Children of incarcerated parents: Cumulative risk and children's living arrangements

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INTRODUCTION

Children whose parents are incarcerated have, perhaps inadvertently, been treated as one group, with one set of service needs. But, the experience of parental incarceration is only one of many factors that may influence how children are faring. We know for example, that many children whose parents are incarcerated have been exposed to parental (e.g., substance abuse, mental health problems) and environmental risk factors (e.g., poverty) prior to their parent's incarceration. Child attributes, where the child is placed during a parent's incarceration, and the nature of the relationship with the substitute caregiver may also influence how well a child functions in the face of parental incarceration.

Another issue is that concern about this population has often been directed at children who enter the child welfare system as a result of parental incarceration, although most children of incarcerated parents do not end up in state care. Of the 1.3 million children of state and federal inmates in 1997, an estimated 24,000 were in foster care and 155,049 were in the care of grandparents (the share of these who are formal kinship foster care providers is unclear) (Johnson & Waldfogel, *in press*). The remaining children live in a variety of arrangements, including living with the other parent, with other relatives, on their own, or in some other form of care. Given that other pre-incarceration risk factors are often present, it is likely that children in living arrangements other than foster care have special service needs as well. But, we know little about how these risk factors are distributed across certain living arrangements.

The primary goal of the current paper is to localize such risk within specific living arrangements. That is, we want to understand what risk factors are present in the lives of incarcerated parents and their children, and if and how these differentially relate to children's living arrangements. By identifying potential risk factors within specific living arrangements, we hope to contribute to child welfare and community-based agencies' efforts to tailor and coordinate services to incarcerated parents and their children.

To this end, we use data from the 1997 Survey of Inmates in State and Federal Correctional Facilities (U.S. Department of Justice, Bureau of Justice Statistics, 2000) to address 3 questions. First, what risk factors are present in the lives of incarcerated parents and their children? Second, might children in some living arrangements be more vulnerable than others? That is, do we see higher levels of risk factors in certain living arrangements than in others? Third, controlling for other family characteristics, do these risk factors predict where a child is placed during incarceration? To provide background for the reader, we begin with an overview of the literature on the effects of incarceration on children. Next, we discuss how substitute care arrangements relate to child outcomes. Finally, we discuss theory and research regarding the cumulative nature of parental and environmental risks and delineate a set of risk factors that we will examine.

BACKGROUND

The Effects of Incarceration on Children

The small research literature on children of incarcerated parents suggests that parental incarceration can negatively affect the emotional, behavioral, and psychological development of children (Stanton, 1980; Baunach, 1985; Bloom & Steinhart, 1993). Problems such as aggressive behavior and withdrawal (Baunach, 1985), criminal involvement (Johnston, 1991,

1992), and depression and concentration problems (Kampfner, 1995) have been observed among children whose parents are imprisoned. Existing studies however, do not allow us to tease apart the effects of incarceration from the effects of other variables such as where the child is placed during the incarceration and the presence of pre-incarceration risk factors. Parental characteristics, such as substance abuse, mental health problems, and abuse histories for example, may have already put the child at risk before the parent went to prison.

Attachment

Another concern regarding parental incarceration that is often articulated, yet even less well studied in this population, is the issue of parent-child attachment. Attachment is conceived of as "a pattern of organized behavior within a relationship" (Sroufe et al., 1999; pp. 1). Through the relationship with an attachment figure, the child is afforded a secure base from which to explore. This relationship also shapes children's "internal working models", which guide the child's engagement in, and interpretation of, interactions with others. Internal working models not only influence children's expectations and appraisals of social relationships, but also children's perceptions of their own capabilities and their ability to self-regulate (Easterbrooks, Davidson, & Chazen, 1993), important developmental tasks.

Since John Bowlby's attachment trilogy was published (1969, 1973, & 1980), attachment theory has held a prominent place in psychological research. Attachment researchers have examined maternal and child characteristics associated with attachment relationships and have devoted considerable effort to delineating the short and long-term consequences of attachment security for child outcomes. Numerous studies suggest that attachment security during infancy has important consequences for later psychosocial functioning. Securely attached infants have been rated as more socially competent with peers (e.g., Elicker, Englund, & Sroufe, 1992; Erickson, Sroufe, & Egeland, 1992; Pastor, 1981; Waters, Wippman, & Sroufe, 1979) and parents (e.g., Pastor, 1981), (Sroufe, 1983), less dependent on teachers (Erickson, Sroufe, & Egeland, 1985; Sroufe, 1983) and better able to regulate impulses and feelings (Sroufe, 1983) than otherwise attached infants.

