DEVIANCE AS AN ANTECEDENT AND CONSEQUENCE OF

EARLY TRANSITIONS TO ADULTHOOD:

MEDIATING EFFECTS AND MODERATING CONDITIONS

A Dissertation

by

SHAHEEN HALIM

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ABSTRACT

Deviance as an Antecedent and Consequence of Early Transitions to Adulthood:

Mediating Effects and Moderating Conditions. (May 2005)

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Drawing from concepts in criminological literature and sociological life-course perspective literature, data from adolescent and young adult measurements collected as part of a longitudinal panel study conducted on a cohort from Harris County, Texas, were used to estimate Structural Equation Models, testing the unmediated and mediated relationships between adolescent deviance, early timing of transitions to adult roles, and adult deviance. First, a simplified three latent variable model was estimated using the full sample (N= 3,379) to examine direct associations among adolescent deviance, early transitions to adulthood, and adult deviance while controlling for prior involvement in deviant behavior in adolescence. An expanded seven latent variable model was then estimated adding mechanisms in adolescence through which the relationships previously observed in the simplified model are mediated. Lastly, both the simplified and expanded models were estimated on eight subgroups in the sample to examine whether the relationships observed for the full sample are moderated by gender, race/ethnicity, paternal level of education, and expectations for future failure in conventional adolescent roles. For the full sample, the simplified model produced significant direct relationships

between adolescent deviance and early transitions to adulthood, and between early transitions to adulthood and adult deviance. When this simplified model was estimated on the eight subgroups, the first relationship remained stable for each of the eight moderating subgroups, while the second relationship did not. When several intervening variables were added between adolescent deviance and early transitions to adulthood in the expanded model, the parameters added to the model using the intervening variables formed a chain of significant direct relationships fully mediating the relationship between adolescent deviance and early transitions to adulthood for the full sample. This chain of significant direct relationships remained stable for five of the eight subgroups, and the three subgroups that did not experience full mediation underwent great attenuation of the relationship. These intervening variables offer avenues for altering the trajectory of behavior seen in the simplified model.

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INTRODUCTION

In the last decade, much criminological research has shifted from a focus on linear criminal careers to a more sociological life course perspective emphasizing the role of transitions and turning points in altering trajectories of behavior such as deviance. Research in the study of crime and deviance has embraced the life course view of behavior, which characterizes the life course as a series of behavioral trajectories marked by turning points. In this perspective, trajectories of behavior (such as deviant behavior) do not necessarily follow a linear increase, but are seen as having the capacity to be altered by transition points in the life course. Sampson and Laub's (1990; 1993) much referenced work has been pivotal in bringing the life course framework to the attention of current criminological inquiry. In reanalyzing Sheldon and Eleanor Glueck's (1950) longitudinal data on 500 delinquent boys and 500 matched controls, Sampson and Laub found that among delinquent boys, the development of "social bonds" in adulthood attenuated the strong relationship between childhood deviance and adult deviance. The concept of "social bonds" was popularized by Hirschi's (1969) social bond theory which posits that people conform to norms because they have social bonds to society keeping them from committing deviance. Hirschi saw four elements of the social bond: Attachment to others, commitment to conventional goals, involvement in conventional activities, and belief in the efficacy of prevailing norms/laws.

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This dissertation follows the style and format of *American Sociological Review.*

Hirschi contends that when social bonds are weak or lacking, individuals have fewer stakes in conformity, and thus are more likely to engage in deviant behavior. While this theory has mostly been operationalized and used to study adolescent deviance, Sampson and Laub contend that there is nothing preventing the application of social bond theory to adulthood, and that this perspective is crucial to understanding both continuity and attenuation of deviance in adulthood. Sampson and Laub propose that adult social bonds can be seen in successful marriages, workforce participation, parenthood, and other ties to conventional others and conventional adult roles. Sampson and Laub's emphasis on adult social bonds in fact corresponds to what life course researchers commonly refer to as transitions to adulthood and adult roles. Such transitions represent turning points in the human life course, and as Sampson and Laub have shown in their study, turning points in the trajectory of deviant behavior.

Life course researchers see the human life course as a series of age-graded trajectories marked by turning points. Sampson and Laub acknowledge the existence of a trajectory or deviant behavior, finding that among their sample, individuals who were involved in adolescent delinquency were more likely than their non-delinquent counterparts to exhibit patterns of deviance in adulthood, and to have less stable marital and work histories. Thus, delinquents were less likely than non-delinquents to attain adult social bonds. However, among those delinquents who were able to attain quality adult roles (adult social bonds), the prevalence of deviant and problem behavior in adulthood was reduced (Sampson and Laub 1990; 1993; Laub and Sampson 1993; Laub, Nagin, and Sampson 1998). They caution that it is not the mere attainment of the adult

role or the existence of the transition point that fosters stakes in conformity, rather it is the quality of the adult roles that determines the strength of adult social bonds, resulting in reduced adult deviance.

While Sampson and Laub point to the quality of social roles/bonds in adulthood, criminological research has scarcely addressed the topic of determinants of quality adult social roles and social bonds, such as the timing and sequencing of the transition to adulthood and assumption of adult social roles. Not only is the quality of adult social bonds and roles affected by timing and sequencing, but the ability of the adult social bond to reduce the likelihood of adult deviance as well. Early timing of the transition to adulthood or off-sequencing of the transition to adulthood can itself be seen as part of a larger trajectory of deviant or non-normative behavior. Deviant behavior and behavior leading to off-timing or off-sequencing of turning points in the life course may have similar causes and consequences, and thus may be analogous (Knight, Osborn, and West 1977; Paternoster and Brame 1998) .

Sociological life course researchers have long acknowledged that the age at which adult roles are initiated affects success and satisfaction in these roles, and thus overall quality of life (McLanahan and Sorensen 1999). Krohn, Lizotte, and Perez (1997) found that problematic behavior in adolescence increased the likelihood of premature role entry and later role failure. Since timing of role entry affects later quality of life in these roles, timing then ultimately affects the ability of adult role transitions to reduce deviance in adulthood. Adolescents who enter these roles early may find themselves unsuitably prepared and lacking in skills and resources necessary to

successfully maintain these roles, resulting in role dissatisfaction, and further distress (George 1993). This may then serve to increase the likelihood of deviance in adulthood both through the low quality of adult social bonds resulting from these low quality roles, and also from the rejection mechanism resulting from perceived failure to approximate normative adult roles. Low quality adult social roles and distress experienced as a result may increase the probability of adult deviance through weak adult social bonds (resulting in reduced stakes in conformity) and also through the mechanism of rejection of norms resulting from the perceived failure to approximate positively valued goals seen both in Kaplan's (1975; 1980; 1986) general theory of self-referent behavior and in Agnew's (1985; 1992) general strain theory. In these theoretical frameworks, adolescent deviance may result in rejection by others and perceived failure in conventional adolescent roles. The distress produced by this may then lead to the desire to prematurely exit adolescent roles, and push stigmatized youth toward early school exit, early family formation, and early workforce entry. Thus, the relationship between early transitions to adulthood and adolescent delinquency may contain a host of mediating influences following from adolescent deviance that indirectly affect the likelihood of early transitions.

The proposed study seeks to explore the effects of adolescent deviance on early entry into adult roles through various mechanisms such as rejection by others, emotional distress, desire to leave adolescent roles and expectations for failure in adolescent roles. This study also examines whether early transitions to adulthood contribute to a continued pattern problematic behavior and psychological distress in adulthood. Thus,

antecedents of deviance and early transitions to adulthood, and consequences of deviance and early transitions in adulthood are examined while controlling for stability of deviance, and psychological distress. The relationships are examined for moderating effects of gender, socioeconomic status, race/ethnicity and expectations for failure in conventional adolescent roles. Since normative expectations for deviant behavior and behaviors signifying transitions to adulthood vary by gender, socioeconomic status, and race/ethnicity, these moderating conditions are imposed to test the robustness of the effects seen for the full sample for these various subgroups. Also, since negative future orientation and low expectations for success in goal seeking has been used to operationalize adolescent strain in prior studies and has been shown to affect the likelihood of engaging in deviance among adolescents, low and high expectations for future failure in conventional adolescent roles are examined as moderating conditions for the simplified and complex models of deviance and early transitions to adulthood.

REVIEW OF LITERATURE

The Life Course Perspective: General Concepts

In recent years, the life course perspective has gained much popularity among researchers of deviance and criminology. In this perspective, the human life course is seen as a series of trajectories of behavior patterns marked by age graded turning points, which can have long term impacts on trajectories (Elder and O'Rand 1995). Key concepts in this perspective are stages, trajectories, transitions, stability/continuity, and change. Social contexts interact with individual lives, choices, and predispositions to produce patterns of behavior or trajectories. Individuals are seen as engaging in stable behavior patterns (trajectories) that may be altered or enhanced by turning points or transitions to new stages throughout the life course (Elder 1974; George 1993). The human life course, trajectories of behavior, and the probability and timing of transitions in the life course are embedded in a larger socio-cultural context that influences both trajectories and opportunities for change through turning points. For example, economic conditions, cultural norms, and historical events may affect how long persons of a particular cohort stay in school and delay marriage or how likely they are to face unemployment (Ryder 1965; Rindfuss 1991; Goldstein and Kenney 2001).

The life course literature views these choices as structured by the social and historical contexts in which they occur. Age norms regarding marriage, workforce entry, and schooling often structure turning points in the life course (Neugarten, Moore, and Lowe 1965). Linda George (1993) notes that the normative age patterns of certain key events such as marriage, childrearing and widowhood allows for the emergence of age-

peer support systems surrounding such events, and for the preparation of people likely to experience these events in the immediate future. The socio-cultural/historical environment in which one's life unfolds affects the age norms, and the opportunities for transitions available to the individual making the choices (Ryder 1965).

Adolescence, Transitions to Adulthood and Future Well Being

Adolescence is a crucial period in human development during which great change and growth occurs in preparation for the transition to adulthood. During adolescence, individuals acquire the social and cognitive skills necessary to make successful transitions to adulthood (Scanlon 1979; Hill and Holmbeck 1986; Elder 1985). Choices made in adolescence have consequences for the transition to adulthood and future adult well-being. For example, decisions to drop out of school, or to become a parent while still a teenager affect future educational attainment, future employment opportunities, future income potential, and other aspects contributing to quality of life in adulthood (Booth, Crouter, and Shanhan 1999). Thus, the increased level of autonomy that adolescents have over decisions regarding their lives, while necessary for growth toward adulthood, puts them at increased risk that they will make decisions that may be detrimental in the future.

In the United States, the normatively prescribed timing and sequencing of the transition to adulthood is graduation from high school around 17 or 18, followed by either a) college b) full-time employment (including military enlistment), and finally, entry into long term relationships, and possibly parenthood (Rindfuss, Swicegood, and

Rosenfeld 1987; Rockwell, Ross, and Elder 1977). In deciding to make the transition to adulthood earlier than their peers, individuals may find themselves unprepared for and limited in the options available to them, subsequently affecting their success in these roles and future quality of life and psychological well-being (Crockett and Crouter 1995; Clausen 1986; Graber and Brooks-Gunn 1996b; Rodgers and Bachman 1988).

Continuity of Deviance and Problem Behavior

Criminologists have tended to subscribe to the view that problem behavior will continue unless there are changes made to systems of social control and types of peer interaction surrounding individuals (Smith and Brame 1994; Nagin and Paternoster 1991; Thornberry 1987). Life course theorists also generally believe that unless transitions in trajectories of behavior are navigated well, existing trajectories of behavior will tend to continue (Jessor, Donovan, and Costa 1991). In addition, a trajectory of behavior results in self-imposed and externally imposed selection processes which make certain choices and availability of certain options more probable than others, inadvertently increasing the likelihood of continuation of the trajectory (Elder 1985).

Sorting and selection processes enhance the probability that existing trajectories will be maintained, and early patterns of behavior, such as deviance and problem behavior tend to exhibit continuity in later life (Wright et al. 1999; Nagin, Farrington, and Moffitt 1995; Sampson and Laub 1997; Thornberry 1997). These are known as self-induced sorting processes and institutional sorting processes (Clausen 1986; Quinton et al. 1993). Self induced sorting consists of individuals making choices consistent with

past behavior that one has found rewarding, while institutional sorting consists of external institutions and actors deciding inclusion, exclusion, or level of participation of individuals based on factors such as cultural capital, past behavior, and expected future behavior. These two selection processes operate in a variety of domains to explain much of the continuity in earlier behavior and later behavior and choices.

Caspi, Elder, and Herbener's (1990) study of differing interactional styles in childhood and subsequent adult outcomes reveals that children with aversive or antisocial interactional styles maintained a stable pattern of aversive, unstable personal and work relationships well into adulthood as well as a stable pattern of deviant behavior. Aversive interaction styles may make the formation of attachments to others more difficult. Furthermore, aversive interactions with others may also stimulate protective behaviors such as rejection of others, further entrenching the pattern of behavior (Matsueda and Heimer 1997).

Simons, Johnson, Conger and Elder (1998) analyzed longitudinal data from 179 sets of parents and delinquent boys and found that adolescent antisocial behavior prompted changes in interactions with others that increased the likelihood of further behavior problems. They found that deviant peer associations increased, while parenting quality and commitment to school decreased. Thus, processes set in motion following deviance that further reduce the social bond serve to perpetuate problem behavior.

Jessor, Donovan, and Costa (1991) found that adolescents prone to problem behavior tend to possess personality attributes, belief systems and perceptions of their environment that foster problem behavior. These proneness factors continue in young

adulthood and are exacerbated by the consequences of prior deviant behavior as an adolescent.

Elder, Caspi, and Downey (1986) found that adolescent problem behavior was highly related to later erratic work behavior, unstable marriages and erratic parenting. Furthermore, they found that these unstable adult patterns of behavior lead to aversive family interactions that produce problem behavior in subjects' children. They suggest that there is continuity of problem behavior within the lifespan and across generations. An example of institutional sorting may be seen in Eckert's (1995) account of how the school entities tend to offer increased opportunities for participation to students who are seen as embodying the "corporate culture" of the school (the jocks/athletes, and popular kids) while ignoring and alienating those students who are perceived as indifferent to or not fully subscribing to the culture and norms of the school. Labeling theorists describe the process by which adolescent deviance leads to both institutional and self sorting processes: deviance may lead to alienating practices on the part of the school and other authoritative entities, reducing an individual's motivation to behave in ways that uphold the norms and roles valued by these entities, such as the conventional adolescent role of student (Lemert 1972).

Furthermore, such labeling and rejection leads to a reinterpretation of the self-identity as deviant and of deviant norms as desirable, leading to an increased propensity toward deviant behavior in an effort to behave in ways consistent with self-identity in order to enhance self-esteem (Kaplan 1975; 1980; 1986). Kaplan's general theory of self-referent behavior holds that individuals who perceive rejection by others as a result

of failing to approximate behaviors valuable to those others will engage in self-derogation and experience feelings of distress. This leads to redefinition of the self as deviant (deviant self-identity), and adoption of lines of action that approximate the norms of the deviant identity (further deviance).

Transitions to Adulthood and Desistance from Crime and Deviance

One characteristic of crime, deviance, and problem behavior in general that has been robustly observed both at the individual level and at the aggregate level is that of a peak in adolescent years and very early adulthood, followed by a sharp decline in the young adult years (Greenberg 1985; Cohen and Land 1987; Nagin and Land 1993). At the aggregate level, researchers term this phenomenon the age-crime curve, and the decline is often attributed to the assumption of responsibilities (such as work and family) in young adulthood, which alter the opportunity structure for engaging in deviance, and increase the risks if caught. Thus, adult stakes in conformity produce a decline in criminal and deviant behavior in adulthood producing the age-crime curve observed at the aggregate-level.

Adolescents may commit deviance and crime as part of the individuation process in which self-identity is being constructed and tested through experimentation with different behaviors and attitudes (Demo 1992; Bush and Simmons 1981). The youth subculture also values adventure, risk taking, and immediate gratification of desires, all of which make deviance more attractive. However, after the assumption of adult roles, the individual is less likely to view the potential gains from crime and deviance as

outweighing the potential physical, legal and economic risks (Wilson and Herrnstein 1985; Warr 1998).

Moffitt (1993) was the first to contend, however that this seemingly omnibus age-crime curve is misleading. Rather than viewing offenders as a single population with a single trajectory of behavior, she proposed that there are two distinct populations of offenders: 1) adolescent-limited offenders and 2) life-course persistent offenders. She suggested that adolescent-limited offenders make up the majority of persons involved in delinquency and crime (over 80% of offenders). These individuals start out relatively conforming early in the life-course, engage in deviance in adolescence, and cease with the transition to adult roles. Because these individuals constitute the majority of persons involved in deviant behavior, combining them with the second group masks the behavior pattern seen in the second group and accounts for the age-crime curve observed in aggregate, cross-sectional data. The second, smaller group of offenders, termed life-course persistent, display antisocial tendencies relatively early in the life course and continue to display a stable pattern of deviance in adolescence which persists into adulthood. Nevertheless, Moffitt (1993), as well as other researchers would agree that a major factor bringing on desistance in deviant behavior, particularly for the group of adolescent-limited offenders, is the completion of school and normative entry into adult roles (Nagin et al. 1995; Thornberry 1997; Robbins and Rutter 1990; Burton et al, 1996; Simons et al. 1994; LeBlanc 1990).

Sampson and Laub (1990; 1993) claim that adult social bonds gained through transitions to adulthood account for the rapid decline in deviant behavior after age 25, at

which point individuals tend to enter the workforce, begin long term relationships, and start families. In the early 1990's, Sampson and Laub painstakingly reconstructed Sheldon and Eleanor Glueck's (1950) longitudinal dataset of 500 male delinquents and 500 male non-delinquents matched on socioeconomic indicators, demographic characteristics, and IQ, and applied a sociological view of the life course to the study of criminal careers and turning points. Sampson and Laub analyzed the criminal trajectories of the delinquent boys, and how they are altered by the transition to adulthood through the development of adult social bonds, providing turning points through which their lives could be redirected in a more normative direction. These adult social bonds included attachment to spouse and children, stable, full-time participation in the workforce with feelings of satisfaction, and involvement in community life. They view these transitions as having the potential to bring prior delinquents "closer to society", approaching the transition to adulthood from Hirschi's Social Bond/Social Control theory of adolescent deviance (1969).

Hirschi's (1969) theory posited that individuals abstain from crime and deviance because they are bonded to society through attachments to others, involvement in conventional activities, commitment to conventional goals, and belief in the efficacy of norms/laws. Though Hirschi's version of social bond/social control theory was based on and applied primarily to adolescent deviance, Sampson and Laub (1990; 1993; Laub and Sampson 1993) believed that social bonds are like other elements of the life course, are age graded and contextually influenced, and that the nature of the social bond changes in adulthood. Adolescents go from being attached to parents and teachers, peers, being

involved in conventional adolescent activities and having normative adolescent aspirations to being attached to significant others and children, committed to work and community and involvement in activities which support these endeavors. Thus, although delinquent individuals may not have had much of a social bond in adolescence, adult social bonds gained through quality transitions to adulthood may provide prior delinquents with stakes in society and conformity, reducing the likelihood of adult deviance.

Like many life course researchers, Sampson and Laub (1993), acknowledge that though turning points in the life course provide potential opportunities for change in trajectories of behavior, individuals tend to display continuity of behavior throughout the life course unless the transitions are conducted well. They note that the prior delinquents in their sample were less likely than the non-delinquents to have successful, high-quality adult roles resulting in adult social bonds, and in turn that prior delinquents were more likely than non-delinquents to engage in deviance in adulthood as well (Sampson and Laub 1993; Laub, Nagin and Sampson 1998). While transitions to adult roles are important correlates of desistance, they are by no means sufficient to initiate change in trajectories of behavior. Sampson and Laub point out that it is the quality of the roles (i.e.: marital stability and satisfaction, job stability and satisfaction, rewarding parenting relationships) that fosters adult social bonds, and in turn lead to desistance.

For example, Farrington and West (1995) examined the effects of marriage and separation from a spouse on criminal behavior in a sample of 411 lower class males in London, England studied longitudinally form age 8 to age 32. They found that

adolescent criminal behavior did not affect the likelihood of marriage, but that among those who were married, those who were separated from their spouses were more likely to engage in adult criminal behavior, have higher rates of unemployment, and were more likely to be heavy drinkers. This indicates that the stability and quality of a marriage and not the occurrence of marriage itself influences the occurrence of adult deviance. Sampson and Laub (1993) acknowledge that sociological life course researchers have studied outcomes of varying timing and sequencing of transitions to adulthood, and hint that determinants of quality would help understand both continuity and change in the criminal trajectory (Laub 1999).

As sociological life course research suggests, the timing and sequencing of events that constitute the transition to adulthood (and consequently, turning points in the trajectory of deviance) may affect the success/quality of the transition in the form of the stability of adult roles, satisfaction in adult roles, and psychological well-being (Greenberger and Steinberg 1986; Finch et al. 1991; Graber and Brooks-Gunn 1996b). The timing of transitions to adult roles may thus ultimately affect the ability of these transitions to foster desistance. Addressing the impact of early transitions on adult deviance and psychological well-being should contribute to the existing discussion in criminology utilizing the life-course regarding trajectories and desistance.

Timing, Quality, and Deviance

Sociological studies of the life course have highlighted the importance of timing of adult role transitions and adolescent role exit on the quality of adult roles as measured

by marital satisfaction, job satisfaction, and close parent-child relationships. Transitions to adult roles follow a culturally prescribed pattern of age appropriateness and sequencing. Traditionally, the transition process to adulthood and adolescent role exit is marked by exit from school, be it through dropping out, or graduation from high school (George 1993; Marini 1985; 1986; 1987;). On-time or normatively prescribed sequencing is seen as hinging upon successful completion of high school at roughly the same time as others in one's birth cohort. This is followed by either assuming one's first full time job or entering an institution of higher learning, followed by entry into a long term relationship and then possibly parenthood. Off-sequencing of role transitions is known to adversely impact quality of these roles/relationships and can be seen as culturally deviant, or as part of a pattern of deviant behavior (Rindfuss, Swicegood, and Rosenfeld 1987).

Sociological research on the life course has maintained that the timing of events in the transition to adulthood is of importance in the success of the transition, particularly in terms of well-being and satisfaction in adulthood (Hogan and Astone 1986; Marini, Shin, and Raymond 1998). In transitioning early to adult roles, adolescents may find themselves lacking in the cognitive and emotional readiness for successful transitions, reducing the likelihood of attaining quality adult roles and increasing the likelihood of role failure. Greenberger and Steinberg (1986) cite early work involvement as a catalyst towards premature and adverse transitions to adulthood, suggesting that adolescents who enter the workforce too early are unprepared for adult roles, and by making the transitions early, did not have the opportunity to safely try out

adult identities beforehand. O'Callaghan and colleagues (1999) found that adolescent mothers were not likely to have adequate social support and emotional readiness for parenting. Furthermore, few adolescent mothers have stable employment (Benoit 1997). Kandel, Ravies, and Kandel (1984) found that early school exit affects the quality of a variety of adult roles including work and marriage, and that this in turn has strong impact on subjective mental and physical health. Kandel, Simcha-Fagan, and Davies (1986) also found that failure in conventional adult roles such as marriage and continuous employment were strong predictors of drug use in adulthood.

Howell and Frese (1982), using data from the Southern Occupational Goals Study, found that in their study of antecedents and consequences of teenage marriage, parenting and school leaving, early transitions to adult roles resulted in lower aspirations and expectations for later education. They also note, as have other researchers, that leaving school early is highly related to other premature transitions to adult roles, (for example, early leaving of the parental home often accompanies other early transitions such as early workforce entry, early union formation, early parenthood and dropping out) and that the timing of one may affect the quality and timing of others (Ravenera, Rajulton, and Burch 1998; McNeal 1997).

Early leaving of the parental home also results in difficult transitions to adulthood as many researchers have found. Early leaving of the parental home increases financial difficulties experienced upon leaving, and increases the likelihood of returning home due to financial difficulty (Graber and Brooks-Gunn 1996a; Tang 1997a; 1997b). Witt, Davidson et al. (1986) using General Social Survey data from 1977, 1978, 1980,

and 1982 found that early timing of marriage has a strong direct positive effect on the probability of divorce. Moore and Waite (1981) also found this to be true using the women's data from the 1968 National Longitudinal Study of the Labor Market Experiences. They found that while early parenthood did not increase the likelihood of divorce, early marriage (teenage) substantially increased the likelihood of divorce. Kerckhoff and Parrow (1979) used the men's sample from the National Longitudinal Study of the Labor Market Experiences from 1966 and 1970 to study the effect of early marriage upon educational attainment. They found that for males, early marriage indeed resulted in lower educational attainment, but among early marriers still in high school by age 17, the effect was more profound than for early marriers who began college at age 17.

Marital unhappiness seems to be most prevalent among those who marry young, those who have been divorced before, those with large families and those with lower levels of education (Singh, Adams, and Jorgenson 1978). Adolescents who enter into long term relationships early tend to do so with similarly situated others, a phenomenon known as 'homophily', or the pairing of persons of similar background, aspirations, attitudes, psychological/emotional constitution, and behavioral tendencies (Kandel and Davies 1991; Kandel, Davies, and Baydar 1990; Kandel 1978). Early transitioners may have experienced cumulative strains pushing them away from conventional adolescent roles and pairing with others experiencing similar stresses and strains, creating a peer context encouraging deviance (Thornberry 1987; Sampson and Laub 1997; Quinton et al. 1993;).

