANCE

Figure 1. The relationship between social integration and deviance.

The notion that society "compels" conformity by its members has its intellectual antecedents in Emile Durkheim's theory of social integration (1897/1951). In fact Hirschi (1969) refers to Durkheim's theory of social integration as "One of the purest examples of control theory" (p.3).

A central concern of theorists like Durkheim, Hirschi, and Stark is with the explanation of why individuals conform to social norms and expectations. "Control theory" postulates that an individual engages in deviant acts (those proscribed by society) ". . .because his ties to the conventional order have somehow been broken," (Hirschi, 1969, p.16), i.e., society's "control" over him has somehow been loosened. Durkheim spoke of such an attachment in terms of an individual's "integratedness" into his or her society (Durkheim 1897/1951). Hirschi (1969) and Stark (1976) refer to such an attachment as a "bond" between the individual and society.

Durkheim (1925/1961) made the sagacious observation that "We are moral beings to the extent that we are social beings" (p.64). One might interpret this to mean that we conform to societal norms, or perhaps even that our conduct is regulated by society, to the extent that we are "integrated" or "bonded" into society. Stark (1976) summarized this notion when he contended that "In the final analysis, the social bond is a product of culture" (p.vii).

By studying suicide rates among select groups (most notably Catholics and Protestants), Durkheim attempted to demonstrate the relative intensity of social integration (or conversely "disintegration" or "individualism") existent in European countries and provinces during the late nineteenth century. Concerning the power of cohesiveness in society, Durkheim stated:

"In a coherent and animated society there is from all to each and from each to all a continual exchange of ideas and sentiments - something like a mutual moral support which makes the individual, instead of being reduced to his own forces alone, participate in the collective energy and find in it sustenance for his own life when he is spiritually exhausted" (1897/1951, p.210).

The implication is that those who are not "participating in the collective energy" are not finding the "sustenance" necessary for life and are thus more inclined to discontinue it. Durkheim's theory of social integration has since acquired the unique designation of sociology's "One Law" (Bankston, Allen, & Cunningham, 1983; LaCapra, 1985; Pope & Danigelis, 1981).

Hirschi elaborates on and clarifies Durkheim's imagery of an individual "participating in the collective energy."

He accomplishes this by developing his two notions of "commitment" and "involvement." The person "committed" to conforming to societal norms, according to Hirschi, is one who has made an investment in that society in terms of "getting an education, building up a business, [and] acquiring a reputation for virtue (p.20)." (This notion is similar to Becker's [1960] "side bet.") The prospect of deviancy from societal norms must be weighed in terms of this investment and its possible loss. Festinger (1950) captured this dimension of commitment accurately when he hypothesized that:

"To the extent that a member wishes to remain in the group, the group has power over the individual" (p.277).

The concept of "involvement" suggests that the individual who is well integrated into his/her society is caught up in its conventions, activities, and processes, allowing little room for deviancy (p.22). In either case, the greater the degree of commitment and involvement by the individual, the greater the conformity to societal norms.

Hirschi, however, does not make a distinction between how his notions might apply differently in communities where normative integration is theoretically transcendent, as opposed to communities where functional integration is the

predominant integrative force. As Durkheim postulated, in communities where the division of labor is not well diversified, the most significant force binding the community together is its homogeneity of shared norms and values. Therefore, "acquiring a reputation for virtue," as Hirschi puts it, would theoretically seem to take on greater importance for individual behavior in settings characterized by high normative integration.

As the population size and density of communities and societies increased, Durkheim theorized, mechanical solidarity (normative integration) gave way to organic solidarity (functional integration) as the preeminent binding force of society. This was the result of the increasing division of labor with its shifted emphasis on economic interdependence, and away from community normative consensus. Given education's elevated importance in this environment, the commitment to conformity resulting from an "investment" in education would seem a more important determinant of human behavior in settings typified by functional integration.

Thus, as Durkheim well noted (1893/1964), social integration is not a monolithic structure. Communities exert "control" over individuals through the mechanisms of both normative and functional integration. In communities that are strongly normatively integrated, shared group values and norms operate to "coerce" individual members

conformity. "Acquiring a reputation for virtue" (adherence to community values) takes on increased significance to the individual who wishes to keep or advance his/her status within the community.

The Social Integration-Deviance Model Operationalized

Given the assumption of an American norm against teenage parenting, for instance, it becomes deviant behavior that violates community normative sensibilities in settings characterized by high normative integration. The stronger the community normative integration, the more unified the community's aversion to it, and the greater the pressure for individual conformity (see figure 2).

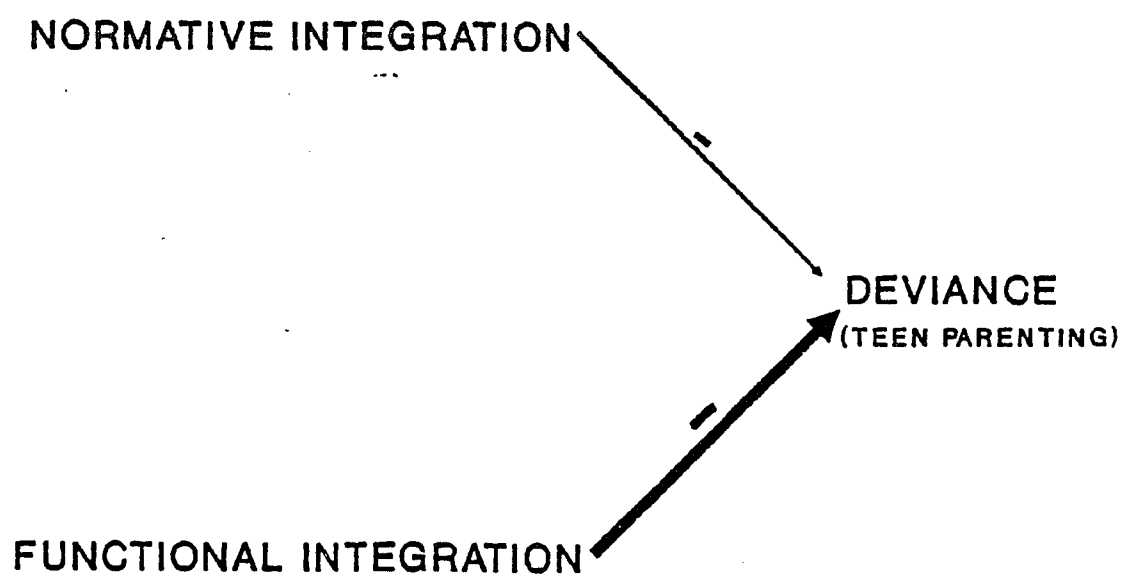


Figure 2. The relationship between functional integration, normative integration, and deviance.

Communities typified by a high degree of functional integration are characterized by an extensive diversity of the division of labor. Specifically, occupational heterogeneity is well pronounced, meaning that many individuals are employed in a wide range of differing occupational endeavors. The integrative force of a shared normative outlook has been replaced in importance by an even stronger community bond that has resulted from the economic interdependence of the community's occupational specialties (see figure 2). As Festinger (1950) noted:

"The pressures toward uniformity will . . . be greater, the more dependent the various members are on the group to reach their goals" (p.273).

In this context teenage parenthood is not simply behavior that is "unacceptable" or morally "irresponsible" in some sense. The group sanctions of a community characterized by a high degree of functional integration are more tangible and painful than some degree of collective disapproval. Put plainly, those who lack the ability to contribute to this setting are likewise largely excluded from its benefits.

The Mediating Effects of Education

Since teenage parenthood often means a truncated formal education (Mott & Marsiglio, 1985), and since formal

education is essential if one is to thrive in a community where occupational specialization requires extensive training, the costs of violating the American parenting schedule are high: It may mean the inability to compete in the community marketplace. Research indicates that the fertility behavior of teenage girls is indeed influenced by their educational milieu (Cooksey, 1990). Commenting on her research findings, Cooksey notes that:

" . . .the more highly educated the parents, the more likely the girl herself is to value her own education and acknowledge that having a baby would interfere with the completion of schooling"
(p.217).

Thus the "investment in education" takes on far more significance for the individual in a setting characterized by functional integration than does "acquiring a reputation for virtue" in a setting characterized by normative integration. Consequently, functional integration is a more important social force than is normative integration for determining conformity to a societal parenting timetable, via the mediating effects of education.

In fact, in a society characterized by extensive functional integration such as the United States, it is conceivable that the relationship between normative

integration and education is negative: as normative integration increases, educational levels decrease. Thus, the indirect effect of normative integration on teenage childbearing via education is a positive one. Functional integration, on the other hand, is hypothesized to have a positive effect on education, which in turn has a depressing effect on teenage birthrates. Consequently the indirect effect of functional integration on teen birthrates as mediated by education is a negative one (see figure 3).

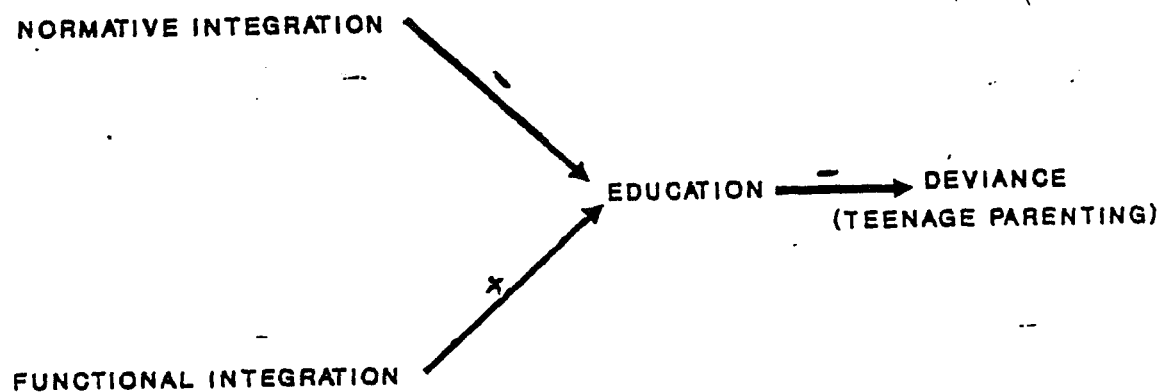


Figure 3. The relationship between normative integration, functional integration, education, and teenage birthrates.

Black Teenage Childbearing

Social integration theory provides an explanatory framework that accounts for the higher rates of black, than of white teenage childbearing. In 1980, the childbearing rate in the United States among black females aged 15-19 was more than twice as high as it was among white teenage females of the same cohort (Spitz, Strauss, Maciak, & Morris, 1987).

The societal mechanisms of normative, and especially of functional integration, likely have a weaker influence among America's black minority than among its white majority. The majority normative and value positions likely have a diluted integrating effect within the black community, rendering somewhat moot the influence of the majority culture's value prescriptions.

The mechanism of functional integration in all likelihood exerts even less control over behavior in the black community, including parenting behavior. [Economic interdependence is central to the social solidarity of functional integration.] Blacks in the United States have until recently been restricted from participating freely in America's highly elaborated economic system. Though many legal barriers to their participation have of late been lifted, the legacy of three centuries of exclusion from and exploitation by the American economic system has left many African-Americans still at the periphery of American

economic activity (Bernard, 1973; Pettigrew & Martin, 1987). Many blacks have hardly been participating in "the collective energy . . ." and remain uninvolved (consider high black unemployment), not to mention uncommitted to the economic system. In fact, one can imagine that it has as much an alienating as an integrating effect for many Afro-Americans.

Consequently, the average white teenage girl may be less antagonistic and more accepting of the American economic system. This, it is argued, is in spite of the fact that black and white females have similar rates of employment (Farley, 1988). Her ancestors and family have in all likelihood prospered because of their involvement and investment in the American economic system. She therefore has more reason to expect that her own investment, specifically in education, will likewise be rewarded. A black teenage female has less reason for optimism. She is more likely to have a " . . . fatalistic attitude engendered by a lifetime of economic deprivation . . ." (Ladner, 1987, p.56), and thus regard neither an abbreviated formal education nor teenage childbearing as an economic liability in the same sense as her white counterpart. Thus, though the educational level of the community should have a depressing effect on both white and black teenage fertility rates, it is hypothesized that the magnitude of this effect should be greater on white than on black teenage fertility.

Nonmarital Teenage Fertility

Though the model presented thus far is concerned primarily with teenage fertility irrespective of whether or not it is marital, much teenage fertility in this country is in fact nonmarital. In 1981, fully 80% of all teen births were conceived out-of-wedlock (of all teenage pregnancies, 54% were terminated in an abortion [Trussell, 1988]). In 1982, 38% of white teen births and 87% of black teen births were delivered out-of-wedlock (Ladner, 1987). If pre-marital conception was counted, these rates would be 12% higher (Trussell, 1988). A separate exploratory analysis will be conducted using a nonmarital fertility index in order to determine the relationship between social integration and nonmarital fertility, and possible differences in patterns of marital and nonmarital fertility. Following the logic of the social integration-deviance model, as normative integration increases, so should the proportion of teenage births that are marital.

Chapter 4

METHODOLOGY

The Study Population

The county is the study's unit of analysis. All variable measures are aggregated at the county level. In 1980, there were 3145 counties or county equivalents in all 50 states. However, all counties were not be used in the analyses. Sample restrictions are discussed below.

The county is perhaps the local government subdivision which best captures the notion of "community." It encompasses all other forms of local government within its boundaries (Berkley & Fox 1978). The county regulates human behavior in terms of law enforcement, zoning, the distribution of welfare, and a multitude of other functions (Berkley & Fox, 1978; Ross, Bluestone, & Hines, 1979). Thus, the county provides a self-contained social microcosm within which homogeneity of shared norms and values are particularly pronounced (Kowalski, Faupel, & Starr, 1987). The author suggests, in Durkheimian fashion, that the intensity and nature of these shared norms and values are reflected in aggregate social integration indicators.

The use of aggregate level social indicators (e.g., social integration measures) from which to infer individual level behavior has been challenged and characterized as "The Ecological Fallacy" by Robinson (1950). However many

researchers have since responded that with proper model specification and other statistical and methodological checks, the use of aggregate level data from which to infer individual level behavior is justifiable (Gove & Hughes 1980; Firebaugh 1978; & Hanushek et al. 1974). The current study, by nature of its design, is limited to the use of data aggregated at the county level. Therefore, empirical checks for cross-level bias of the sort devised by Firebaugh (1979) are not possible. Nevertheless, even Firebaugh (1979) allows "that the researcher restricted to aggregate data should worry primarily about proper specification; the ecological fallacy is itself a near fallacy" (p. 570).