Although attachment theory has its roots in Bowlby's work with children in institutions, researchers have typically focused on attachment relationships in families where the mother is present. Attachment theory suggests that changes in family configuration such as divorce, adoption, and foster care may have implications for attachment security, particularly if they occur in infancy or early childhood. Yet very little systematic research exists in these areas (Rutter & O'Connor, 1999). Thus, while we know something about attachment relationships that children living with parents form with other caregivers such as day care providers and teachers (see Howes 1999 for a review), we know less about how children not living with their parents form attachments with full-time substitute caregivers such as foster parents or grandparents.

In a rare study of infants in foster care, Stovall and Dozier (2000) found that attachment behaviors emerge between infants and foster caregivers within two months after placement. Studies of children adopted from institutions also suggest that, even though these children might theoretically be at risk for attachment disturbances, very few children actually exhibit such disturbances, though insecure attachments are more common among previously institutionalized children than never institutionalized children (Zeanah, 2000). And there is evidence that children form meaningful attachments to grandparents (Myers, Jarvis, & Creasey, 1987).

Another issue is whether or not relationships with surrogate caregivers can mitigate against previous attachment disruptions. At least one study demonstrates that attachment

between children and foster caregivers confers benefits similar to what has been observed in other samples (Marcus, 1991). Specifically, children who have more positive emotional ties to foster parents and receive physical affection from them are better adjusted psychologically and academically than other foster children (Marcus, 1991). Another study suggests, however, that even though most children adopted from institutions were able to form close and affectionate relationships with their adoptive parents, they showed similar levels of social and behavioral problems as children who were returned to their biological families from institutions (Tizard & Hodges, 1978).

Although insights from attachment theory may be useful in fleshing out the issues of concern when a parent goes to prison, several questions persist. Of particular relevance is how the loss of an attachment figure due to parental incarceration differs from the loss of a parent due to parental divorce or death. Intuititively, one would expect the impact to depend on the length of time that the parent was absent and how far away the parent was (and whether the child could visit). Another question, still relatively unexplored, is the extent to which attachment relationships with alternative or new caregivers can mitigate the negative consequences associated with a disrupted parent-child attachment. Michael Rutter (1990) writes that, "it is clear that it is not the [parental] loss per se that creates the risk but rather the inadequate affectional parental care that it may bring about" (pp. 8). Thus, examining children's relationships with their substitute caregivers assumes particular importance for thinking about how children fare when a parent goes to prison.

It is also important to be clear that not all parental incarcerations will have the same impact in terms of the disruption of the child's previous relationships. The impact will clearly depend on who the child was living with prior to the incarceration, and who the child is placed with during the incarceration. For instance, consider the situation of a child who was living with a single mother and then, because of the mother's incarceration, is removed from her home and placed with a foster parent or other substitute caregiver. Then consider a second child who was living with both parents, whose father is incarcerated, and who continues to live with the mother. Or, consider a third child, who had already been removed from her parent's home prior to the incarceration for reasons of abuse or neglect. Surely the impact of having a parent incarcerated will be different for each of these children.

Substitute Care Arrangements and Child Outcomes

We know remarkably little about whether children placed into substitute care fare better or worse than similar children remaining with their own parent(s). Although a long literature (beginning with Maas and Engler in 1959; see also Fanshel & Shinn, 1978) has established that children in substitute care have poorer outcomes than the general population, most of the studies in this literature have been hampered by the fact that they did not collect data on the children prior to placement and thus can not determine how many of the children's problems preceded their entry into placement (see Wald, Carlsmith, & Leiderman, 1988; Waldfogel, 1998, 2000). Moreover, lacking experimental studies that randomly assign children to substitute care or parental care, it is hard to establish what the causal effects of substitute care might be. From a developmental perspective, parental care would be generally viewed as preferable for a child, if all else were equal, because parental care would allow for continuity of relationships, schools, daily routines, and so on. But, that preference for parental care must be balanced with considerations of the suitability of the other parent to care for a child. In the case of parents who

are facing the prospect of children entering non-parental care, particularly if this is due to parental incarceration, the suitability of the other parent cannot be taken for granted.

The literature is also weak on research comparing the effects on children of different types of substitute care. While many children in the child welfare system are placed with non-relative foster parents, others are placed with relatives who are paid as foster parents – so called "kinship foster parents" – and still others are placed in group or institutional settings. Many of the studies that compare substitute care arrangements focus on differences in caregiver characteristics between kinship foster parents and non-relative foster parents. These studies indicate that kinship foster parents are older (Berrick, Barth, & Needell, 1994; Guadin & Sutphen, 1993; Gebel, 1996; Le Prohn, 1994), have lower annual incomes (Berrick, Barth, & Needell, 1994; Ehrle & Geen, 2002; Gaudin & Sutphen, 1993; Gebel, 1996; Le Prohn, 1994), are less well educated (Berrick, Barth, & Needell, 1994; Gebel, 1996; Ehrle & Geen, 2002), and tend to receive fewer services than non-relative foster care parents (Berrick, Barth, & Needell, 1994; Gebel, 1996).