Young males who enter parenthood as adolescents also have been found more likely to be engaged in criminal activity as young adults as found by Harper (1996) using data from the National Longitudinal Survey of Youth in the US and by Knight, Osborne, and West (1977) using data from a panel survey of London Youth collected in the mid-seventies.

Adolescents who choose to participate in the workforce as full-time workers may be relegated to low paying, repetitive, unchallenging, low status jobs, with little autonomy, or opportunity to learn (Mortimer, Harley, and Aronson 1999; Finch et al. 1991; Mihalic and Elliot 1997). Mortimer and colleagues (1999) found, using the Youth Development Study conducted from 1987 to 1995 in St. Paul, Minnesota, that adolescents involved in full-time work suffered poor performance in school, spent fewer hours on schoolwork, had lower educational aspirations, and felt greater academic disengagement. Long work hours compete with hours spent at school, doing homework or other school related activities, and substitutes the role of student with the role of worker, thereby curtailing educational attainment. Thus, while work may provide a temporary boost in status, adolescents who become full time workers may limit future opportunities for higher status and higher paying jobs, subsequently resulting in lower quality of life, lower job satisfaction, and ultimately lower psychological well-being (Marsh 1991; Shanahan et al. 1991; Greenberger and Steinberg 1986; McLanahan and Sorensen 1999; Steinberg, Fegley, and Dornbusch 1993; Tanner and Krahn 1991; Marini, Shin, and Raymond 1998).

McMorris and Uggen (2001) using data from the Youth Development Study found that long work hours in adolescence functions to reduce parental controls and commitment to school, which in turn increase the likelihood of adolescent drinking. Using data from a national experiment assigning work opportunities to criminal offenders, Uggen (2000) found that for adolescent and young adult offenders, work opportunity did not reduce recidivism rates. However, among offenders aged 27 and older who were given the work opportunity, recidivism rates were reduced. This points to the importance of timing of role entry in the effectiveness of transitions to adulthood to serve as turning points in the life course and particularly in the trajectory of deviant behavior. Early transitions to adulthood may be caused by many of the same determinants of adolescent deviance and may have a similar impact as adolescent deviance on future (adult) deviance and psychological well-being. John Laub (1999) states that deviance would serve to alter the opportunity structure for attaining quality adult roles and thus adult social bonds:

> Adolescents who are involved in crime, particularly persistent offenders, experience a difficult transition because adolescent problem behavior often extends into adulthood across a variety of domains (e.g. criminal activity, alcohol and drug abuse, divorce, and unemployment). At the same time, the transition to adulthood plays a crucial role in the process of desisting from criminal behavior. Social bonds formed in the transition to young adulthood – especially attachment to the labor force and cohesive marriages – reduce criminal behavior, independent of prior differences in criminal propensity. In other words, pathways to both crime and conformity may be modified by key institutions in the transition to young adulthood (Sampson and Laub 1993). Thus, identifying alterations in the transition to adulthood provides a window for understanding both continuity and change in criminal trajectories over the life course (p. 48).

<u>Links between Adolescent Deviance and Early Transitions to Adulthood</u>

While transitions to adulthood are seen by criminologists as potential turning points in trajectories of deviance or delinquency, the fact that these events follow normative patterns of timing and sequencing also imply that early transition events or off-sequence events are non-normative, and may be part of an overall pattern of deviance. Non-normative timing of adult role transitions, particularly early timing of school exit, early full time workforce entry, early union formation, leaving the parental home in adolescence, and adolescent parenthood can be seen as forms of deviance, possibly influenced by or contributing to an existing trajectory of deviance, and increasing the likelihood of future deviance (Hagan and Wheaton 1993). Early transitions to adult roles may actually enhance deviant patterns of behavior rather than providing turning points towards conforming behavior.

Krohn, Lizotte, and Perez (1997) note: "Adolescents who engage in deviance may be more likely to make premature or precocious role transitions to adult roles and that may reduce the success of adult development. In turn, the timing, order, and success of transitions to adult statuses may affect the probability of the continuation and, perhaps, escalation of deviant behavior" (p.88). Since transitions in the life-course follow age norms, non-normative timing may be considered a form of deviance, if not part of a trajectory of problematic behavior along with adolescent deviance. Furthermore, non-normative timing or unsuccessful entry in one domain of adulthood affects the timing and success of entry into other domains of adulthood. Using waves of the Rochester Youth Development study corresponding to ages 13 and 20, Krohn,

Lizotte, and Perez (1997) studied the effects of prior substance use on "precocious transitions to adulthood" as measured by dropping out of school, leaving the parental home, having a child, and getting married before high school. They found that early substance use was strongly related to early transitions to adulthood, and in turn that early transitions to adulthood are strongly related to substance use in adulthood even when controlling on prior substance use. These effects were found to hold for both males and females. They cite low pro-social bonds as the primary mechanism for this trajectory.

Hagan and Wheaton (1993) also conceptualize early transitions to adulthood as extensions of adolescent problem behavior, which, like other problem behavior is influenced by the absence of social control and the presence of strain. They state: "adolescence characteristically involves a search process, and among troubled adolescents this search often focuses on ways to escape the adolescent role itself" (p. 957). Thus, : "while the movement toward adulthood, and especially toward parenthood, is normative, the intentionality … and sequencing … of these early transitions combine to make these outcomes more clearly non-normative" (p. 958). This, they state, is why theories of deviance may help explain early transitions, and also why it is important to illuminate mechanisms through which deviance and early transitions come to be contemporaneous.

Hagan and Wheaton (1993) studied factors that may push adolescents to pursue early exit from conventional adolescent roles and to assume adult roles earlier than normatively prescribed. They used two datasets from a panel study of a predominantly white Canadian community and found that the absence of social controls allows

adolescents to pursue early role transitions while the presence of strain (negative stimuli or the absence of positive stimuli where it is expected or anticipated) pushes adolescents towards early transitions to adulthood. They found that adolescent females who lacked adequate supervision were likely to become unwed mothers. They measure adolescent role exits as running away from home and attempting suicide, although they realize that dropping out of school, early sexual behavior, and drug use may also constitute escapes from conventional adolescent roles.

Hagan and Wheaton (1993) as well as Krohn, Lizotte, and Perez (1997) cite absence of social control as a primary factor enabling adolescents to pursue early transitions to adult roles. Thus, adolescent deviant behavior and early transitions to adult roles may share antecedent causes. Lack of social control can be operationalized as lack of adequate supervision, and perceptions of rejection by others. Feelings of rejection may then lead to feelings of disaffection or strain, and a desire to leave aversive adolescent roles in which they feel they are not acquiring adequate self-enhancing experiences (Kaplan, Peck, and Kaplan 1994; Kaplan, Liu, and Kaplan 1995; Kaplan, Damphousse, and Kaplan 1996). These researchers find that parental disaffection, depressive affect, prior delinquency and involvement in deviant subcultures, and female gender most strongly predict the search for adolescent role exits through running away and suicidal tendencies. They also found that transitions to first marriages and early parenthood are exacerbated by parental disaffection, deviant subculture, and prior searches for exits from adolescent roles.

Apart from the weakened social controls emphasized by Hagan and Wheaton (1993) and others, adolescents may attempt to exit adolescent roles in an attempt to avoid negative stimuli, or to enhance self esteem. Kaplan (1975; 1980; 1986) posits that individual action is guided by the motive for self-esteem. Individuals act in ways that approximate norms positively valued by salient others, with the often unconscious goal of eliciting positive reactions from valued others such as family, teachers and peers, which in turn enhances self-esteem. When individuals fail to approximate the norms valued by these salient others, the individual is at risk of negative self-evaluation unless he or she takes further action to behave in ways that will elicit positive evaluation, or re-defines the norms he or she is seeking to approximate. An adolescent who perceives rejection by parents, teachers and peers and who does not foresee future success in continuing to behave in conventional adolescent roles in school and the family of origin may lose motivation to conform to the conventional role of adolescent. This may lead to the adoption of deviant norms, and deviant lines of action such as delinquency and/or drug use as a means of rejecting the conforming norms and roles by which the individual perceives himself as failing in order to protect and enhance the self. The individual then behaves in ways that approximate these non-conforming norms, and seeks similar others who value non-conforming behavior.

Seeing no hope of successfully approximating conventional adolescent roles, the adolescent may seek to exit the role of adolescent and prematurely enter adulthood in the hopes of better approximating non-adolescent role expectations. In doing this, the adolescent may be attempting to enhance self-esteem by rejecting the conforming

adolescent norms and role expectations they perceive themselves to be failing to approximate (Kaplan 1975; 1980; 1986). In this way, early transitions to adulthood and deviant behavior are linked in that they have common antecedents, and may even be thought of as part of a trajectory of non-normative behavior along with other non-normative behavior such as delinquency and drug use.

Likewise, Agnew (1985; 1992) also stated that individuals act in ways that bring positively valued rewards – rewards that include the avoidance of negative or aversive consequences such as painful stimuli or negative self-feelings and psychological distress. When individuals cannot achieve their goals – especially immediate goals such as self-enhancement – they experience a disjunction between positively valued goals and means of achieving those goals. Individuals facing blockage of goal attainment may redefine their goals and accompanying lines of action. Individuals may turn to deviant forms of behavior when they find that engaging in conventional forms of behavior and conventional roles do not get positive results (i.e.: praise from others, rewards). Thus, the perception of rejection by others in adolescence may lead to the adoption of new goals and the dropping of conventional adolescent roles (Brezina 1996). The youth having engaged in some deviance may perceive rejection by others. Furthermore, as a result of the labeling process the individual may begin to see others redefining his/her subsequent behavior in terms of his/her past behavior (Lemert 1962). Bowditch (1993) documented the fact that school authorities are encouraged to "get rid" of troublemakers through expulsion, suspensions, and inter-school transfers, increasing the risk of the student dropping out altogether from an environment that the student then perceives to

be unwelcoming toward him or her. In this situation the adolescent may foresee little future success in maintaining conventional adolescent roles and behaviors, and may re-structure his/her goals and norms in order to avoid the negative consequences of labeling, rejection by others and subsequent psychological distress. This may include adopting deviant norms and behaviors, or seeking an exit to the role of adolescence through dropping out and subsequently assuming age-inappropriate roles (Kaplan, Liu, and Kaplan 1995; Kaplan, Peck, and Kaplan 1994).

Kandel and Yamaguchi (1987) studied the relationship between prior adolescent drug use and job turnover and unemployment in a cohort of young adults from New York State High Schools in 1971 and 1972 that was followed up nine years later in the 1980s as young adults. They found that both current and prior drug use increased the likelihood of job loss. They also found that prior use predicted current use, and that current use was more likely when job loss was followed by continued unemployment than when job loss was followed by another job. Thus, prior drug use in adolescence affects the stability of future jobs, and instability of jobs increases the probability of drug use in adulthood.

In a later study utilizing the same data, Yamaguchi and Kandel (1987) found that deviant behavior in adolescence in the form of drug use is a major determinant of pre-marital pregnancy. They also found that cohabitation, dropping out of high school, and having poor grades in related to pre-marital pregnancy. Thus, drug use is known to affect the success, timing, and sequencing of a number of transitions to adulthood.

Also using this same data, Kandel, Raveis, and Kandel (1984) studied the adult lives of former school absentees and found that they were much more likely to have had conduct problems, and were more likely to have dropped out from school at later measurements. Later, in young adulthood, former school absentees were more likely to have discontinuities in adult roles such as: divorce or separation, higher frequency of job changes, unemployment, and premarital parenthood. Former school absentees were also found to have a higher prevalence of substance use, poorer subjective health and higher prevalence of consultation with a mental health professional.

Newcomb and Bentler (1986), using a panel of 479 high school students followed up four years later as young adults, found that high school drug use increased likelihood of dropping out, and early entry into the workforce, and decreased likelihood of attending college. Furthermore, adolescent drug use was strongly related to drug use in young adulthood. Later, using the same data, Newcomb and Bentler (1987) found that 60% of the variance in adult drug use was accounted for by high school drug use. Thus, they contend, drug use remains stable into young adulthood. However, they found that changes in drug use frequency or drug use cessation were attributable to changes in lifestyle accompanying successful transitions to adult roles such as: parent, spouse, and full-time (non-military) employee.

Brook and Newcomb (1995) examined the impact of childhood aggression on drug use and workforce participation using data from a longitudinal panel study in which first measurements were taken when participants were 5 to 10 years of age, second measurements were taken when subjects were 15 to 20, and a third measurement was

taken when subjects were 21 to 26 years old. Childhood aggression was found to be strongly related to adolescent drug use and negatively related to adolescent academic orientation. Moreover, they found a strong relationship between adolescent drug use and early adult role involvement. They maintained that early adult role involvement (such as entry into the workforce) occurs at the expense of academic achievement.

Schulenberg and colleagues (1994) used 1978-1980 Monitoring the Future data to 1980, which is a nationally representative sample of high school seniors in 1978 who were followed three to four years later, in order to investigate high school success and later substance use. They found that adolescent drug use increases the likelihood of young adult drug use, and that poor high school experiences influence adult drug use, but mostly through adolescent drug use.   A cautionary note in interpreting their findings is that the sample does not contain those who dropped out of high school prior to senior year, and those dropped out while in their senior year were not followed up post-high school.

Rosen and colleagues (1991) found that dropping out of high school had strong effects on adult criminality for both delinquents and for non-delinquents. Thus, early transitions to adulthood in the form of dropping out can be seen as a form of problem behavior that contributes to a trajectory of problem behavior into adulthood even for persons who were non-delinquent. For delinquents, dropping out is consistent with the trajectory of deviance, whereas for non-delinquents, dropping out can be seen as a turning point towards deviance. They did find that delinquency increased the likelihood

of dropping out, and that graduation from high school reduced the likelihood of adult criminality.

Purpose of Study

This study seeks to examine whether early timing of transitions into adult roles undermines the alteration of trajectories of deviance set in motion during adolescence, and whether early transitions into adult roles enhance or exacerbate the continuity of the deviant trajectory. The context of this inquiry integrates sociological concepts of the effect of timing of turning point events/transition points on trajectories of behavior, and criminological concepts of social bond theory. I examine various mechanisms by which adolescent deviance may influence early transitions to adult roles, namely: perceived rejection by others, psychological distress, and the desire to leave adolescent roles (all under varying expectations for future failure in conventional adolescent roles). I will then examine the effects of early transitions to adult roles on adult deviance, and the effects of adult deviance on adult psychological distress. I hypothesize that adolescent deviance affects early transitions to adulthood both directly and indirectly through rejection by others resulting from adolescent deviance, adolescent psychological distress, and desire to leave conventional adolescent roles. I also hypothesize that adolescent deviance and early role entry have positive effects on deviance in adulthood both directly and indirectly through the various mechanisms previously discussed. I will examine this model under varying expectations of failure in conventional roles in adolescence, and socio-demographic characteristics.

In this study, I address early transitions to adulthood rather than off-time transitions in general. This is because although delayed transitions or later than normative transitions to adult roles can be defined as deviant, early transitions are more likely to accompany other deviant behavior, and are more likely to be viewed as socially deviant in and of themselves. Early transitions are more likely to be associated with unpreparedness, and result in social stigma, strain, and low quality roles, which in turn produce poor adult social bonds. Late transitions on the other hand often result from increased investment in educational attainment and increased preparedness, resulting in higher quality roles, and do not tend to be accompanied by the social stigma that early transitions provoke.

METHODS

<u>Data</u>

Measurements from a panel of individuals taken at three points in time (7th grade, 8th grade, young adulthood) will be used in a series of longitudinal structural equation models. The data to be used for this study come from an ongoing longitudinal panel study of adaptations to stress which began in 1971 (Time 1) as a sample of all students in a random half of eighteen of the thirty-six junior high schools in Harris County, Texas at the time. The first three waves of the study (Times 1, 2 and 3) were collected during successive years (1971, 1972, 1973) via in-school, self-administered survey. Over 7,600 of the original sample frame of 9,335 supplied usable questionnaires at Time 1. Students who remained in the same school and were willing to remain in the study were re-measured via the same in-school survey in 1972 and 1973. Approximately 4,600 subjects provided data for both years 1 and 2, and approximately 3,000 individuals provided data for all three years.

Between the years 1980 and 1987 (Time 4), over 6,000 subjects from the original sample frame of 9,335 were interviewed using in-home, interviewer-assisted structured questionnaires, at which time the respondents were between the ages of 21 and 29 years of age (depending on which year their interview was captured). Subsequent waves of this panel study were carried out in 1988, and between 1993 and 1998. In this study, I will be using data from waves 1, 2 and 4 of this study (7th grade, 8th grade, and young adulthood measurements). Approximately 5,144 cases were

available in all three of these measurement periods. After listwise deletion using the

variables to be used in structural equation modeling procedures was performed, 3,379

cases remained.

Limitations of the Data

The findings of any study should be taken in view of limitations of the data used.

In this study, the data are longitudinal, which lend themselves well to the study of

trajectories of behavior and transition points in the life course. However, the panel

represents adolescents (and subsequently young adults) from one school district in a

populous county of Texas during the early 1970's.   While this means the data are

generalizeable only to this county, within the life-course framework, the geographic and

historical time and age censoring may actually be considered advantages, in that age and

geographic region have in a sense been held constant, and cannot be said to be

confounding variables in the model.

In all three waves of the study being analyzed here the data consist of

retrospective self-report items, including self-reported deviance. While many view self-

reported deviance data as biased in some way compared to official records and arrests,

official reports tend to underestimate the prevalence of deviance, as only deviance that

becomes known to others and results in official sanctioning is measured. While Times 1

and 2 inquire about events that happened within the past month, and past year

respectively, Time 4 inquires about events that may have occurred several years prior to

the interview as there was a large gap in measurement between Time 3 of the study (not

used in this analysis) and Time 4. This may indeed pose some concern as to the

accuracy of items that inquire about frequency of behaviors or the year in which

behaviors occurred. The data do not contain many variables regarding the structure of

panel members' family of origin, which has been known to influence both deviance and

future family formation (Li and Wojtkiewicz 1994; Carlson 1979).

<u>Variables</u>

Latent Variables and Their Observed Components

Seven Latent Variables to be used in a series of Structural Equation Models will be

estimated from twenty-five observed variables. These Latent variables and their

observed indicators are discussed below.

I. Deviant Behavior at Time 1

Deviant behavior at time 1 was measured in 1971 using a self-administered survey

instrument when the subjects were in 7th grade, and were roughly 12 or 13 years of age.

This latent variable is comprised of four observed scales: A. Violent behavior scale, B.

Property offenses scale, C. Drug related offenses scale, and D. Other deviance.

A. Violent Behavior Scale

The Violent behavior scale consists of five binary self-reported items (0=No, 1=Yes)

which are summed to produce a scale score. They are:

1. Within the last month did you get angry and break things?
2. Within the last month did you carry a razor, switchblade or gun as a weapon?
3. Within the last month, did you start a fistfight?
4. Within the last month, did you take part in a gang fight?

5. Within the last month, did you beat up on someone who had not done anything to you?

B. Property Offenses Scale

The Property offenses at Time 1 scale consists of six binary self-reported items (0=No, 1=Yes), which are summed to produce a scale score. They are:

1. Within the last month did you take things worth between $2 and $50 that didn't belong to you?
2. Within the last month did you take little things (worth less than $2) that didn't belong to you?
3. Within the last month, did you damage or destroy public or private property on purpose that didn't belong to you?
4. Within the last month, did you take things worth $50 or more that didn't belong to you?
5. Within the last month, did you break into a home, store or building?
6. Within the last month, did you take a car for a ride without the owner's knowledge?

C. Drug Use/Offenses Scale

The self-reported drug use/offenses scale (at Time 1) is comprised of four binary (No = 0, Yes = 1) items, which are summed to produce a single score. The items in this scale are:

1. Within the last month have you sold narcotic drugs (dope, heroin)
2. Within the last week have you used wine, beer, or liquor more than 2 times?
3. Within the last month did you take narcotic drugs?
4. Within the last month did you smoke marijuana (grass)?

D. Other/School Related Deviance

The self-reported other/school related deviance scale (at Time 1) is comprised of four binary (No = 0, Yes = 1) items, which are summed to produce a single score. The items in this scale are:

1. Were you ever suspended or expelled from school?

2. During the last exam period, did you cheat on exams?
3. Within the last month, did you skip school without an excuse?
4. Within the last month, did you take things from someone else's desk or locker at school without permission?

II. Rejection by Others at Time 1

Rejection by others is a Latent variable measured at Time 1 that is comprised of three observed self-reported variables: A. Perceived rejection by parents, B. Perceived rejection by teachers, C. Perceived rejection by peers.

A. Perceived Rejection by Parents at Time 1

Perceived rejection by parents is a summed scale consisting of five self-reported binary (No = 0, Yes = 1) items measured at time 1. These items are as follows:

1. Very often, I do not know whether my parents would approve or not approve of what I am doing
2. As long as I can remember my parents have put me down
3. My parents are usually not very interested in what I say or do.
4. I have never been able to accomplish as much as my family wanted me to.
5. My parents do not like me very much.

B. Perceived Rejection by Teachers at Time 1

Perceived rejection by teachers is a summed scale consisting of four self-reported binary (No = 0, Yes = 1) items measured at time 1. These items are as follows:

1. My teachers are usually not very interested in what I say or do.
2. By my teachers' standards I am a failure
3. My teachers do not like me very much
4. My teachers usually put me down

C. Perceived Rejection by Peers at Time 1

Perceived rejection by peers is a summed scale consisting of four self-reported binary (No = 0, Yes = 1) items measured at time 1. These items are as follows:

1. More often than not I feel put down by the kids at school.

2. I am not very good at the kinds of things the kids at school think are important.
3. The kids at school are usually not very interested in what I say or do.
4. Most of the kids at school do not like me very much.

III. Desire to Escape Conventional Adolescent Roles at Time 2

The latent variable "Desire to escape conventional adolescent roles at Time 2" is measured by three summed scales: A. Escapism/Retreatism, B. Desire to leave home, and C. Desire to leave school. The scales are described below with a listing of their respective items.

A. Escapism/Retreatism

The scale of Escapism/Retreatism measures desire to retreat to simpler times, or to a fantasy world in an attempt to "start over" or escape from reality. The scale, which is measured at Time 2, consists of five binary items (0=No, 1=Yes) which are summed to produce a single score ranging from 0 to 5. The items for this measure are:

1. Do you sometimes wish you were a little kid again?
2. Do you like to play with children younger than you?
3. Do you like to spend a lot of time by yourself?
4. I would like to travel with a circus or carnival
5. I spend a lot of time daydreaming

B. Desire to Leave Home

Desire to leave home is measured at Time 2, and is comprised of two binary items, which are summed to produce a score ranging from 0 to 2. The items for this scale are:

1. At home, I have been more unhappy than happy
2. I would like to leave home

C. Desire to Leave School

Desire to leave school is also measured at Time 2, and is comprised of two binary items, which are summed to produce a score ranging from 0 to 2. The items for this scale are:

1. I have never been very happy in school.
2. Would you like to quit school as soon as possible?

IV.   Psychological Distress at Time 2

The latent construct Psychological distress at Time 2 is comprised of three summed scales which are used as indicators: A. Self derogation dimension 1 scale, B. Self derogation dimension 2 scale, and C. Depression. The scales are described below and their items are listed.

A. Self Derogation Dimension 1 Scale (Time 2)

The Self derogation dimension 1 scale is a summed scale consisting of five binary items yielding a score between 0 and 5. The scale is measured at Time 2, and consists of a series of statements about one's self-worth presented to the respondent to which they answer "Yes" or "No" (No = 0, Yes = 1). The scale items are:

1. I wish I could have more respect for myself.
2. I feel I do not have much to be proud of.
3. All in all, I am inclined to feel that I am a failure.
4. At times I think I am no good at all.
5. I certainly feel useless at times.

B. Self Derogation Dimension 2 Scale

The Self derogation dimension 2 scale is a summed scale consisting of two binary items yielding a score between 0 and 2. The items were originally scored No = 0, Yes = 1, however, the scoring was reversed so that the direction of the items would be appropriate

for the measure. The scale is measured at Time 2, and consists of two statements regarding self satisfaction. The scale items are:

    1. On the whole, I am satisfied with myself [REVERSED].
    2. I take a positive attitude toward myself [REVERSED].

  C. Depression

The Depression scale consists of five binary items that are scored, No = 0, Yes = 1, with three of the items reversed for consistency of direction so that No = 1 and Yes = 0. The scale is measured at Time 2 and yields a score that ranges form 0 to 5. The items for the measure are:

    1. Do you wish you could be as happy as others seem to be?
    2. Would you say that most of the time you feel in good spirits [REVERSED]?
    3. Do you get a lot of fun out of life [REVERSED]?
    4. On the whole, would you say you are a fairly happy person [REVERSED]?
    5. Do you often feel downcast and dejected?