Sample Restrictions

The study is limited to the counties (or their equivalents) of the 48 contiguous United States and Washington, D.C. There were a total of 3114 counties in the lower 48 states in 1980. Not all counties within the lower 48 states could be included in the analyses. Due to the boundary changes of several counties and cities between 1970 and 1980, 7 additional county or county equivalents were dropped, further reducing the number of counties or county equivalents to 3107.

Counties with small populations of females aged 15 - 19 posed a problem in this analysis. Theoretically speaking, in counties where there were only 10 white females aged 15 -

19, one birth would result in a white teenage birthrate of ten percent. Two births would double the birthrate to 20 percent. This would clearly change the variable to a discrete one not suitable for inclusion in regression analysis.

For this reason, a decision was made to exclude all counties with less than 25 females 15 to 19 of the target race. This reduced the number of counties which could be included in the white sample to 3089, and in the black sample to 1503. The much greater reduction in sample size for blacks relative to whites reflects the much larger number of counties with relatively small numbers of black teenage females. A geographic description of the black sample is provided below.

Outliers can distort parameter estimates, especially in multiple regression analyses, making them less useful (Freund & Littell, 1986). A careful examination of the distribution of the white and black teenage birthrates (WTBIRATE and BTBIRATE) revealed four counties with unreasonably high black teenage birthrates. These four counties had black teenage birthrates of 541, 564, 608 and 748. A county with a black teenage birthrate of 500 would indicate that 50 percent of all black females aged 15 to 19 gave birth in 1980. Given the implausibility of these extreme rates, and the lack of additional information about these particular cases, these four counties were deleted

from the black analyses. They are Buncombe, North Carolina, Jackson, Arkansas, Caroline, Virginia, and St. Landry, Louisiana. This reduced the number of counties in the black teen birthrate model from 1503 to the final figure of 1498.

Nonmarital Fertility Ratio

Data on the marital status of teenage mothers were available only for counties contained in an MSA (Metropolitan Statistical Area). An MSA is defined by the U.S. Bureau of the Census (1988) as an urbanized "nucleus" and the surrounding counties which are highly economically and socially integrated with the core area.

Thus, when the nonmarital fertility ratio was included as the dependent variable, with the previously mentioned sample restrictions in place (including the deletion of counties with less than 25 females aged 15-19 of the target race), the number of MSA counties was 715 in the white analysis, and 566 counties in the black analysis. As with the black teenage birthrate sample, the greater reduction in sample size for blacks relative to whites reflects the disproportionate number of MSA counties with relatively small numbers (less than 25) of black teenage females. A geographic description of the black MSA sample is provided below. As with the teenage birthrate, excluding counties with less than 25 females aged 15 to 19 of the target races reduced the instability of this measure.

Comparison of White and Black Samples

The counties which constitute the black sample for the black teenage birthrate are not distributed evenly among the lower 48 states. 60.2 percent of all counties in the black teen birthrate model come from the 11 Southern states alone: Arkansas, Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, Texas, Virginia, Tennessee, and South Carolina. This is in comparison to only 36.8 percent of the sample used in the white teenage birthrate model. An additional 22.3 percent of the black sample size comes from the counties of just eight states: California, Illinois, Kentucky, Michigan, Missouri, New York, Ohio and Pennsylvania. Twelve states, making up just 1.6 percent of the sample size, contributed 3 or fewer counties each to the black sample. All of these were either Western, Great Plains, or New England states. The counties of these same 12 states make up 13.5 percent of the comparable white model. It is for these reasons that a separate white analysis restricted to the geographical region of the black analysis is conducted for purposes of comparing the white and black teenage birthrate models.

There is also an uneven distribution of blacks among MSA counties, though it is less pronounced than that observed among the counties in the teenage birthrate models. 44.3 percent of all counties in the black nonmarital fertility model come from the 11 Southern states, compared

to 38.1 percent in the comparable white model. Since outside of the South blacks tend to be concentrated in urban areas, and MSA's are by definition urbanized localities, the disparity in sample composition between the white and black nonmarital fertility models is not as great as it is in the teenage birthrate models. Nevertheless, 64.7 percent of all counties in the black nonmarital fertility model come from just 14 states. Of these, 8 are Southern states, and all of the others (except California) are urbanized Northern or Northeastern states. Twelve Western and New England states contributed 3 or fewer counties each to the sample. Again, as with the teen birthrate model, a restricted white model limited to the counties included in the black model was estimated for purposes of comparison.

Data Sources

The data for the study were collected from the County Statistics File 3 (COSTAT-3) compiled by the Bureau of the Census¹, from County Population Estimates by Age, Sex, and Race (1980) also compiled by the Bureau of the Census, and from Vital Statistics Natality Data, Local Area Summary Tape 1980, prepared by the National Center for Health Statistics.

¹ These data were made available by the Inter-University Consortium for Political and Social Research. The data were originally collected by the U.S. Census Bureau and the National Center for Health Statistics. Neither the original source or collectors of the data nor the Consortium bear any responsibility for the analyses or interpretations presented here.

Variables, Definitions and Measures

Dependent Variable

Deviance - Defined as behavior that does not conform to societal norms regulating human behavior.

Variable measures (all 1980 data):

- (1) Black Teenage Birthrate (BTBIRATE) - the number of births to black females less than 20 per 1000 black females aged 15-19.
- (2) White Teenage Birthrate (WTBIRATE) - the number of births to white females less than 20 per 1000 white females aged 15-19.
- (3) Percent of Black Teen Births Nonmarital - (PCTBNMTB) - The number of nonmarital births to black females less than 20 divided by total births to black teens less than 20, multiplied by 100.

Data on the marital status of teenage mothers were available only for counties that were included in an MSA (Metropolitan Statistical Area). There were 613 MSA counties that reported at least one birth to a black mother aged 15-19. When MSA counties with less than 25 black females aged 15-19 were deleted from the analyses, 566 counties remained in the black nonmarital fertility model.

- (4) Percent of White Teen Births Nonmarital -
 (PCTWNMTB) - The number of nonmarital births
 to white females less than 20 divided by
 total births to whites females less than 20,
 multiplied by 100.

Data on the marital status of teenage mothers were available only for counties that were included in an MSA (Metropolitan Statistical Area). There were 716 MSA counties that reported at least one birth to a white mother aged 15-19. When counties with less than 25 white females aged 15-19 were excluded from the analyses, 715 counties remained in the white nonmarital fertility model.

Independent Variables

Normative Integration (NI) - Defined as social solidarity resulting from "identification with and attachment to community, and a high degree of conformity to group standards and values" (Collette et al., 1979, p. 705).

Variable measures:

- (1) In-migration rate between 1975 and 1980 (INMIGRTE):

$$(\text{In-migration } 1975\text{-}1980 / \text{POP}1980) * 100$$

This measure is equated with the movement of residents into communities (Collette et al., 1979). It is conceivable that the strength of community normative consensus is often diminished and diluted by the influx of residents from other

communities.

(2) Percent of families headed by married couples in
1980 (PCTFMARY):

(Married Family Households 1980/Family Households 1980)

* 100

In Durkheim's theory of normative integration, marriage served an important integrative function between the individual and society. It has been shown that where the proportion of a population that is unmarried increases, social integration (read normative integration) as measured by suicide (Durkheim, 1897/1951; Collette et al., 1979) and alcoholism rates (Collette et al., 1979) decreases.

(3) Percent of total households with one person in
1980: (PCTALONE):

(Single Person Households 1980/ County Population 1980)

* 100

It is consistent with Durkheim's theory of social integration to expect that as the proportion of a community's population living alone increases, normative integration decreases: social interaction is an important conduit for the transmission of community norms and values. Percent living alone has been included as a measure of social integration in other studies (Bankston, 1983; Gove & Hughes, 1980).

Functional Integration (FI) - Defined as social solidarity resulting from the mutual interdependence engendered by the increasing division of labor (Durkheim, 1893/1964).

Variable measures:

(1) Industrial diversity (FI) - as measured by the index of diversity: $D = 1 - [\sum X^2 / (\sum X)^2]$ where D= the extent of the industrial diversity, and X=the number of individuals in each industrial category in 1980. [e.g. if there are 10 industrial categories, and all members of the population fall into only one category, D=0. The value of D approaches, but never reaches 1 as the population becomes evenly distributed over the 10 occupations (Bohrnstedt & Knoke, 1988).] This index was constructed from the data contained in the 12 categories of "employed persons by industry" listed in COSTAT-3.

The central concept underlying Durkheim's functional integration is the division of labor. The above formula, first developed by Gibbs and Martin (1968), was subsequently used in a study by Collette et al. (1979) as a measure of functional integration.

Education (PCTHSED) - Defined in terms of high school graduation rates. Variable Measure: Percent of the county population 25 years and older who had completed four or more

years of high school in 1980.

Control Variables

(1) Percent Black (PCTBLACK) -The percent of the county population black in 1980.

(2) AFDC Rate (AFDCRTE) - Percent of the county population receiving Aid to Families with Dependent Children in 1980.

(3) Median Family Income (MEDINCOM) - The median county family income in 1979.

(4) SEX RATIO (SEXRATIO) - The proportion of males to females in 1980.

(5) Percent Urban (PCTURBAN) - Percent of county population living in an urban area in 1980.

(6) Unemployment Rate (UNEMPLOY) - Percent of the county civilian labor force without employment in 1980.

Statistical Analyses

Descriptive statistics are computed for all dependent and independent variables, including means and standard

deviations. A canonical correlation analysis is performed to determine the correlation between all of the independent and all of the dependent variables. A Pearson Product Moment Correlation Matrix representing the zero order correlations between and among all of the dependent and independent measures will be generated for both the white and black teenage fertility models.

Path analysis, a statistical method for testing causal models, will be used in the study. SAS (1985) statistical computer software is employed in all analyses conducted in this study including PROC CANCORR, PROC CORR, PROC FACTOR, PROC FREQ, PROC PLOT, PROC REG, and PROC UNIVARIATE functions, along with associated options. Direct path coefficients will be presented to determine the plausibility of the proposed models. According to Wright (1934):

"...the method of path coefficients is not intended to accomplish the impossible task of deducing causal relations from the values of the correlation coefficients. It is intended to combine the quantitative information given by the correlations with such qualitative information as may be at hand on causal relations to give a quantitative interpretation" (p.193).

It is not the purpose of this study to enter into the

debate on "causation" in the social sciences. However, since a causal model is employed, it is appropriate at this point to reference this sometimes controversial issue. First of all, it is acknowledged that the purpose of a study of the type attempted here is not to prove causality. In fact, if one follows Popper's (1961) "Falsification" hypothesis, one can never prove a theory, but merely disprove, or "falsify" it. Concerning the reservations associated with the concept "causal" in the social sciences, this author shares Pedhazur's (1982) observation that all questions raised by scientists carry with them "an implication of causality" (p.578). Pedhazur notes that:

"In the work of scientists, even in the work of those who are strongly opposed to the use of the term causation, one encounters the frequent use of terms that indicate or imply causal thinking" (p.577).

Path analysis simply makes explicit the causal reasoning implicit in a theoretical model. Thus, the path analytic techniques employed by this study are utilized to examine the plausibility of pre-specified relationships between variables based on existing knowledge and theory. As noted by Karl Popper (1961): "Theories are not verifiable, but they can be 'corroborated'" (p.251).

The important assumptions underlying the application of path analysis are (Pedhazur, 1982, p.582):

1. The relations among the variables in the model are causal.
2. The relations among the variables in the model are linear.
3. All relevant variables are included in the model.
4. The model is recursive (there is a one-way causal flow in the system).
5. The variables are measured on an interval scale.
6. The variables are measured without error.

Mechanically, path analysis is simply the application of multiple regression in a strategic fashion. A regression analysis is conducted for each dependent variable in the model. That is, each dependent variable is regressed on those independent variables which are antecedent to it. The betas, or standardized path coefficients, are the direct effects (DE) of the independent on the dependent variable.

The Sheaf Coefficient

Due to the use of multiple indicators of the construct "normative integration", the calculation of a path coefficient from this latent exogenous variable to the endogenous dependent variables was accomplished by the use of a Sheaf coefficient. Heise (1981) is credited with

developing this coefficient. A Sheaf coefficient is to be interpreted in exactly the same way as the standardized, or beta coefficient, except that it does not indicate the direction (positive or negative) of the relationship (Heise, 1981). The process for deriving the Sheaf coefficient is as follows:

1. The dependent variable is regressed on the multiple indicators, controlling for any extraneous variables.

2. The standardized partial regression coefficients (betas) for each indicator are entered into the following equation:

$$p^2 = \beta_{w1}^2 + \beta_{w2}^2 + 2\beta_{w1}\beta_{w2}r_{w1w2}$$

where p^2 is the square of the Sheaf coefficient. The first term on the right is the square of the standardized regression coefficient for indicator 1, and the second term is the square of the standardized regression coefficient for indicator 2. The third term on the right is two times the product of the beta coefficients of the first two indicators times the correlation coefficient of indicators 1 and 2. The procedure is simply expanded if the latent construct includes more than two indicators (Heise, 1981).

Caution must be employed in interpreting the Sheaf coefficient since, unlike other path coefficients, it does not indicate the direction of the relationship (positive or

dependent on it. One can however, examine the sign of each individual indicator's standardized beta weight when attempting to understand the composition of the Sheaf coefficient.

Chapter 5

RESULTS AND DISCUSSION

Means and standard deviations for all variables are presented in table 1 for the white teenage fertility analyses, and table 3 for the black teenage fertility analyses. The zero order correlation coefficients for all variables in the white model are presented in table 2, and in table 4 for those variables in the black model.

Canonical Correlation Analyses

Independent and Dependent Variables

To begin, a multivariate omnibus test was performed to determine the correlation between all of the dependent and all of the independent variables. Using the PROC CANCORR procedure in SAS, two canonical correlation analyses were performed. In the first analysis, the combination of the four dependent variables was correlated with the combination of the three independent variables. The first canonical variate had an overall correlation coefficient of 0.76 ($p < .001$). The second variate had a much smaller correlation coefficient of .38 ($p < .001$), so only the results of the first canonical variate will be presented. All weights reported are standardized correlation coefficients. The largest weight in the first variate among the dependent variables was .83 for PCTWNMTB (white teenage nonmarital

fertility ratio). This was followed by $-.30$ for WTBI RATE (white teenage birthrate), $.05$ for BTBI RATE (black teenage birthrate), and 0.02 for PCTBNMTB (black teenage nonmarital fertility ratio).

The largest weight in the first canonical variate among the independent variables was 0.94 for PCTHSED (high school education). This was followed by $-.40$ for INMIGRTE (in-migration rate), $-.17$ for FI (functional integration) and 0.14 for PCTALONE (percent living alone). Thus, in the first canonical variate PCTHSED was the best predictor among the combination of independent variables, and PCTWNMTB among the combination of dependent variables.