While kinship arrangements tend to offer more placement stability (Berrick, Barth, & Needell, 1994; Inglehart, 1993; Scannapieco et al, 1997) and more regular contact with parents (Benedict, Zuravin, & Stallings, 1996; Berrick, Barth, & Needell, 1994; Berrick, 1997) than non-relative foster homes, they also have been found to provide a lower level of educational stimulation than non-relative foster homes (Gaudin & Sutphen, 1993). Kinship caregivers also hold more favorable attitudes towards physical discipline (Gaudin & Sutphen, 1993; Gebel, 1996) and are less empathic towards children in their care than non-relative providers (Gebel, 1996).

Studies that compare child outcomes, however, suggest few differences between children in kinship arrangements and those in non-kin arrangements (see, for instance, Benedict et al., 1996, who find no long-term differences in education, employment or earnings between children who spent time in kinship care and those who spent time in non-relative foster care). Indeed, some studies find that children in kinship care do marginally better in terms of behavioral and mental health problems than children in non-relative care (Berrick, Barth, & Needell, 1994; Fein et al., 1983; Inglehart, 1994).

On the one hand we have a set of studies which suggest that kinship caregivers face more obstacles to parenting effectively than non-relative foster care providers (e.g., low income, older age, the receipt of fewer services). On the other hand, we have a set of studies that suggest that children in kinship care fare just as well, or even slightly better, than children in non-kin foster care on certain outcome measures. However, these studies are plagued by the same challenge encountered in most studies of outcomes for children in substitute care – namely, that we rarely know much about the status of the children prior to their entry into care or about what the children's outcomes would have been had they not been placed in care. Therefore, we do not know whether and how much the differences between children in kinship care and non-relative care reflect the differential selection of children into those types of care versus an effect of those types of care. Studies that compare children entering kinship care and non-relative foster care indicate that children enter into each type of care with different problems and for different reasons; for instance, children in kinship care are placed with greater frequency for neglect (Inglehart, 1994; Landsverk et al., 1996) than abuse. Moreover, to the extent that there are causal effects of substitute care arrangements, the mechanisms by which those arrangements can exacerbate or ameliorate child functioning and prevent new problems from developing remain unclear (Orme & Buehler, 2001). In the absence of studies that establish causal effects of

placement and that look specifically at how caregiver characteristics differentially relate to child outcomes in different living arrangements (i.e., do caregiver characteristics operate similarly in different living arrangements), there does not appear to be a clear hierarchy with regard to substitute care arrangements.

Cumulative Risk

The course of child development is determined by a number of factors. The ecological perspective, for example, situates human development within a complex matrix of individual and environmental influences (Brofenbrenner, 1979; 1986). The primary mechanisms of development, termed "proximal processes", are conceived of as the interactions between individuals and their environment over time. The transactional model takes development one step further, arguing that development is the product of continuous interaction between the child and his or her social context over time (Sameroff & Chandler, 1975; Sameroff, 1983; 1993).

Common to both these frameworks is the idea that a number of individual and environmental factors are important determinants of the course of child development. Personal and environmental factors that adversely affect growth and development are referred to as risk factors, while those that facilitate adaptive outcomes in the face of adversity are termed protective factors or mechanisms (e.g., Rutter, 1987; Masten, 1994). Theories of cumulative risk posit that it is not just any one risk factor that matters for child outcomes, but rather an accumulation of risk factors that can adversely affect the course of child development (e.g., Rutter, 1979; Sameroff et al., 1998). Thus, the greater number of risk factors in a child's life, the greater likelihood that he or she will experience difficulty. Indeed, several studies have found a relationship between the number of parental and ecological risk factors and outcomes such as cognitive performance (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987), social competence (Sameroff, Seifer, Zax, & Barocas, 1987; Furstenberg, Cook, Eccles, Elder & Sameroff, 1999), child psychiatric disorder (Rutter, 1979) and behavioral disorders (Williams et al., 1990).

Rutter and Quinton (1972) identified six factors that were associated with child psychiatric disorder: severe marital discord, low social status, overcrowding or large family size, paternal criminality (maternal criminality was not studied), maternal psychiatric disorder, and admission into the care of local authorities. Analyses of these factors revealed that the presence of any one risk factor was not associated with increased risk for psychiatric disorders, yet the presence of two or more stressors was associated with a fourfold increase in risk for psychiatric disorders (Rutter, 1979).