  V. Deviance at Time 4

Deviance at Time 4 Consists of four summed scales which measure the same concepts as those measuring Deviance at Time 1: A. Violent behavior scale, B. Property offenses scale, C. Drug offenses/use scale, and D. Other deviance. However, the behaviors used in the four scales take into account escalation of the severity of behaviors in the trajectory of deviance typically seen if deviance extends beyond adolescence into adulthood. The binary items were coded 1 if the respondent reported performing the behavior anytime since 1976 thus measuring deviance that occurred since the year in which most of the respondents graduated from high school and consequently turned eighteen. The scales and their items are provided below.

A. Violent Behavior Scale

The Violent behavior scale consists of four binary (No=0, Yes=1), self-reported items measured at Time 4, which are summed to produce a single score. The items are:

1. Have you ever taken something from someone using a weapon or force including bank robberies, muggings, hold ups, or knocking someone down while stealing a purse?
2. Have you ever carried a razor, switchblade, or knife as a weapon?
3. Have you ever attacked a person with a weapon or your hands intending to kill or seriously injure the person?
4. Have you ever taken part in gang fights?

B. Property Offenses Scale

The Property offenses scale consists of five binary (No=0, Yes=1), self-reported items measured at time 4 which are summed to produce a single score. The items are as follows:

1. Have you ever forged or passed bad checks?
2. Have you ever broken into and entered a house or building to steal something or illegally entered through an unlocked door or window to steal something?
3. Have you ever stolen an automobile for transportation or joyriding?
4. Have you ever stolen anything without using force including picking a pocket, snatching a purse, shoplifting, breaking into a car or coin machine, or stealing something left unattended?
5. Have you ever intentionally damaged someone's car or did anything else to destroy or severely damage someone's property, whether public or private, for reasons other than being paid to do it?

C. Drug Use/Offenses Scale

The Drug use/offenses scale consists of four binary (No=0, Yes=1), self-reported items measured at time 4 which are summed to produce a single score. The items are:

1. Have you ever used marijuana, hashish, or THC?
2. Have you ever used drugs other than marijuana illegally or used any illegal drugs including LSD or other hallucinogens, amphetamines, barbiturates, tranquilizers, inhalants, heroin, or other opiates, cocaine, quaaludes, and freebase?

3. Have you ever sold or manufactured illegal drugs?
4. Have you ever consumed as much as a fifth of liquor in a day or three bottles of wine, or as much as 3 six-packs of beer?

D. Other Deviance

The "Other" deviance scale consists of six binary (No=0, Yes=1), self-reported items measuring vice, prostitution, vagrancy, and miscellaneous deviance resulting in official sanction. The items are:

1. Have you ever run numbers, made books, or otherwise participated in illegal gambling operations, except as a bettor?
2. Have you ever engaged in pimping or prostitution?
3. Have you ever gambled or bet large amounts of money?
4. Have you ever traveled around without having any arrangements ahead of time and not knowing how long you were going to stay or where you were going to work besides being on vacation from a job?
5. Have you ever been sent to a training school, reform school, or any other juvenile correction facility or served a sentence in a jail, workhouse, or prison?
6. Have you ever been arrested or picked up by the police for anything other than traffic violations?

VI. Early Transitions to Adulthood

School exit, full-time workforce entry, union formation, parenthood and moving out of the parental home are all identified in the Life course literature as turning points marking the transition to adulthood (Marini 1986; George 1993). Early occurrence is usually defined in terms of occurrence before normative high-school school exit or before age 18 (Rindfuss 1991). Since many of these events are highly related to one another, and if occurring earlier in the life course than normal, may result from the same antecedents and selection factors, they are used together to form a single latent variable termed "Early transition to Adulthood". Since most of the panel members would have turned 18

and graduated from high school in 1976, 1976 is used as the cutoff year for "Early"

transitions. The latent variable is comprised of the following observed variables:

A. Early Full-time Workforce Participation

Early participation in the workforce as a full-time worker measured here in a binary

variable, which is coded 1 if in early adulthood (Time 4) the respondent reported

assuming their first full-time job before 1976, the normative year of high school

graduation for the cohort. If the respondent indicated that the year they assumed their

first full time job was 1976 or greater, the variable was coded 0.

B. Early Union Formation

Early union formation is measured in a binary variable that was coded 1 if in early

adulthood (Time 4), the respondent reported initiating their first long-term/spousal or

cohabitative relationship before 1976, the normative year of high school graduation for

their cohort. If the respondent indicated that the year they initiated first union formation

was 1976 or greater, the variable was coded 0.

C. Early Parenthood

Early parenthood is measured in a binary variable that was coded 1 if in early adulthood

(Time 4), the respondent reported having one or more children before 1976, the

normative year of high school graduation for their cohort. If the respondent indicated

that the year they had their first child was 1976 or greater, the variable was coded 0.

D. Leaving Home Early

Leaving home early is measured in a binary variable that was coded 1 if in early

adulthood (Time 4), the respondent reported moving away from their parent's home

before 1976, the normative year of high school graduation for their cohort. If the respondent indicated that the year they first moved away from home was 1976 or greater, the variable was coded 0.

VII. Psychological Distress at Time 4

The latent construct "Psychological distress at Time 4" is comprised of the same three summed scales used as indicators for Psychological distress at Time 2, but were measured at Time 4: A. Self derogation dimension 1 scale, B. Self derogation dimension 2 scale, and C. Depression. For descriptions of these scales and lists of the items comprising them, see the earlier descriptions provided for these scales under measurement of Psychological distress at Time 2.

Demographic and Other Moderating Variables

While mediating variables are those that intervene in the causal chain between one or more independent (exogenous) variables and one or more dependent (endogenous) variables, moderating variables are those that modify the strength, direction, or significance of a causal relationship between independent and dependent variables (James and Brett, 1984; Baron and Kenny 1986). The following are single observed variables and that will be used in conjunction with the latent variables in the structural equation model. These are measures that are correlated with deviance or with early transitions to adult roles, and thus should be either statistically controlled or treated as moderating variables in models where deviance and early transitions to adulthood are dependent variables.

I. Gender

The demographic variable "Gender" measured at Time 1 is a nominal variable coded 1 if gender is male and 2 if gender is female. Missing values are set to missing. Male gender tends to be associated with higher prevalence of deviant behavior as measured in this model.

II. Race/Ethnicity

The demographic variable "Race/Ethnicity" as measured in Time 1 is a nominal variable with the categories "White (Anglo)", "Black", "Mexican American" and "None of these groups". Respondents were given these response choices to the Question "Which one of the following groups do you belong to?". Respondents could only choose one category, and relatively few people chose the fourth category ("None of these groups"). For this analysis, a binary variable will be constructed whose categories will be White and Non-White. White will indicate that the respondent chose the first category of the original variable, while Nonwhite will indicate that the respondent chose any of the remaining categories. Nonwhite race/ethnicity (with the exception of Asian ethnicity) is related to higher prevalence of deviance as measured in this model, and early transitions to adult roles as measured in this model.

III. Father's Education

The nominal variable father's education measured at Time 1 will be used as a proxy for adolescent socioeconomic status. Respondents were asked "What is the most schooling your father or stepfather had?" and chose one of 5 categories which were coded numerically: "Didn't graduate from elementary school" = 1, "Graduated from

elementary school but didn't graduate from high school" = 2, "Graduated from high school" = 3, "Graduated from college" = 4, "Don't Know" = missing. For purposes of this analysis, a binary variable will be constructed with categories equal to "did not graduate from high school" and "graduated from high school or obtained higher level of education" with the first category being equal to the first two categories of the original variable, and the second category being equal to the third and fourth category of the original variable. Socioeconomic status is known to be related to a higher prevalence of deviance and to a higher prevalence of early transitions to adult roles as measured in this study.

   IV. Expectations for Future Failure in Conventional Adolescent Activities at Time 2
Expectations for future failure in conventional adolescent activities measured at Time 2 is a summed scale consisting of six binary self reported items where 1 = yes and 0 = no (one item is reversed scored), and thus has a range of 0 to 6. Expectations for failure in conventional activities is related to deviance and to early transitions to adult roles as hypothesized by strain theories, which postulate that changes in behavior can be expected when performing conventional behavior leads to aversive stimuli or fails to bring about positively valued consequences (Farnworth and Lieber 1989). The items comprising the scale are the following:

1. I have a better chance of doing well if I cut corners than if I play it straight.
2. You can do very little to change your life.
3. The kids who mess up with the law seem to be better off than those who play it straight.
4. I would do a lot better in life if society didn't have the cards stacked against me.
5. If a kid like me works hard he can get ahead [REVERSED]
6. I doubt if I will get ahead in life as far as I would really like

7. By the time I am 30, I will probably have a good job and a good future ahead of me [REVERSED].
8. I probably will not go on to college and graduate.

Statistical Analyses

Univariate Descriptive Statistics

Univariate Descriptive Statistics will be reported on all observed variables used in the Structural Equation Models in order to provide an understanding of sample characteristics and scale properties.   Tables will include the minimum values, maximum values, mean, standard deviation, standard error, median, and skewness and kurtosis. SAS version 9 for Windows will be used for all univariate analysis and data treatment before input into LISREL 8.30.

Multivariate Normality in Structural Equation Models

The variables will eventually be used in a series of structural equation models. Since Maximum Likelihood parameter estimates in Structural Equation modeling and subsequent model fit indices are somewhat less reliable under conditions of extreme non-normality, it is important to check whether this is a reasonable assumption of the data under analysis (West, Finch, and Curran 1995). Univariate normality is often seen as a precursor to multivariate normality. However, individual variables may display characteristics of univariate non-normality such as extreme skewness and kurtosis, yet have distributions that conform to assumptions of multivariate normality in the multivariate context. When variables are used in a multivariate context such as a Structural Equation Model, it is the assumption of multivariate normality that must be addressed rather than the normality of individual variables. Multivariate normality can

be tested on the continuous variables jointly by using Mardia's measure of relative multivariate kurtosis and other tests of multivariate normality calculated by the PRELIS 2.3 software packaged with LISREL 8.30 (Joreskog and Sorbom 1996b).   For non-normal data in large samples of 1000 or more, robust estimation procedures can be used to estimate the model parameters. If necessary, the PRELIS 2.3 program can produce an asymptotic covariance matrix, which can then be used with the LISREL Weighted Least Squares Estimation procedure (Joreskog and Sorbom 1996b). Model Fit when using non-normal data can be assessed using the Satorra-Bentler SCALED χ^2 statistic (Minimum Fit Function χ^2) in addition to other robust Fit indices (West, Finch and Curran 1995;). Model fit for Structural Equation models is discussed later in this section.

Scale Reliability Analysis

Since most of the observed variables used in the structural equation model are summed scales, scale reliability coefficients (Cronbach's alpha) and item-to-total correlations will be provided for each summed scale. Cronbach's scale reliability coefficient is a measure of the internal consistency or homogeneity of a scale (DeVellis 1991). The internal consistency represented by an alpha coefficient is actually the inter-item correlation, or the level of correlation among items in a given scale. Thus, a high degree of inter-item consistency is an indication that the items are measuring similar concepts. A high inter-item correlation may also suggest that the items are measuring the same concept in different ways (Kerlinger 1986). Cronbach's alpha is often interpreted as the average correlation among items in a scale, but actually is the amount of shared or communal

variance in a scale. This communal variance is attributable to a common concept underlying the scale. The formula for Cronbach's alpha is shown below (Nunnally and Bernstein 1994).

$$\alpha = \frac{k\,\bar{r}}{1+(k-1)\bar{r}}$$

where:

k = number of items in the scale
$\bar{r}$ = mean of correlations among all item pairs

Though alpha is influenced by the number of items in the scale in addition to the degree of association among the items, with larger number of items tending to lead to inflation of alpha, coefficient alpha remains widely accepted as a robust and highly interpretable tool for communicating the reliability of a scale (DeVellis 1991).

The alpha coefficient is interpreted as a Pearson correlation coefficient, ranging from 0 to 1.00, with values closer to 1.00 indicating a high degree of internal scale consistency. Scale reliability coefficients can be calculated successively excluding each item in order to assess the amount each item contributes to the overall scale reliability. This is useful for detecting inconsistent items, and items which more strongly measure the underlying concept of the scale. Most statistical software packages offer variants of this procedure such as alpha if item deleted, item correlation with total and alpha if item reversed. However, many of these procedures are more useful if the goal is to produce a more parsimonious scale, reduce the number of items in a scale or to test a particular measurement model. SPSS 10 for Windows will be used for this analysis, which

produces the alpha if item deleted, and item correlation with total. In this study, the goal is not to refine the scales, rather it is to use scales already determined to be theoretically relevant together as observed variables in a latent variable structural equation model.

Structural Equation Modeling

Structural Equation Modeling techniques will be used to model approximately fourteen structural parameters among seven latent variables comprised of twenty-five observed variables. Structural Equation Modeling (SEM) has become a widely used tool in the social sciences for examining simultaneous influences among latent variables in recursive models (Duncan 1975; Bollen 1989). Latent variables are not directly observed or directly measured, but rather are modeled as the shared or communal variance of two or more observed variables which measure an aspect of the latent variable (Byrne 1989). A structural equation model combines factor analysis with path analysis using maximum likelihood estimation procedures to produce regression parameters among one or more latent variables (Loehlin 1998). The Full Structural Equation Model (SEM) consists of simultaneous estimation of two types of models: 1) a measurement model by which the latent variables and error terms are estimated, and 2) a structural model by which the nature and strength of direct and indirect relationships among latent variables and error terms are estimated (Byrne 1998). These will be described later in this section. LISREL 8.3 and PRELIS 2.3 will be used to estimate the structural equation models in this study.

I. Measurement Model

As mentioned previously in this section, Cronbach's alpha measures the amount of communal variance attributed to an underlying concept measured by a scale. A "latent variable" is an unobserved variable that is modeled as the source of communal variance of one or more observed variables or scale scores by means of factor analysis. The latent variable is not observed directly, but is a product of the shared variance underlying one or more observed variables. The latent variables that will be used in this study are: Deviance at Time 1, Perceived rejection by others at Time 1, Psychological Distress at Time 2, Desire to Escape Conventional Adolescent World at Time 2, Early Transitions to Adulthood, Deviance at Time 4, and Psychological Distress at Time 4. Each of these latent variables consists of two or more observed indicators (such as summed scales), which measure an aspect of the larger concept the researcher is trying to measure. The common variance or shared variance among these variables is attributed to the larger underlying concept being measured in the latent variable. The degree to which each observed indicator contributes to the measurement of the underlying latent variable is seen in the factor loadings of the indicators on the particular latent construct. A factor analytic model in which the model of the pattern of loadings is specified *a priori* by the researcher based on theory or on prior knowledge of expected loadings is termed a Confirmatory Factor Analytic model (CFA) in contrast to an Exploratory Factor Analytic model (EFA) in which the relationships are not known or expected beforehand by the researcher (Byrne 1989). In conducting SEM, the commonly accepted terminology for any factor analytic pattern of how shared variances of two or more

observed indicators measure one or more larger underlying concepts or latent variables is termed the Confirmatory Factor Analysis model. When conducting a full SEM in which both latent variable pattern matrices and structural parameters among the latent variables are simultaneously estimated, the confirmatory factor analytic model is also called the measurement model.

When used in a Structural Equation model, latent variables are termed either Endogenous (η or Eta) or Exogenous (ξ or Ksi) depending on whether or not they will be specified as being predicted by anything in the model. Exogenous latent variables (like independent variables in path models) predict one or more latent dependent variables (Endogenous Variables), without serving as dependent variables for any other variables in the model (Bollen, 1989). In LISREL matrix terminology, the factor loadings of observed indicators on the Exogenous latent variables are specified through the Lambda X matrix (Λ_x), with error variances specified through the Theta-Delta Matrix (Θ_δ) (Joreskog and Sorbom 1996a). The formula for Latent Endogenous variables is:

$$x = \Lambda_x \xi + \sigma$$

When used in a Structural Equation model, Latent Endogenous variables (η or Eta) are predicted by one or more Exogenous or other Endogenous variables in the model. Factor loadings for latent endogenous variables are specified through the Lambda-Y Matrix (Λ_y), with error variances specified through the Theta-Epsilon Matrix (Θ_ε). The formula for Latent Endogenous variables is:

$$y = \Lambda_y \eta + \varepsilon$$

Later, I will describe other matrices estimated when structural relationships are specified between Exogenous variables and Endogenous variables, and among Endogenous variables.

II. Structural Model

The Structural Model involves estimation of maximum likelihood regression coefficients to model hypothesized relationships among the latent variables as specified by the researcher. This procedure is much like traditional path analysis with Ordinary Least Squares regression to explore indirect and direct relationships among variables, but allows simultaneous estimation of direct and indirect effects to occur (Duncan 1975). As is a path analysis using ordinary observed variables, when relationships among latent variables are examined, latent variables are termed Exogenous and Endogenous latent variables depending on whether a variable is predicted by one or more other variables on the "right side" of the equation. The structural model is usually depicted visually showing the measurement model and associated error terms (4 possible matrices), the structural model and associated error terms (2 possible matrices), correlations among exogenous variables, and correlated error terms of endogenous variables (2 possible matrices). The validity of the model specification is contingent upon the following assumptions: 1) absence of measurement error 2) no correlation of observed indicator error terms with latent variables 3) no correlation of endogenous latent variable error terms with exogenous variables 4) no correlation of endogenous latent variable error

terms with observed indicator error terms (Joreskog and Sorbom 1996a). The formula

for the Structural model is shown below.

$$\eta = \mathrm{B}\,\eta + \Gamma\,\xi + \zeta$$

where:

η = vector of latent endogenous variables
ξ = vector of latent exogenous variables
B = matrix of regression coefficients among η
Γ = matrix of regression coefficients between ξ and η
ζ = vector of equation errors for each η

Usually Structural Equation model specification using latent variables involves

fixing, constraining and freeing parameters in the following eight matrices : Λ_x, Λ_y, B,

Γ, Φ (the covariance matrix of ξ), Ψ (the covariance matrix of ζ), Θ_δ, and Θ_ε . However,

not all of these elements need to be present in a Structural Equation Model (Byrne,

1998). It is possible to have a Structural Equation Model without Exogenous observed

or latent variables (and hence no Phi matrix of correlations among them, no Theta-Delta

Matrix of error variance unique to each observed x variable, and no Gamma Matrix of

Structural relationships between Latent Exogenous and Latent Endogenous variables).

The resulting model is one in which only Latent <u>Endogenous</u> variable loadings and

corresponding y error variance terms, the relationships among the latent endogenous

variables, and the covariance matrix of error variances for the endogenous variables are

estimated, which is mathematically equivalent to the structural equation above (Joreskog

and Sorbom 1996a).

III. Model Fit

LISREL 8.3 generates a large number of model fit indices which researchers may choose from to report. Some are more appropriate for non-normal data, while some are more reliable for more complex model specifications. Others are more reliable for small or large sample sizes, while others are used mainly for tests of nested models. In general, measures of model fit involve testing how well an hypothesized model of the measurement of the latent variables and the relationships among them approximates the observed patterns seen in the data (Bollen 1989). The fit of the model is determined by either the amount of discrepancy between the hypothesized model (expected covariance matrix generated based on specifications by the researcher) and the actual data.

The most commonly reported model fit statistic is the model χ^2 statistic, which examines the degree to which the observed covariance matrix generated from the data is different from the expected covariance matrix generated based on model specifications made by the researcher. Large, statistically significant χ^2 values indicate poor fit, and as such, the model χ^2 is sometimes known as the badness of fit statistic. Model χ^2 is subject to inflation with large samples, making even slight differences between the expected and observed covariance matrices seem large (Browne and Cudeck 1992. Because of this, many researchers do not rely solely on this measure. However, because it is additive in nature, the model χ^2 is used in nested model testing and parameter invariance testing. The χ^2 statistic also has been shown to be unreliable under conditions of non-normality with small samples. A corrected version called the Satorra-Bentler SCALED χ^2 statistic is more appropriate under these conditions (Hu and Bentler 1995).

The Goodness of Fit Index (GFI) examines model fit in terms of improvement in predictive capacity of the model specified by the researcher over a null model, or model in which no parameters are specified much like model R^2 value. The Adjusted Goodness of Fit Index (AGFI) takes into account the number of parameters specified and hence, the complexity of the model. Both measures are sample based, in that comparisons are made based on the data at hand rather than compared to theoretical population based inferred values such as the expected covariance matrix. The Normed Fit index (Bentler and Bonett 1980) also evaluates the specified model against a baseline model such as a null model, and ranges from 0 to 1 as does the GFI and AGFI. When adjusted for the model degrees of freedom, it is called the Parsimony adjusted normed fit index or PNFI (Loehlin 1998). The Comparative Fit Index (CFI) is a version of the NFI that has been found to be more suitable for small samples, while Incremental Fit Index is a version that takes into account the complexity of the model (Byrne 1998). For all of these indices, values closer to 1 are considered better fitting.

Stieger's Root Mean Squared Error of Approximation (RMSEA) uses model random disturbance variables in calculations of fit of the observed model to a population based covariance matrix under assumptions of noncentrality. The measure is considered relatively stable under varying sample sizes and number of parameters. Smaller values closer to 0 indicate small model error, while larger ones indicate a large degree of approximation error. Values of .05 or below are generally accepted as "Very Good" while those between .10 and .05 are considered "Good" (Loehlin 1998). The Root Mean Residual index or RMR is an estimate of the average standardized residual occurring

when the observed matrix is subtracted from the expected covariance matrix. It too is interpreted as values closer to 0 meaning better fit with values less than .05 considered very good (Byrne 1998). For this study, I will report the model χ^2, GFI, AGFI, NFI, PNFI, RMSEA and RMR. If the data appear to be multivariate non-normal or subgroups appear to be too small for these Indices to remain stable given the number of parameters estimated other indices that are more robust under these conditions such as the Satorra-Bentler SCALED χ^2 (also known as the Minimum Fit Function χ^2) will be reported as well.

IV. Model Modifications

LISREL 8.3 offers post-hoc model fitting tools called "modification indices". These indices are designed to maximize fit between the observed and expected (implied) covariance matrix. They show the researcher how much improvement in model fit (decrease in model χ^2) can be seen if certain modifications are made such as specifying additional parameters, or allowing error terms to correlate. While these indices allow the researcher to better model the underlying covariance structure present in the data, any changes based on the modification indices should also make sense in the framework of the theory being tested. An increase in model fit should not be the sole reason for making a change in model if the changes inhibit the researcher from conducting tests of specific relationships, parameters and hypotheses (McDonald and Ho 2002).

Proposed Models

In this section, I describe the two structural equation models I will estimate using the latent variables described in an earlier part of the methods section in order to examine the mediated and unmediated associations between adolescent deviance, early transitions to adulthood and adult deviance. For ease of reference, I provide Table 1 below showing the observed variables in the measurement model, and the names of the latent variables estimated from them. Further descriptions of these observed variables are available in the earlier section titled "Variables". Each of these models will be estimated using the full sample, and also on eight sample subgroups believed to condition the relationships. Table 2 provides a list defining each subgroup. Visual diagrams of the structural relationships and the measurement model for each of the structural equation models are shown in Figures 1 and 2.

Table 1: Latent variables to be used in the proposed models and their indicators.

Latent Variables	Indicators (Observed Variables)
Deviance at Time 1	
	1. Violent Behavior Scale (Time 1)
	2. Property Offenses Scale (Time 1)
	3. Drug Use/Offenses Scale (Time1)
	4. Other Deviance (Time 1)
Rejection by Others at Time 1	
	1. Rejection by Parents (Time 1)
	2. Rejection by Teachers (Time 1)
	3. Rejection by Peers (Time 1)
Psychological Distress at Time 2	
	1. Self Derogation Scale 1 (Time 2)
	2. Self Derogation Scale 2 (Time 2)
	3. Depression Scale (Time 2)
Desire to Exit Conventional Adolescent Roles at Time 2	
	1. Desire to leave school (Time 2)
	2. Desire to leave home (Time 2)
	3. Retreatism scale (Time 2)
Early Transition to Adult Roles measured at Time 4	
	1. Getting full time job before 1976.
	2. Entering long-term relationship before 1976.
	3. Becoming a parent before 1976.
	4. Moving out of family of origin's home before 1976.
Psychological Distress at Time 4	
	1. Self Derogation Scale 1 (Time 4)
	2. Self Derogation Scale 2 (Time 4)
	3. Depression Scale (Time 4)
Deviance at Time 4	
	1. Violent Behavior Scale (Time 4)
	2. Property Offenses Scale (Time 4)
	3. Drug Use/Offenses Scale (Time 4)
	4. Other Deviance (Time 4)

Table 2: Eight moderating conditions (subgroups) for which model estimation will be repeated.

1. Gender	3. Father's Education
Male	Did not graduate high school
Female	Graduated high school or obtained greater level of education.
2. Race	4. Expectation for failure in conventional Adolescent roles
Nonwhite	Scale score less than median score.
White	Scale score greater than or equal to median score.