Control Variables Entered

When the control variables were included in the second canonical correlation analysis, the canonical correlation increased from $.76$ to 0.82 ($p < .001$). The largest weight in the first variate among the dependent variables was 0.87 for PCTWNMTB, followed by $-.25$ for WTBI RATE, 0.04 for BTBI RATE, and 0.02 for PCTBNMTB. Among the independent and control variables of the first canonical variate, PCTFMARY had the largest weight of -0.87 . This was followed by $.62$ for PCTHSED (percent high school education), $-.59$ for PCTBLACK (percent black), $-.263$ for PCTURBAN (percent urban), $.257$ for MEDINCOM (median income), $-.20$ for AFDCRTE (AFDC rate), $-.15$ for INMIGRTE (in-migration rate), $-.084$

for FI (functional integration), $-.081$ for SEXRATIO (sex ratio), $-.04$ for UNEMPLOY (unemployment rate), and $.02$ for PCTALONE (percent living alone).

Univariate and Bivariate Statistics: White Model

All counties with less than 25 white females aged 15-19 have been excluded from the white model's Pearson Product Correlation matrix (table 2). The large majority of simple correlations among variables in the white model are under $.50$ (see table 2). With the exception of correlation coefficients with the variable PCTWNMTB (white teenage nonmarital fertility ratio), which are based on a reduced sample size of 715, an $r > .05$ is statistically significant at $p < .001$. For PCTWNMTB, all correlation coefficients $> .12$ are significant at the $.001$ level.

Among the three variables which form the composite index of normative integration, the largest correlation ($r=.25$) is between INMIGRTE (in-migration rate) and PCTFMARY (percent of families with married couples). All other zero-order correlations among these variables are statistically non-significant, allaying possible multicollinearity concerns.

Several variables share large correlation coefficients. AFDCRTE (AFDC rate) and PCTFMARY have a large negative correlation of $-.72$. Likewise, AFDCRTE and PCTBLACK (percent black) have a bivariate correlation of $.58$, and

Table 1
Descriptive Statistics for Variables in White Teenage
Fertility Model

VARIABLE	CASES	MEAN	S.D.
AFDCRTE (Aid to Families with Dependent Children Rate)	3089	3.36	2.66
FI (Functional Integration)	3089	0.84	0.04
INMIGRTE (In-migration Rate)	3089	20.27	8.45
MEDINCOM (Median Family Income)	3089	16727	3515
PCTALONE (Percent Alone)	3089	7.42	1.72
PCTWNMTB (Percent of White Nonmarital Teenage Births)	715	31.85	12.03
PCTFMARY (Percent of Families Married)	3089	85.97	4.64
PCTHSED (Percent Persons > age 25 with High School Education)	3089	59.22	12.31
PCTURBAN (Percent Urban)	3089	36.35	29.39
PCTBLACK (Percent Black)	3089	8.659	14.42
SEXRATIO (Sex Ratio)	3089	0.97	0.07
UNEMPLOY (Unemployment Rate)	3089	6.8	3.29
WTBIRATE (White Teenage Birthrate)	3089	57.30	23.33

Table 2
Correlation Matrix for Variables in White Teenage Fertility Model

Variables	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
X1-AFDCRTE	.12**	-.31**	-.32**	-.09**	.35**	-.72**	-.34**	.06**	.58**	-.24**	.46**	.09**
X2-FI		.32**	.11**	.19**	.05	-.07**	.23**	.24**	-.01	-.03	.13**	-.03**
X3-INMIGRTE			.32**	-.01	-.15**	.25**	.51**	.17**	-.22**	.42**	-.12**	.08**
X4-MEDINCOM				-.04*	.32**	.15**	.67**	.52**	-.24**	.07**	-.23**	-.33**
X5-PCTALONE					.45**	.00	.24**	.13**	-.12**	-.25**	-.19**	-.15**
X6-PCTWNMTB						-.33**	.46**	.41**	-.13**	-.23**	.12**	.44**
X7-PCTFMARY							.34**	-.31**	-.77**	.31**	-.25**	.04*
X8-PCTHSED								.34**	-.45**	.23**	-.21**	.40**
X9-PCTURBAN									.06**	-.20**	-.10**	-.12**
X10-PCTBLACK										-.23***	.05**	.00
X11-SEXRATIO											.01	.07**
X12-UNEMPLOY												.12**
X13-WTBIRATE												

* $p < .05$

** $p < .01$

Critical value for $p < .001$ is 0.06 for all values except PCTWNMTB.

Critical value for $p < .001$ is .12 for PCTWNMTB.

Note. The above variable labels stand for: AFDCRTE=Aid to Families with Dependent Children Rate; FI=Functional Integration; INMIGRTE=In-migration Rate; MEDINCOM=Median Family Income 1979; PCTALONE=Percent Alone; PCTWNMTB=white teen nonmarital fertility ratio; PCTFMARY=percent of families married; PCTHSED=Percent High School Graduation; PCTURBAN=Percent Urban; SEXRATIO=Sex Ratio; UNEMPLOY=Unemployment Rate; WTBIRATE=White Teen Birthrate.

PCTFMARY and PCTBLACK have a high correlation of $-.77$. An increasing percentage of blacks is associated with a decreasing percentage of married couple families. Also, an increasing percentage of married couple families is associated with a decreasing percentage of the population receiving AFDC payments. It is noted that though there is only a small ($r=.09$) correlation between AFDCRTE and WTBI RATE (white teenage birthrate), there is a moderate correlation of $.35$ between PCTWNMTB (white teenage nonmarital fertility ratio) and AFDCRTE.

The correlation between the two dependent variables PCTWNMTB and WTBI RATE is $r= -.44$: as the white teenage birthrate increases, the proportion of those births which are out-of-wedlock decreases. As will be shown subsequently in the path models, both variables are affected differently by the mechanisms of normative and functional integration. The correlation between WTBI RATE and PCTHSED (percent of adults with at least a high school education) is $r= -.40$: as the level of education increases, the white teenage birthrate decreases. However the inverse is true for the white nonmarital fertility ratio: as the educational level of the county increases, so does the proportion of teenage births delivered out-of-wedlock ($r=.46$). As PCTURBAN (percent urban) increases, so does PCTWNMTB ($r=.41$), the proportion of teen births which are nonmarital. By contrast, white teenage fertility tends to decrease as

PCTURBAN increases (-.12).

As is expected, FI (functional integration) is positively correlated with both PCTHSED ($r=.23$), and PCTURBAN ($r=.24$). There is no significant bivariate correlation between FI and either PCTWNMTB or WTBIRATE. SEXRATIO and PCTWNMTB have a negative correlation of $-.23$: the greater the balance between the number of males and the number of females, the lower the nonmarital fertility rate, suggesting that marriage opportunities increase as the distribution of potential spouses becomes more equal.

Path Analysis Limitations

Only direct effects of independent on dependent variables will be graphically presented in both the black and white models. The reason for this is that nonsensical results are generated when Sheaf coefficients (composite path coefficients) are multiplied and added to get indirect and total effects. Since Sheaf coefficients are composed of several individual betas which can be either positive or negative, a directional sign cannot technically be attributed to this coefficient. Thus, when multiplying a Sheaf coefficient by another path coefficient in order to determine an indirect effect, it is impossible to specify whether the resultant indirect effect coefficient is positive or negative. Consequently, it is impossible to determine the total effect since this involves adding

together direct and the indirect effects.

White Path Models

Intervening Variable PCTHSED

In a preliminary run (not shown), the direct effect of NI on the intervening variable PCTHSED was .594. Though this Sheaf coefficient does not indicate the direction of the effect (positive or negative), the Sheaf was decomposed and examined. INMIGRTE had a large positive beta of .436: as in-migration increases, with an hypothesized decrease in normative integration, the educational level of the county increases. PCTFMARY, on the other hand, had a moderately strong positive beta of .239, suggesting that as the proportion of families headed by married couples increases, with the postulated increase in normative integration, so did the educational level of the county.

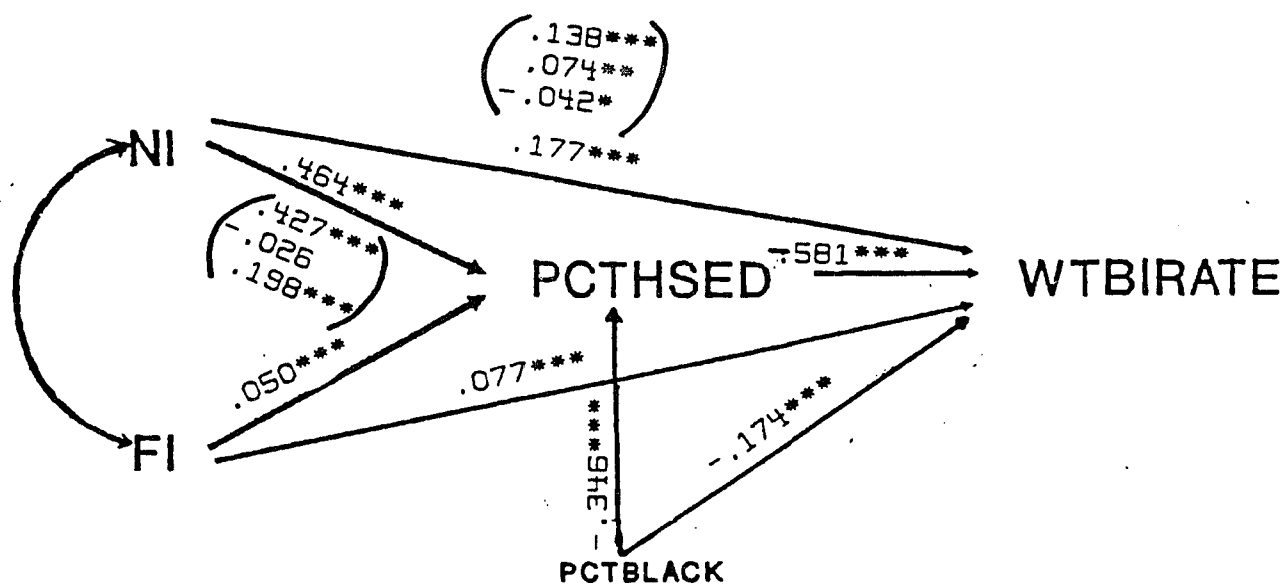
Sensing the confounding effect of an extraneous variable, the bivariate correlation matrix was examined and revealed a strong negative correlation between PCTFMARY and PCTBLACK (-.77), as well as a moderate negative correlation between PCTBLACK and PCTHSED (-.45). This suggested that the significant beta of PCTFMARY may in fact be as much a function of race as an indicator of normative integration's effect on PCTHSED.

Supplemental analyses bore this suspicion out. When percent black (PCTBLACK) was controlled for, the beta for

PCTFMARY was reduced from .239 to $-.026$. The other coefficients changed only slightly: FI decreased from .06 to .05, INMIGRTE scarcely changed from .436 to .427, and PCTALONE decreased from .237 to .198. The result of controlling for percent black was to reduce the magnitude of the Sheaf coefficient from NI to PCTHSED from .585 to .494 (see figure 4). More importantly, the direction of the effect of NI on PCTHSED becomes unambiguous: NI positively effects PCTHSED.

PCTBLACK had a negative direct effect of $-.346$ on PCTHSED. Also, including PCTBLACK increased R^2 from .3767 to .4236 ($p < .001$), an increase of .05. Given the importance of PCTBLACK as a control variable, it was included in all subsequent analyses when estimating the direct effects on the intervening variable PCTHSED.

The direct effect of Functional Integration (FI) on PCTHSED as measured by the division of labor index is .05. Though the positive nature of the relationship is in the hypothesized direction, and it is statistically significant ($p < .001$), the substantive significance of such a small coefficient is questionable. Theory would predict a larger direct effect. However, it is possible that the moderately strong negative relationship between NI and PCTHSED is indicative of the presence of a positive effect of FI on PCTHSED. Thus, the relatively small coefficient of .05



- * $p < .05$
- ** $p < .01$
- *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 4. Path model for white teenage birthrate showing direct effects.

may not reveal the total effect of FI on PCTHSED.

To recapitulate, in the re-estimated model (figure 4), net of the effect of PCTBLACK, the Sheaf coefficient indicates that as normative integration increases, high school educational level decreases. Conversely, as FI increases, high school level increases, though to a lesser extent. Nevertheless, the total amount of variance of PCTHSED explained by the combination of NI, FI, and PCTBLACK is a substantial 42 percent ($R^2 = .4236$, $p < .001$) (see table 5).

Path Model with White Teenage Birthrate

When WTBI RATE is included as the dependent variable in the model, the direct effect of PCTHSED on WTBI RATE is $-.581$, indicating that PCTHSED has a dampening effect on the white teen birthrate (see figure 4). The direct effect of NI on WTBI RATE is a significant $.177$ ($p < .001$), while the direct effect of FI on WTBI RATE is a small but statistically significant $.077$ ($p < .001$). Thus, whereas PCTHSED seems to mediate the relationship between NI and WTBI RATE as hypothesized, the relationship between FI and WTBI RATE is less clear. Functional integration has a slightly stronger direct effect on WTBI RATE than it does on PCTHSED. Even so, neither direct effect of FI appears substantively significant. It may be that the division of labor index

Table 3 - White Model

Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (WTBIRATE and PCTWNMTB), as well as t-values for each Beta (in parentheses).

<u>Independent Variables</u>	<u>PCTHSED</u>	<u>WTBIRATE</u>	<u>WTBIRATE w/controls</u>	<u>PCTWNMTB</u>	<u>PCTWNMTB w/controls</u>
NI	.464*** (30.22)	.177*** (9.23)	.351*** (10.92)	.749*** (22.25)	.751*** (14.07)
FI	.050*** (3.35)	.077*** (4.65)	.040* (2.34)	-.050 (-1.75)	-.042 (-1.50)
PCTHSED		-.581*** (-30.22)	-.587*** (-23.99)	.496*** (17.14)	.404*** (9.25)
<u>Control Variables</u>					
AFDCRTE			.192*** (7.39)		.233*** (6.42)
MEDINCOM			-.123*** (-5.14)		.178*** (4.76)
PCTBLACK	-.346*** (-24.64)	-.174*** (-9.22)	-.123*** (-4.91)	-.457*** (-12.68)	-.495*** (-13.17)
PCTURBAN			.232*** (11.06)		-.156*** (-4.20)
SEXRATIO			.131*** (7.46)		.054 (1.71)
UNEMPLOY			-.003 (-0.16)		-.025 (0.82)
R ²	.4236***	.2290***	.2761***	.5425***	.5912***
N=	3089	3089	3089	715	715

* p < .05

** p < .01

*** p < .001

used to measure functional integration is only capturing a fraction of the variance of this construct. If so, it is an inadequate measure. It seems equally likely that the normative integration index is to some extent measuring functional integration in an inverse sense. For example, to the extent that the Sheaf coefficient represents the negative direct effect of normative integration on high school education, it could be indicating a positive direct effect of functional integration. If true, this is further indication that the FI measure may need to be modified. Curiously, in contrast to the insignificant bivariate correlation, PCTBLACK has a statistically significant negative effect of $-.174$ ($p < .001$) on WTBI RATE.