A series of studies by Arnold Sameroff and his colleagues yield similar results. The first of these findings derive from the Rochester Longitudinal Study (RLS), a study of children followed from the prenatal period through early adolescence. Based on evidence from the literature regarding their potential negative impact on developmental outcomes, a set of 10 family risk factors was identified. These include history of maternal mental illness, high maternal anxiety, rigid beliefs about child development, few positive maternal interactions with the child during infancy, head of household unskilled occupation, low educational attainment, minority status, single parenthood, stressful life events and large family size (Sameroff, Seifer, Barocas, Zax & Greenspan, 1987).

Children with none of these environmental risks scored more than 30 points above children with 8 or 9 of these risk factors on a verbal IQ test (Sameroff, Seifer, Barocas, Zax & Greenspan, 1987). When children were split into high and low risk groups, similar results were found. Children rated as high-risk (4 or more risk factors) were more than 24 times as likely to

have low verbal IQ scores (i.e., below 85) than children deemed low-risk (0 to 1 risk factors). Moreover, the multiple risk index accounted for substantially more variance in child outcomes than any single risk factor. In a separate analysis, scores on a measure of social competence decreased linearly as the number of family risk factors increased (Sameroff, Seifer, Zax & Barocas, 1987). That is, children with a greater number of family risk factors fared worse in terms of socio-emotional competence than children with fewer family risk factors.

Similar cumulative effects of risk were found in the Philadelphia Study, a longitudinal study of adolescents in five different Philadelphia neighborhoods (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999). Families were split into high and low risk groups based on the number of risk factors present in the family environment. For mental health and academic performance, the relative risk of a poor outcome increased from 3% in the zero-risk group to 50% in the high-risk group. For problem behavior, the risk of a poor outcome increased from 3% in the zero-risk group to 45% in the high-risk group.

In a study of behavioral and emotional disorders in preadolescent children, Sheila Williams and her colleagues (1990) found similar results regarding multiple risk factors. While single risk factors did not distinguish children with behavioral disorders from those without behavioral disorders, the number of risk factors did. Specifically, only 7% of children with less than two disadvantages (e.g., number of changes in residence, single parenthood, low SES, marital separation, young motherhood, maternal mental health problems) had behavioral problems, compared with 40% of those children with eight or more of these disadvantages. Similarly, Werner and Smith (1989) found that children with four or more family risk factors at age 2 fared less well in terms of serious learning and behavioral problems at age 10 or 18 than children with fewer than four of these risk factors.

Research indicates that children of incarcerated parents have been exposed to many of the risk factors delineated in these studies, including low socioeconomic status, maternal mental health problems, and low maternal education. Analyses of national inmate surveys reveal the presence of other parental risk factors including histories of sexual and physical abuse, mental illness and parental incarceration (U.S. Department of Justice, Bureau of Justice Statistics, 1993) and poverty (Baunach, 1985; Johnston, 1995; Kampfner, 1995). Substance use is also prevalent among inmates. Nearly 60% of women in state prisons used drugs in the month prior to their offense and that approximately 50% described themselves as regular substance users and 65% report a history of prior convictions (Greenfeld & Snell, 1999).

The presence of risk factors in the lives of incarcerated parents and their children has increased over time. By several indicators, parents incarcerated during 1997 reported more risk factors than parents incarcerated in 1986 (Johnson & Waldfogel, *in press*). For example, more of the 1997 parents reported histories of physical or sexual abuse, prior incarceration, incarceration of their own parents, and regular drug use than parents incarcerated during 1986.

A related concern is that parental incarceration may introduce other risk factors identified in the cumulative risk literature. For example, several of the studies cited above identify placement of a child in the care of local authorities as a risk factor, above and beyond the family and environmental risks that precede it. As we saw above, attachment theory too would see some risk associated with the placement of a child with someone other than the parent or other familiar caregiver. It may be the case that children who enter substitute care as a result of parental incarceration are high-risk to start with, and also face even higher risks as a result of being in substitute care. Thus, foster care may be both an outcome and a risk factor, depending

on the circumstances that preceded the child's placement and the nature of the relationship with the foster parent.

Given the prevalence of these other risk factors, we will briefly consider how each of the factors relate to parenting and child outcomes. Parental history of depression, physical and sexual abuse, substance use, foster care, or parental incarceration may also be relevant. Mothers who are depressed for example, find parenting more difficult and exhibit less nurturance towards children than less depressed mothers (McLoyd & Wilson, 1991). Maternal depression has also been associated with greater social, behavioral, and academic difficulties among children (Downey & Coyne, 1990).