I. Simplified Model

The first of two structural equation models to be estimated is a simplified model consisting of only three of the seven latent variables previously described: Deviance at Time 1 (KSI 1), Early transitions to adult roles (ETA 1), and Deviance at Time 4 (ETA 2). The purpose of this model is to first examine whether adolescent deviance affects early transitions to adult roles, and whether early transitions to adult roles impacts adult deviance, while controlling for the relationship of prior deviance to later deviance, also known as the trajectory of deviance. This will precede an expanded model featuring all seven of the latent variables in Table 1. Three structural parameters will be estimated among the three latent variables: Deviance at Time 1 to Early transitions to adult roles, Early transitions to adult roles to Deviance at Time 4, and Deviance at Time 1 to Deviance at Time 4.

The parameter between Deviance at Time 1 and Deviance at Time 4 represents the relationship between adolescent deviance and adult deviance, which has been

demonstrated in prior research as being moderate to high (Nagin and Farrington 1992; Nagin and Paternoster 1991). This known predictor of adult deviance is controlled during the estimation of the parameter between Early transitions to adulthood and adult deviance. If Early transitions to adulthood can be thought of as part of a trajectory of problem behavior, which includes deviance, then it stands to reason that adolescent deviance would precede it, and adult deviance would follow it. Thus parameters are estimated between adolescent deviance and early transitions to adulthood, and early transitions to adulthood and adult deviance. These three structural parameters among three latent variables comprise the simplified model.

The simplified model will be estimated on the full sample and on each of eight subgroups in order to examine subgroup differences and possible moderating conditions. The eight subgroups measure varying conditions of gender, race/ethnicity, socioeconomic status, and expectations for future failure in conventional adolescent roles, all of which have been shown to affect the both the relationship of past deviance to future deviance, the likelihood of early transitions, and also the effect of early transitions to adulthood on future outcomes (Ortiz and Fennelly 1988; Farnworth and Lieber 1989; Carlson 1989; Graber and Brooks-Gunn 1996a; Kaplan, Damphousse, and Kaplan 1996; Kerckoff and Parrow 1979; Strobino and Sirageldin 1981). Figure 1 shows a visual diagram of the measurement and structural model for the Simplified model, and Table 2 lists the subgroups on which analysis will be performed.
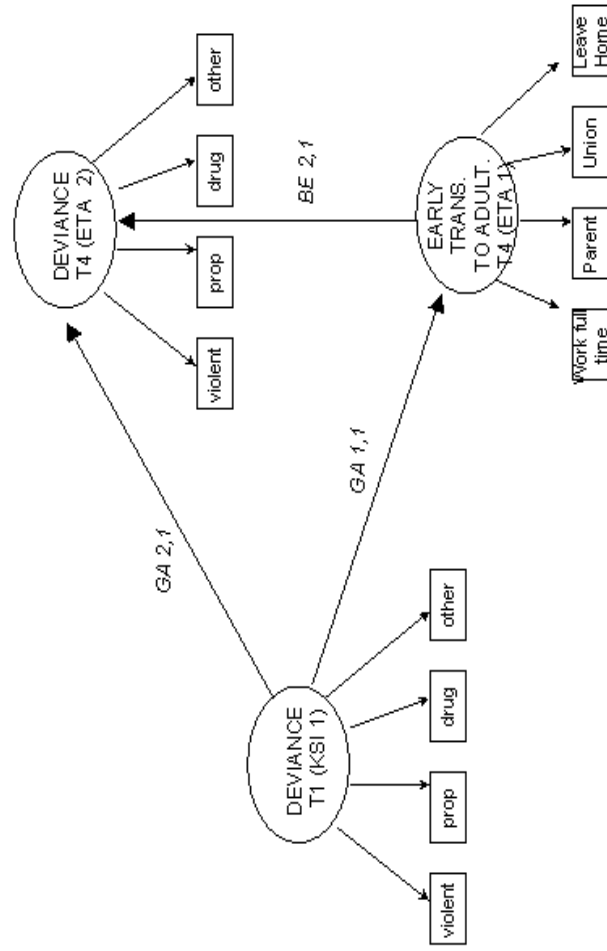
Figure 1: Simplified model for full sample and subgroups

II. Expanded Model

An expanded structural equation model will be estimated employing all seven of the latent variables previously defined. In addition to the three latent variables used in the simplified model described earlier, the three latent variables Perceived rejection at Time 1, Psychological distress at Time 2, and Desire to escape conventional adolescent roles at Time 2 will be introduced to examine mechanisms through which relationships observed in the simplified model are attenuated, or mediated. A fourth latent variable, Psychological distress at Time 4, will be added as a final adult outcome variable affected by both adult deviance and early transitions to adult roles, while controlling for stability of prior psychological distress.

The trajectory of deviance, or stability over time will be modeled as a relationship between Deviance at Time 1 and Deviance at Time 4 as it was in the simplified model, and the relationships between Deviance at Time 1 and Early transitions to adult roles and between Early transitions to adult roles and Deviance at Time 4 present in the simplified model will remain in place in the expanded model.

In addition to those parameters present in the simplified model, additional structural parameters will also be estimated between Deviance at Time 1 and the latent variables Perceived rejection by others at Time 1 and Psychological distress at Time 2. Perceived rejection by others at Time 1 will also be modeled as influencing Psychological distress at Time 2. These parameters are consistent with prior research regarding the effect of adolescent deviance on perceived rejection by parents, teachers and peers, and subsequent effects on self-derogation and self esteem (Kaplan, Peck, and

Kaplan 1994; Kaplan, Liu, and Kaplan 1995). Both Perceived rejection by others at Time 1 and Psychological distress at Time 2 will be modeled as influencing Desire to escape conventional adolescent roles at Time 2, consistent with Strain theory's notion that aversive stimuli will lead to a desire to escape current domains of action (Agnew 1985; 1992; Farnworth and Lieber 1989; Brezina 1996). Both Desire to escape conventional adolescent roles and Psychological distress at Time 2 will be modeled as affecting Early transitions to adult roles consistent with Hagan and Wheaton's 1993 findings of early transitions to adulthood as outcomes of the adolescent search for role exits. In addition to the existing parameter between Early transitions to adulthood and Deviance at Time 4 in the simplified model, in the expanded model, Psychological distress at Time 2 will be modeled as influencing Deviance at Time 4, since the experience of psychological distress in the form of self derogation in adolescence increases the likelihood of later deviance in an attempt to assuage the distress felt as a result of failing to conform (Kaplan 1986). Lastly, parameters will be estimated between the final adult outcome variable, Psychological distress at Time 4, and both Deviance at Time 4, and Early transitions to adult roles. These effects will be added because the literature suggests that both adult deviance and early transitions to adult roles have deleterious effects on adult well-being (McLanahan and Sorensen 1995; Greenberger and Steinberg 1986; Mihalic and Elliott 1997; Kaplan, Damphousse, and Kaplan 1996). The expanded model will contain a total of fourteen structural parameters, which are depicted visually in Figure 2. The expanded model will be estimated on the full sample and on the eight subgroups in order to examine differences among them as suggested

may exist by prior literature (Ortiz and Fennelly 1988; Carlson 1989; Graber and

Brooks-Gunn 1996a; Kerckhoff and Parrow 1979; Strobino and Sirageldin 1981).
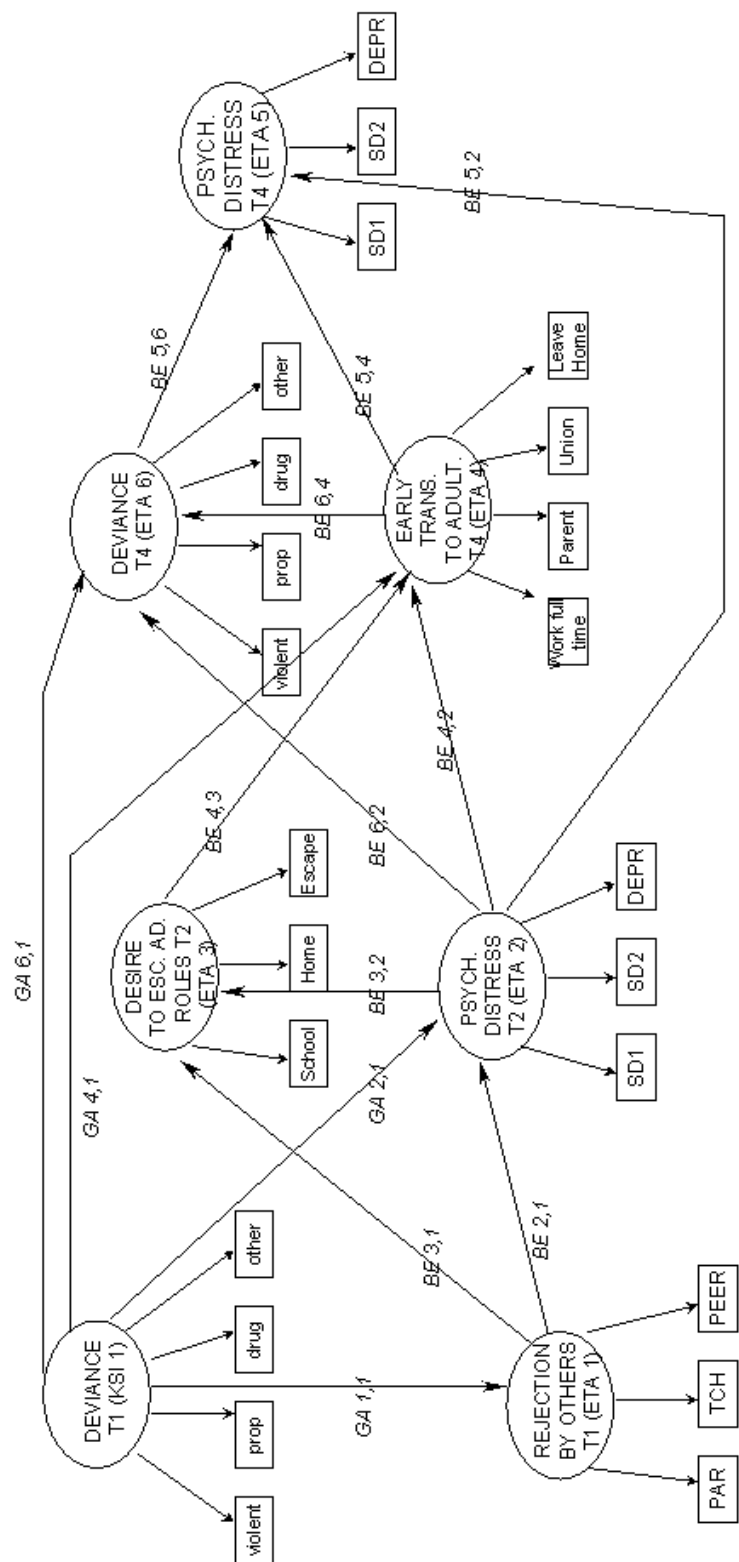
Figure 2: Expanded model for full sample and subgroups

RESULTS

Statistical analyses described in the previous chapter were subsequently performed and the results are presented and discussed in this chapter. The first set of results discussed in this section are the univariate descriptive statistics of sample demographic characteristics and measurement scales at various points in time including a comparison of individuals providing data in adolescence and adulthood (and subsequently featured in the structural equation models) and those not participating in the adult wave of the study. Next, results are presented from scale reliability analyses performed on items comprising the observed scales which comprise the Latent Variables used in subsequent structural equation models. I then examine the measurement model, structural parameters, and model fit characteristics of two sets of structural equation models: A simplified model consisting of three latent variables (Deviance at Time 1, Early transitions to adult roles, and Deviance at Time 4), and a more complex model incorporating an additional 4 mediating variables (Rejection by others at Time 1, Psychological distress at Time 2, Desire to escape adolescent roles at Time 2, and Psychological distress at Time 4). Both sets of models include results for the Full Sample, and for eight subgroups within the sample for which results are believed to vary.

Univariate Descriptive Statistics

Descriptive statistics were performed to examine each variable's distribution and variability in the available sample. This basic analysis gives some insight into why a variable performs the way it does in multivariate analyses. Demographic characteristics

are examined in this way for individuals who answered the survey at Times 1, 2 and 4, and thus did not remove themselves from the sample at earlier waves in the study. Also examined were demographic and scale characteristics for people answering the survey at Times 1 and 2, but who did not participate at Time 4, in order to gain some insight into potential non-response and attrition-related bias in demographic variability and in scale distribution.

Table 3 compares the frequency distributions of various demographic variables for respondents remaining in the sample at Time 4, and for those who were lost to attrition by Time 4. These demographic characteristics are thought to affect representativeness of the sample (and thus generalizeability) or one or more of the endogenous variables in the structural equation models examined later. The variables shown in Table 3 are: gender, age at first measurement, race/ethnicity, mother's education at first measurement, and father's education at first measurement.

According to the frequency distribution, gender is skewed toward the male group among those who dropped out of the study by adult measurement, and this is also reflected in a larger percentage of females in the final sample used in subsequent analyses. While males make up 55.76 % of the sample of those not present in the adult measurement, they make up 46.46% of those present in both adolescent and adult measurements. This may affect variability in the observed variables used to estimate the latent variables Deviance at Time 1 and Deviance at Time 4 as males tend to engage in more deviance, or at least are more likely to self-report deviance.

A greater percent of those dropping out of the study reported that their age at first adolescent measurement as 14 or older compared with those who stayed in the study (22.29% compared with 12.93%). The Time1/2 sample and Time 1/2/4 sample did not vary greatly in terms of race and ethnicity. The Time 1/2/4 sample has a higher percentage of Whites than the Time1/2 sample (62% versus 55%), and a slightly lower proportion of Mexican Americans (9% versus 12%), African Americans (26% versus 28%) and "Other" race/ethnicity (1.7% versus 3.3%).

Socioeconomic status also varied in the Time 1/2/4 and Time 1/2 only samples. A higher percentage of the Time 1/2/4 sample reported maternal and paternal education levels at first measurement as college graduate. Nearly 28% of the Time 1/2/4 sample reported their mother's education as college graduate compared with 19% of the Time 1/2 only sample. Thirty-eight percent of the Time 1/2/4 sample reported Father's Education as college graduate compared with 28% of the Time 1/2 only sample.

In short, respondents who remained in the study at all three points in time were slightly more likely to be female, non-minority, and come from a college-educated household than those who either chose not to participate or could not be located at Time 4 (young adult measurement). Later, I shall examine differences in some of the adolescent summed scales seen in the Time 1/2 only and Time 1/2/4 samples.

Table 3: Distributions of demographic variables measured in adolescence for respondents providing data for Time 1, 2 and 4 versus respondents only providing Time 1 & 2 data.

Demographics at Time 1/2	T124		T12 Only	
	N	%	N	%
Gender				
Male	2,370	46.46	1,408	55.76
Female	2,731	53.54	1,117	44.24
Age				
11 or below	172	3.41	84	3.38
12	1,797	35.65	730	29.38
13	2,420	48.01	1,117	44.95
14 or older	652	12.93	554	22.29
Race/Ethnicity				
White	3,110	62.14	1,361	55.51
Black	1,333	26.63	694	28.30
Mex. Amer.	477	9.53	315	12.85
None of these	85	1.70	82	3.34
Mother's Education				
Did not grad. Elementary sch.	135	2.75	115	4.80
Did not grad. High school	498	10.13	321	13.40
High school graduate	1,761	35.81	807	33.70
College graduate	1,405	28.57	477	19.92
Don't know	1,118	22.74	675	28.18
Father's Education				
Did not grad. Elementary sch.	172	3.49	127	5.30
Did not grad. High school	430	8.72	269	11.23
High school graduate	1,096	22.23	575	24.01
College graduate	1,899	38.52	659	27.52
Don't know	1,333	27.04	765	31.94

Table 4 contains the frequency distributions and percents for variables measured in young adulthood (Time 4) among those respondents participating in the study in adolescent and adult measurement. Variables examined are year (if any) in which respondent graduated from high school, and binary early adult transition variables. One

of the reasons this particular univariate examination is important is because what is considered "early" in the early transition variables hinges upon the median year of high school graduation for the sample as a whole. Table 4 shows that 70.3% of the Time 1/2/4 sample reported graduating in 1976. Since the median year of high school graduation for the sample was 1976, early entry into the various adult roles was defined as present if the recorded first year of experiencing the various transition events was 1976 or earlier.

In the Methods section, the four variables measuring different aspects of early transitions were described as binary variables with "1" indicating that the year of first occurrence for an event or role was less than or equal to 1976 and "0" indicating otherwise. These variables are: Early full-time entry into the workforce, Early union formation, Early parenthood, and Early home-leaving. Of all respondents in the Time 1/2/4 sample, 18.4% reported Early full time entry into the workforce, 10.7% reported early union formation, 7.6% reported early parenthood, and 18% reported early home-leaving.

Table 4: Distributions of demographic variables measured in adulthood for respondents providing data for Time 1, 2 and 4.

Time 1, 2 and 4 respondents' Demographics at Time 4	N	%
Year Graduated HS		
1970 to 1974	47	.91
1975	263	5.11
1976	3,617	70.31
1977	157	3.05
1978 to 1986	59	1.14
Other or missing	1,001	19.47
Early Entry into Workforce		
Yes	942	18.37
No	4,185	81.63
Missing	17	.33
Early Union Formation		
Yes	551	10.73
No	4,586	89.27
Missing	7	.14
Early Parenthood		
Yes	393	7.65
No	4,747	92.35
Missing	4	.08
Early Home Leaving		
Yes	922	17.970
No	4,208	82.030
Missing	14	.30

Table 5 shows educational characteristics for the full Time 4 adult measurement sample for which the sample frame is all people participating in any of the adolescent waves of the study (Times 1, 2, and 3 – which is not being used in the multivariate models). Among this larger group of 6,074 respondents, 78.25% indicated they had in fact graduated from high school, and 68% indicated that the year they graduated high school was 1976.

Table 5: Educational characteristics of full sample of Time 4 respondents.

Full Time 4 N=6074	N	Percent
Grad High School		
Yes	4,752	78.24
No	1,309	21.55
Miss/Invalid	13	.21
Year Grad		
<=1974	60	.99
1975	300	4.94
1976	4,134	68.06
1977	186	3.06
>=1978	73	1.2
Miss/Invalid	1,321	21.75

Table 6 shows univariate descriptive statistics for the Time 1 and Time 2 summed scales used as observed variables in estimation of latent variables used in the Structural Equation Models presented later.   Summed scale values were computed for two sets of respondents: 1) those participating in adolescent and young adult measurement periods 2) those participating in adolescent measurement period only.

Results are shown for both groups of respondents for purposes of comparison for attrition bias. In general, for both groups, the summed scales showing the greatest amount of skewness and kurtosis are the observed variables comprising the Time 1 deviance construct. This is somewhat expected, and is supported theoretically by Moffitt's (1993) notion of two distinct groups of offenders: a non-serious, low-end group comprising approximately two thirds of those committing deviance, and a persistent, high-end group of offenders engaging in more types of deviance, and engaging in deviance more frequently than the non-serious group.

Compared to those who remained in the study for adolescent and young adult measurements, those who did not participate in adult measurements scored slightly higher than the non-attrited group on Time 1 violence, property, drug and other deviance, indicating that those who dropped out in adulthood may have been slightly more deviant than those who stayed in the study for adult measurement. Those who dropped out also tended to score slightly higher on Time 1 rejection by parents, teachers and peers than those who stayed in for adult measurement. They also scored higher on Time 2 depression, and expectations for future failure in conventional roles on average.

Table 6: Distributions of adolescent scale scores for respondents participating in adolescent and adult waves of the study versus those respondents participating in adolescent waves only.

Variable	Respondents participating in Time 1, 2 and 4						Respondents lost to follow up at Time 4					
	N	Mean	Std Dev	Std Err	Skew	Kurt.	N	Mean	Std Dev	Std Err	Skew	Kurt.
Time 1 Violence	5,103	.550	.92	.013	2.07	4.71	2,532	.776	1.09	.022	1.61	2.36
Time 1 Property	5,103	.341	.73	.010	2.84	10.40	2,532	.468	.94	.019	2.73	8.82
Time 1 Drug	5,100	.239	.62	.009	3.20	11.56	2,532	.359	.78	.016	2.60	6.88
Time 1 Other Deviance	5,103	.403	.71	.010	1.92	3.83	2,532	.530	.82	.016	1.68	2.66
Time 1 Rej. by Parents	5,098	1.188	1.13	.016	1.05	1.01	2,532	2.015	1.31	.026	.62	.15
Time 1 Rej. by Teachers	5,102	.811	1.15	.016	1.34	.77	2,532	1.541	1.31	.026	.77	-.18
Time 1 Rej. by Peers	5,102	1.375	1.4	.020	.85	-.22	2,532	2.662	1.36	.027	.49	-.42
Time 2 Self-Derogation 1	3,521	1.536	1.38	.023	.61	-.54	1,292	1.584	1.38	.038	.60	-.48
Time 2 Self-Derogation 2	3,481	.466	.67	.011	1.12	.01	1,280	.486	.68	.019	1.07	-.13
Time 2 Depression	3,517	1.140	1.24	.021	1.23	1.15	1,295	1.219	1.24	.034	1.08	.77
Time 2 Desire Leave Home	3,503	.428	.65	.011	1.25	.32	1,285	.498	.69	.019	1.04	-.21
Time 2 Desire Leave Schl.	3,481	.448	.71	.012	1.26	.11	1,281	.497	.73	.020	1.10	-.27
Time 2 Desire Retreat/Esc.	3,519	1.836	1.20	.020	.27	-.55	1,295	1.726	1.17	.032	.33	-.47
Time 2 Expect. Future Failure	3,520	1.425	1.48	.025	1.16	1.17	1,490	2.484	1.72	.045	.77	.17

Table 7 shows univariate descriptive statistics for the Time 4 summed scales used as observed variables for Time 4 deviance and Time 4 self derogation. Here again we see that the variables showing the largest amount of skewness and kurtosis are the deviance scales. However, at Time 4 we see the large skewness & kurtosis of drug use disappears. The largest mean among the summed scales is for drug related deviance, suggesting that drug use is fairly common among this cohort.

Table 7: Univariate summary statistics for scales measured at time 4 (in Time 1/2/4 sample).

	N	Mean	Std Dev	Std Err	Skew.	Kurt.
Time 4 Violence	5,144	.103	.36	.005	4.10	20.21
Time 4 Property	5,144	.121	.41	.006	4.21	22.04
Time 4 Drug	5,144	1.112	1.14	.016	.73	-.42
Time 4 Other Deviance	5,144	.233	.57	.008	3.03	11.70
Time 4 Self-Derogation 1	5,142	.884	1.16	.016	1.38	1.39
Time 4 Self-Derogation 2	5,142	.229	.52	.007	2.21	3.97
Time 4 Depression	5,139	.852	1.06	.015	1.74	3.43

Scale Reliability Analyses

Cronbach's alpha was performed for sets of items comprising each of the summed scales. The results are reported in Table 8. The Cronbach's alphas for Time 1 violence, property offenses, and drug use, and "other" deviance ranges from moderate to high. The highest alpha seen among these indicators is for the four items comprising the Time 1 drug related deviance scale. (α = .6125), and the lowest alpha is observed for items measuring Time 1 "other" deviance (α =.3848). The "other" deviance scale at time one is comprised of items measuring different aspects of deviant behavior not encompassed in violent behavior, property crime, and drug offenses, and are primarily school-related in context (suspension, cheating on exams, skipping school) and are adolescent limited in their nature.

The Cronbach's alpha is .5913 for the time 1violent behavior scale, and is .5679 for the time 1 property crime scale. The Cronbach's alpha coefficients for the Time 1 perceived rejection by others scales are moderately high, with α = .5825 for rejection by parents, α = .7004 for rejection by teachers, and α = .6596 for rejection from peers.

The three scales measuring Psychological Distress at time 2 are: Time 2 self derogation 1, Time 2 self derogation 2, and Time 2 Depression. Self derogation 2 is comprised of two items measuring a global attitude towards oneself (positive/negative) rather than specific thoughts about oneself as Self derogation 1 does. Their Cronbach's alpha coefficients were moderate at $\alpha = .6173$, $\alpha = .4219$, and $\alpha = .6560$ respectively.

The summed scales later used to comprise the latent variable Time 2 desire to leave conventional adolescent roles are: desire to leave home, desire to leave school, and retreatism/escapism. Their alphas ranged from $\alpha = .3092$ to $\alpha = .63$. The summed scale comprising the conditional variable "expectation for failure in conventional adolescent roles" at Time 2 has a moderately high alpha of .5806.

Many of the summed scales comprising Time 4 deviance yielded moderate Cronbach's alpha coefficients compared with the scales' Time 1 counterparts, suggesting a possible maturing out of some of these behaviors, with the exception of drug use, which remains moderately high in Time 4 with $\alpha = .6458$. Time 4 violence, property and Other deviance yielded coefficients of $\alpha = .3465$, $\alpha = .4127$, and $\alpha = .4209$ respectively.

Scales comprising Time 4 Psychological distress showed moderately high alphas. Time 4 self-derogation 1 items yielded an alpha of .6536, Time 4 self-derogation 1 items yielded $\alpha = .5123$, and Time 4 depression items yielded $\alpha = .6766$. These three scales are measured by the same items as their Time 2 counterparts. They show a similar pattern as their Time 2 counterparts, with Self-derogation 2 being the lowest among the three, and depression being the highest. All three are higher at time 4 than at Time 2,

suggesting greater homogeneity among the sample in adulthood in terms of these three measures.