Next, the remaining five control variables were entered into the white model. Variance Inflation Factors (VIF's) were used to detect possible multicollinearities among the independent variables. According to Freund and Littell (1986):

"For the i th coefficient, the variance inflation factor is defined as $1/(1-R_i^2)$, where R_i^2 is the coefficient of determination of the regression of the i th independent variable on all other independent variables" (p.80).

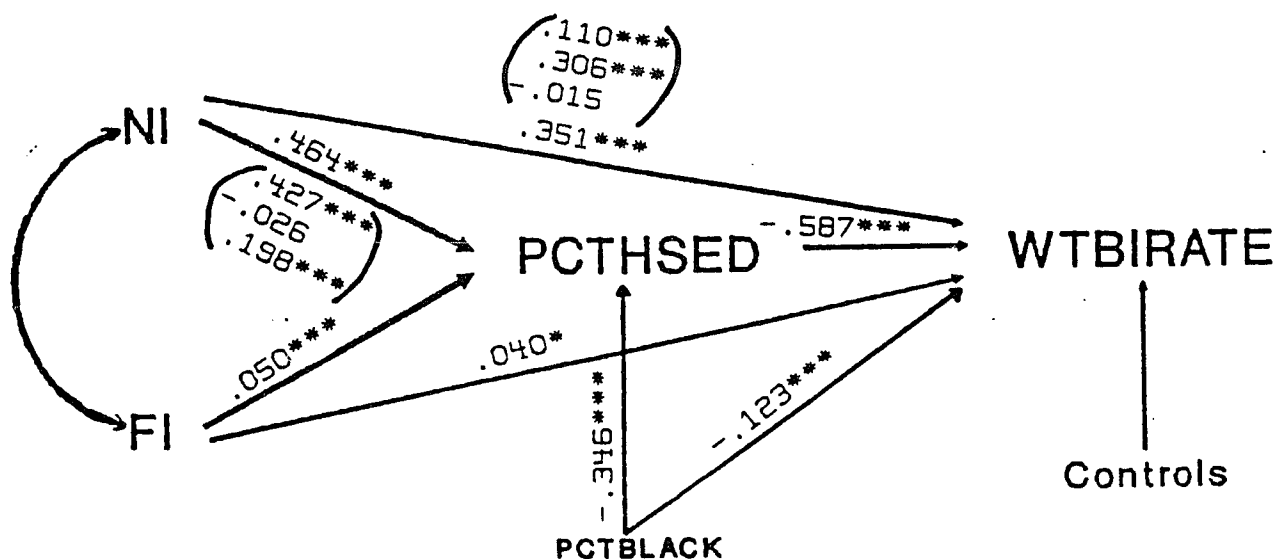
Colinearity diagnostics indicated that the addition of

these variables into the model created no multicollinearity problems. No variance inflation factors exceeded 5, a level below which most authorities believe multicollinearity concerns are unwarranted (Freund & Littell, 1986).

Holding the effects of the control variables constant does not decrease education's moderate negative effect on WTBI RATE, which remains $-.587$ (see figure 5). The controls had a strong suppressor effect on the relationship between NI and WTBI RATE, where the direct effect actually doubles from $.177$ to $.351$. This Sheaf approaches the $.464$ direct effect of NI on PCTHSED, diminishing somewhat the centrality of PCTHSED's position as the chief intervening variable.

The largest beta in the Sheaf, $.306$, belongs to PCTFMARY (percentage of families with married couples), followed by $.110$ for INMIGRTE (in-migration rate). These two betas suggest conflicting effects of NI on WTBI RATE. The beta for PCTALONE (percent living alone) is statistically insignificant. Entering the control variables into the model reduces the direct effect of FI on WTBI RATE by half, from $.077$ to $.040$.

It is noted that the significant direct effect of PCTURBAN on WTBI RATE ($.232$, $p < .001$) indicates that controlling for the effect of all other independent variables, as PCTURBAN increases, so does the white teen birthrate. This is in contrast to the simple bivariate correlation between these two variables of $-.12$. SEXRATIO



* $p < .05$
 ** $p < .01$
 *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

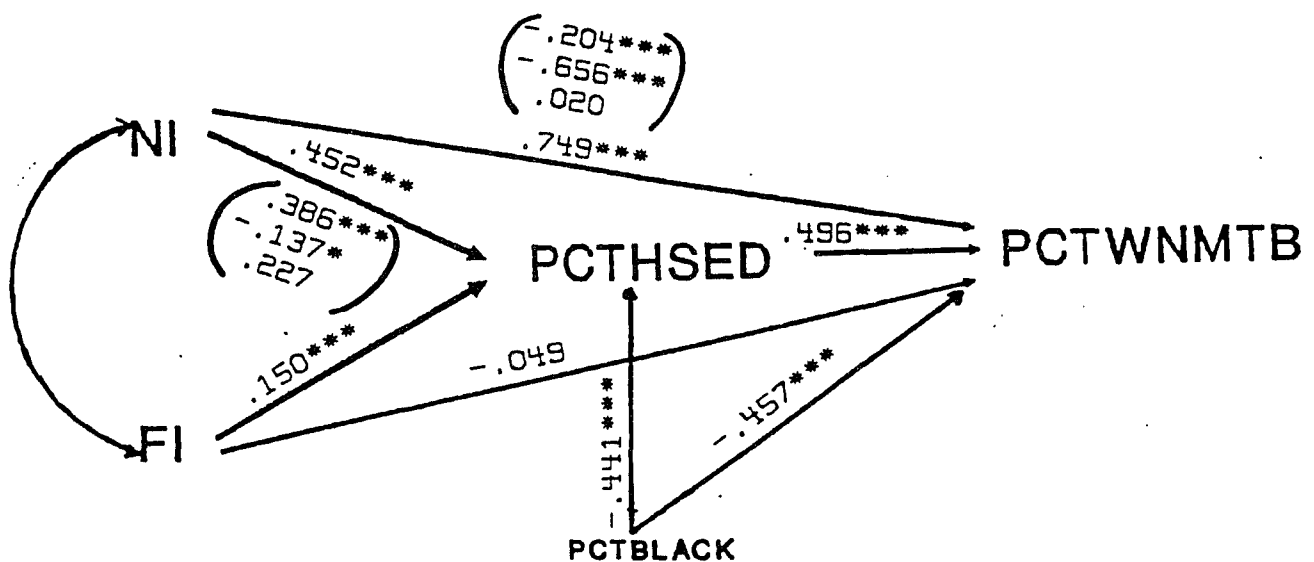
Figure 5. Path model for white teenage birthrate showing direct effects while holding constant the effects of control variables.

has a direct effect of .131 on WTBIRATE, suggesting that as the proportion of males to females increases so does the white teenage fertility rate. Median income has a statistically significant negative effect of $-.123$ ($p < .001$) on the white teenage birthrate. This could be indirect evidence of the importance functional integration has in depressing the white teenage birthrate, since increasing income levels may suggest greater economic integration.

The AFDC rate has a statistically significant positive effect of .192 ($p < .001$) on WTBIRATE, indicating that as the percentage of the population receiving AFDC increases, so does the white teenage birthrate. The variance of WTBIRATE explained by the model with the control variables entered increases from approximately 23 percent ($R^2 = .2290$, $p < .001$) to almost 28 percent ($R^2 = .2761$, $p < .001$) (see table 5).

Path Model With Nonmarital Fertility Ratio

The model including the second dependent variable, PCTWNMTB (the percentage of white teenage births which are nonmarital), is now considered. The data on the marital status of teenage mothers were available only on counties within MSA's (Metropolitan Statistical Areas). Consequently, the path coefficients from NI and FI to the intervening variable PCTHSED were recalculated using the constricted



* $p < .05$
 ** $p < .01$
 *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 6. Path model for white teenage nonmarital fertility ratio showing direct effects.

sample size of $N=715$ (see figure 6).

The magnitude of the Sheaf coefficient from NI to PCTHSED remained almost unchanged (.452). The interpretation of this coefficient is even less ambiguous than in the WTBIRATE model. The direction of INMIGRTE and PCTALONE are the same, and the magnitude of their betas remains quite similar. PCTFMARY, insignificant in the WTBIRATE model, becomes a significant and negative $-.137$. All three indicators signify that as normative integration increases, PCTHSED decreases.

The path coefficient from FI to PCTHSED tripled from .050 to .150. In this constricted sample size, functional integration is clearly more closely associated with high school educational level. The increased direct effect of functional integration on education is more defensible in terms of social integration theory. The negative direct effect of PCTBLACK on PCTHSED increased from $-.346$ to $-.441$, reflecting the much larger percentage of African-Americans in the constricted sample size.

Next, the dependent variable PCTWNMTB is entered into the model. PCTHSED has a moderate positive direct effect of .496 on PCTWNMTB (see figure 6). As the educational level of the county increases, so does the percentage of out-of-wedlock births to white teenage mothers. It is recalled that PCTHSED has an equally strong inverse effect on overall white teenage fertility. Thus, as educational levels

increase, overall white teenage fertility decreases as hypothesized, yet the proportion of births which are nonmarital increases just as precipitously. Seen from another perspective, as FI and PCTHSED increase, the percentage of white teenage fertility that is marital decreases.

This apparent paradox is not inexplicable in terms of the theory. If increasing educational levels are the result of increasing functional integration, then certain normative bonds are relaxed as functional integration increases. This apparently includes constraints against nonmarital fertility among white teenagers. Further, other studies confirm that teenage mothers with higher educational and career aims are less likely to marry than their less ambitious counterparts (Furstenberg, 1981). By the same token teenage fertility, marital or otherwise, is increasingly deviant behavior in an environment typified more by functional than by normative integration. Consequently, overall white teenage fertility decreases.

In this model NI has a strong direct effect of .749 on PCTWNMTB. The importance of education as an intervening variable has been eclipsed by the magnitude of this direct effect. Decomposing this Sheaf coefficient reveals that INMIGRTE has a significant negative beta of $-.204$ ($p < .001$), and PCTALONE an insignificant beta of .020. Most surprisingly, the beta for PCTFMARY, while insignificant in

the WTBIRATE models, has the largest negative beta of $-.656$ ($p < .001$).

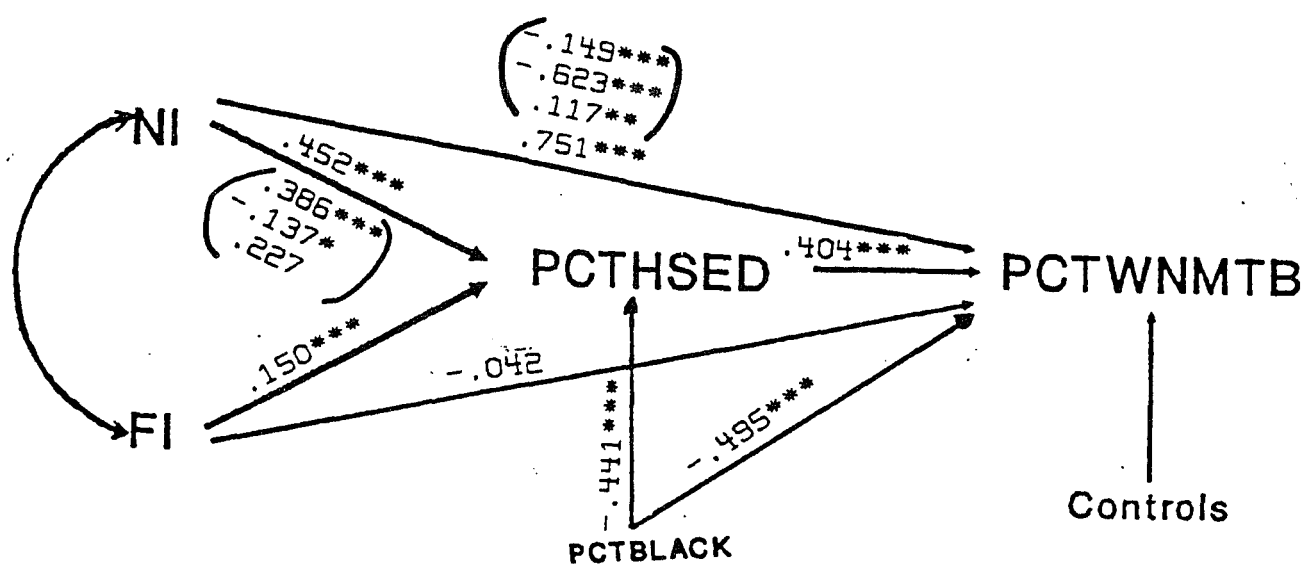
The interpretation of this Sheaf coefficient is ambiguous. As the in-migration rate increases, with a postulated decrease in normative integration, the proportion of white teenage fertility which is nonmarital decreases. On the other hand, the large negative beta for PCTFMARY indicates that as the percent of families headed by married couples increases, the nonmarital teenage fertility rate decreases. This is partly explicable in terms of the nature of the two measures. PCTFMARY is an aggregate measure of all married couples, including teenage couples. Thus, where the percentage of married couples is high, it is likely that the percentage of teenage families headed by a married couple is high as well. The beta for PCTFMARY is likewise explicable in terms of normative integration: in communities where strong family values prevail, the pressure on teenagers to conform is also likely to be strong.

The control variable PCTBLACK has a large negative direct effect of $-.457$ on PCTWNMTB: as percent black increases, the proportion of white teenage births which are nonmarital decreases. Apparently an increasingly larger black population with its much higher teenage nonmarital fertility rate is not associated with an increasing rate of white teenage nonmarital fertility. In fact, there seems to be an inverse relationship.

In sum, decreasing normative integration, and increasing functional integration result in increasing educational level. Increasing educational level has a positive direct effect on the white teenage out-of-wedlock fertility ratio. Functional integration has a nonsignificant direct effect on PCTWNMTB, while normative integration has a large, yet ambiguous direct effect. This model (figure 6) explains 54 percent ($R^2 = .5425$, $p < .001$) of the variance of PCTWNMTB (see table 5).

Next, the remaining 5 control variables were entered into the model. Colinearity diagnostics indicated that the addition of these variables into the model created no multicollinearity problems. No variance inflation factors exceeded 5, which as mentioned earlier indicate the unlikelihood of multicollinearity concerns (Freund & Littell, 1986).

Entering the five control variables into the model increases the amount of explained variance of PCTWNMTB to 59 percent ($R^2 = .5912$, $p < .001$) [see table 5]. By way of comparison, the white teen birthrate model with controls accounted for about 28.5 percent of the explained variance



* $p < .05$
 ** $p < .01$
 *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 7. Path model for white teenage nonmarital fertility ratio showing direct effects while holding constant the effects of control variables.