A history of childhood physical or sexual abuse may also influence disciplinary strategies. Exposure to physical discipline as a child is a related to more favorable attitudes towards its use (Rodriquez & Sutherland, 1999; Bower-Russa, Knutson, & Winebarger, 2001). Endorsement of physical punishment does relate to actual behavior, with parents who hold more positive attitudes towards physical discipline being more likely to use physical discipline with children (Jackson et al., 1999). Though most parents who were abused as children do not go on to abuse their own children, a history of abuse does appear to increase the risk of becoming abusive relative to individuals without an abuse history (Widom, 1990; Kaufman & Zigler, 1993).

Mothers who have been sexually abused themselves exhibit more dependence on their children for emotional caretaking (Burkett, 1991), lower levels of maternal involvement (Lyons-Ruth, 1996), and more permissive parenting practices (Ruscio, 2001) than their non-abused counterparts. Elevated levels of substance abuse have also been observed among women with a history of sexual abuse in clinical (e.g., Brown & Anderson, 1991; Pribor & Dinwiddie, 1992) as well as in community samples (Wilsnack et al., 1997).

Substance abuse is often implicated in cases of child abuse and neglect, with an estimated 40-80% of families involved with the child welfare system having alcohol or drug use problems (Child Welfare League of America, 2001). Moreover, children whose parents abuse substances are three times more likely to be abused and four times more likely to be abused than children whose parents do not abuse substances (Child Welfare League of America, 2001). Much of what we know about the correlation between parental substance use and adolescent substance use is based on studies of children of alcoholics, which indicate a strong link between parental alcohol use and adolescent alcohol use (Colder, Chassin, Stice, & Curran, 1997; Chassin, Rogosch, & Barrera, 1991; Pandina & Johnson, 1989; Finn et al., 1997). Parental substance abuse has also been associated with low parental monitoring, which in turn, may heighten risk for adolescent substance use (Chassin et al., 1993, 1996). Infants who are exposed to prenatal substance use weigh less at birth (Chouteau, Namerow, & Leppert, 1988) exhibit more behavioral problems (McNichol & Tash, 2001) and have more special health and caregiving needs relative to their non-exposed counterparts (McNichol, 1999); they may also have more chaotic home environments in early childhood (Berger & Waldfogel, 2000).

Two other factors that may have relevance for thinking about this population of parents and children are whether or not the parent ever lived in foster care and whether or not the parent's own parent was ever incarcerated. One important way in which parental incarceration might affect the next generation's parenting is through diminished social and economic resources. Growing up in foster care may have similar effects on parents' access to resources and supports. However, we are aware of no studies that have looked at specific parenting outcomes

in adults who lived in foster care growing up or whose parents were incarcerated during their childhood.

To summarize, studies of cumulative risk suggest that parental and environmental risk factors that were present in children's lives before the parent went to prison may continue to influence how well they function during a parent's incarceration. However, it is important to point out that not all children will respond similarly in the face of parental and environmental risk. This is precisely the point made by more transactional models of development, which posit dynamic interactions between characteristics of individuals and the social context over time (Sameroff & Chandler, 1975) and is implicit in research on resilience, which examines differential outcomes in the face of adversity (e.g., Rutter, 1987; 1993). Nonetheless, examining the presence of multiple risk factors in the lives of incarcerated parents and their children and considering how these relate to children's living arrangements will provide us with a new understanding of children of incarcerated parents and the problems they may face as they grow into adolescence and young adulthood.

DATA AND METHODS

Survey Data and Sample

We analyze children's living arrangements using the 1997 Survey of Inmates in State and Federal Correctional Facilities (U.S. Department of Justice, Bureau of Justice Statistics, 2000). The U.S. Census Bureau has conducted national inmate surveys every five years since 1974. From personal interviews with inmates, the dataset yields detailed information on inmates' criminal history, drug and alcohol use, prison activities, conditions of confinement, family background, demographic characteristics, and a number of other variables. Parents were selected for analysis if they had at least one child under the age of 18. Cases with missing data were dropped from all analyses, producing a final sample of 6,870 fathers and 2,047 mothers who were incarcerated in state or federal prison in 1997. Descriptive statistics for all variables used in the analyses for mothers and fathers are displayed in Table 1.

Data Analysis

Recall that three questions drive our analyses. First, what risk factors are present in the lives of incarcerated parents and their children? Second, do we see higher levels of parental and environmental risk factors in certain living arrangements than in others? Third, controlling for other characteristics, do these risk factors predict where a child is placed during incarceration?