While some of the Cronbach's alpha coefficients are, admittedly, somewhat low, this does not necessarily preclude them from use. Bollen and Lennox (1991) and Streiner (2003) contend that when items measure highly different aspects of a construct, high correlations between the items, and hence high alpha coefficients should not necessarily be expected. Furthermore, though high alphas among such items may not be present, omission of one or more of these items may lead to less than complete measurement of the construct as a whole. In such circumstances when high correlations do not exist, but the items themselves cause an overarching concept to exist, it is perfectly acceptable to include all of the items in the interest of wholeness of measurement.

Table 8: Standardized Cronbach's alpha coefficients for items comprising summed scales used as observed variables in later SEM models. (Time 1/2/4 sample).

Summed Scale	Number of items	Cronbach's Alpha α (standardized)
Time 1 Violence	5	.5913
Time 1 Property offenses	6	.5679
Time 1 Drug use	4	.6125
Time 1 Other deviance	4	.3848
Time 1 Rejection by parents	5	.5825
Time 1 Rejection by teachers	4	.7004
Time 1 Rejection by peers	6	.6596
Time 2 Self Derogation 1	5	.6173
Time 2 Self Derogation 2	2	.4219
Time 2 Depression	5	.6560
Time 2 Desire to leave home	2	.6343
Time 2 Desire to leave school	2	.4345
Time 2 Retreatism/escapism	5	.3092
Time 2 Expectations for future failure in conventional roles	8	.5806
Time 4 Violence	4	.3465
Time 4 Property offenses	5	.4127
Time 4 Drug offenses	4	.6458
Time 4 Other deviance	6	.4209
Time 4 Self Derogation 1	5	.6536
Time 4 Self Derogation 2	2	.5123
Time 4 Depression	5	.6766

Structural Equation Modeling Results

Two sets of structural equation models were generated on the full sample and eight subgroups: 1) a three latent variable model featuring relationships among adolescent deviance, early transitions to adult roles, and adult deviance (simplified model). 2) a more complex seven latent variable model featuring an additional three

intervening (mediating) variables, and one final adult outcome variable. The structural

equation models were estimated as X Y models. Both the simplified model and

expanded model contained one latent exogenous variable - Deviance at Time 1 (KSI 1) -

comprised of 4 observed indicators. In addition, the simplified model contains three

latent endogenous variables comprised of twelve observed variables and the expanded

model contained seven latent endogenous variables comprised of twenty-four observed

indicators. In order to generate these two sets of models, PRELIS 2 was first utilized to

generate covariance matrices for the full sample and for the eight subgroups specified in

the earlier methods chapter. Maximum likelihood estimation was used for the

covariance matrices, and later to estimate the measurement models and the structural

models in LISREL 8.

This section will present results from the measurement model first, followed by

the simplified and expanded structural model parameters, and lastly, the model fit

statistics for the simplified and expanded models. Measurement model loadings are

presented using completely standardized coefficients for purposes of viewing loadings

for observed variables used to set metrics for the latent variables and structural

parameters are reported using unstandardized coefficients. Since most of the coefficients

were statistically significant (T-value of 1.96 or greater) for readability purposes non-

significant results will be notated as (ns) in the tables. All of the results include

estimates for the full sample and each of the eight subgroups specified in the earlier

Methods section. Table 9 contains a list of each group for which results are estimated,

showing and their sample sizes for each group before and after listwise deletion was

employed to eliminate missing values for one or more observed indicators (summed

scales) used in the measurement model.

Table 9: Full sample and subgroup Ns before and after listwise deletion.

Sample/Subgroup	Ns Before Listwise Deletion	Ns After Listwise Deletion
Full Time 1,2, & 4 sample	5,144	3,379
Male subgroup	2,370	1,465
Female subgroup	2,371	1,912
White	3,110	2,085
Nonwhite	1,895	1,238
Father's Educ. < H.S. Grad.	602	412
Father's Educ. >= H.S. Grad.	2,995	2,031
Expect. For future failure <= median	2,164	2,084
Expect. For future failure > median	1,356	1,295

Measurement Model

The measurement model in general features seven latent variables estimated from 24

observed variables: one latent exogenous variable (KSI), and six latent endogenous

variables (ETA). Tables 10 through 16 contain completely standardized factor loadings

(Lambda X and Lambda Y coefficients) for the seven latent variables in separate tables.

Each table contains loadings for the full sample and for each of the eight subgroups for

which models were estimated. Unless otherwise noted in the tables, Lambda X and

Lambda Y coefficients were statistically significant.

I. Lambda X Coefficients for Deviance at Time 1

The latent exogenous variable, Deviance at Time 1, is comprised of 4 observed scale scores measuring different aspects of deviance at Time 1: Violent behavior, Property related crime/deviance, Drug related deviance, and "Other" deviance\truancy and school related deviance. Table 10 contains completely standardized solution lambda x coefficients for the full sample and eight subgroups for this particular latent variable. For the full sample, lambda x coefficients range from .54 for the Drug scale to .70 for the Property scale. Slightly lower lambda x coefficients for Violent, Property and Other are seen for females when compared to males. Slightly higher lambda x coefficients on Property and Drug scales are seen for respondents whose paternal education level was high school graduate or more than for those whose paternal education level was less than high school graduate.

This pattern of higher lambda x coefficients for property and drug scales also holds true when comparing Whites to Non-whites, and for those who scored above the median on a scale of expectations to failure compared to those who scored at or below the median. Loadings for the Violence scale are highest for the male subgroup and lowest for the female subgroup. Loadings for the property crimes scale are highest for the Whites subgroup and lowest for the Nonwhite subgroup. Lambda x coefficients for the Drug scale is highest for the White subgroup and lowest for the nonwhite subgroup, and Loadings for the "Other" deviance scale is highest for the respondents with paternal education of less than high school graduate, and lowest for the group scoring at or below the median on the expectations for failure scale.

Table 10: Completely standardized lambda X coefficients for observed variables comprising the Deviance at Time 1 latent variable.

Deviance T1	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	WHITE N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LX	Stdz LX	Stdz LX	Stdz LX	Stdz LX	Stdz LX	Stdz LX	Stdz LX	Stdz LX
Violence T1	.60	.64	.50	.61	.61	.61	.61	.57	.58
Property T1	.70	.73	.62	.73	.65	.74	.61	.72	.66
Drug T1	.54	.55	.55	.54	.49	.58	.47	.57	.49
Other T1	.62	.67	.59	.62	.68	.62	.63	.66	.54

II. Lambda Y Coefficients for Perceived Rejection by Others at Time 1

The latent endogenous variable "Perceived rejection by others at Time 1" is comprised of three observed scale scores: Perceived rejection by parents at Time 1, Perceived rejection by teachers at Time 1 and Perceived rejection by peers at Time 1. Table 11 contains completely standardized solution lambda y coefficients for the full sample and eight subgroups for this particular latent variable. In the full sample, the lambda y coefficients for the three scales ranged from .45 for Rejection by peers to .64 for Rejection by teachers. In comparing males and females, the lambda y coefficient for Rejection by parents is higher for females, while the lambda y coefficient for Rejection by teachers and peers is higher for males.

In comparing those with paternal education backgrounds of High school graduate or greater versus those with paternal education of less than a high school graduate, the lambda y coefficients of Rejection by parents and peers are higher for the high school graduate group, while the lambda y coefficient of Rejection by teachers is higher for the non-high school graduate group. In comparing Whites and Non-Whites, lambda y

coefficients for Rejection by parents and peers are higher for the Non-white group than for the White group. For those scoring above the median on the expectations for failure scale, the lambda y coefficient for Rejection by teachers is higher than for those scoring at or below the median on the scale.

Lambda y coefficients for Rejection by parents and peers were higher for those scoring at or below the median on the Expectations for failure scale. The loading for Rejection by parent was highest for the female subgroup and lowest for those with scores above median on the expectations for failure scale. The lambda y coefficient for Rejection by teacher is highest for those above median on expectations for failure, and lowest for those at or below the median on this scale. The lambda y coefficient for Rejection by peers was highest for Non-whites and lowest for Whites and those above median on the expectations for failure scale.

Table 11: Completely standardized lambda Y coefficients for observed variables comprising the Perceived rejection by others at Time 1 latent variable.

Perceived Rejection by Others T1	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Rej by parents T1	.63	.58	.67	.65	.61	.62	.65	.57	.59
Rej by teachers T1	.64	.65	.62	.64	.65	.64	.63	.67	.54
Rej by peers T1	.45	.48	.43	.43	.33	.40	.55	.40	.47

III. Lambda Y Coefficients for Psychological Distress at Time 2

The Latent Endogenous variable "Psychological distress at Time 2" consists of three scale scores: Self derogation scale 1 at Time 2, Self derogation scale 2 at Time 2, and Depression scale at Time 2.   Table 12 contains completely standardized solution lambda y coefficients for the full sample and eight subgroups for this particular latent variable. The lambda y coefficients of the three scales in the full sample range from .53 for Self derogation 2, to .75 for Depression. In comparing males and females, the lambda y coefficients for Self derogation 1 and Depression are higher for males (.71). In comparing those with paternal education backgrounds of high school and greater and those with paternal education backgrounds less than high school, loadings for self derogation scales 1 and 2 are higher for those with paternal education levels of high school or greater (.70 and .56 respectively), while loadings for the depression scale are higher for those with paternal education levels less than high school graduate (.79).

The White subgroup yielded higher lambda y coefficients for Self derogation 2 (.60) and Depression (.77) than the Non-White subgroup. The group scoring above the median on Expectations for future failure in conventional adolescent roles scale had higher lambda y coefficients on all three observed scales compared with the group that scored at or below the median on the scale. The lambda y coefficients for Self derogation 1 at Time 2 were highest and equivalent among males, Whites, and Non-whites (.71), and lowest among those scoring at or below the median on the Expectations for future failure in conventional adolescent roles scale (.62). The lambda y coefficient

for Self derogation 2 at Time 2 was highest for the White subgroup (.60) and lowest for

the Non-white subgroup (.37). The lambda y coefficient for the Depression scale at

Time 2 was highest among those with paternal education levels of less than high school

diploma (.79) and lowest among those scoring at or below the median on the

expectations for failure in conventional roles scale (.67).

Table 12: Completely standardized lambda Y coefficients for observed variables
comprising the Psychological distress at Time 2 latent variable.

Psych. Distress T2	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Self Derog. 1 T2	.70	.71	.69	.70	.69	.71	.71	.68	.62
Self Derog. 2 T2	.53	.51	.54	.56	.50	.60	.37	.52	.47
Depression T2	.75	.77	.74	.75	.79	.77	.70	.77	.67

IV. Lambda Y Coefficients for Desire to Escape at Time 2

The Latent Endogenous variable "Desire to escape conventional adolescent roles at Time

2" is measured using three observed scales: Desire to leave school at Time 2, Desire to

leave home at Time 2, and Retreatism/Escapism Time 2. Table 13 contains completely

standardized solution lambda y coefficients for the full sample and eight subgroups for

this particular latent variable. In the full sample, lambda y coefficients ranged from .33

for the Retreatism/Escapism scale to .64 for Desire to leave home. Lambda y coefficients

for Desire to leave school and Desire to leave home were higher for females (.53 and .66

respectively), while the loading for Retreatism/Escapism is higher for males (.36).

Lambda y coefficients for the Desire to leave school and home scales were higher for

those with paternal levels of education of high school graduate or greater (.53 and .67 respectively), while the lambda y coefficient for Retreatism/Escapism was higher for non-high school graduates (.38). Lambda y coefficients for Desire to leave school and home were higher for whites (.54 and .67) while the loading for Retreatism/Escapism was higher for non-whites (.34).

Lambda y coefficients for desire to leave school and home were higher for those scoring above the median on the expectations for failure in conventional roles scale (.45 and .61 respectively), while the lambda y coefficient for Retreatism/Escapism was higher for those at or below median on the scale (.36). The loading for Desire to leave school is highest for White (.54) and lowest for Non-white and those at or below median on Expectations for future failure in conventional roles scale (.31). Loadings for desire to leave home is highest for Whites and those whose paternal education level was High school graduate or greater (.67) and lowest for those at or below the median on Expectations for future failure in conventional roles scale (.50). The loading for Retreatism/Escapism is highest for those whose paternal education is less than High school graduate (.38), and lowest for those with high Expectations for future failure in conventional roles (.26).

Table 13: Completely standardized lambda Y coefficients for observed variables comprising the Desire to escape conventional adolescent roles at Time 2 latent variable.

Desire to Escape conv. Adolescent Roles T2	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Leave school T2	.51	.49	.53	.53	.52	.54	.45	.45	.31
Leave home T2	.64	.62	.66	.67	.62	.67	.57	.61	.50
Retreatism T2	.33	.36	.29	.29	.38	.32	.34	.26	.36

V. Lambda Y Coefficients for Early Transitions to Adult Roles

The latent endogenous variable "Early transitions to adult roles" is measured by four binary indicators measured retrospectively at Time 4: Early full time job, Early long term relationship, Early parenthood, and Early home leaving. Table 14 contains completely standardized solution lambda y coefficients for the full sample and eight subgroups for this particular latent variable. In the full sample, the lambda y coefficients range from .37 for early full time job, to .80 for early home leaving. The lambda y coefficients for Early full time job were higher for males, while lambda y coefficients for Early long term relationship, Early parenthood, and Early home leaving were higher for females. The lambda y coefficient for Early full time job is higher for those with paternal education levels of High school graduate or greater, while lambda y coefficients for Early long term relationship, Early parenthood, and Early home leaving are greater for those with paternal education levels less than high school graduate.

Lambda y coefficients for Early full time job, long term relationship and parenthood are greater for Whites, while Early home leaving is greater for Non-whites. Early full time job and Early home leaving are greater for those with high expectations for future failure in conventional roles, while lambda y coefficients for early long term relationship and parenthood are higher for those at or below the median on the Expectations for future failure in conventional roles scale. The lambda y coefficient for Early full time job was greatest for males, and lowest for Non-whites. The lambda y coefficient for Early long-term relationship was greatest for low expectations for failure, and lowest for the male subgroup. The lambda y coefficients for Early parenthood were

highest for Whites, and lowest for males. Lambda y coefficients for Early home leaving were greatest for those whose paternal education level was High school graduate or greater, and lowest for those with low Expectations for future failure in conventional adolescent roles.

Table 14: Completely standardized lambda Y coefficients for observed variables comprising the Early transitions to adult roles latent variable.

Early Transitions to Adult Roles	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	EXP FAIL HIGH N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Early full time job	.37	.49	.35	.38	.37	.43	.27	.42	.29
Early union	.78	.59	.84	.74	.79	.80	.79	.72	.86
Early parenthood	.47	.33	.50	.43	.48	.52	.47	.43	.49
Early home leaving	.80	.80	.83	.77	.87	.77	.81	.85	.73

VI. Lambda Y Coefficients for Psychological Distress at Time 4

The latent endogenous variable "Psychological distress at Time 4" consists of the same three observed scales used to measure "Psychological distress at Time 2", only collected at Time 4. These observed scale scores are: Self derogation 1 at Time 4, Self derogation 2 at Time 4 and Depression at Time 4. Table 15 contains completely standardized solution lambda y coefficients for the full sample and eight subgroups for this particular latent variable. When measured at Time 4 (young adulthood), the lambda y coefficients for the three scales in the full sample were .71, .71, and .72 respectively, while the Time 2 loadings showed wider variability, particularly for Self derogation 2 at Time 4. Lambda y coefficients for depression are higher for females than males. Lambda y

coefficients for Self derogation 1 at Time 4 and Depression at Time 4 are higher for those whose paternal level of education was less than High school graduate than for those whose paternal education level was high school graduate or greater. Self derogation 1 at Time 4 lambda y coefficients were higher for Non-whites than for Whites.

Both Self derogation 1 at Time 4 and Depression at Time 4 lambda y coefficients were higher for those who scored above the median on the Expectations for future failure in conventional roles scale. The highest lambda y coefficient for Self derogation 1 at Time 4 was seen for paternal non-high school graduates, while the lowest lambda y coefficient was seen for those scoring at or below the median on the Expectations for future failure scale. For Self derogation 2 at Time 4, the highest lambda y coefficient was seen for paternal high school graduates while the lowest coefficient was seen for Non-whites. For the Depression at Time 4 scale, the highest lambda y coefficients were seen for Whites and for those scoring above the median on the Expectations for future failure scale, while the lowest coefficient was seen for Non-whites.

Table 15: Completely standardized lambda Y coefficients for observed variables comprising the Psychological distress at Time 4 latent variable.

Psych. Distress T4	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Self Derog. 1 T4	.71	.71	.71	.69	.75	.70	.74	.73	.68
Self Derog. 2 T4	.71	.70	.71	.74	.67	.73	.66	.70	.73
Depression T4	.72	.71	.73	.70	.74	.75	.67	.75	.68

VII. Lambda Y Coefficients for Deviance at Time 4

The latent endogenous variable "Deviance at Time 4" is comprised of four scales measured at time 4 (young adulthood) similar to those used to measure Deviance at Time 1 (KSI 1): Violence at Time 4, Property offenses at Time 4, Drug offenses at Time 4, and "Other" deviance at Time 4 (primarily vice and vagrancy related deviance). The scales as measured at Time 4 feature more severe deviance not measured in adolescence, but which may be expected in measuring escalation of a trajectory of behavior. Table 16 contains completely standardized solution lambda y coefficients for the full sample and eight subgroups for this particular latent variable.

In the full sample, the lambda y coefficients for the four observed scales comprising deviance at Time 4 range from .44 for Violent behavior to .66 for "Other" deviance. Lambda y coefficients for all four scales are higher for males than for females. Lambda y coefficients for Violence, Property and "Other" are higher for those whose paternal level of education was less than high school graduate. Lambda y coefficients for violence and property were higher for Whites, while lambda y coefficients for Drug offenses and "Other" deviance were higher for Non-whites. Lambda y coefficients for Property offenses, Drug offenses and "Other" deviance were higher for those scoring above the median on the Expectations for future failure in conventional roles scale.

The highest lambda y coefficients for the Violence scale is seen for those whose paternal education level was less than high school graduate, while the lowest lambda y coefficients were seen for females and those whose paternal level of education was high

school graduate or greater. The highest lambda y coefficient for the Property offenses

scale was seen for males and for those whose paternal level of education was less than

high school graduate, while the lowest lambda y coefficient for Property offenses was

for females. For the Drug offenses scale, the highest lambda y coefficient was seen for

Non-whites while the lowest lambda y coefficient was seen for females. For "Other"

deviance, the highest lambda y coefficient was seen for those whose paternal level of

education was less than high school, while the lowest lambda y coefficient was seen for

females.

Table 16: Completely standardized lambda Y coefficients for observed variables
comprising the Deviance at Time 4 latent variable.

Deviance T4	Full Sample N=3379	Male N=1465	Female N=1912	Father HS Grad N=2031	Father NonHS N=412	White N=2085	Non-White N=1238	Exp Fail High N=1295	Exp Fail Low N=2084
	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY	Stdz LY
Violence T4	.44	.46	.39	.39	.56	.48	.43	.43	.43
Property T4	.55	.57	.49	.56	.57	.56	.54	.56	.54
Drug T4	.59	.60	.48	.59	.59	.59	.63	.61	.58
Other T4	.66	.64	.60	.65	.72	.64	.66	.66	.63

Structural Parameters

Structural parameters were estimated among the Latent variables using maximum

likelihood estimation in LISREL 8.1 as specified in the earlier methods chapter. First, a

three latent variable XY model with three structural parameters was estimated on the full

sample, and eight subgroups. Next, a more complex seven latent variable model with

fourteen structural parameters was specified on the full sample and eight subgroups to

examine mechanisms of mediation and moderation. In this portion of the structural

equation modeling results, I will first discuss simplified model parameters and expanded model parameters. The simplified and expanded model parameters in the full sample will be discussed, followed by comparisons of simplified and expanded parameters for males and females, Whites and Non-whites, those whose paternal level of education was high school graduate or greater and those whose paternal level education of education was less than high school graduate, those who scored above the median on the Expectations for future failure in conventional roles scale and those who scored at or below the median on the Expectations for future failure in conventional roles scale. The tables in this portion of the results feature the unstandardized solutions for the Gamma and Beta coefficients. Since most of the coefficients were significant at p< .05 or less (t-value of 1.96 or greater), they are not asterisked in the tables, rather statistically insignificant coefficients (p>.05) will be noted as (ns) in the tables. Next, model fit will be discussed for the simplified model and expanded model for the full sample and eight subgroups.

  I. Full Sample

The simplified and expanded models were first run on the Full sample of 3,379 individuals for which data on each observed scale used in the expanded model was available. In the simplified model shown in Table 17, Deviance at Time 1 has a significant and positive effect of .04 on Early transitions to adult roles, and Early transitions to adult roles has a significant and positive effect of .08 on Deviance at Time 4. Note that the relationship of Deviance at Time 1 to Deviance at Time 4 (stability of deviance over time, or trajectory of deviance over time) is .10. When other latent variables are added to the model as shown in Table 18, we see that the relationship

between deviance at Time 1 and early transitions to adult drops to nonsignificance. This

means that the significant positive relationship observed in the three latent variable

model is fully attenuated by the addition of mediating variables such as perceived

rejection by others, psychological distress experienced at Time 2, and the desire to

escape conventional adolescent roles.

Table 17: Simplified model parameters (unstandardized) for full sample.

	Full Sample N=3379	
	Dev T1	Early Tran.
	Gamma	Beta
Early Tran.	0.04	
Dev T4	0.10	0.08

Table 18: Expanded model parameters (unstandardized) for full sample.

FULL SAMPLE N=3379	Deviance T1 (KSI 1)	Perc. Rej. T1 (ETA 1)	Psy. Distr. T2 (ETA 2)	Desire to Esc. T2 (ETA 3)	Early Trans. to Adulthood (ETA 4)	Psy. Distr. T4 (ETA 5)	Deviance T4 (ETA 6)
	Gamma	Beta	Beta	Beta	Beta	Beta	Beta
Perc.Rej. T1 (ETA 1)	0.75						
Psy. Distr. T2 (ETA 2)	-0.33	0.99					
Desire to Esc. T2 (ETA 3)		0.17	0.21				
Early Trans. to Adulthood (ETA 4)	0.01 (ns)		-0.04	0.17			
Psy. Distr. T4 (ETA 5)			0.27		0.24 (ns)		0.66
Deviance T4 (ETA 6)	0.09		0.01		0.08		

In the expanded model, we see that the positive direct effect of Deviance at Time 1 on Early transitions to adulthood seen in the earlier simplified model becomes insignificant as indirect effects are specified among Deviance at Time 1, a number of intervening variables, and Early transitions to adult roles. In the expanded model, Deviance at Time 1 has a strong positive effect on Perceived rejection by others at Time 1. Perceived rejection by others subsequently has a strong positive effect on Psychological distress at Time 2. Psychological distress at Time 2 then has a strong effect on Desire to escape conventional adolescent roles at Time 2. It is this desire to escape conventional adolescent roles, which then has a strong positive effect on Early transitions to adult roles. This chain of direct relationships fully mediates the relationship between Deviance at Time 1 and Early transitions to adult roles seen in the simplified model. Figure 3 illustrates this chain with bold red dashed lines.

The relationship between Early transitions to adult roles and Psychological distress at Time 4 (young adulthood) is insignificant where it was predicted as being of similar magnitude and significance as the relationship between Deviance at time 4 and Psychological distress at Time 2. The relationship between Early transitions and Deviance at Time 4 is significant and positive. However, the two variables do not seem to have similar effects on psychological distress at Time 4. Note that in the expanded model, the stability of deviance over time as seen in the coefficient between Deviance at Time 1 and Deviance at Time 4 is .66, and the stability of psychological distress as seen in the coefficient between Psychological distress at Time 2 and Psychological distress at Time 4 is .27.