($R^2 = .2290$, $p < .001$). With the control variables in the model, the direct effect of PCTHSED on PCTWNMTB decreases slightly from .496 to .404 (see figure 7). The direct effect of NI on PCTWNMTB remains essentially unchanged (.751). The direction of the signs of the individual betas which make up this Sheaf coefficient remain the same as before controls were entered. The beta for PCTALONE increases from .020 to .117 and achieves statistical significance ($p < .01$). The direct effect of FI on PCTWNMTB remains essentially unchanged and insignificant.

In considering the effects of the control variables it is noteworthy that the direct effect of PCTURBAN is a statistically significant $-.156$ ($p < .001$). This is in stark contrast to the $+.41$ ($p < .001$) zero order correlation between PCTURBAN and PCTWNMTB. Consequently, when the effects of the social integration, education and control variables are held constant, not only does this positive bivariate relationship evaporate, it becomes negative. Thus, net of the effect of all other variables, as percent urban increases the percentage of white teenage fertility which is nonmarital decreases.

The control variable with the greatest direct effect on PCTWNMTB is PCTBLACK ($-.495$). Thus, the negative direct effect of PCTBLACK even slightly increases after the additional five control variables are entered into the model. Clearly, increasing percent black is associated with

a decreasing white teenage nonmarital fertility ratio. This debunks any notion that black out-of-wedlock teenage childbearing is positively associated with the white nonmarital rate. This is followed in magnitude by .233 for AFDCRTE (AFDC rate). This path coefficient indicates that as the percent of the population which receives AFDC payments increases, so does the percentage of white teenage nonmarital fertility. This is not necessarily surprising, since families headed by a non-married teenage mother are more likely to be eligible for AFDC support than a family headed by a married couple. SEXRATIO has a non-significant direct effect of .054 on PCTWNMTB. This is in contrast to the significant positive effect that SEXRATIO has on the white teenage birthrate. This suggests that the sex ratio is a more important determinant of white teenage childbearing in general, than it is on the marital status of white teenage fertility.

Restricted White Models

One purpose of this study is to compare the results of the white and black models. However as noted earlier, the counties of the southern states are clearly over represented in the black models. At the same time, the counties of the Western, Great Plains, and New England states were under represented. Also, there are fewer counties in the black than white models. Therefore, in order to compare the

models of the two races it was deemed necessary to re-estimate all of the coefficients in the white models based on the restricted samples used in the black regression models (see table 7). For ease of comparison, table 7 has been placed next to table 6, which contains the path coefficients for all black models.

Univariate and Bivariate Statistics: Black Model

The black model includes a more restricted sample size than does the white model. All counties with less than 25 black females aged 15-19 have been excluded from calculating the coefficients in the Pearson Product Moment Correlation matrix (see table 4). The maximum number of cases for any variable is 1498, compared to 3089 in the white model. For PCTBNMTB (black nonmarital fertility ratio) the number of cases is further restricted to 566, compared to 715 cases for PCTWNMTB (white nonmarital fertility ratio). The black sample is significantly more urban (48 percent) compared to the white sample (36 percent) (see table 3). One result of a more urban sample is to inflate the relationship between PCTHSED (high school education) and PCTURBAN from $r=.34$ in the white model to $r=.66$ in the black model. Also, the mean for PCTBLACK (percent black) is 17 percent among counties included in the black model, but only about 9 percent among the larger number of counties contained in the white model.

Table 4
Descriptive Statistics for Variables in Black Teenage Fertility Model

VARIABLE	CASES	MEAN	S.D.
AFDCRTE (Aid to Families with Dependent Children Rate)	1498	4.16	3.00
FI (Functional Integration)	1498	.84	0.04
INMIGRTE (Immigration Rate)	1498	19.94	8.90
MEDINCOM (Median Family Income)	1498	17174	3765
PCTALONE (Percent Alone)	1498	7.18	1.72
PCTBNMTB (Percent of Black Nonmarital Teenage Births)	566	80.35	17.27
PCTFMARY (Percent Families Married)	1498	83.26	4.63
PCTHSED (Percent of Adults > age 25 with High School Education)	1498	56.58	12.51
PCTURBAN (Percent Urban)	1498	47.88	29.36
PCTBLACK (Percent Black)	1498	17.27	16.84
SEXRATIO (Sex Ratio)	1498	.95	0.08
UNEMPLOY (Unemployment Rate)	1498	6.73	2.41
BTBIRATE (Black Teenage Birthrate)	1498	102.96	47.68

Table 5
Correlation Matrix for Variables in Model for Black Teenage Fertility

Variables	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
X1-AFDCRTE	.06*	-.41**	-.41**	-.07**	.15**	-.73**	-.32**	-.09**	.64**	-.23**	.47**	.20
X2-FI		.40**	.13**	.20**	-.10*	-.00	.35**	.26**	-.06*	.09**	-.05	.00
X3-INMIGRTE			.32**	-.03	-.28**	.38**	.56**	.26**	-.34**	.46**	-.27**	-.11**
X4-MEDINCOM				.00	.07	.32**	.78**	.57**	-.50**	.10**	-.31**	-.18**
X5-PCTALONE					.13**	-.25**	.20**	.36**	-.07**	-.32**	-.06*	.06*
X6-PCTBNMTB						-.24**	-.09*	.04	.19**	-.29**	-.03	.04
X7-PCTFMARY							.30**	-.09**	-.78**	.29**	-.25**	-.14**
X8-PCTHSED								.66**	-.55**	.19**	-.15**	-.15**
X9-PCTURBAN									-.29**	-.07*	-.16**	.05
X10-PCTBLAC										-.15**	.14**	.15**
X11-SEXRATIO											-.02	-.07**
X12-UNEMPLOY												.02
X13-BTBIRATE												

* $p < .05$

** $p < .01$

Critical value for $p < .001$ is 0.09 for all values except PCTBNMTB.

Critical value for $p < .001$ is .15 for PCTBNMTB.

Note. The above variable labels stand for: Aid to Families with Dependent Children Rate; BTBIRATE=Black Teen Birthrate; FI=Functional Integration; INMIGRTE=In-migration Rate; MEDINCOM=Median Family Income 1979; PCTALONE=Percent Alone; PCTBNMTB=Black Teen Nonmarital Fertility Ratio; PCTBLACK=Percent Black; PCTFMARY=Percent of Families Married; PCTHSED=Percent High School Education; PCTURBAN=Percent Urban; SEXRATIO=Sex Ratio; UNEMPLOY=Unemployment Rate;

With the exception of correlation coefficients with the variable PCTBNMTB, an $r > .06$ is statistically significant at the .001 level of significance. With PCTBNMTB, an $r > .13$ is significant at $p < .001$. As in the white model, there appears to be no serious multicollinearity concerns among the central independent variables.

Unlike the relatively strong inverse relationship found between the white teenage fertility rate (WTBIRATE) and the white teenage nonmarital fertility ratio (PCTWNMTB), the correlation coefficient between these 2 dependent variables in the black model is an insignificant .04 (see table 4). This may be in part explicable in terms of PCTURBAN. Whereas both white fertility measures are at least moderately correlated with PCTURBAN, WTBIRATE having a negative zero-order correlation and PCTWNMTB having a positive correlation, this is not the case in the black model. There, both correlations are very small and insignificant. In other words black teenage fertility rates seem relatively unaffected by the rural/urban continuum to the extent that white teenage fertility rates are. More generally, the nonsignificant relationship between BTBIRATE and PCTBNMTB indicates that across levels of black teenage childbearing, there is little change in the proportion of those births which are nonmarital.

The relationship between black teenage fertility and educational level of a county is a significant $-.15$ ($p <$

.001). However this is smaller than the moderate correlation of $-.40$ between white teenage fertility and PCTHSED. There is a smaller negative relationship of $-.09$ between the black nonmarital fertility ratio and PCTHSED (the relationship is a positive $.46$ in the white model). That is, whereas the proportion of white out-of-wedlock births increase with the educational level of a county, the inverse is true, though on a smaller magnitude, for black out-of-wedlock births which decrease as a proportion of all black births with increasing educational level. The correlation between PCTBLACK (percent black) and PCTHSED is strong and negative: $-.56$. In the white model, the correlation between these variables is smaller ($-.45$).

The relationship between AFDCRTE and PCTBLACK is $.64$: as the percentage of the population receiving AFDC payments increases, so does the percent of the population black. Likewise, PCTBLACK and PCTFMARY (married families) have a strong negative correlation of $-.78$, and AFDCRTE and PCTFMARY have a strong negative correlation of $-.73$. In other words, as the percent of the population which is black increases, the proportion of families headed by a married couple decreases, with a resultant increase in the eligibility and need for AFDC payments.

The correlation between BTBIRATE and AFDCRTE is $.20$, while PCTBNMTB and AFDCRTE have a zero-order correlation of $.15$. The negative relationship between PCTBNMTB and

SEXRATIO of $-.29$ is similar in magnitude to the parallel zero-order correlation in the white model ($r = -.23$).

Black Path Models

Intervening Variable PCTHSED

A separate regression was run to determine the direct effects of NI and FI on the intervening variable PCTHSED (percent high school education) controlling for PCTBLACK. This was done within the sample size restricted by excluding counties with less than 25 black females aged 15-19. This reduced the sample to $N=1498$ (see table 6).

The individual betas of the normative integration Sheaf, $.414$ for INMIGRTE (in-migration), $-.398$ for PCTFMARY (percent of families headed by a married couple), and $.033$ for PCTALONE (percent alone) all suggest that as normative integration increases, PCTHSED (high school education) decreases. The beta for PCTALONE, however, is not significant.

Functional integration (FI) has a significant $.134$ ($p < .001$) direct effect on PCTHSED: as the degree of functional integration increases, so does high school education level. Functional integration's effect on high school graduation level is discernably stronger among counties in the black analysis than it is among the counties of the parallel white analysis ($.050$). PCTBLACK's direct effect of $-.704$ on PCTHSED is also much larger than the $-.346$ observed among

Table 6 - Black Model

Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (BTBIRATE and PCTBNMTB), as well as t-values for each Beta (in parentheses).

<u>Independent Variables</u>	<u>PCTHSED</u>	<u>BTBIRATE</u>	<u>BTBIRATE w/controls</u>	<u>PCTBNMTB</u>	<u>PCTBNMTB w/controls</u>
NI	.461*** (22.40)	.088*** (3.43)	.279*** (5.13)	.274*** (6.16)	.316*** (4.00)
FI	.134*** (6.95)	.043 (1.56)	-.013 (0.49)	-.072 (-1.56)	-.043 (-.93)
PCTHSED		-.105** (-3.20)	-.141** (-2.77)	.090 (1.89)	.032 (.42)
<u>Control Variables</u>					
AFDCRTE			.267*** (6.47)		-.021 (0.36)
MEDINCOM			-.178*** (4.16)		.171** (2.93)
PCTBLACK	-.704*** (-36.92)	.087** (2.80)	.150** (2.75)	.172*** (3.76)	.105 (1.93)
PCTURBAN			.329*** (8.41)		-.164** (-2.80)
SEXRATIO			.026 (.99)		-.156** (-3.02)
UNEMPLOY			-.088** (-2.88)		-.089 (-1.74)
R ²	.5501***	.0385***	.1085***	.1163***	.1726***
N=	1498	1498	1498	566	566

* p < .05
 ** p < .01
 *** p < .001

Table 7 - Restricted White Model

Direct Effects (Betas) of Independent and Control Variables On Intervening Variable (PCTHSED) and Dependent Variables (WTBIRATE and PCTWNMTB), as well as t-values for each Beta (in parentheses).

<u>Independent Variables</u>	<u>PCTHSED</u>	<u>WTBIRATE</u>	<u>WTBIRATE w/controls</u>	<u>PCTWNMTB</u>	<u>PCTWNMTB w/controls</u>
NI	.462*** (22.45)	.136*** (3.79)	.450*** (9.92)	.806*** (23.67)	.787*** (14.38)
FI	.132*** (6.86)	.141*** (5.83)	.079*** (3.55)	.039 (1.34)	-.026 (-0.91)
PCTHSED		-.677*** (-23.95)	-.666*** (-16.12)	.466*** (15.01)	.374*** (7.90)
<u>Control Variables</u>					
AFDCRTE			.232*** (6.84)		.213*** (5.66)
MEDINCOM			-.259*** (-7.40)		.198*** (5.27)
PCTBLACK	-.702*** (-36.86)	-.206*** (-5.49)	-.089* (2.02)	-.505*** (-13.52)	-.532*** (-13.61)
PCTURBAN			.386*** (12.08)		-.157*** (-4.02)
SEXRATIO			.221*** (10.28)		.010 (0.30)
UNEMPLOY			.041 (1.66)		-.026 (-0.81)
R ²	.5488***	.2836***	.4135***	.6146***	.6609***
N=	1498	1497	1497	566	566

* p < .05
 ** p < .01
 *** p < .001

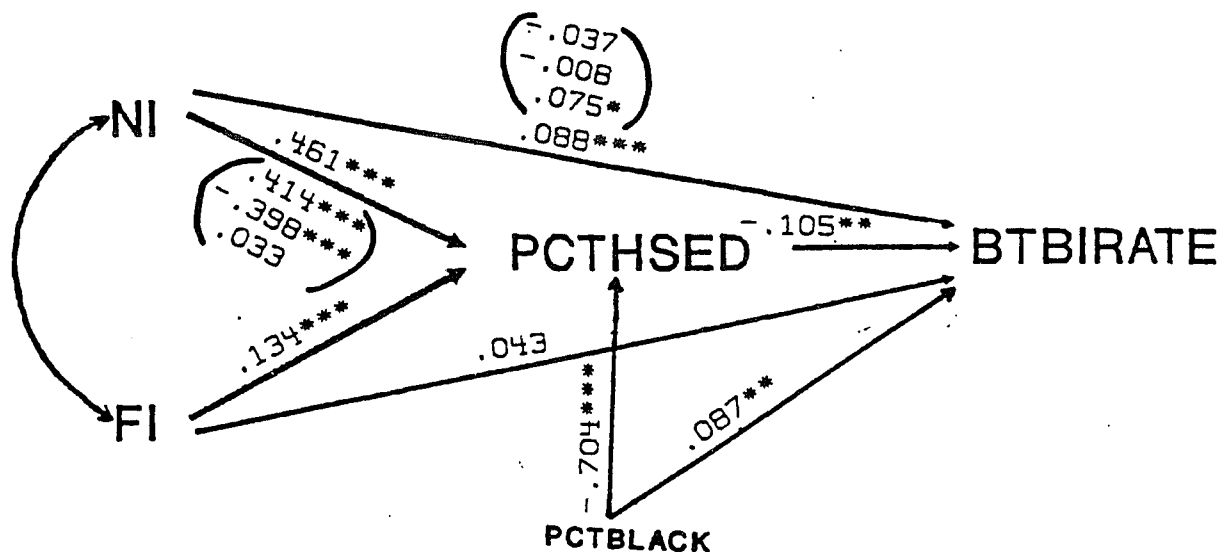
the counties of the white model. This is due to the greater concentration of blacks in the counties included in the black model.