Given our interest in multiple parental and environmental risk factors, we begin by creating a multiple risk score. Eight indicators of risk were selected based on their importance for child outcomes and/or their predictive utility in previous studies of cumulative risk. Though myriad other parental and environmental factors matter for child development, our analyses were constrained by variables available in the dataset. The risk factors we selected include: (1) low parental education (i.e., less than 12^{th} grade); (2) parental substance use (i.e., parent reported ever using heroin, crack, or cocaine regularly); (3) parental mental or emotional problem (i.e., parent reported ever having had a mental or emotional problem); (4) low socioeconomic status (i.e., received public assistance prior to incarceration); (5) parent ever physically or sexually abused; (6) parent had a prior incarceration; (7) parent ever lived in foster care growing up; and (8) parent's own parent had ever been incarcerated. These variables were dummy coded and then summed to arrive at a multiple risk score. Risk scores ranged from zero to eight, with a mean risk

score of 2.7 for mothers and 1.9 for fathers (see Table 1). We present the frequency distribution for the multiple risk score in Table 2. Because very few parents had more than 6 risk factors, we collapsed those with 6 or more risk factors into a single category (i.e., 6 plus). Altogether, about 28% of women have 4 or more risk factors, as compared to 12% of men. And, fully half of women (50%) have 3 or more risk factors, compared to less than a third (31%) of men.

Next, we examine how these multiple risk scores are distributed across children's living arrangements. We coded children as living in one of four main types of living arrangements: 1) parent; 2) grandparent/other relative ; 3) foster/agency care; or 4) other. Children in the first category, parent, lived exclusively with the other parent during the parent's incarceration. Children in the second category lived with a grandparent or other relative, or had multiple living arrangements involving family members such as grandparents, the other parent, or other relatives. Children in the third category lived exclusively in foster or agency care, or had multiple living arrangements involving foster or agency care and some other type of care. Children in the fourth category lived on their own, in another type of care, or in multiple arrangements that included living on their own or another type of care. We show the distribution of children by living arrangements in Table 3. As shown in the table, children's living arrangements during their parent's incarceration vary a great deal by parent gender. Children of incarcerated fathers are most likely to be living with a parent (i.e., the mother), while children of incarcerated mothers are most likely to be living with a grandparent or other relative. Only about 1% of incarcerated fathers' children are in foster care, as compared to nearly 6% of incarcerated mothers' children. It should be noted here that the number of children in foster care may be understated in the survey. Parents did not have the option in the survey of identifying "kinship care", i.e., care with a relative that is paid as foster care. Thus, it is likely that children in kinship foster care are counted here as children living with a grandparent or other relative, not as children in foster care. In the results below, we present cross-tabulations of these four categories of living arrangements by multiple risk score.

Finally, we estimate a series of multinomial logit models, which examine the effects of the multiple risk score, and specific risk factors, on the likelihood that a child lives in a given arrangement during a parent's incarceration, as compared to living with the other parent. Multinomial logit models are used because there are several categories of living arrangements that cannot be placed in any particular order. As the review of the literature on substitute care arrangements suggests, there is no clear hierarchy with regard to children's living arrangements; while children living with kin may fare better on some outcomes, there is no difference between children raised by relatives and non-relative foster parents on other outcomes. Moreover, extant literature does not permit ranking all possible living arrangements (parent, grandparent, relative, agency, institution, alone, other) with confidence. We can however, assume that living with a parent will usually be the least disruptive arrangement for a child whose other parent has been incarcerated in terms of continuity of care, prior relationships, residence, school and so on.

Our control variables include an extensive set of parent and family characteristics, including whether the parent is African-American, Hispanic, or other race/ethnicity (non-Hispanic white is the omitted category), whether the parent is married or previously married (never married is the omitted category), whether the parent is a non-citizen, the parent's age, and the number of preschool and school-age children the parent has.

Based on previous studies suggesting that living arrangements differ for children depending on the gender of the parent who is incarcerated (Johnston, 1991; Mumola, 2000; Johnson & Waldfogel, *in press*), we estimate separate models for mothers and fathers. For both

mothers and fathers, we estimate two sets of models: one using the multiple risk score and one using the individual indicators of risk.

RESULTS

Multiple risk scores & children's living arrangements

Table 4 shows the distribution of children's living arrangements by risk score. The top panel presents data for mothers, and the bottom panel for fathers. Reading across rows, the table tells us what share of children within each risk score group are placed in a particular type of arrangement during their parent's incarceration. For instance, reading across the first row "Share living with other parent" for mothers, we can see that nearly 30% of children with no risk factors are placed with a parent, as compared to only 9% of children with 6 or more risk factors. Thus, at least in the raw data, the chance of being placed with a parent declines as the number of risk factors increases. In contrast, the share of children placed in foster care increases as the number of risk factors increases, rising from under 0% for children of mothers with no risk factors to 11% for children of mothers with 6 or more risk factors. The share of children placed in other care also generally rises with the number of risk factors (although it peaks for children with 5 risk factors). Interestingly, the share of children placed with grandparents or other relatives is fairly constant across risk score groups, but rises steeply for children with 6 or more risk factors.