It was hypothesized that there would be a direct relationship (positive coefficient) between Deviance at Time 1 and Psychological distress at Time 2. Instead of the anticipated positive relationship, the relationship between Deviance at Time 1 and Psychological distress at Time 2 is negative, and remains so for all subgroups. However, Deviance at Time 1 positively affects Perceived rejection at Time 1, which in turn affects Psychological distress at Time 2. Thus, while a direct relationship between Deviance at Time 1 and Psychological distress at Time 2 does not exist, Perceived rejection by others at Time 1 serves as an intervening variable through which Deviance at Time 1 may come to affect Psychological distress at Time 2. This is consistent with Kaplan's (1975; 1980; 1986) theory of self derogation, which posits that in the absence of negative social sanctions, such as Perceived rejection by others, Deviance in and of itself will not lead to self derogation and feelings of distress due to non-approximation of valued behavior, rather it is the presence of perceived negative social sanctions that leads to self-derogation and feelings of distress.
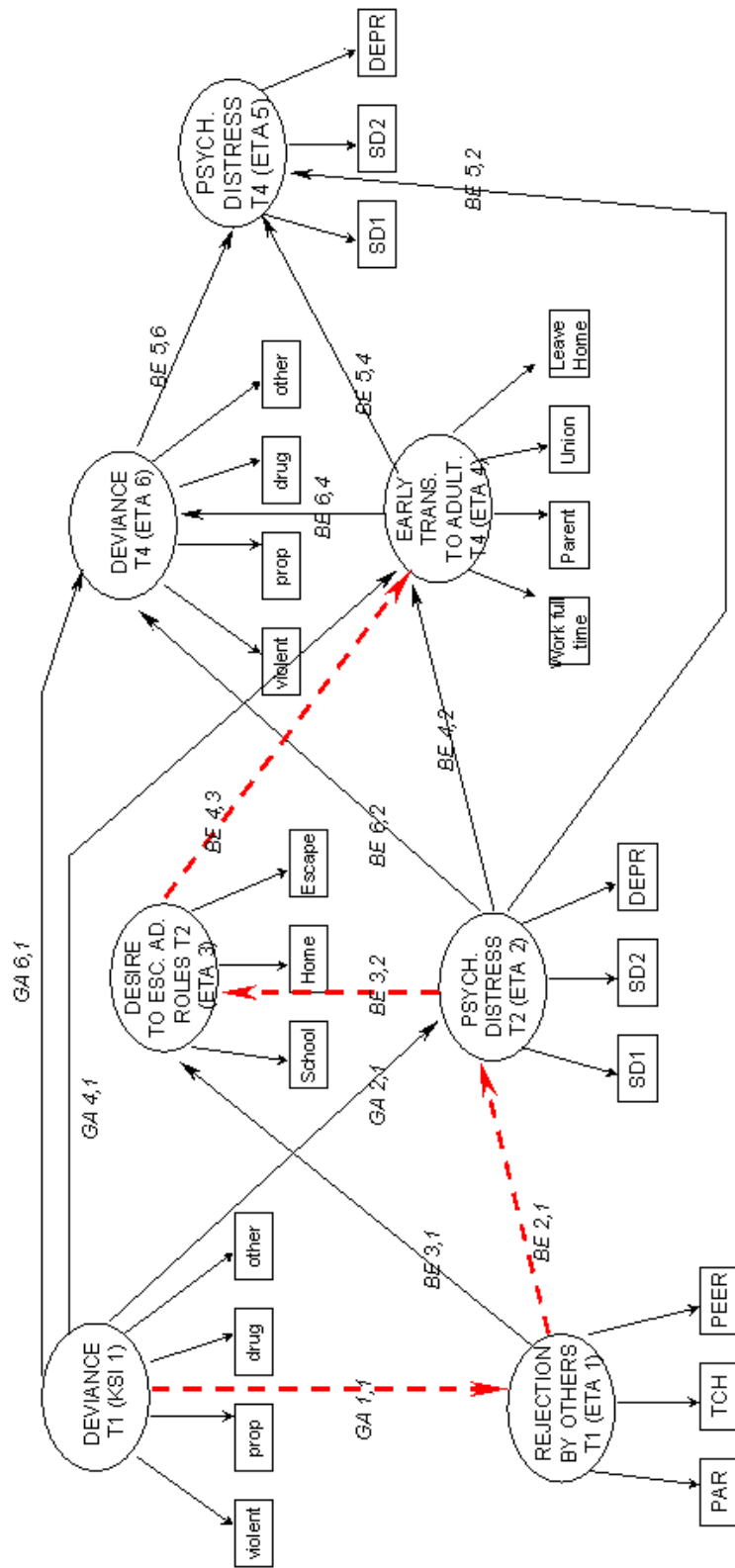
Figure 3: Chain of relationships in the expanded model attenuating the direct relationship between adolescent deviance and early transitions to adulthood observed in the simplified model

II. Male and Female Subgroups

In comparing the simplified model among males and females (Table 19), we can see that the effect of Deviance at Time 1 on Early transitions is slightly higher for females than for males (.07 compared with .06). Females also seem to display greater stability of Deviance over time (.10) than males (.07). However, in the simplified model, the effect of Early transitions to adult roles on Adult deviance (at Time 4) is higher for males than for females (.14 compared to .13).

In the expanded model for males and females (Table 20), the direct effect of adolescent deviance on Early transitions to adult roles remains significant only for males (.04) and is reduced to non-significance for females (.03, n.s.). For females, the direct relationship of adolescent deviance on early transitions to adult roles is largely attenuated by a chain of significant direct relationships between Deviance and Perceived rejection (1.33), Perceived Rejection and Psychological Distress (.91), Psychological distress and Desire to escape conventional adolescent roles (.20), and Desire to escape conventional adolescent roles and Early transitions to adult roles (.13). This chain of significant direct relationships exists for males as well, however, the direct relationship between adolescent Deviance and Early transitions to adulthood (.04) remains significant for males.

In comparing this chain of relationships more closely for males and females, the effect of Perceived rejection by others at Time 1 on Psychological distress at Time 2 is stronger for males as is the effect of Psychological distress at Time 2 on Desire to escape adolescent roles at Time 2, and the effect of Desire to escape on early transitions to

adulthood. However, the effect of adolescent deviance on perceived rejection by others

is stronger for females than for males (1.33 compared to .55). In the expanded model,

the relationship between Early transitions to adulthood and Adult deviance remains

significant for both males (.15) and females (.12). The effect of Adult deviance on

Psychological distress at Time 4 is greater for females (1.00) than for males (.74).

Table 19: Simplified model parameters (unstandardized) for male and female subgroups.

	Males N=1465		Females N=1912	
	Dev T1	Early Tran.	Dev T1	Early Tran.
Early Tran.	0.06		0.07	
Dev T4	0.07	0.14	0.10	0.13

Table 20: Expanded model parameters (unstandardized) for male and female subgroups.

MALES (N=1465) vs. FEMALES (N=1912)		Deviance T1 (KSI 1)	Perc. Rej. T1 (ETA 1)	Psy. Distr. T2 (ETA 2)	Desire Esc. T2 (ETA 3)	Early Trans. (ETA 4)	Psy. Distr. T4 (ETA 5)	Deviance T4 (ETA 6)
		Beta	Gamma	Gamma	Gamma	Gamma	Gamma	Gamma
Perc. Rej. T1 (ETA 1)	Males	0.55						
	Females	1.33						
Psy. Distr. T2 (ETA 2)	Males	-0.23	1.11					
	Females	-0.55	0.91					
Desire Esc. T2 (ETA 3)	Males		0.15	0.22				
	Females		0.22	0.20				
Early Trans. (ETA 4)	Males	0.04		-0.05	0.20			
	Females	0.03 (ns)		-0.02	0.13			
Psy. Distr. T4 (ETA 5)	Males			0.24		.21 (ns)		0.74
	Females			0.29		.08 (ns)		1.00
Deviance T4 (ETA 6)	Males	0.07		.01 (ns)		0.15		
	Females	0.09		0.01		0.12		

III. White and Non-White Subgroups

Simplified model parameters are shown for White and Nonwhite subgroups in Table 21. In this table, the effect of Adolescent deviance on early transitions to adult roles is only slightly higher for Whites (.04) than for Non-whites (.03). The stability effect of deviance over time is equivalent for Whites and Non-whites (.10). However, the effect of Early transitions to adult roles on Adult deviance (.07) is significant for Whites, but not for Non-whites (.10, ns). However, in the expanded models for Whites and Non-whites shown in Table 22, the direct effect of Adolescent deviance on Early transitions to adulthood is insignificant for Whites (.01, ns), but remains significant for Non-whites though diminished in magnitude (.02).

For Whites, the same chain of significant direct relationships attenuating the previously significant direct relationship between Adolescent deviance and Early transitions to adult roles for females is operating here in the same way for the White subgroup (see Table 23). However, not all components of this series of relationships are significant for Non-whites. The final direct relationship in the chain between Desire to escape conventional roles and Early transitions to adulthood is insignificant for Non-whites. The relationship between Desire to escape conventional adolescent roles and Early transitions to adulthood is significant for Whites (.19), but not for Non-whites (.17, ns). The direct relationship between Early transitions to adult roles and Adult deviance seen in the simplified model remains significant for Whites (.07), and insignificant for Non-whites (.11, n.s). While the relationship between Early transitions to adulthood and Adult psychological distress is positive and significant for Non-whites (.94) it is negative

and insignificant for Whites (-.03, ns). The subsequent effect of Adult deviance on Psychological distress is significant for both Whites and Non-whites, but is of much larger magnitude for Non-whites (1.10) than it is for Whites (.34).

Table 21: Simplified model parameters (unstandardized) for White and Non-white subgroups.

	Whites N=2085		NonWhites N=1238	
	Dev T1	Early Tran.	Dev T1	Early Tran.
Early Tran.	0.04		0.03	
Dev T4	0.10	0.07	0.10	.10 (ns)

Table 22: Expanded model parameters (unstandardized) for White and Non-white subgroups.

WHITES (N=2085) vs. NONWHITE (N=1238)		Deviance T1 (KSI 1)	Perc. Rej. T1 (ETA 1)	Psy. Distr. T2 (ETA 2)	Desire Esc. T2 (ETA 3)	Early Trans. (ETA 4)	Psy. Distr. T4 (ETA 5)	Deviance T4 (ETA 6)
		Beta	Gamma	Gamma	Gamma	Gamma	Gamma	Gamma
Perc. Rej. T1 (ETA 1)	Whites	0.82						
	Nonwhite	0.64						
Psy. Distr. T2 (ETA 2)	Whites	-0.53	1.09					
	Nonwhite	-.03 (ns)	0.89					
Desire Esc. T2 (ETA 3)	Whites		0.24	0.19				
	Nonwhite		.05 (ns)	0.26				
Early Trans. (ETA 4)	Whites	.01 (ns)		-0.04	0.19			
	Nonwhite	0.02		-.04 (ns)	.17 (ns)			
Psy. Distr. T4 (ETA 5)	Whites			0.29		-.03 (ns)		0.34
	Nonwhite			0.25		0.94		1.10
Deviance T4 (ETA 6)	Whites	0.09		0.01		0.07		
	Nonwhite	0.10		-.01 (ns)		.11 (ns)		

IV. Paternal Education Subgroups

Table 23 shows simplified model parameters for the subgroups: respondents indicating in adolescence that their father's (or stepfather's) education was high school graduate or greater, and respondents indicating in adolescence that their father's education was less

than high school graduate level. This latter group is comparatively smaller (N=412) than the former group (N=2,031). In the simplified model the "low" paternal education subgroup exhibits a slightly greater effect of Adolescent deviance on Early transitions to adulthood (.06) than the "high" paternal education subgroup (.04), and much greater stability of deviance over time (.14) than the high education subgroup (.08). While the relationship between Early transitions to adult roles and Adult deviance is significant for those with high paternal education (.07), it is non-significant for the low paternal education group (.12, ns).

In the expanded model results for these two subgroups (Table 24), the direct effect between Adolescent deviance and Early transitions to adult roles remains significant for those with high paternal education, though diminished (.02), but is reduced to non-significance for those with low paternal education (.01, ns). For the low paternal education group, the direct relationship between Adolescent deviance and Early transitions to adulthood seems to be attenuated by the same chain of direct relationships seen to attenuate this relationship in other subgroups such as the female subgroup and the white subgroup.

Though this chain of significant direct effects exists for the high paternal education subgroup as well, the direct relationship between Adolescent deviance and Early transitions to adult roles remains significant for this group, where it is reduced to non-significance for the low paternal education subgroup. In the low paternal education subgroup, the effect between Desire to escape conventional adolescent roles and Early transitions to adult roles is high (.40) compared to that of the high paternal education

subgroup (.13). However, for the low paternal education subgroup the relationships

between Early transitions to adult roles and Adult deviance and between Adult deviance

and Psychological distress at Time 4 are non-significant where they are significant for

those with high paternal education.

Table 23: Simplified model parameters (unstandardized) for father's education high school graduate or greater subgroup and Father's education less than high school graduate subgroup.

	Fathers Education High school or greater N=2031		Fathers Education less than High school N=412	
	Dev T1	Early Tran.	Dev T1	Early Tran.
Early Tran.	0.04		0.06	
Dev T4	0.08	0.07	0.14	0.12 (ns)

Table 24: Expanded model parameters (unstandardized) for father's education high school graduate or greater subgroup.

FATHER ED HS. GRAD+ (N=2031) vs. NON HS. GRAD (N=412)		Deviance T1 (KSI 1)	Perc. Rej. T1 (ETA 1)	Psy. Distr. T2 (ETA 2)	Desire Esc. T2 (ETA 3)	Early Trans. (ETA 4)	Psy. Distr. T4 (ETA 5)	Deviance T4 (ETA 6)
		Beta	Gamma	Gamma	Gamma	Gamma	Gamma	Gamma
Perc. Rej. T1 (ETA 1)	HS Grd or more	0.78						
	Non Grad	0.68						
Psy. Distr. T2 (ETA 2)	HS Grd or more	-0.30	0.92					
	Non Grad	-0.25 (ns)	0.78					
Desire Esc. T2 (ETA 3)	HS Grd or more		0.18	0.20				
	Non Grad		0.15	0.26				
Early Trans. (ETA 4)	HS Grd or more	0.02		-0.03	0.13			
	Non Grad	0.01 (ns)		-0.11	0.40			
Psy. Distr. T4 (ETA 5)	HS Grd or more			0.25		0.32 (ns)		0.57
	Non Grad			0.27		.17 (ns)		.40 (ns)
Deviance T4 (ETA 6)	HS Grd or more	0.08		0.01		0.08		
	Non Grad	0.14		-.01 (ns)		.13 (ns)		

V. Expectations for Future Failure Scale Subgroups

Simplified model parameters are presented below in Table 25 for subgroups of

respondents scoring above the median (high) and at or below the median (low) on a scale

measuring Expectations for future failure in conventional roles at Time 2. In the

simplified model results the effect of Adolescent deviance on Early transitions to

adulthood is higher for those with high expectations for failure (.04) than for those with

low expectations for failure (.02). However, the stability of deviance over time (effect of

Deviance at Time 1 on Deviance at Time 4) is greater for those with low expectations

for failure (.11) compared with those with high expectations for failure (.08). The effect

of Early transitions to adulthood is significant for those with high expectations for failure

(.09) but not significant for those with low expectations for failure (.05, ns).

In the expanded model results for the expectations for failure subgroups shown in

Table 26, the significant direct effects previously seen between Adolescent deviance and

Early transitions to adult roles for both high and low expectations for failure subgroups

become non-significant. It appears that the same series of direct relationships seen

previously to attenuate this relationship is operating here to fully mediate the

relationship in both of these subgroups. In this series of relationships, the effect of

Perceived rejection by others on Psychological distress is greater for the high

expectations for failure subgroup (.87 compared with .78) as is the relationship between

Psychological distress and Desire to escape adolescent roles (.21 compared with .15).

The relationship between Early transitions to adult roles and Adult deviance remains

significant for those with high expectations for failure (.09), and remains insignificant

for those with low expectations for failure (.06, ns) as it was in the simplified model

results. The effect of Early transitions to adult roles on Psychological distress at Time 4

is insignificant for both subgroups, and the relationship between Adult deviance and

Psychological distress at Time 4 is significant for both subgroups.

Table 25: Simplified model parameters (unstandardized) for high expectations for failure subgroup, and low expectations for failure subgroup.

	High expectations for future failure in conventional adolescent roles N=1295		Low expectations for future failure in conventional adolescent roles N=2084	
	Dev T1	Early Tran.	Dev T1	Early Tran.
Early Tran.	0.04		0.02	
Dev T4	0.08	0.09	0.11	0.05 (ns)

Table 26: Expanded model parameters (unstandardized) for high expectations for failure subgroup.

EXP. FAIL HIGH (N=1295) vs. LOW (N=2084)		Deviance T1 (KSI 1)	Perc. Rej. T1 (ETA 1)	Psy. Distr. T2 (ETA 2)	Desire Esc. T2 (ETA 3)	Early Trans. (ETA 4)	Psy. Distr. T4 (ETA 5)	Deviance T4 (ETA 6)
		Beta	Gamma	Gamma	Gamma	Gamma	Gamma	Gamma
Perc. Rej. T1 (ETA 1)	High	0.62						
	Low	0.64						
Psy. Distr. T2 (ETA 2)	High	-0.31	0.87					
	Low	-0.37	0.78					
Desire Esc. T2 (ETA 3)	High		0.16	0.21				
	Low		0.08	0.15				
Early Trans. (ETA 4)	High	0.02 (ns)		-0.05	0.20			
	Low	.00 (ns)		-0.04	0.23			
Psy. Distr. T4 (ETA 5)	High			0.28		.11 (ns)		0.76
	Low			0.31		.33 (ns)		0.62
Deviance T4 (ETA 6)	High	0.08		.00 (ns)		0.09		
	Low	0.11		.00 (ns)		.06 (ns)		

Model Fit

In Structural Equation Modeling, measures of model fit are actually tests of how well an hypothesized model of the measurement of the latent variables and the relationships among them approximates the observed patterns seen in the data (Bollen 1989). The fit of the model is determined by either the amount of discrepancy between

the hypothesized model (expected covariance matrix generated based on specifications by the researcher) and the actual data. In this portion of the results section, I will discuss various model fit statistics for the simplified model and the expanded model for the full sample and 8 subgroups, namely the minimum fit function χ^2 statistic, Root Mean Square Error of Approximation, Normed, Non-normed, and Parsimony Normed Fit Indices, Root Mean Square Residual, Goodness of fit, Adjusted Goodness of Fit and Parsimony Goodness of Fit Indices.

In general, both the Root Mean Square Error of Approximation (RMSEA) and Root Mean Square Residual (RMR) are interpreted as indicating better model fit when their values are closer to 0, with values of .05 or less being considered good fit. Likewise, the Goodness of Fit, Adjusted Goodness of Fit, Parsimony Goodness of Fit, Normed Fit, Non-Normed Fit, and Parsimony Normed Fit Indices all indicate better model fit when they are closer to 1 (Byrne 1998 ; Loehlin 1998). The "Parsimony" indices are adjusted by model degrees of freedom and thus are smaller than their non-adjusted counterparts. The earlier Methods section contains information about various aspects of fit measured by these indices and differences among them.

Table 27 contains a list of the Model Fit statistics and their abbreviations to be used in remaining Tables and discussion. Table 28 contains the Model Fit statistics for the Simplified Model with three latent variables for the full sample and 8 subgroups. Table 29 contains the Model Fit statistics for the Expanded Model with seven latent variables for the full sample and 8 subgroups.

Table 27: Listing of model fit statistic names and corresponding abbreviation.

Full Fit Statistic Name	Fit Statistic Abbreviation
Minimum Fit Function Chi-Square	χ^2
Root Mean Square Error of Approximation	RMSEA
Normed Fit Index	NFI
Non-Normed Fit Index	NNFI
Parsimony Normed Fit Index	PNFI
Comparative Fit Index	CFI
Incremental Fit Index	IFI
Relative Fit Index	RFI
Root Mean Squared Residual	RMR
Goodness of Fit Index	GFI
Adjusted Goodness of Fit Index	AGFI
Parsimony Goodness of Fit Index	PGFI

Model fit statistics for the simplified model are shown in Table 28. For the simplified model which employed three structural parameters among three latent variables (Deviance at Time 1, Early transitions to adult roles, and Deviance at Time 4) comprised of twelve observed variables, and resulting in 51 degrees of freedom, the minimum fit function χ^2 was large and significant for the full sample and all subgroups. However, for sample sizes as large as those employed here, significant χ^2 statistics are not an indication of "bad" fit. For the full sample, the Normed fit index and Non-Normed fit index was .95 and .94 respectively. For all subgroups, these indices remained in the .90 to .95 range, indicating good model fit for the full sample and each of the subgroups. The Goodness of Fit index and Adjusted Goodness of Fit index for the full sample was .98 and .97 respectively. For the eight subgroups, these indices remained in the .93 to .98 range, again indicating good model fit for the simplified model. Among all of the subgroups, the Non-white subgroup yielded the "worst" model

fit in terms of these indices, with an NFI of .90, NNFI of .92, GFI of .95 and AGFI of .93. Objectively, however, these are still considered to be reasonably high.

The simplified model also yielded RMSEA and RMR statistics of .046 and .01 respectively for the full sample. Among the eight subgroups, the RMSEA ranged from .038 to .057, and the RMR ranged from .01 to .02. These also indicate good model fit for the simplified model for the full sample and eight subgroups. The Parsimony Normed Fit Index and Parsimony Goodness of Fit Index were .73 and .64 respectively for the full sample. Among the eight subgroups, the PNFI ranged from .69 to .73, and the PGFI ranged from .62 to .67.

Table 28: Model fit statistics for simplified model for full sample and eight subgroups.

Fit Statistic	Full Sample N=3379	Male N=1465	Female N=1912	Father's Ed. HS Grad+ N=2031	Father's Ed. < HS N=412	White N=2085	Non-White N=1238	Exp. Fail High N=1295	Exp. Fail Low N=2084
χ^2 *	381.81	156.55	208.8	372.25	185.08	253.81	113.85	196.05	245.39
RMSEA	.046	.038	.041	.057	.047	.046	.057	.049	.043
NFI	.95	.95	.94	.93	.93	.94	.90	.93	.94
NNFI	.94	.95	.94	.92	.93	.94	.92	.93	.94
PNFI	.73	.73	.73	.69	.69	.72	.72	.72	.73
CFI	.95	.96	.96	.94	.94	.94	.95	.95	.95
IFI	.95	.96	.96	.94	.94	.94	.95	.95	.95
RFI	.93	.93	.93	.87	.87	.90	.91	.91	.92
RMR	.01	.01	.01	.01	.01	.01	.02	.02	.01
GFI	.98	.98	.98	.97	.97	.98	.95	.97	.98
AGFI	.97	.97	.97	.95	.96	.97	.93	.96	.97
PGFI	.64	.64	.64	.62	.67	.63	.64	.64	.64

*χ^2 Degrees of freedom = 51, p<0.00

Model fit statistics for the expanded model are shown in Table 29. The expanded model which employed fourteen structural parameters among seven latent variables comprised of twenty-four observed variables, and resulting in 238 degrees of freedom, yielded minimum fit function χ^2 statistics that were large and significant for the full sample and all subgroups. Once again, the χ^2 statistics are not a robust indication of model fit for large sample sizes as are being employed here.

For the full sample, the expanded model Normed fit index and Non-Normed fit index were both .92. For all subgroups, these indices remained in the .84 to .93 range, indicating good model fit for the full sample and each of the subgroups. The Goodness of Fit index and Adjusted Goodness of Fit index for the full sample was .97 and .96 respectively. For the eight subgroups, these indices remained in the .91 to .97 range, again indicating good model fit for the expanded model in the full sample and in the eight subgroups. Among all of the subgroups, those whose paternal level of education was less than high school graduate yielded the "worst" model fit in terms of these indices, with an NFI of .84, NNFI of .92, GFI of .93 and AGFI of .91. Objectively, however, these are still considered to be reasonably high.

The simplified model also yielded RMSEA and RMR of .039 and .04 respectively for the full sample. Among the eight subgroups, the RMSEA ranged from .034 to .044 and the RMR ranged from .03 to .05. These also indicate good model fit for the simplified model for the full sample and eight subgroups. The Parsimony Normed Fit Index and Parsimony Goodness of Fit Index were: .79 and .77 respectively for the

full sample. Among the eight subgroups, the PNFI ranged from .72 to .79, and the PGFI

ranged from .73 to .77.

Table 29: Model fit statistics for expanded model for full sample and eight subgroups.

Fit Statistic	Full Sample N=3379	Male N=1465	Female N=1912	Father's Ed. HS Grad+ N=2031	Father's Ed. < HS N=412	White N=2085	Non-White N=1238	Exp. Fail High N=1295	Exp. Fail Low N=2084
χ^2 *	1371.97	631.19	995.35	973.88	390.67	1148.76	577.63	736.81	795.5
RMSEA	.039	.034	.042	.040	.040	.044	.035	.042	.034
NFI	.92	.91	.90	.90	.84	.90	.90	.88	.90
NNFI	.92	.93	.91	.91	.92	.91	.93	.91	.92
PNFI	.79	.79	.77	.78	.72	.78	.77	.76	.78
CFI	.93	.94	.92	.92	.93	.92	.94	.92	.93
IFI	.93	.94	.92	.92	.93	.92	.94	.92	.93
RFI	.91	.90	.88	.89	.81	.89	.88	.87	.89
RMR	.04	.04	.04	.04	.05	.04	.03	.05	.03
GFI	.97	.96	.96	.96	.93	.95	.96	.95	.97
AGFI	.96	.95	.95	.95	.91	.94	.95	.94	.96
PGFI	.77	.76	.76	.76	.73	.76	.76	.76	.77
*χ^2 Degrees of freedom = 238, p<0.00									

DISCUSSION

In this section, I discuss the results as they relate to the purposes of this study, and whether they support or differ from initial expectations for the results based in theoretical frameworks and prior literature informing the study. This study has three purposes, the first being to examine the effect of adolescent deviance on early transitions to adulthood, and the effect of early transitions to adulthood on adult deviance. It was believed that while the transition to adulthood in many cases serves as a turning point in the trajectory of deviance toward normative behavioral trajectories (Elder 1985; George 1993; Laub 1999; Glueck and Glueck 1950), that early transitions occurring before the stage of life in which they are normatively prescribed may affect the ability of transitions to adulthood to change the existing trajectory of behavior, and may in fact enable continuation of the trajectory of deviance (Sampson and Laub 1993; Hagan and Wheaton 1993; Howell and Frese 1982). This is because early transitions to adulthood may constitute a form of deviant behavior since they occur before they are normatively prescribed, but also because they occur before adequate training and preparation for assuming the role has occurred, making role strain and role failure more likely (Neugarten, Moore, and Lowe 1965; Moore and Waite 1985; O'Callaghan et al. 1999) . This first set of questions is examined through the the simplified structural equation model featuring the three latent variables Deviance at Time 1, Early transitions to adulthood, and Deviance at Time 4, which was estimated on the full sample (N=3,379).