Path Model with Black Teenage Birthrate

When BTBIRATE (black teenage birthrate) is entered into the model, the direct effect of PCTHSED on BTBIRATE is a statistically significant $-.105$ ($p < .01$): increasing high school graduation levels result in a decreasing black teenage birthrate (see figure 8). This is in comparison to the strong $-.677$ direct effect of PCTHSED on WTBIRATE (white teenage birthrate) in the restricted white model (see table 7). PCTBLACK has a small, but significant $.087$ ($p < .01$) effect on BTBIRATE. This model, with all of the independent variables and controlling for PCTBLACK accounts for less than 4 percent of the variance ($R^2 = .0385$, $p < .001$) in the black teenage birthrate (see table 6). The parallel restricted white model explains 28 ($R^2 = .2836$, $p < .001$) percent of the variance of WTBIRATE (white teenage birthrate) (see table 7).

Next, the remaining five control variables were entered into the model. Colinearity diagnostics reveal that the variance inflation factor (VIF) for every variable is less than 5.0, suggesting that multicollinearity problems are unlikely within the model.

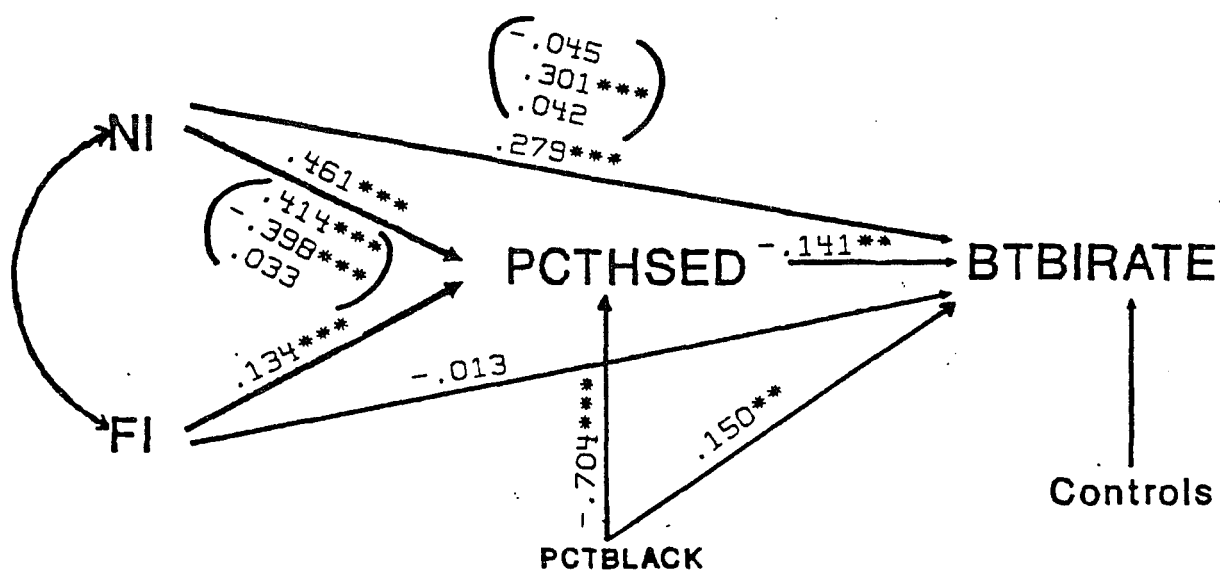
Holding the effect of the control variables constant



- * $p < .05$
 ** $p < .01$
 *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 8. Path model for black teenage birthrate showing direct effects.



- * $p < .05$
- ** $p < .01$
- *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 9. Path model for black teenage birthrate showing direct effects while holding constant the effects of control variables.

results in increasing the direct effect of PCTHSED (high school education) on BTBIRATE (black teenage birthrate) from $-.105$ to $-.141$ (see figure 9). This suggests that the control variables have a suppressor effect on this relationship, which when controlled for reveals a more significant effect of education on BTBIRATE than is initially observed. No such suppressor effect is observed in the restricted white model.

Likewise, the direct effect of normative integration (NI) on BTBIRATE increased from $.088$ to $.279$, though only the beta for PCTFMARY (percent of families married), $.301$, is significant ($p < .001$). This is in contrast to the negative bivariate relationship between these two variables. This suggests that as the percentage of families headed by married couples increases, so does the black teenage birthrate. The direction of the betas composing the Sheaf in the restricted white model was identical, though the beta for PCTFMARY, $.473$, was larger. Thus, though to a lesser extent than in the restricted white model, as normative integration increases, so does the black teenage birthrate. In reevaluating the effect of NI on teenage birthrates in both models, it seems safe to summarize its effect as pronatalist. Increasing normative integration may be associated with a profamily, pronatalist norm. The direct effect of functional integration (FI) on BTBIRATE is an insignificant $-.013$.

To summarize, FI has a positive effect on PCTHSED (high school education) which, net of the effects of the control variables, negatively effects BTBIRATE. Thus, the indirect effect of FI on BTBIRATE is negative. NI negatively effects PCTHSED which in turn negatively effects the black teenage birthrate. Thus, the indirect effect of NI on BTBIRATE is positive. Likewise, NI has a moderate direct positive effect on BTBIRATE.

Of all the variables in the full model, PCTURBAN (percent urban) has the largest direct effect of .329 on BTBIRATE: as percent urban increases, so does the black teen birthrate. The bivariate relationship between these two variables is nonsignificant. (It is noted that the parallel coefficient in the restricted white model is an even larger .386.) Next, AFDCRTE (AFDC rate) has a .267 direct effect on BTBIRATE: as the percentage of persons receiving AFDC payments increases, so does the black teenage birthrate. This is followed by -.178 for MEDINCOM (median income), and .150 for PCTBLACK. The coefficient for SEXRATIO (sex ratio) is insignificant, in contrast to the significant positive effect of SEXRATIO in the restricted white model (.221, $p < .001$). The complete model with the addition of the control variables increases the amount of explained variance of BTBIRATE from less than 4 to about almost 11 percent ($R^2 = .1085$, $p < .001$). This is in contrast to 41 percent of the variance ($R^2 = .4135$, $p < .001$) of WTBI RATE explained in the

restricted white model with control variables. Unlike the restricted white model, the 5 control variables explain more of the variance of BTBIRATE than do the social integration variables, PCTHSED, and PCTBLACK combined.

In sum, a similar pattern of relationships exist among the social integration variables, high school education, and the black teenage birthrate as is observed in the restricted white model. However the magnitude of these relationships, especially between education and the teenage birthrate, is much smaller in the black model. As is suggested by the theory, the white teenage female may be more responsive to the pressures of social integration which operate through the mechanism of formal education. This view is supported by the strong negative effect of education on the white teenage birthrate. Though education has a dampening effect on the black teenage birthrate ($-.141$), the magnitude of the effect of education on the white teenage birthrate is almost 5 times greater ($-.666$). This suggests that the educational milieu of the community has a greater integrating effect on the white than on the black teenage female, as evidenced by its greater influence over white than black teenage fertility.

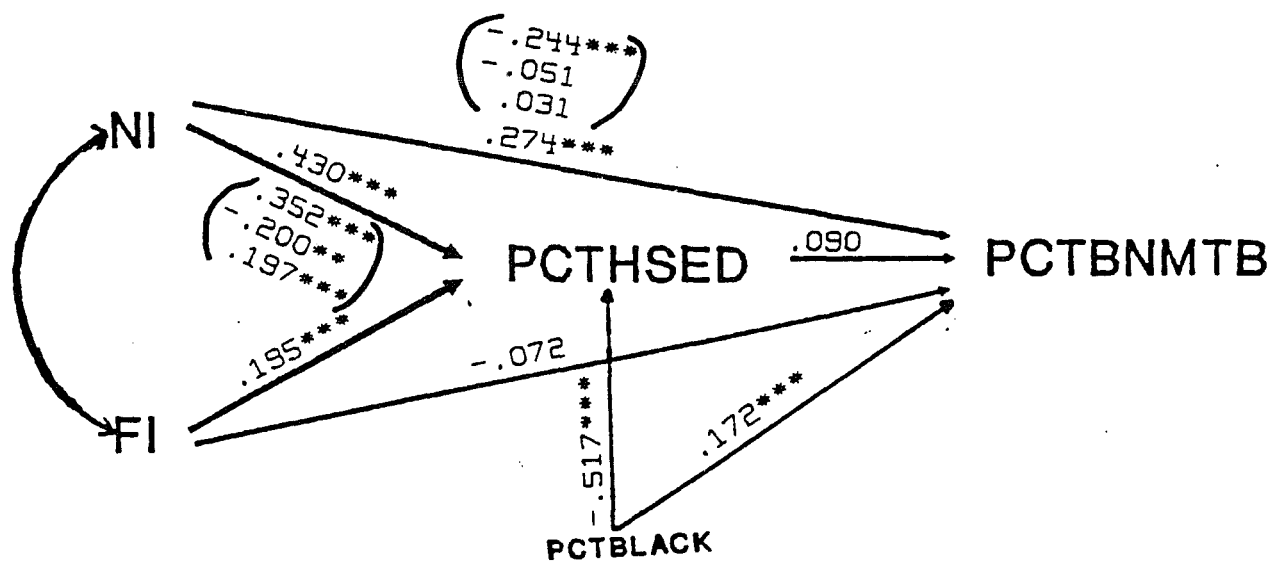
Path Model with Nonmarital Fertility Ratio

The path model which includes PCTBNMTB (the percentage of black teenage births which are nonmarital) as the

dependent variable is now considered. As with the comparable white model, data on the marital status of black teenage mothers were available only on counties within Metropolitan Statistical Areas (MSA's). The sample was further restricted by the exclusion of counties with fewer than 25 black females aged 15-19. Thus, the direct effects of FI and NI on the intervening variable PCTHSED were recalculated using the constricted sample size of N=566 (see figure 10). The geographic peculiarities of this sample is discussed earlier.

As occurred previously when the parallel white model was recalculated, the direct effect of NI on PCTHSED changed only slightly, from .461 to .430. The direction of each constituent beta of this Sheaf coefficient suggests that as NI increases, PCTHSED (high school education) decreases. Functional integration's (FI) direct effect on the intervening variable PCTHSED increased from .134 to .195 (see figure 10). This larger coefficient is more consistent with social integration theory. PCTBLACK has a negative effect of $-.517$ on PCTHSED: as percent black increases, high school educational level decreases.

Next, PCTBNMTB is entered into the model as the dependent variable (see figure 10). PCTHSED's direct effect on PCTBNMTB is an insignificant .090. This is in contrast to PCTHSED's moderate direct effect of .466 on PCTWNMTB (the white teenage nonmarital fertility ratio) in the restricted



* $p < .05$
 ** $p < .01$
 *** $p < .001$

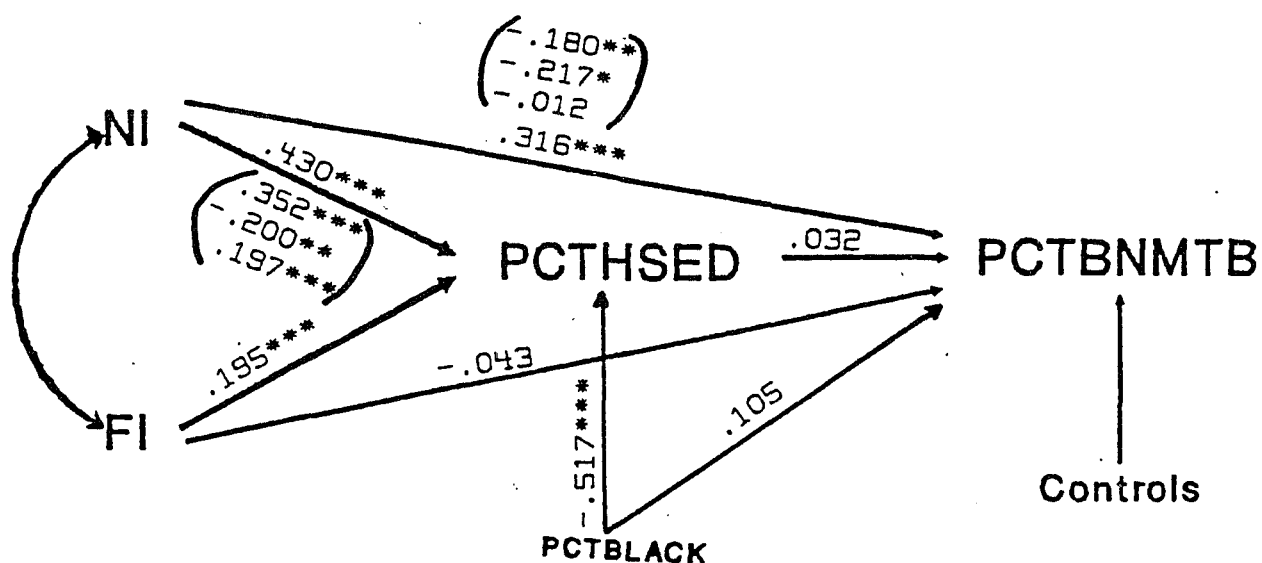
Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 10. Path model for black teenage nonmarital fertility ratio showing direct effects.

white model. Functional integration (FI) has no significant direct effect on PCTBNMTB. However the direct effect of normative integration (NI) is a significant .274 ($p < .001$). Decomposing this Sheaf coefficient reveals that only the beta for INMIGRTE, $-.244$, is significant ($p < .001$). This suggests that as normative integration decreases, the percentage of black teenage out-of-wedlock births decreases. In the restricted white model NI has a strong, yet more unambiguous direct negative effect on white teenage out-of-wedlock childbearing. Percent black (PCTBLACK) has a .172 positive effect on PCTBNMTB: as percent black increases, so does the black teenage nonmarital fertility rate.

In sum, neither functional integration nor education has a significant direct effect on PCTBNMTB, and normative integration's direct effect is moderate and somewhat unclear. Consequently, this model without the 5 controls explains less than 12 percent of the variance ($R^2 = .1163$, $p < .001$) of PCTBNMTB (see table 6), whereas the parallel restricted white model accounts for more than 61 percent of the variance ($R^2 = .6146$, $p < .001$) of the white teenage nonmarital fertility ratio (see table 7).