The patterns for children of fathers are fairly similar. The overall share of children placed with a parent is much higher, but as in the results for mothers, the share of children placed with a parent declines as the number of risk factors increases (from 80% of children with no risk factors to 66% of children with 6 or more risk factors), while the share of children placed in foster care increases with the number of risk factors (rising from under 1% for children of fathers with no risk factors to 4% for children of fathers with 6 or more risk factors). Again, the share of children placed with grandparents or other relatives is fairly constant across risk score groups, but rises steeply for children with 6 or more risk factors, and placement of children into other care again peaks for children with 5 risk factors.

Thus, for both mothers and fathers, the raw data indicate that children who face more risks are less likely to be living with a parent, and more likely to be living in foster care. There is also a tendency for higher risk children to be more likely to be placed with a grandparent or other relative, or into another form of care. We cannot tell from the raw data, however, whether these relationships will hold when we control for other characteristics of these families. Therefore, we turn now to the multivariate results.

Impact of risk factors on children's living arrangements

As described above, we estimated multinomial logit models to learn what effects the multiple risk score, and individual risk factors, had on children's living arrangements during a parent's incarceration, holding other characteristics of the family constant. In each model, the reference category is living with the other parent, so we are estimating the effect of the risk score, or risk factors, on the likelihood that a child is living in one of the other types of arrangements rather than with the other parent. We show the results (odds ratios and p-values) for the multiple risk score in Table 5, and for individual risk factors in Table 6. In each table, the top panel presents results for mothers, and the bottom panel results for fathers.

Looking first at the results for mothers in Table 5, we can see that the higher the multiple risk score, the higher the likelihood that a child is placed with someone other than the other

parent during the mother's incarceration. Each additional risk raises the odds of the child being placed with a grandparent/relative by 16%, the odds of being placed into foster/agency care by 54%, and the odds of being placed in some other arrangement by 37%. These effects are above and beyond those of other family characteristics, which also matter in predicting children's living arrangements. For instance, African-American children are more likely than white children (the reference category) to be placed in any of the non-parental living arrangements; this result probably reflects the poorer living circumstances (e.g., lower employment and earnings, higher rates of being incarcerated themselves) of the fathers of these children. Children of married mothers are much less likely than children of never married mothers (the reference category) to be placed in any of the non-parental living arrangements, which makes sense given that fathers of married mothers should be more available to care for the child during the mother's incarceration. Family size matters too: families with more children are more likely to have children placed somewhere other than with the other parent, and are particularly likely to have them placed into foster or agency care. This finding is consistent with the child welfare literature which typically finds larger family size correlated with higher rates of out-of-home placement (see for instance Berger, 2002).

Turning to the results for fathers, the pattern of results is fairly similar, but the results are weaker, and the model has less explanatory power than the mothers' model (the R^2 here is only .09 compared to .185 in the mothers' model). As with the results for mothers, higher multiple risk scores predict a greater likelihood that a child is not living with the other parent. For children of fathers, each additional risk raises the odds of being placed with a grandparent/relative by 7%, the odds of being placed into foster/agency care by 47%, and the odds of being placed in some other arrangement by 19%. These effects are considerably smaller than those for children of mothers, except for the effect on foster/agency care, which is nearly as large. And, the effects of other family characteristics are considerably weaker than they were in the mothers' model. The overall weakness of the model, and its poor explanatory power, may reflect the fact that fewer than half these fathers were living with their children prior to incarceration (see Table 1). Fathers' characteristics may be poor predictors of living arrangements of children who were not living with them to start with.

Nevertheless, the results for mothers and fathers are consistent in pointing to a pattern of higher risk children being more likely to be placed in foster or agency care, and to a lesser extent, in other care or grandparent or relative care. Thus, it is fair to conclude that, all else equal, children of incarcerated parents who are placed into foster or agency care are a particularly high-risk group, but that other children not placed with parents are at significantly elevated risk as well.

To learn what specific risks might be driving these results, we re-estimated our models for mothers and fathers, replacing the multiple risk score with dummy variables for the 8 individual risk factors (and controlling for all the other covariates included in the prior model). We show the results (odds ratios and p-values) for the individual risk factors in Table 6. Looking first at the results for mothers, we can see that drug use is associated with higher rates of non-parental living arrangements, although this effect is statistically significant only for grandparent/relative care. The mother having ever been abused herself, and the mother not having completed 12 years of school, are strongly associated with children being placed into foster/agency care or other care. The mother having lived in foster care herself doubles the risk of her children being in foster/agency care while she is incarcerated. And, the mother having received public assistance prior to incarceration nearly doubles the risk of her children being in

any of the three types of non-parental care during her incarceration. At the same time, there are several other risk factors that appear to have no significant effects on living arrangements: these include the parent's own parent being incarcerated; the parent having a prior period of incarceration; and the parent having a mental or emotional health problem. Although the latter two have signs in the expected direction, none are close to statistical significance.