The second purpose of this study entailed decomposing the direct relationship between adolescent deviance and early transitions to adulthood by examining intervening mechanisms through which the relationship may change, and also examining the impact of early transitions to adult roles on adult psychological distress. Mechanisms in adolescence identified in the literature that affect both the likelihood of deviance and early transitions to adulthood include the experience of strain (Agnew 1985; 1992; Farnworth and Lieber 1989) perceived rejection by others (Kaplan 1986) and negative self evaluations. These factors weaken adolescents' commitment to conventional adolescent roles, and make the prospect of leaving adolescent roles more desirable (Hagan and Wheaton 1993). Both early transitions to adult roles and adult deviance have been shown to affect adult well being (Howell and Frese 1982; Graber and Brooks-Gunn 1996b; Jessor, Donovan, and Costa 1991). However, the effect of early transitions on adult roles has not been tested for its effect on adult well being net of the effects of deviance. These adolescent mechanisms of mediation and the effects of early transitions to adult roles and adult deviance on adult psychological distress are tested in the expanded model with four additional latent variables estimated for the full sample.

The third purpose for this study was to examine subgroup differences under which these relationships may vary. This is accomplished by estimating both the simplified model and expanded model on the eight subgroups: male (N=1,465), female (N=1,912), white (N=2,085), nonwhite (1,238), paternal level of education high school or greater (N=1,238), paternal level of education less than high school graduate (N=412),

high expectations for future failure in conventional roles (1,295), and low expectations for future failure in conventional roles (2,084). Also examined are the ways in which the measurement model (loadings of observed variables on latent variables) varied by subgroup.

Measurement Model

The observed variables used in the structural equation models were summed scales, and reliability analyses (standardized Cronbach's alpha) for these summed scales ranged from .31 for Retreatism at Time 2, to .70 for Rejection by teachers at Time 1. In general, the measurement model loadings for the full sample were moderate to high. Some variation in loadings appears across subgroup. For the Deviance at Time 1 latent variable, slightly lower loadings for Violent, Property and Other deviance are seen for females when compared to males. This supports prior literature asserting that females are less likely to engage in deviance than males, or at least are less likely to be perceived as deviant than males. Slightly higher loadings for Property and Drug scales are seen for respondents whose paternal education level was high school graduate or more than for those whose paternal education level was less than high school graduate. This pattern of higher loadings for property and drug scales also holds true when comparing Whites to Non-whites, and for those who scored above the median on a scale of expectations to failure compared to those who scored at or below the median.

In comparing the latent variable loadings for Perceived rejection by others at Time 1, higher loadings for rejection by teachers are seen for males, those with high

expectations for future failure in conventional roles, Nonwhites, and those whose paternal level of education was less than high school graduate. Higher loadings for Rejection by parents are seen in females, Whites, those whose paternal level of education was high school or greater, and those with low expectations for future failure in conventional roles. Higher loadings for Rejection by peers are seen for Males, Nonwhites, and those with low expectations for future failure in conventional roles.

For the latent variable Psychological distress at Time 2 the loadings for Self derogation 1 at Time 2 were highest and equivalent among males, Whites, and Non-whites, and lowest among those scoring at or below the median on the Expectations for future failure in conventional adolescent roles scale. The loadings for Self derogation 2 at Time 2 were highest for the White subgroup and lowest for the Non-white subgroup. Loadings for the Depression scale at Time 2 was highest among those with paternal education levels of less than high school diploma and lowest among those scoring at or below the median on the expectations for failure in conventional roles scale. For the Desire to escape conventional adolescent roles latent variable, loadings for the desire to leave school scale were highest for females, whites, and those paternal levels of education of high school or greater, as were loadings for the desire to leave home scale. The loadings for the Escapism/Retreatism scale was highest for males, those with low expectations for failure in conventional roles, and those with paternal levels of education of less than high school.

The Early transitions to adult roles latent variable was comprised of four single-indicator binary variables: Early full time entry into the workforce, Early union

formation, Early parenthood, and Early home-leaving. The loadings for Early entry into the workforce were higher for males, whites, and those with high expectations for future failure in conventional adolescent roles. Loadings for Early union formation and Early parenthood were highest among females, those with low expectations for future failure in conventional roles, and whites. The loadings for Early home leaving were highest for females, those with high expectations for future failure in conventional roles, and those whose paternal level of education was less than high school.

The Psychological distress at Time 4 latent variables were comprised of the same summed scales as Psychological distress at Time 2, only with observed scales measured at Time 4. The Self derogation 1 scale loadings were highest for those with paternal education less than high school graduate, those with high expectations for future failure in conventional roles, and Nonwhites, whereas loadings for Self derogation 2 were highest for those with paternal education of high school graduate or greater, those with low expectations for future failure in conventional roles, and Whites. Loadings for Depression were highest among those with paternal education less than high school, those with high expectations for future failure in conventional roles, and Whites.

In studying loadings of observed variables on Deviance at Time 4, it appears that in adulthood, females are least likely to engage in deviance. The highest loading for the Violence scale was seen for those whose paternal education level was less than high school graduate, while the lowest loading is seen for females and those whose paternal level of education was high school graduate or greater. The highest loading for the Property offenses scale was seen for males and for those whose paternal level of

education was less than high school graduate, while the lowest loading was for females. For the Drug offenses scale, the highest loading was seen for Non-whites while the lowest loading was seen for females. For "Other" deviance, the highest loading was seen for those whose paternal level of education was less than high school, while the lowest loading was seen for females.

Simplified Model

The simplified model included twelve observed variables which were used to estimate three latent variables (Deviance at Time 1, Early transitions to adult roles, and Deviance at Time 4) with three structural parameters among them: Deviance at Time 1 to Early transitions to adult roles, Early transitions to adult roles to Deviance at Time 4, and Deviance at Time 1 to Deviance at Time 4. The purpose of the simplified model is to examine the unmediated effects of adolescent deviance on early transitions to adult roles, and the impact of early transitions to adult roles on deviance in young adulthood while controlling for the effect of prior involvement in deviance on future deviance. It was expected that Deviance at Time 1 would have a positive and significant relationship with Early transitions to adult roles, and that Early transitions to adult roles would have a positive and significant relationship with Deviance at Time 4 net of the effect of prior deviance on future deviance. It was also expected that the relationship of prior deviance to later deviance (stability of deviance over time) would be positive in direction, moderate in valence, and significant.

When the simplified model was estimated using the full sample, these initial expectations for the results were confirmed. The unstandardized gamma coefficient between Deviance at time 1 and Early transitions to adult roles was .04 and statistically significant. The relationship between Early transitions to adulthood and Adult deviance was also positive and significant, though small in magnitude (.08), and the Deviance stability effect was .10 and significant. When estimated on each of the eight subgroups, the relationship between adolescent deviance and early transitions to adult roles remained positive and significant as did the deviance stability effect. However, for the Low expectations for future failure subgroup, the relationship between Adolescent deviance and Early transitions to adult roles was much lower in magnitude than any other group, and for females, the magnitude of the Deviance stability effect was nearly half of the magnitude for the other subgroups. The least robust relationship when compared among the subgroups was the relationship between Early transitions to adult roles and Adult deviance. Though significant and positive for the full sample, and the male and female subgroups, it dropped to nonsignificance for the remaining six subgroups (White, Nonwhite, paternal education high school or greater, paternal education less than high school, high expectations for future failure, and low expectations for future failure. Next, I discuss the various ways the relationships uncovered in the simplified model are affected by intervening variables in the expanded model.

<u>Expanded Model</u>

The expanded model features all seven of the latent variables defined in the methods section, whereas the simplified model contained only the three latent variables needed to assess the unmediated effects of Adolescent deviance on Early transitions to adult roles, and the effect of both of these predictors on Adult deviance. The additional latent variables featured in the expanded model include three thought to mediate the effect of Adolescent deviance on Early transitions to adulthood, and one outcome variable thought to be influenced by both early transitions to adulthood and adult deviance. The three latent variables thought to mediate the relationship between adolescent deviance and early transitions to adulthood are: Perceived rejection by others at Time 1, Psychological distress at Time 2, and Desire to escape conventional adolescent roles. The latent outcome variable added to the model was Psychological distress at Time 4 (young adulthood). Since Perceived rejection by others and Psychological distress may serve as catalysts towards further deviance and because these two predictors may also lead to adolescent role strain and a desire to escape negative stimuli/events, these variables were added to examine mechanisms by which the direct relationship between adolescent deviance and early transitions may be altered, thus offering avenues through which the trajectory may be slowed or altered. Since it was originally surmised that deviance and early transitions to adulthood may be part of the same trajectory of deviance behavior, it was also believed that their sequelae would be similar as well. Since deviance has been established to affect psychological distress, both Adult deviance and Early transitions to adult roles are modeled as affecting

psychological distress at Time 4, while controlling for the effect of Psychological distress in adolescence (stability of traits/coping mechanisms).

When the expanded model was estimated on the Full sample (N=3,379) the relationship between Deviance at Time 1 and Early transitions to adult roles was reduced to nonsignificance, and the relationship between Early transitions to adult roles and Deviance at Time 4 remains significant though it is weak. The stability of deviance over time remains significant at .09. In the expanded mode, a chain of significant direct relationships in early adolescence is uncovered that mediates the relationship between Deviance at Time 1 and Early transitions to adult roles. Deviance at Time 1 positively affects Perceived rejection by others at Time 1 (.75), Perceived rejection at Time 1 then affects Psychological distress at Time 1 (.99), which then affects Desire to escape conventional adolescent roles at Time 2 (.21). Desire to escape conventional adolescent roles at Time 2 then ultimately affects Early transitions to adult roles positively and significantly at .17. Perceived rejection by others at Time 1 also directly affects Desire to escape conventional adolescent roles (.17). It was anticipated that the relationships between Deviance at Time 1 and Psychological distress at Time 2, and Psychological distress at Time 2 with Early transitions to adulthood would be positive and significant as this would support Agnew's (1985; 1992) version of strain theory. However, in the expanded model for the full sample, we see that these relationships are negative, indicating that Deviance in adolescence may assuage earlier psychological distress consistent with Kaplan's (1975; 1980; 1986) theory of self-derogation, leading to further behaviors along this same trajectory of problem behavior such as Early transitions to

adulthood (Hagan and Wheaton 1993). The relationship between Psychological distress at Time 2 and Deviance at Time 4 was weak at .01. The stability of Psychological distress over time was moderate at .27. Since deviance and early transitions were thought to be part of the same trajectory of deviance, it was also thought that they would be similar in their effects on outcome variables, namely Psychological distress at Time 4. However, while the relationship of Deviance to Psychological distress at Time 4 was positive and significant, the effect of Early transitions to adulthood on Psychological distress at Time 2 was not significant.

When the expanded model was estimated on the eight subgroups, some differences appeared. In the male group, the relationship between Deviance at Time 1 and Early transitions to adult roles remained significant and positive at .04, unlike the results for the full sample. The negative relationships among Deviance at Time 1, Psychological distress at Time 2, and Early transitions to adult roles remain negative, and the stability effects of Deviance and Psychological distress over time remain of similar magnitude. The chain of significant, direct relationships is still operating in the same way for the male subgroup, only the earlier relationship of Deviance at Time 1 to Early transitions to adult roles is not fully mediated for the male subgroup. The relationship between Early transitions to adult roles and Deviance at Time 4 is stronger for the male subgroup than that seen for the full sample model at .15 and significant. However, the relationship between Psychological distress at Time 2 and Deviance at Time 4 is not significant, where in the full sample model it was significant and positive, though weak (.08). The effect of Deviance at Time 4 on Psychological distress at Time

4 is slightly stronger for males than in the full sample model, and the relationship between Early transitions to adult roles remains nonsignificant.

When the expanded model was estimated for the female group, the relationship between Deviance at Time 1 and Early transitions to adult roles remained nonsignificant, as it was in the results for the full sample, whereas for males, this relationship was significant as it was in the simplified model. The female group also produced a positive significant relationship between Psychological distress at Time 2 and Early transitions to adult roles, where it was nonsignificant for the male group. For females, slightly stronger relationships were seen for Perceived rejection at Time 1 on Desire to escape conventional adolescent roles at Time 2, and Desire to escape conventional adolescent roles on Early transitions to adult roles when compared to males. Also, slightly weaker relationships were seen for Psychological distress at Time 2 on Desire to escape conventional adolescent roles, and Deviance at Time 4 on Psychological distress at Time 4 in the female group, though they remain of moderate magnitude. For the female group, the stability effects of Deviance and Psychological distress over time remain moderate, significant and positive.

Expanded model results for the White subgroup are very similar to those for the full sample, and the majority of the sample is white. Among whites, the relationship between Deviance at Time 1 and Early transitions to adulthood is again nonsignificant, as it was for the full sample. The relationship between Early transitions to adulthood and Psychological distress is also nonsignificant, as it was for the full sample. The relationship between Early transitions to adult roles and Deviance at Time 4 is once

again weak (.07) though significant, as is the relationship between Deviance at Time 4 and Psychological distress at Time 4 (.07). The relationships in early adolescence which fully mediate the relationship of Deviance at Time 1 and Early transitions to adult roles appear stronger for the white group.

For Nonwhites, the relationship between Early transitions to adulthood and Deviance at Time 4 is not significant unlike their white counterparts. The relationship between Early transitions to adulthood and Psychological distress at Time 4 is much stronger than it is for whites at .94. Also, the relationship between Deviance at Time 4 and Psychological distress at Time 4 is also much stronger than it is for whites at 1.10. Unlike other groups, for Nonwhites the relationship between Perceived rejection at Time 1 on Desire to escape is non-significant, perhaps because perceived rejection may be more commonly experienced, and hence expected, among this subgroup. Also, while the chain of direct relationships in early adolescence is operating to partially mediate the relationship between Deviance at Time 1 and Early transitions to adult roles for Nonwhites, the final link in the chain – the relationship between Desire to escape conventional adolescent roles and Early transitions to adult roles – is non-significant, leaving a disconnect in the chain for this group. This may indicate a lack of resources to initiate early transitions to adult roles for this group as the concept is operationalized in this study (home leaving, full time job). Unlike their white counterparts, in the nonwhite group, the relationship between Early transitions and Deviance at Time 4 is not significant, nor is the relationship between Psychological distress at Time 2 and Deviance at Time 4.

For the subgroup of the sample whose paternal level of education was high school graduate or greater, the relationship of Deviance at Time 1 to Early transitions to adult roles was significant and positive, but weak at .02. The chain of significant direct relationships depicted in Figure 3 is still intact for those with high paternal education, but does not fully mediate the relationship between adolescent deviance and early transitions to adult roles. The stability of Deviance and Psychological distress over time remains moderate and positive. For this "high SES" group, the relationship between Early transitions to adult roles and Deviance at Time 4 is significant and positive, but weak. The relationship between Psychological distress at Time 2 and Deviance at Time 4 is also significant and positive at .57. The relationship between Early transitions to adulthood and Psychological distress is non-significant for this high paternal education group.

Several differences emerge when comparing results for those whose paternal levels of education was less than high school graduate with their higher SES counterparts. For the lower SES group, the relationship between Deviance at Time 1 and Early transitions to adulthood is fully mediated (rendered non-significant) by the chain of significant direct events depicted in Figure 3. Also unlike their higher SES counterparts, for the low paternal education group, the relationship between Psychological distress at Time 2 and Deviance at Time 4 is non-significant, as are the relationships between Early transitions to adult roles and Deviance at Time 4, and Deviance at Time 4 and Psychological distress at Time 4. For this group, the relationship between Early transitions to adult roles and Psychological distress at Time 4

remains non-significant as it was in the results for their higher paternal education counterparts.

The expectations for future failure in conventional adolescent roles scale at Time 2 was used to construct two groups: one above the median, and one at or below the median. These were used to signify persons with high expectations for future failure in conventional adolescent roles and those with low expectations for future failure in conventional adolescent roles respectively. It was expected that at least relationships leading up to Early transitions to adult roles would be stronger for the group with high expectations for failure, in congruence with Agnew's strain theory, and Farnworth and Lieber's (1989) notion that strain can be rooted in future expectations as well as in present stimuli. For the low expectations for failure group, we find that the relationship between Deviance at Time 1 and Early transitions to adult roles is non-significant, and the same holds true for the high expectations for failure group. The chain of significant relationships depicted in Figure 3 operates in both groups to fully mediate this relationship. Stability effects for Deviance and Psychological distress over time in both groups is moderate. The relationship between early transitions to Psychological distress is non-significant for both groups. The only difference between the two groups, is that the relationship between Early transitions to adult roles and Deviance at Time 4 is not significant for the low expectations for failure group, but is positive and significant for the high expectations for failure group (.09). The relationship between Desire to escape conventional adolescent roles and Early transitions to adult roles is positive and significant for both groups, though it is slightly stronger for the low expectations for

failure group. The relationship between Deviance at Time 4 and Psychological distress at Time 4 is positive and significant for both groups, though it is slightly higher for the high expectations for failure group.

CONCLUSION

The first goal of this study was to examine the effect of adolescent deviance on early transitions to adulthood, and the effect of early transitions to adulthood on adult deviance. Though the criminological literature cites the transition to as a turning point in the trajectory of deviance toward normative behavioral trajectories, sociological life course literature views early transitions occurring before the stage of life in which they are normatively prescribed as a mild form of deviant behavior. Thus, it was hypothesized that early transitions to adulthood may occur as part of the same trajectory of deviance from adolescence to adulthood, and may in fact enable continuation of the trajectory of deviance. Examination of the effects of adolescent deviance on early transitions to adulthood and the effect of early transitions to adulthood on adult deviance was undertaken by estimating the three latent variable simplified structural equation model on the full sample (N=3,379). Initial expectations that adolescent deviance positively affects early transitions to adulthood and that early transitions to adulthood positively affect adult deviance, were confirmed through the simplified model run on the Full sample.

The second goal of this study involved identifying intervening mechanisms that attenuate the direct relationship between adolescent deviance and early transitions to adulthood and to examine the impact of early transitions to adulthood and adult deviance on adult well being. This was accomplished through the expanded model with three additional latent mediating variables estimated for the full sample, which uncovered a

chain of significant direct relationships in adolescence that fully mediated the relationship between adolescent deviance and early transitions to adulthood observed in the simplified model. In this chain of events, adolescent deviance at Time 1 positively affected Rejection by others (parents, teachers and peers) at Time 1. Rejection by others at Time 1 then went onto positively affect Psychological distress at Time 2, which in turn positively affected Desire to escape conventional adolescent roles at Time 2. It is Desire to escape conventional adolescent roles at Time 2, which then goes on to positively affect Early transitions to adulthood. In the full sample the presence of these additional structural parameters reduces the relationship between adolescent deviance and early transitions to adulthood seen in the simplified model to non-significance. The additional latent variables, and the structural parameters estimated using these additional latent variables represent concepts in Agnew's (1985; 1992) revised strain theory and Kaplan's (1978; 1980; 1986) theory of self-referent behavior in adolescence which suggest mechanisms by which earlier deviant behavior may lead to an increased likelihood of later deviance as a means of assuaging role-based strain, and strain resulting from low expectations of acceptance by others by engaging in normative behavior.

The third goal in conducting this study was to examine subgroup differences which may produce variations in the simplified model and the expanded model results. Both models were estimated on eight subgroups present in the sample: male (N=1,465), female (N=1,912), white (N=2,085), nonwhite (1,238), paternal level of education high school or greater (N=1,238), paternal level of education less than high school graduate

(N=412), high expectations for future failure in conventional roles (1,295), and low expectations for future failure in conventional roles (2,084). In the simplified model for the full sample, we observed a direct relationship between adolescent deviance and early transitions to adulthood. This held true for all eight subgroups. In the simplified model for the full sample, we also see a direct relationship between early transitions to adulthood and adult deviance. This did <u>not</u> hold for all eight subgroups. The subgroups for which this parameter was non-significant were: Non-whites, those with low expectations for failure in conventional adolescent roles, and those whose paternal level of education was less than high school graduate. However, stability effects of Adolescent deviance on Adult deviance remained significant and positive for all eight subgroups.

In the expanded model results for the full sample, a chain of significant direct relationships was observed in adolescence that fully mediated the effect of Adolescent deviance on Early transitions to adulthood. The presence of this chain of relationships mediated the relationship between adolescent deviance and early transitions to adulthood for all but three of the eight subgroups: male, Non-white, and those with paternal levels of education greater than high school graduate. For these three subgroups, while the additional parameters did not result in full mediation, the direct effect between Adolescent deviance and Early transitions to adulthood was greatly attenuated, thus, the relationship is partially mediated for these three subgroups. For all subgroups except Nonwhite, the relationship between Early transitions to adulthood and Psychological distress in young adulthood (Time 4) is not significant. For the Nonwhite subgroup this

relationship is significant and positive. The relationship between Adult deviance and Psychological distress in young adulthood is significant and positive for all subgroups except for those whose paternal level of education is less than high school graduate.

The main conclusion drawn from these findings taken together is that without intervention, adolescent deviance increases the likelihood of premature transitions to adult roles, but that with interventions in adolescence affecting perceptions of rejection by others and incentives to stay in conventional adolescent roles, the likelihood can be greatly reduced. This can be said of all subgroups, as the expanded model resulted in full mediation of the direct relationship between adolescent deviance and early transitions to adulthood for most subgroups, and great attenuation in this direct relationship for those groups in which the direct relationship was not fully mediated. The chain of events in adolescence identified through the complex model offers areas of future investigation for averting early transitions to adulthood, or making premature transitions to adulthood less likely to occur following involvement in adolescent deviance.

Researchers are cautioned in their interpretation of these results. In any longitudinal panel study, there is the possibility of bias due to sample attrition. Initial univariate analyses revealed that in comparing respondents participating in all three waves used in the study versus those participating in adolescent measurements only, scores on adolescent deviance observed scales were slightly higher among those lost to follow up. This may mean that the prevalence and severity of adolescent deviance is underrepresented in the usable sample, and that more transient populations which may

be more involved in deviance are also underrepresented in the study. Listwise deletion of cases for which one or more observed scales were missing resulted in a substantial drop in sample size (see Table 9) for the full sample and for each of the subgroups. After listwise deletion, there were only 412 usable cases for the low socioeconomic status group (operationalized in this study as individuals whose paternal level of education was less than high school graduate). Thus, the usable sample in this study under-represents persons of low socioeconomic status. The sample also over-represents whites and females.

These data did not contain information about the respondents' family that may have otherwise moderated key variables used in the study. Parental involvement in deviance, and age at which respondents' parents began making transitions to adulthood may have influenced variables used in this study such as adolescent deviance, and early transitions to adult roles. Future waves of this panel study conducted in the mid to late 1990's were conducted using the children of the respondents studied here, and may offer rich insight into the role of family structure and parental deviance in the adolescent deviance and the timing of transitions to adulthood.

REFERENCES

Agnew, Robert. 1985. "A Revised Strain Theory of Delinquency." *Social Forces* 64: 151-167.

Agnew, Robert. 1992. "Foundation for a General Strain Theory of Crime and Delinquency." *Criminology* 30: 47-87.

Baron, Reuben M. and David A. Kenny. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51: 1173-1182.

Benoit, Marilyn B. 1997. "The Role of Psychological Factors on Teenagers Who Become Parents Out of Wedlock." *Children and Youth Services Review* 19: 401-413.

Bentler, Peter M. and D.G. Bonett. 1980. "Significance Tests and Goodness of Fit in the Analysis of Covariance Structures." *Psychological Bulletin* 88: 588-606.

Bollen, Kenneth A. 1989. *Structural Equations with Latent Variables*. New York: John Wiley and Sons.

Bollen, Kenneth A. and Richard Lennox. 1991. "Conventional Wisdom on Measurement: A Structural Equation Perspective." *Psychological Bulletin* 110: 305-314.

Booth, Alan, Ann C. Crouter and Michael J. Shanahan, eds. 1999. *Transition to Adulthood in a Changing Economy: No Work, No Family, No Future?* Westport, CT: Praeger Publishers.

Bowditch, Christine. 1993. "Getting Rid of Troublemakers: High School Disciplinary Procedures and the Production of Dropouts." *Social Problems* 40: 493-509.

Brezina, Timothy. 1996. "Adapting to Strain: An Examination of Delinquent Coping Responses." *Criminology* 34: 39-60.

Brook, Judith S., and Michael D. Newcomb. 1995. "Childhood Aggression and Unconventionality: Impact on Later Academic Achievement, Drug Use, and Workforce Involvement." *The Journal of Genetic Psychology* 156: 393-410.