Next, the remaining 5 control variables were entered into the model. Colinearity diagnostics indicated that no variance inflation factor (VIF) exceeded 5, the minimum level above which concern over multicollinearity among the independent variables might be warranted (Freund & Littell,



* $p < .05$
 ** $p < .01$
 *** $p < .001$

Note. Technically a sheaf coefficient has no directional sign. Shown in parentheses above and below the two Sheaf coefficients are their constituent betas. From top to bottom, these three betas represent the effects of INMIGRTE, PCTFMARY, and PCTALONE.

Figure 11. Path model for black teenage nonmarital fertility ratio showing direct effects while holding constant the effects of control variables.

1986).

Entering the five control variables into the model increases the amount of explained variance of PCTBNMTB from less than 12 to more than 17 percent ($R^2 = .1726$, $p < .001$) (see table 6). Importantly, the direct effect of education (PCTHSED) remains insignificant (see figure 11). Clearly, the black teenage out-of-wedlock childbearing rate seems unaffected by education.

The direct effect of normative integration (NI) on PCTBNMTB increases slightly to .316. The beta for INMIGRTE is still negative (-.180), while PCTFMARY increases to a statistically significant -.217 ($p < .05$). The effect of PCTALONE remains small and statistically insignificant. The interpretation of this Sheaf coefficient is ambiguous given the conflicting effects of INMIGRTE and PCTFMARY.

The control variable with the greatest direct effect on PCTBNMTB is percent urban (PCTURBAN), which has a path coefficient of -.164: as percent urban increases, the percentage of black teenage out-of-wedlock births decreases. This is in contrast to the nonsignificant zero-order correlation between these two variables. Sex ratio (SEXRATIO) has a negative effect of -.156 on PCTBNMTB: as the proportion of males to females increases, the black teenage nonmarital fertility rate decreases. Interestingly, the path coefficient for sex ratio is small and nonsignificant in the parallel restricted white model.

Thus, an increasing percentage of males to females seems to have a dampening effect on black teenage out-of-wedlock childbearing, while it has no effect on the white rate.

In decreasing order of magnitude, the path coefficients for the remaining control variables are .171 for median income (MEDINCOM), a nonsignificant .105 for percent black (PCTBLACK), a nonsignificant -.089 for unemployment rate (UNEMPLOY), and a nonsignificant -.021 for AFDC rate (AFDCRTE). It is noted that the coefficient for AFDC rate is significant in the black teenage birthrate model (.267, $p < .001$). This suggests that whereas AFDC payment rates are related to the black teenage birthrate, black teenage out-of-wedlock childbearing seems unrelated to it. Plainly stated, AFDC payments do not seem to cause an increase in black teenage out-of-wedlock childbearing.

Comparison of White and Black Models

Birthrates

Clearly, the restricted white models with and without controls explain much more of the variance of the white teenage birthrate than do the comparable black models (compare tables 6 and 7). Whereas the model for the white teenage birthrate without controls explains about 28 percent of the variance of this variable ($R^2 = .2836$, $p < .001$), the comparable black model explains less than 4 percent of the black teenage birthrate ($R^2 = .0385$, $p < .001$). When

controls are included, the explanatory power of the white model increases to about 41 percent ($R^2 = .4135$, $p < .001$), whereas the variance explained in the model for black teenage birthrates more than doubles from approximately 4 percent to almost 11 percent ($R^2 = .1085$, $p < .001$). This large proportional increase for the black model relative to the proportion of variance which can be explained by adding controls to the white model suggests that white teenage fertility is more responsive to the pressures of normative and functional integration than is black teenage fertility.

The largest control variable path coefficient in either model is percent urban (PCTURBAN): .329 in the black model, and .386 in the restricted white model. This suggests that net of the effect of the social integration, education, and the other control variables, the teenage fertility rate increases in an increasingly urban environment. However, the bivariate relationship between these variables is nonsignificant in the black model, and even negative and significant in the white model. Further, percent urban has significant positive bivariate correlations with functional integration and education in both models, which in turn have either direct or indirect negative correlations with teenage birthrates. All of this strongly hints that a negative relationship should hold between PCTURBAN and the teenage birthrate. Other studies have found a negative relationship between degree of urbanization and teenage

birthrates (Caldas & Pounder, 1990; Singh, 1986). Thus, a satisfactory explanation for these results remains to be found.

Particularly revealing is the magnitude of the difference between education's direct effect on white and black teen birthrates. It is important to note that education has a significant negative effect on teen birthrates for either race. Nevertheless, the white teen birthrate is much more responsive to the level of county education. This is not unexpected. As noted earlier, based on Hirschi's notions of commitment and involvement, social integration theory would predict that white teenage females are more highly integrated into American society. Consequently, they are more responsive to social integrating pressures. Thus, increasing levels of education can expect to have a disproportionately functional integrating effect among white rather than black females.

As remarked upon in preceding sections, the economic costs associated with a teenage birth may seem more tangible and debilitating to the more functionally integrated, and consequently more committed and involved white than black teenage girl. However, it is also noteworthy that in either model, black or white, teen birthrates are negatively effected by county wealth (MEDINCOM). Perhaps this is an indirect confirmation of the importance of economic or functional integration: as income and the associated

economic integration it may represent increases, teenage birthrates decrease. Nevertheless, as would be expected, median income's depressing effect on teenage birthrates is greater among whites (-.259) than blacks (-.178).

Nonmarital Fertility Ratio

Where the dependent variable is the percentage of teen births which are nonmarital, the restricted white models explain as much as five times the variance of the comparable black models (see tables 6 and 7). Notably, before controls are added, the direct effect of education on PCTWNMTB is .466: As county educational level increases, the percentage of white teenage births which are nonmarital increases. By contrast, there is no significant direct effect of education on PCTBNMTB in the black model (.090). After controls are added, the direct effect of education in the white model remains a significant and moderate .374 ($p < .001$). The result of adding controls to the black model is to further reduce the direct effect of education to .032.

These results are not inconsistent in terms of social integration theory. As educational levels increase in response to increasing functional and decreasing normative integration, the constraints of normative bonds are relaxed. This liberating effect should be greatest where the effect of education is strongest, namely in the white community.

Consequently, in the white community, increasing

functional integration and the resultant increase in educational level is highly associated with increasing out-of-wedlock teenage fertility. The sort of normative controls which constrain nonmarital teenage fertility may be relaxed in this setting. At the same time overall white teenage childbearing decreases where education takes on greater significance.

This is less true in the black community where the effects of increasing educational levels which result from rising functional integration seem greatly diminished. There, teenage fertility in general and nonmarital fertility in particular remain high. In short, black teenage marital and nonmarital fertility seem to remain less affected by the mechanisms of societal control than does white teenage fertility behavior.

The largest path coefficient in the black model, .316, is the direct effect of normative integration on PCTBNMTB (in the restricted white model with controls this Sheaf coefficient is a large .787). However, in both models this effect is difficult to interpret given the conflicting betas which constitute each Sheaf coefficient.

Importantly, the direct effect of normative integration on teenage marital fertility in both models overshadows the direct effect of education. Though education's direct effect on nonmarital fertility is important in the white model, normative integration's direct effect is even larger,

albeit difficult to interpret. Thus, the importance of education as a mediating variable is more central in explaining the white and black teenage fertility rates, than it is in explaining the nonmarital teenage fertility ratios.

Summary of Comparison of White and Black Models

Though the white model is much stronger than the black model, it is meaningful that the direction of the path coefficients from the principal independent variables, namely functional integration and education, are in essentially the same direction. This could indicate that the forces of social integration are effecting white and black teenage parenting behavior in a similar manner. The important difference is in the magnitude, not nature, of the effects of social integration. Blau (1981) shares some insight into why this might be the case when she comments that:

"...for blacks, whatever their social-class position, the opportunities of exposure to white society and all that signifies constitutes a variable of some importance, whereas for whites no such independent variable exists" (p.18).

It must be emphasized that whereas the explanatory power of the white models is strong, such is not the case

with the black models. This suggests that certain relevant variables may not have been included in the black analyses. Therefore, no firm conclusions can be arrived at in making comparisons between the white and black path models.

Chapter 6

SUMMARY AND CONCLUSIONS

The purpose of this work has been to test an elaborated and re-conceptualized version of the social integration-deviance hypothesis. Social integration has been dichotomized and operationalized along the lines of Durkheim's pioneering theoretical and empirical work of the late nineteenth and early twentieth century. Teenage childbearing has been conceptualized as deviancy from an American parenting schedule, and has been operationalized as a dependent variable. Separate analyses for white and black teenage childbearing were calculated based on theoretical and empirical considerations which suggest that differing factors may account for racial differences in teenage fertility. Further, separate analyses incorporating a nonmarital teenage fertility ratio as a dependent variable were conducted.

In sum, a large portion of the variance of white teenage fertility, and of the white teenage nonmarital fertility ratio was explained by the study's social integration-deviance model. Much less of the variance of black teenage fertility, and of black teenage nonmarital fertility was explained by the study's social integration model. Importantly, however, the direction of the effects

of social integration on black teenage fertility were essentially the same as the white model. Additionally, the variance explained in both models with and without controls was statistically significant ($p < .001$). In both models, as hypothesized, increasing educational levels were associated with decreasing normative, and increasing functional integration. Likewise in both models, but especially in the white model, the educational level of the county has a strong direct negative effect on teenage fertility. This is also in the direction hypothesized by the social integration-deviance hypothesis.

The study's results, though far from conclusive, cast some doubt on the notion that the principal cause of differences between black and white teenage birthrates is a differing "black norm". The findings suggest that it may not be so much a different norm, but weakened attachment to larger societal expectations which may in part account for elevated teenage birthrates in the black community. The weakened influence of functional integration in particular may be an important differentiating factor. Though it is true that black women and white women have similar rates of employment, this does not necessarily mean that black women are highly economically integrated. As noted earlier, blacks have a long history of exclusion from and exploitation by the American economic system. One result of this may be diminished commitment to the system. Sensing

that she has less at stake, a black teenage girl may not reckon the "cost" of a teenage birth (e.g., in terms of forgone education) to be as great as her white counterpart. In short, less than complete social integration into the larger society seems a plausible partial explanation for differences between black and white teen birthrates.

Limitations of Study

Given several limitations to the study's design, the results must be interpreted with caution. Since the study's data are aggregated at the county level of analysis, venturing interpretations at differing levels of analysis (i.e. the individual level) could risk the so-called "ecological fallacy" (Robinson, 1950; Bidwell & Kasarda, 1975).

Also, the data are from 1980 census and health statistics. Teenage pregnancy and birthrates have been increasing since the mid-1980's (National Center for Health Statistics, 1990). Thus, research conducted with 1990 data, and compared to the present study's findings could provide more insight into the relationship between social integration and deviancy. Furthermore, using a three year average to compute a birthrate may provide a more stable measure of the dependent variable than a birthrate computed from a single year.

Another limitation involves the inadequacy of the

division of labor ratio to capture fully the construct of functional integration. Perhaps new indices of both functional and normative integration can be developed using factor analytic techniques. Orthogonal rotation could differentiate more definitively those factors which best capture the underlying constructs of functional, and normative integration. Also, usage of the Sheaf coefficient in this study sometimes made it impossible to definitively determine the direction of normative integration's effect, or calculate the indirect and total effect of normative integration on the dependent variables. Thus its usefulness seems somewhat limited.

It has been suggested that labor markets as opposed to counties more realistically represent communities typified by functional integration. If so, testing the present model using labor markets rather than counties could yield even more interpretable results.

Also, this study does not adequately account for the positive effect of percent urban on the white and black teenage birthrate net of the effect of all other variables. Given all the empirical and theoretical evidence which suggests that the opposite should be the case, further investigation of this anomalous finding is certainly warranted.

There may be some objections to considering childbearing among 19 year olds as deviancy in the same

sense as it is among 15 year olds. Consequently, it could be profitable in future studies of this type to calculate fertility rates for younger teenagers. (Nevertheless, it should be pointed out that most women who bore a child at 19 years of age became pregnant at age 18.) There are similar concerns regarding the importance of making a distinction between criminal behavior as deviance, and teenage fertility as deviance.

This work has pointed out certain methodological limitations to using other measures of deviancy. Even so, substituting one or more of these measures into this study's framework could be instructive. Comparing the effects of this study's measures of normative and functional integration on homicide, suicide, and/or alcoholism rates could further clarify the relationship between social integration and deviance.

Policy Implications

Social integration theory broadens the scope through which the phenomena of teenage parenthood can be considered. It cautions against "quick fix" remedies which do not take into account the social milieu of the teenager's community, and the nature and strength of his/her attachment to it. For example, program designers and implementors who are operating under the assumption that the problem is one of access to contraceptives are doomed to disillusionment when

in reality the lack of commitment to conventional behavior, resulting from social disintegration, more accurately explains their teenage childbearing problem.

The application of social integration theory in this study indirectly tests the notion that parenting norms within the black community differ from those of the larger white society. The results suggest that the differing teenage fertility behavior within the black community may be the result of weakened attachment to larger societal parenting expectations.

This has certain implications for teenage pregnancy prevention programs which target the black community. Policy originators and implementors who fail to recognize that a white man's normative orientation to parenthood has a diluted effect within the black community will continue to meet with failure in their efforts to reduce black teenage childbearing.

If the goal of a local, state or federal government program is the reduction of teenage pregnancy and childbearing in a predominantly black community, then those responsible for the development and execution of these programs must first come to grips with the black community's weakened attachment to the larger society's notions of what an appropriate parenting schedule is. Programs that do not take the normative orientation of the targeted population into account are likely to realize the disappointing results

as those family planners in the 1960's and 1970's who made the same serious miscalculation in their plans to control fertility on the Indian subcontinent (Weeks, 1986).

The study also has implications for the likely success or failure of certain program initiatives targeted at communities typified by either normative, or functional integration. Teenage family planning policies which stress "the right way" are more likely to meet with success in communities typified by normative integration. However in communities where functional integration is predominant, teenagers are more likely to be responsive to family planning initiatives which appeal to rational, economic motivations.

The role which education plays in the socialization process cannot be overemphasized. Given the strong negative relationship between education and teenage parenting found not only in this study but others (Dillard & Pol, 1982; Furstenberg, 1981; LeVine, 1987; Marini, 1984; Trussell, 1981), policy makers must realize that the most powerful socializing tool available to them for both informing opinions and equipping individuals to participate fully in this industrial-technocratic democracy is the system of formal education.

All government programs with any hope of success in effectively altering the behavior of individuals for their own good and the well-being of all society lie in the

educational system. The lackluster results of many parenting, sexuality, and family planning programs by no means proves that this is not true. The relatively limited success of these programs at realizing their goals of decreasing teenage fertility to even lower levels is more an indictment of the American public's, and consequently its government's ambivalence as how best to proceed. Specifically, the continuing controversy surrounding sex education, birth control, and abortion ensures that a clear, rational, effective national policy towards teenage pregnancy and childbearing will not be forthcoming anytime soon.