Browne, Michael W. and Robert Cudeck. 1992. "Alternative Ways of Assessing Model Fit." *Sociological Methods and Research* 21: 123-131.

Burton, Russell P.D., Robert J. Johnson, Christian Ritter and Richard R. Clayton. 1996. "The Effects of Role Socialization on the Initiation of Cocaine Use: An Event History Analysis From Adolescence Into Middle Adulthood." *Journal of Health and Social Behavior* 37: 75-90.

Bush, Dianne M. and Roberta G. Simmons. 1981. "Socialization Processes Over the Life Course." pp. 33-164 in *Social Psychology,* edited by Morris Rosenberg and Ralph Turner. New York: Basic Books.

Byrne, Barbara M. 1989. *A Primer of LISREL: Basic Applications and Programming for Confirmatory Factor Analytic Models.* New York: Springer-Verlag, Inc.

Byrne, Barbara M. 1998. *Structural Equation Modeling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications, and Programming.* Mahwah, NJ: Lawrence Erlbaum and Associates.

Carlson, Elwood. 1979. "Family Background, School and Early Marriage." *Journal of Marriage and the Family* 41: 341-353.

Caspi, Avshalom, Glen H. Elder, and Ellen S. Herbener. 1990. "Childhood Personality and the prediction of Life-Course Patterns." pp. 13-35 in *Straight and Devious Pathways from Childhood to Adulthood,* edited by Lee Robbins and Michael Rutter. New York: Cambridge University Press.

Clausen, John A. 1986. *The Lifecourse: A Sociological Perspective.* Englewood Cliffs, NJ: Prentice Hall.

Cohen, Lawrence E. and Kenneth C. Land. 1987. "Age Structure and Crime: Symmetry Versus Asymmetry and the Projection of Crime Rates Through the 1990's.*"* *American Sociological Review* 52: 170-183.

Cook, Karen S., Gary Alan Fine, and James S. House, eds. 1995. *Sociological Perspectives on Social Psychology.* Needham Heights, MA: Allyn and Bacon.

Crockett, Lisa J. and Ann C. Crouter, eds. 1995. *Pathways Through Adolescence: Individual Development in Relation to Social Contexts.* Mahwah, NJ: Lawrence Erlbaum and Associates.

Demo, David H. 1992. "The Self-Concept Over Time: Research Issues and Directions." *Annual Review of Sociology* 18: 303-326.

DeVellis, Robert F. 1991. *Scale Development: Theory and Applications, Applied Social Research Methods Series, Volume 26.* Newbury Park, CA: Sage Publications.

Duncan, Otis D. 1975. *Introduction to Structural Equation Models*. San Diego, CA: Academic Press.

Eckert, Penelope. 1995. "Adolescent Trajectory and Forms of Institutional Participation." pp. 175-196 in *Pathways Through Adolescence: Individual Development in Relation to Social Contexts*, edited by Lisa J. Crockett and Ann C. Crouter. Mahwah, NJ: Lawrence Erlbaum and Associates.

Elder, Glen H. Jr. 1974. *Children of the Great Depression: Social Change in Life Experience*. Chicago, IL: The University of Chicago Press.

Elder, Glen H. Jr. 1985. *Life Course Dynamics: Trajectories and Transitions, 1968-1980*. Ithaca, NY: Cornell University Press.

Elder, Glen H. Jr., Avshalom Caspi, and Geraldine Downey. 1986. "Problem Behavior and Family Relationships: Life Course and Intergenerational Themes." pp. 293-340 in *Human Development and the Life Course: Multidisciplinary Perspectives*, edited by Aage B. Sorensen, Franz E. Weinert, and Lonnie Sherrod. Hillsdale, NJ: Erlbaum.

Elder, Glen H. Jr. and Angela M. O'Rand. 1995. "Adult Lives in a Changing Society." pp. 452-475 in *Sociological Perspectives on Social Psychology,* edited by Karen S. Cook, Gary Alan Fine, and James S. House. Needham Heights, MA: Allyn and Bacon.

Farnworth, Margaret and Michael J. Lieber. 1989. "Strain Theory Revisited: Economic Goals, Educational Means, and Delinquency". *American Sociological Review*, 54: 263-274.

Farrington, David P. and Donald J. West. 1995. "Effects of Marriage, Aging and Children on Offending by Adult Males." *Current Perspectives on Aging and the Life Cycle* 4: 249-281.

Finch, Michael D., Michael J. Shanahan, Jeylan T. Mortimer, and Seongreyol Ryu. 1991. "Work Experience and Control Orientation in Adolescence." *American Sociological Review* 56: 597-611.

George, Linda K. 1993. "Sociological Perspectives on Life Transitions." *Annual Review of Sociology* 19: 353-373.

Glueck, Sheldon and Eleanor Glueck. 1950. *Unraveling Juvenile Delinquency*. New York: The Commonwealth Fund.

Goldstein, Joshua R. and Catherine T. Kenney. 2001. "Marriage Delayed or Marriage Forgone? New Cohort Forecasts of First Marriage for U.S. Women." *American Sociological Review* 66: 506-519.

Graber, Julia A. and Jeanne Brooks-Gunn. 1996a. "Expectations for and Precursors of Leaving Home in Young Women." pp. 21-38 in *New Directions for Child Development: Leaving Home,* edited by Julia A. Graber, J.S. Dubas, and W. Damon San Francisco, CA: Jossey Boss.

Graber, Julia A. and Jeanne Brooks-Gunn. 1996b. "Transitions and Turning Points: Navigating the Passage From Childhood Through Adolescence." *Developmental Psychology* 32: 768-776.

Graber, Julia A., J.S. Dubas, and W. Damon, eds. 1996. *New Directions for Child Development: Leaving Home.* San Francisco, CA: Jossey Boss.

Greenberg, David F. 1985. "Age, Crime and Social Explanation." *American Journal of Sociology* 91: 1-21.

Greenberger, Ellen, and Laurence D. Steinberg. 1986. *When Teenagers Work: The Psychological and Social Costs of Teenage Employment.* New York: Basic Books.

Hagan, John and Blair Wheaton. 1993. "The Search for Adolescent Role Exits and the Transition to Adulthood." *Social Forces* 71: 955-980.

Harper, Cynthia C. 1996. "Youth Crime and Family Formation: Does Fatherhood Pull Young Men Out of the High-risk Set for Jail?" Paper presented at annual meeting of the American Sociological Association. November, 1996: Chicago, Illinois.

Hill, J.P. and G.N. Holmbeck. 1986. "Attachment and Autonomy During Adolescence." *Annals of Child Development* 3: 145-189.

Hirschi, Travis. 1969. *Causes of Delinquency.* Berkeley, CA: University of California Press.

Hogan, Dennis P. and Nan Marie Astone. 1986. "The Transition to Adulthood." *Annual Review of Sociology* 12:109-130.

Howell, Frank M., & Wolfgang Frese. 1982. "Early Transition Into Adult Roles: Some Antecedents and Outcomes." *American Educational Research Journal* 19: 51-73.

Hoyle, Rick H, ed. 1995. *Structural Equation Modeling: Concepts, Issues and Applications.* Thousand Oaks CA: Sage Publications.

Hu, Li-Tze and Peter M. Bentler. 1995. "Evaluating Model Fit" pp. 76-99 in *Structural Equation Modeling: Concepts, Issues and Applications,* edited by Rick H. Hoyle. Thousand Oaks CA: Sage Publications.

James, Lawrence A. and Jeanne M. Brett. 1984. "Mediators, Moderators, and Tests for Mediation," *Journal of Applied Psychology*, 69 (2): 307-321.

Jessor, Richard, John E. Donovan, and Frances M. Costa. 1991. *Beyond Adolescence: Problem Behavior and Young Adult Development.* Cambridge: Cambridge University Press.

Joreskog, Karl and Dag Sorbom. 1996a. *LISREL 8: Users Reference Guide*. Chicago, IL: Scientific Software International.

Joreskog, Karl and Dag Sorbom. 1996b. *PRELIS 2: Users Reference Guide*. Chicago, IL: Scientific Software International.

Kandel, Denise B. 1978. "Homophily, Selection and Socialization in Adolescent Relationships." *American Journal of Sociology* 84: 427-436.

Kandel, Denise B., and Mark Davies. 1991. "Friendship Networks, Intimacy, and Illicit Drug Use in Young Adulthood: A Comparison of Two Competing Theories." *Criminology* 29: 441-469.

Kandel, Denise, Mark Davies, and Nazli Baydar. 1990. "The Creation of Interpersonal Contexts: Homophily in Dyadic Relationships in Adolescence and Young Adulthood." pp. 221-241 in *Straight and Devious Pathways from Childhood to Adulthood,* edited by Lee Robbins and Michael Rutter. New York: Cambridge University Press.

Kandel, Denise, Ora Simcha Fagan, and Mark Davies. 1986. "Risk Factors for Delinquency and Illicit Drug Use from Adolescence to Young Adulthood." *The Journal of Drug Issues* 16: 67-90.

Kandel, Denise B, Victoria H. Ravies, and Paul I. Kandel. 1984. "Continuity and Discontinuities: Adjustment in Young Adulthood of Former School Absentees." *Youth and Society* 15: 325-352.

Kandel, Denise B. and Kazuo Yamaguchi. 1987. "Job Mobility and Drug Use: An Event History Analysis." *American Journal of Sociology* 92: 836-878.

Kaplan, Howard B. 1975. *Self Attitudes and Deviant Behavior*. Pacific Palisades, CA: Goodyear.

Kaplan, Howard B. 1980. *Deviant Behavior in Defense of Self.* New York: Academic Press.

Kaplan, Howard B. 1986. *Social Psychology of Self-Referent Behavior.* New York: Plenum Press.

Kaplan, Diane S., Kelly R. Damphousse and Howard B. Kaplan. 1996. "Moderating Effects of Gender on the Relationship Between Not Graduating From High School and Psychological Dysfunction in Young Adulthood." *Journal of Educational Psychology* 88: 760-774.

Kaplan, Diane S., Xiaoru Liu, and Howard B. Kaplan. 1995. "Explaining Dropout Behavior: A Longitudinal Study of Direct and Indirect Psychosocial Effects of Seventh and Eighth Grade Experiences." *Educational Research and Evaluation* 1: 205-225.

Kaplan, Diane S., B. Mitchell Peck, and Howard B. Kaplan. 1994. "Structural Relations Model of Self-Rejection, Disposition to Deviance, and Academic Failure." *Journal of Educational Research* 87: 166-173.

Kerckhoff, Alan C., and Alan A. Parrow. 1979. "The Effect of Early Marriage on the Educational Attainment of Young Men." *Journal of Marriage and the Family* 41: 97-107.

Kerlinger, Fred N. 1986. *Foundations of Behavioral Research, 3rd ed.* Orlando, FL: Harcourt, Brace, Jovanovich.

Knight, B.J., S.G. Osborn, and D.J. West. 1977. "Early Marriage and Criminal Tendency in Males." *British Journal of Criminology* 17: 348-360.

Krohn, Marvin D., Alan J. Lizotte and Cynthia M. Perez. 1996. "The Interrelationship Between Substance Use and Precocious Transitions to Adult Statuses." *Journal of Health and Social Behavior* 38: 87-103.

Laub, John H. 1999. "Alterations in the Opportunity Structure: A Criminological Perspective." pp. 48-55 in *Transitions to Adulthood in a Changing Economy: No Work, No Family, No Future?,* edited by Alan Booth, Ann C. Crouter, and Michael J. Shanahan. Westport, CT: Praeger.

Laub, John H., Daniel S. Nagin, and Robert J. Sampson. 1998. "Trajectories of Change in Criminological Offending: Good Marriages and the Desistance Process." *American Sociological Review* 63: 225-238.

Laub, John H, and Robert J. Sampson. 1993. "Turning Points in the Life Course: Why Change Matters to the Study of Crime?" *Criminology* 31: 301-325.

LeBlanc, Marc. 1990. "Two Processes of the Development and Persistence of Offending: Activation and Escalation." pp. 82-100 in *Straight and Devious Pathways from Childhood to Adulthood*, edited by Lee Robbins and Michael Rutter. New York: Cambridge University Press.

Lemert, Edwin. 1972. *Human Deviance, Social Problems, and Social Control,2nd ed.* Englewood Cliffs, NJ: Prentice Hall.

Li, Jiang Hong, and Roger A Wojtkiewicz. 1994. "Childhood Family Structure and Entry Into First Marriage." *Sociological Quarterly* 35: 247-268.

Loehlin, John C. 1998. *Latent Variable Models: An Introduction to Factor, Path and Structural Analysis, 3rd ed.* Mahwah, NJ: Lawrence Erlbaum and Associates

Marini, Margaret M. 1985. "Determinants of the Timing of Adult Role Entry." *Social Science Research* 14: 309-350.

Marini, Margaret M. 1986. "Initiation of the Process of Adult Role Entry." *Population and Environment* 8: 240-272.

Marini, Margaret M. 1987. "Measuring the Process of Role Change During the Transition to Adulthood." *Social Science Research* 16: 1-38.

Marini, Margaret M., Hee-Choon Shin, and Jennie Raymond. 1998. "Socioeconomic Consequences of the Process of Transition to Adulthood." *Social Science Research* 18: 89-135.

Marsh, Herbert W. 1991. "Employment During High School: Character Building or Subversion of Academic Goals?" *Sociology of Education* 64: 172-189.

Matsueda, Ross and Karen A. Heimer. 1997. "A Symbolic Interactionist Theory of Role-Transitions, Role Commitments, and Delinquency." pp. 163-214 in *Developmental Theories of Crime and Delinquency*, edited by Terrence P. Thornberry. New Brunswick, NJ: Transaction.

McDonald, Roderick P. and Moon-Ho Ringo Ho. 2002. "Principles and Practice in Reporting Structural Equation Analyses." *Psychological Methods* 7: 64-82.

McLanahan, Sara S. and Aage B. Sorensen. 1985. " Life Events and Psychological Well Being Over the Life Course." pp. 217-238 in *Life Course Dynamics: Trajectories and Transitions, 1968-1980,* edited by Glen H. Elder Jr. Ithaca, NY: Cornell University Press.

McMorris Barbara and Christopher Uggen. 2001. "Alcohol and Employment in the Transition to Adulthood." *Journal of Health and Social Behavior* 41: 276-294.

McNeal, Ralph B. Jr. 1997. "Are Students Being Pulled Out of High School: The Effect of Adolescent Employment on Dropping Out." *Sociology of Education* 70: 206-220.

Mihalic, Sharon W., and Delbert Elliot. 1997. "Short and Long Term Consequences of Adolescent Work" *Youth and Society* 28: 464-498.

Moffitt, Terrie E. 1993. "Adolescence-Limited and Life-course Persistent Antisocial Behavior: A Developmental Taxonomy." *Psychological Review* 100: 674-701.

Moore, Kristin A., and Linda J. Waite. 1981. "Marital Dissolution, Early Motherhood and Early Marriage." *Social Forces* 60: 20-40.

Mortimer, Jeylan T., Carolyn Harley, and Pamela J. Aronson. 1999. "How Do Prior Work Experiences in the Workplace Set the Stage for Transitions to Adulthood." pp. 131-139 in *Transitions to Adulthood in a Changing Economy: No Work, No Family, No Future?,* edited by Alan Booth, Ann C. Crouter, and Michael J. Shanahan. Westport, CT: Praeger.

Nagin, Daniel S. and David P. Farrington. 1992. "The Stability of Criminal Potential from Childhood to Adulthood." *Criminology* 30: 235-259.

Nagin, Daniel S., David P. Farrington, and Terrie E. Moffitt. 1995. "Life-Course Trajectories of Different Types of Offenders" *Criminology* 33: 111-140.

Nagin, Daniel S., and Kenneth Land. 1993. "Age, Criminal Careers, and Population Heterogeneity: Specification and Estimation of a Nonparametric Mixed Poisson Model." *Criminology* 33: 111-139.

Nagin, Daniel S. and Raymond Paternoster. 1991. "On the Relationship of Past to Future Participation in Delinquency." *Criminology* 29: 163-189.

Neugarten, Bernice L., Joan W. Moore, and J.C. Lowe. 1965. "Age Norms, Age Constraints, and Adult Socialization." *American Journal of Sociology* 70: 710-717.

Newcomb, Michael D., and Peter M. Bentler. 1986. "Drug Use, Educational Aspirations and Work Force Involvement: The Transition From Adolescence to Young Adulthood." *American Journal of Community Psychology* 14: 303-321.

Newcomb, Michael D. and Peter M. Bentler. 1987. "Changes in Drug Use From High School to Young Adulthood: Effects of Living Arrangement and Current Life Pursuit." *Journal of Applied Developmental Psychology* 8: 221-246.

Nunnally, Jum C. and Ira H. Bernstein. 1994. *Psychometric Theory, 3rd ed.* New York: McGraw-Hill, Inc.

O'Callaghan, Mary F., John G. Borkowski, Thomas L. Whitman, Scott E. Maxwell, and Deborah Keogh. 1999. "A Model of Adolescent Parenting: The Role of Cognitive Readiness to Parent." *Journal of Research on Adolescence* 9: 203-225.

Ortiz, Vilma and Katherine Fennelly. 1988. "Early Childbearing and Employment Among Young Mexican Origin, Black, and White Women." *Social Science Quarterly* 69: 987-995.

Paternoster, Raymond and Robert Brame. 1998. "The Structural Similarity of Processes Generating Criminal and Analogous Behaviors." *Criminology* 36: 633-670.

Quinton, David, Andrew Pickles, Barbara Maughn and Michael Rutter. 1993. "Partners, Peers and Pathways: Assortative Pairing and Continuities in Conduct Disorder." *Development and Psychopathology* 5: 763-783.

Ravanera, Zenaida R., Fernando Rajulton, and Thomas K. Burch. 1998. "Early Life Transitions of Canadian Women: A Cohort Analysis of Timing, Sequences, and Variables." *European Journal of Population* 14: 179-204.

Rindfuss, Ronald R. 1991. "The Young Adult Years: Diversity, Structural Change, and Fertility." *Demography* 28: 493-512.

Rindfuss, Ronald R., C. Gray Swicegood, and Rachel Rosenfeld. 1987. "Disorder in the Life-Course: How Common and Does It Matter?" *American Sociological Review* 55: 609-627.

Robbins, Lee and Michael Rutter., eds. 1990. *Straight and Devious Pathways from Childhood to Adulthood*. New York: Cambridge University Press.

Rockwell. Richard C., David J. Ross, and Glen H. Elder Jr. 1977. "Psychological Patterns in Marital Timing and Divorce: Comparisons Across Forty Years." Paper presentation at the Society for the Study of Social Problems. August, 1977: Philadelphia, PA.

Rodgers, Willard L. and Jerald G. Bachman. 1988. *The Subjective Well-Being of Young Adults: Trends and Relationships.* Ann Arbor, MI: Institute for Social Research, The University of Michigan.

Rosen, Lawrence, Leonard Savitz, Michael Lalli, and Stanley Turner. 1988. "Early Delinquency, High School Graduation, and Adult Criminality." *Sociological Viewpoints* 7: 37-60.

Rosenberg, Morris and Ralph Turner, eds. 1981. *Social Psychology*. New York: Basic Books.

Ryder, Norman B. 1965. "The Cohort as a Concept in the Study of Social Change." *American Sociological Review.* 30, 6: 843-861.

Sampson, Robert J. and John H. Laub. 1990. Crime and Deviance Over the Life Course: The Salience of Adult Social Bonds. *American Sociological Review* 55: 609-627.

Sampson, Robert J. and John H. Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life.* Cambridge, MA: Harvard University Press.

Sampson, Robert J., and John H. Laub. 1997. "A Life-Course Theory of Cumulative Disadvantage and the Stability of Delinquency." pp. 133-161 in *Developmental Theories of Crime and Delinquency*, edited by Terence P. Thornberry. New Brunswick, NJ: Transaction.

Scanlon, John. 1979. "Young Adulthood: A Summary of the Third Annual Conferences on Major Transitions in the Human Life Cycle." Paper presentation at Academy for Educational Development, 1979, Washington , D.C.

Schulenberg, John, Jerald G. Bachman, Patrick O'Malley, and Lloyd D. Johnston. 1994. "High School Educational Success and Subsequent Substance Use: A Panel Analysis Following Adolescents into Young Adulthood." *Journal of Health and Social Behavior* 35: 45-62.

Shanahan, Michael J., Michael D. Finch, Jeylan T. Mortimer, and Seongreyol Ryu. 1991. "Adolescent Work Experience and Depressive Affect." *Social Psychology Quarterly* 54: 299-317.

Simons, Ronald L., Christine Johnson, Rand D. Conger, and Glen Elder Jr. 1998. "A Test of Latent Trait Versus Life-Course Perspectives on the Stability of Adolescent Antisocial Behavior." *Criminology* 36: 217-243.

Singh, B.K., Larry D. Adams, and David E. Jorgenson. 1978. "Epidemiology of Marital Unhappiness." *International Journal of Sociology of the Family* 8: 207-218.

Simons, Ronald. L., Chyi-In Wu, Rand D. Conger and Frederich O. Lorenz. 1994. "Two Routes to Delinquency: Differences Between Early and Late Starters in the Impact of Parenting and Deviant Peers." *Criminology* 32: 247-276.

Smith, Douglas A. and Robert Brame. 1994. "On the Initation and Continuation of Delinquency." *Criminology* 32: 607-629.

Sorensen, Aage B., Franz E. Weinert, and Lonnie Sherrod, eds. 1986. *Human Development and the Life Course: Multidisciplinary Perspectives*. Hillsdale, NJ: Erlbaum.

Steinberg, L.D., S. Fegley and S.M. Dornbusch. 1993. "Negative Impact of Part-Time Work on Adolescent Adjustment: Evidence from a Longitudinal Study." *Developmental Psychology* 29: 171-180.

Streiner, David L. 2003. "Being Inconsistent About Consistency: When Coefficient Alpha Does Not Matter." *Journal of Personality Assessment* 80: 217-222.

Strobino, Donna M. and Ismail Sirageldin. 1981. "Racial Differences in Early Marriage in the United States." *Social Science Quarterly* 62: 758-766.

Tang, Shengming. 1997a. "The Timing of Home-Leaving: A Comparison of Early, On Time, and Late Home-Leavers." *Journal of Youth and Adolescence* 26: 13-23.

Tang, Shengming. 1997b. "Repeated Home-Leaving Behavior of American Youth." *Journal of Comparative Family Studies* 28: 147-159.

Tanner, Julian and Harvey Krahn. 1991. "Part-Time Work and Deviance Among High School Seniors." *Canadian Journal of Sociology* 16: 281-302.

Thornberry, Terrence P. 1987. "Toward an Interactional Theory of Delinquency." *Criminology* 25: 863-891.

Thornberry, Terrence P., ed. 1997. *Developmental Theories of Crime and Delinquency*. New Brunswick, NJ: Transaction.

Uggen, Christopher. 2000. "Work as a Turning Point in the Life Course of Criminals: A Duration Model of Age, Employment, and Recidivism." *American Sociological Review* 65: 529-546.

Warr, Mark 1998. "Life Course Transitions and Desistance from Crime." *Criminology* 36: 183-216.

West, Stephen G., John F. Finch, and Patrick J. Curran. 1995. "Structural Equation Models with Nonnormal Variables" pp. 56-75 in *Structural Equation Modeling: Concepts, Issues and Applications*, edited by Rick H. Hoyle. Thousand Oaks, CA: Sage Publications.

Wilson, James Q. and Richard J. Herrnstein. 1985. *Crime and Human Nature*. New York: Simon and Schuster

Witt, David D., Bernard Davidson, Donna L. Sollie, George D. Lowe, and Charles W. Peek 1986. "The Consequences of Early Marriage on Marital Dissolution." *Sociological Spectrum* 7: 191-207.

Wright, Bradley R. Entner, Avshalom Caspi, Terrie E. Moffitt and Phil A. Silva. 1999. "Low Self-Control, Social Bonds and Crime: Social Causation, Social Selection, or Both?" *Criminology* 37: 479-514.

Yamaguchi, Kazuo, and Denise Kandel. 1987. "Drug Use and Other Determinants of Premarital Pregnancy and Its Outcomes: A Dynamic Analysis of Competing Life Events." *Journal of Marriage and the Family* 49: 257-270.

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Halim, S. and Stiles , B.L. 2001 " Differential Support for Police Use of Force, the Death Penalty, and Perceived Harshness of the Courts: Effects of Race, Gender and Region." *Criminal Justice and Behavior*,   28, 1: 3-23.

Halim, S., H.B. Kaplan, and M.S. Pollack. 2000 "Moderating Effects of Gender and Vulnerability on the Relationships Between Financial Hardship, Low Education and Immune Response." *Stress Medicine*, 16: 167-177.

Kaplan, H.B. and S. Halim. 2000 "Aggression and Self-Derogation: Moderating Influences of Gender, Race/Ethnicity, and Stage in the Life Course." pp. 1-32 In *Advances in Life Course Research, Vol. 5: Self and Identity Through the Life Course in Cross-Cultural Perspective*, edited by T.J. Owens. Stanford, Connecticut: JAI Press.