REFERENCES

- Abrahamse, A. F., Morrison, P. A., & Waite, L. J. (1988).
Beyond stereotypes: Who becomes a teenage mother?
(Research Rep. No.R-3489-HHS/NICHD). Santa Monica: Rand Corporation.
- Bankston, W. B., Allen, D. H., & Cunningham, D. S. (1983).
Religion and suicide: a research note on Sociology's "one law". Social Forces, 62, 521-528.
- Barlow, H. D. (1987). Introduction to criminology. Boston: Little & Brown Co.
- Becker, H. S. (1960). Notes on the concept of commitment.
The American Journal of Sociology, 66, 32-40.
- Bernard, J. (1973). The sociology of community. Glenview, Ill: Scott, Foresman & Co.
- Berkley, G. E., & Fox, D. M. (1978). 80,000 Governments: The politics of subnational America. Boston: Allyn & Bacon.
- Bidwell, C. E., & Kasarda, J. D. (1975). School district organization and student achievement. American Sociological Review, 40, 55-70.

- Bierstedt, R. (1963). The social order. New York: McGraw-Hill.
- Blau, Z. S. (1981). Black children/white children: Competence, socialization and social structure. New York: The Free Press.
- Bohrnstedt, G. W., & Knoke, D. (1988). Statistics for social data analysis. Itasca, Ill: F.E. Peacock Publishers, Inc.
- Caldas, S. J. (1990). Intensive incarceration offers hope of rehabilitation to a fortunate few: Orleans parish prison does an about face. International Journal of Offender Therapy and Comparative Criminology. 34 (1), 67-76.
- Caldas, S. J., & Pounder, D. G. (in press). The social integration correlates of teenage fertility: A control theory explanation. Sociological Spectrum, 10.
- Collins, R. (1985). Three sociological traditions. New York: Oxford University Press.
- Collette, J., Webb, S. D., & Smith, D. L. (1979). Suicide, alcoholism and types of social integration: Clarification of a theoretical legacy. Sociology and Social Research, 63, 699-721.

- Cooksey, E. C. (1990). Factors in the resolution of adolescent premarital pregnancies. Demography, 27, 207-218.
- Coser, R. L. (1982). The American family: Changing patterns of social control. In J. P. Gibbs (Ed.), Social Control: Views from the social sciences (pp. 187-203). Beverly Hills: Sage Publications.
- Dawson, D. A. (1986). The effects of sex education on adolescent behavior. Family Planning Perspectives, 18, 162-170.
- Dickman, I. R. (1982). Winning the battle for sex education. New York: The Sex Information and Education Council of the United States, Inc.
- Dillard, K. D., & Pol, L. G. (1982). The individual economic costs of teenage childbearing. Family Relations, 31, 249-259.
- Douglas, J. D. (1967). The social meanings of suicide. Princeton, NJ: Princeton University Press.

- Durkheim, E. (1961). Moral education (E. Wilson & H. Schurner, Trans.) New York: The Free Press. (Original work published 1925)
- Durkheim, E. (1951). Suicide (J. Spalding & G. Simpson, Trans.). New York: The Free Press. (Original work published 1897)
- Durkheim, E. (1964). The division of labor in society (G. Simpson, Trans.) New York: The Free Press. (Original work published 1893)
- Durkheim, E. (1966). The rules of sociological method (S. Solovay & J. Mueller, Trans.) New York: Free Press. (Original work published 1927)
- Farley, R. (1988). After the starting line: Blacks and women in an uphill race. Demography. 25, 477-495.
- Festinger, L. (1950). Informal social communication. Psychological Review, 57, 271-282.
- Freund, R. J., & Littell, R. C. (1986). SAS system for regression. Cary, NC: SAS Institute Inc.

Firebaugh, G. (1978). A rule for inferring individual-level relationships from aggregate data. American Sociological Review, 43, 557-572.

Furstenberg, F. F. (1976). Unplanned parenthood: The social consequences of teenage childbearing. New York: The Free Press.

Furstenberg, F. F. (1981). The social consequences of teenage parenthood. In F. F. Furstenberg, R. Lincoln, & J. Menken (Eds.), Teenage sexuality, pregnancy, and childbearing (pp.184-210). Philadelphia: University of Pennsylvania Press.

Gibbs, J. P. (1981). Norms, deviance, and social control. New York: Elsevier.

Gibbs, J. P. (1989). Control: Sociology's central notion. Chicago: University of Illinois Press.

Gibbs, J. P., & Martin, W. T. (1962). Urbanization, technology, and the division of labor: International patterns. American Sociological Review, 27, 667-677.

- Gove, W. R., & Hughes, M. (1980). Reexamining the ecological fallacy: A study in which aggregate data are critical in investigating the pathological effects of living alone. Social Forces, 58, 1157-1177.
- Hanushek, E. A., Jackson, J. E., & Kain, J. F. (1974). Model specification, use of aggregate data, and the ecological correlation fallacy. Political Methodology, 1, 89-107.
- Heise, D. R. (1981). Employing nominal variables, induced variables, and block variables in path analysis. In P. V. Marsden (Ed.), Linear models in social research (pp.63-87). Beverly Hills: Sage Publications.
- Henshaw, S. & Van Vort, J. (1989). Teenage abortion, birth, and pregnancy statistics. Family Planning Perspectives, 21, 85-88.
- Henshaw, S.K., Kenney, A.M., Somberg, D., & Van Vort, J. (1989). Teenage pregnancy in the United States: The scope of the problem and state responses. New York: The Alan Guttmacher Institute.
- Hirschi, T. (1969). Causes of delinquency. Berkeley: University of California Press.

- Hirschi, T. (1985). A control theory of delinquency. In S.H. Traub & C.B. Little (Eds.), Theories of deviance (pp.257-273). Itasca, Ill: F.E. Peacock Publishers, Inc.
- Jones, E. F., Forrest, J. D., Goldman, N., Henshaw, S. K., Lincoln, R., Rosoff, J. I., Westoff, C. F., & Wulf, D. (1986). Teenage pregnancy in developed countries. New Haven: Yale University Press.
- Kowalski, G., Faupel, C. & Starr, P. (1987). Urbanism and suicide: A study of American counties. Social Forces, 66, 85-101.
- LaCapra, D. (1985). Emile Durkheim: Sociologist and philosopher, Chicago: University of Chicago Press.
- Ladner, J. (1987). Black teenage pregnancy: A challenge for educators. Journal of Negro Education, 56(1), 53-63.
- Landecker, W. S. (1951). Types of integration and their measurement. American Journal of Sociology, 56, 332-340.
- LeVine, R. A. (1987). Women's schooling, patterns of fertility, and child survival. Educational Researcher, 16(9), 21-27.

Marini, M. M. (1984). Women's educational attainment and the timing of entry into parenthood. American Sociological Review, 49, 491-511.

Miley, J. D., & Micklin, M. (1972). Structural change and the Durkheimian legacy. American Journal of Sociology, 78, 657-673.

Mott, F. L. & Marsiglio, W. (1985). Early childbearing and completion of high school. Family Planning Perspectives, 17, 234-237.

National Center for Health Statistics. (1990). Advanced report of final natality statistics. 1988 Monthly Vital Statistics Report, 39(4), supplement. Hyattsville, MD: Public Health Services.

National Center for Health Statistics (1982). Vital statistics natality data local area summary tape, 1980 [Machine-readable data file]. Hyattsville, MD: National Center for Health Statistics, Division of Vital Statistics (Producer). Springfield, VA: National Technical Information Service (Distributor).

- Pedhazur, E. J. (1982). Multiple regression in behavior research: Explanation and prediction. New York: Holt, Rinehart & Winston.
- Pettigrew, T. F., & Martin, J. (1987). Shaping the organizational context for black American inclusion. Journal of Social Issues, 43, 41-78.
- Pope, W., & Danigelis, N. (1981). Sociology's "One's Law". Social Forces, 60, 495-516.
- Popper, K. (1961). The logic of scientific discovery. New York: Scientific Editions, Inc.
- Robinson, W. (1950). Ecological correlations and the behavior of individuals. American Sociological Review, 15, 351-357.
- Ross, P. J., Bluestone, H., & Hines, F. K. (1979a). Indicators of social well-being for U.S. counties: Rural development research report No. 10. Washington, D.C: U.S. Department of Agriculture.

Ross, P. J., Bluestone, H., & Hines, F. K. (1979b). Indexes and rankings for indicators of social well-being for United States counties: Statistical supplement for rural development research report no. 10. Washington, D. C: U.S. Department of Agriculture.

Sagarin, E., & Kelly, R. J. (1987). Deviance: A polymorphous concept. Deviant Behavior, 8, 13-25.

SAS Institute Inc. (1985). SAS User's Guide: Basics, Version 5 Edition. Cary, NC: SAS Institute Inc.

Senderowitz, J. & Paxman, J. (1985). Adolescent fertility: Worldwide concerns. Population Bulletin, (Population Reference Bureau), 40(2).

Singh, S. (1986). Adolescent pregnancy in the United States: An interstate analysis. Family Planning Perspectives, 18, 210-220.

Spitz, A. M., Strauss, L. T., Maciak, B. J. and Morris, L. (1987). Teenage pregnancy and fertility in the United States: 1970, 1974, and 1980. Morbidity and Mortality Weekly Report (CDC Surveillance Summaries) 36 (1SS), pp.1SS-10SS, DHHS, Centers for Disease Control.

- Staples, R. (1972). Research on black sexuality: Its implications for family life, sex education, and public policy. The Family Coordinator, 21(2), 183-188.
- Stark, W. (1976). Antecedents of the social bond: The Phylogeny of sociality. 1, New York: Fordham University Press.
- Toennies, F. (1887/1957). Community and society (C.P. Loomis, Trans.) East Lansing: Michigan State University Press.
- Traub, S.H. & Little, C.B. (Eds.). (1985). Theories of deviance. Itasca, Ill: F.E. Peacock Publishers, Inc.
- Trussell, J. (1981). Economic consequences of teenage childbearing. In F. F. Furstenberg, R. Lincoln, & J. Menken (Eds.), Teenage sexuality, pregnancy, and childbearing (pp.251-264). Philadelphia: University of Pennsylvania Press.
- Trussell, J. (1988). Teenage pregnancy in the United States. Family Planning Perspectives, 20 (6), 262-272.

United States Bureau of the Census. (1987). County population estimates (experimental) by age, sex, and race:1980, 1982, and 1984 [Machine-readable data file]. Bureau of the Census (Producer). Ann Arbor: Inter-University Consortium for Political and Social Research (Distributor).

United States Bureau of the Census (1988). County Statistics File 3 (CO-STAT3) [Machine-readable data file]. Washington: Bureau of the Census (Producer and Distributor).

Weeks, J. (1986). Population (3rd ed.). Belmont, Ca: Wadsworth.

Wright, S. (1934). The method of path coefficients. Annals of mathematical statistics, 5, 161-215.

Zelnick, M., Kantner, J. & Ford, K. (1981). Sex and pregnancy in adolescence. Beverly Hills: Sage.

Vita
of
Stephen J. Caldas

EDUCATION: B.A. (Major: History).
Louisiana State University, 1979

B.S. (Major: Social Studies Education).
Louisiana State University, 1980

M.Ed. (Major: Administration).
Louisiana State University, 1985

Ph.D. (Major: Educational Administration).
Louisiana State University, 1990

EXPERIENCE: Program Manager, Louisiana State Department of
Education. 1990-

Research Assistant, Louisiana State University,
1987-1990.

Social Studies Teacher, East St. John High
School, Reserve, Louisiana, 1982-1987.

Special Education Teacher, St. James Junior High
School, Vacherie, Louisiana, 1981-1982.

PUBLICATIONS AND PRESENTATIONS:

Caldas, S. J. (1990). Intensive incarceration programs
offer hope of rehabilitation to a fortunate few:
Orleans Parish Prison does an about face. International
Journal of Offender Therapy and Comparative
Criminology, 34(1).

Caldas, S. J. & Pounder, D. G. (1990). Teenage
Fertility and its Social Integration Correlates:
A Control Theory Explanation. Sociological Spectrum,
10, 541-560.

Maxcy, S. J. & Caldas, S. J. (in press). Moral imagination
and the philosophy of school leadership. Journal of
Educational Administration, 28.

Caldas, S. J. (1990) The Private and Public Economic Costs
of Teenage Pregnancy: Empirical and Hypothetical
Observations. Paper presented at the Mid-South
Sociological Association annual meeting in Hot Springs,
Arkansas, October, 1990.

Caldas, S. J. (1989). An Organizational Perspective of the Researcher-Practitioner Dichotomy in Educational Administration. Paper presentation at the annual conference of the University Council of Educational Administration, Tempe, AZ, 1989.

Caldas, S. J. & Pounder, D. G. (1989). Teenage Pregnancy: A Control Theory Perspective. A paper presentation at the 1989 American Educational Research Association annual meeting, San Francisco, CA, March, 1989.

Maxcy, S. J. & Caldas, S.J. (1988). Moral Imagination and the Philosophy of School Leadership. A paper presented at the American Educational Research Association annual meeting, New Orleans, LA, April, 1988.

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS:

American Educational Research Association
American Sociological Association
Phi Delta Kappa
Population Association of America

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Stephen J. Caldas

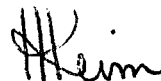
Major Field: Education (Administration)

Title of Dissertation: The Social Integration-Deviance Hypothesis in Sociology:
The Case of Teenage Fertility

Approved:

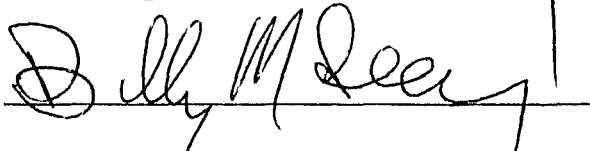
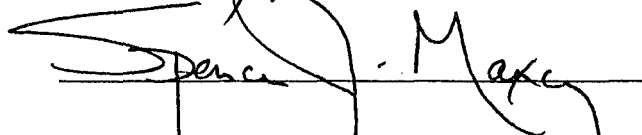
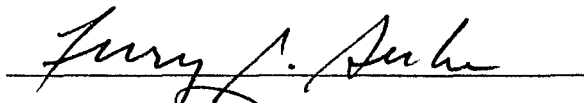
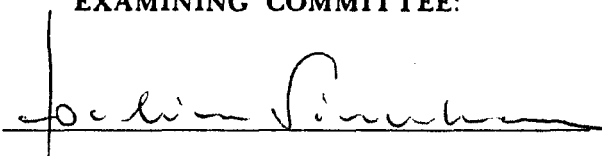


Major Professor and Chairman



Dean of the Graduate School

EXAMINING COMMITTEE:



Date of Examination:

11-2-90