Turning to the results for fathers, again these are generally weaker than the results for mothers, but nevertheless do show some of the same patterns. Drug use is strongly linked to higher rates of foster/agency care for children of fathers who are incarcerated, as is the father having ever been abused himself. The father having less than 12 years of schooling raises the odds of all three types of non-parental living arrangement, with a particularly large effect on foster/agency care. Having received public assistance prior to arrest raises the odds of foster/agency care by 160%, and the odds of other care by 40%. And, in contrast to the results for mothers, having a parent who was incarcerated or having a prior incarceration oneself significantly raises the odds of children being in other arrangements. But, similar to the results for mothers, there are no significant effects of having been in foster care oneself or of having a mental or emotional health problem.

DISCUSSION & CONCLUSIONS

One consequence of the dramatic increase of incarceration during the late 1980s and early 1990s has been a sharp increase in the number of children whose parents are incarcerated. Our data confirm earlier work (such as McGowan and Blumethal, 1978), which indicates the presence of many risk factors in the lives of incarcerated parents and their children. Previous studies have defined families as "high-risk" if they have four or more risk factors (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987; Sameroff, Seifer, Zax, & Barocas, 1987), a categorization that has proved useful in distinguishing children on important psychosocial outcomes. A substantial of incarcerated parents – 28% of women and 12% of men – meet this definition of high-risk, while fully half of women (50%) and about a third of men (31%) have three or more risk factors. Moreover, our data suggest that it is not only children living in foster care (and other child welfare institutions) who have been exposed to parental and environmental risk factors prior to the parent's imprisonment, but also children living with grandparents and other relatives, and in other settings.

The raw data indicate that children are increasingly likely to be placed with someone other than a parent, and are particularly likely to be placed in foster or agency care, as the number of risk factors rises. Our multivariate results confirm that these relationships hold even after controlling for other child and family characteristics such as race/ethnicity, age, family size, and so on. The highest risk children of incarcerated mothers and fathers are placed into foster or agency care, but those placed with grandparents or other relatives, or in other arrangements, also enter placement with more risks than those placed with parents. Moreover, given that placement into non-parental care could be considered an additional risk factor in its own right, it must be assumed that children who do not live with a parent are at even higher risk relative to children placed with a parent than we are estimating here.

We also learned something about the specific risk factors that seemed to be most strongly associated with placement of children into non-parental care during a parent's incarceration. For both mothers and fathers, four risk factors were significantly associated with placement of the child in foster care or an agency, though the specifics differed slightly by gender. A history of

physical or sexual abuse, less than a 12th grade education, and benefit receipt increased the odds that both mothers' and fathers' children would be placed in foster care. For mothers, benefit receipt also increased the odds that children were in the care of relatives as compared to the child's other parent.

Regular substance use increased the odds that mothers' children would be placed with a grandparent or other relative and that fathers' children would be placed in foster care during the parent's incarceration. Given that substance use is often a factor in child placement outside of the home (Child Welfare League of America, 2001), it is important to point out that we don't know where children were placed prior to the parent's incarceration. Some parents may have already lost custody of children prior to incarceration.

Surprisingly, a history of mental health problem was not significantly related to children's living arrangements for either mothers or fathers, perhaps because self-reported history of mental or emotional problems is a poor indicator of actual mental health. Prior history of incarceration was also a weak indicator of children's living arrangements when considered independently. Among mothers, prior sentence to incarceration was not significantly related to children's living arrangements, and for fathers, prior sentence only increased the odds that a child was placed in the "other arrangement" category. Working out the mechanisms by which parental and environmental characteristics directly and indirectly influence children's living arrangements, and their eventual outcomes, and identifying other risk factors that we could not measure in our data are important challenges for further research.

Our results speak to the need for a broader service response that reaches out to all non-parental caregivers of incarcerated children, not just to those who are formal foster or agency care providers. Children who are placed with relatives, or in other settings outside the formal child welfare system, nevertheless are a higher-risk group than children who live with another parent during their parent's incarceration and are thus more likely to be in need of services. At the same time, children in foster or agency care do warrant special attention. They are the highest risk group of children of incarcerated parents as evidenced by their significantly higher multiple risk scores (and higher odds of having specific risk factors). And, their parents may face special challenges in meeting child welfare agency mandates given their incarceration. Yet, few child welfare agencies have specific policies and procedures to address the situation of children of incarcerated parents (Johnson & Waldfogel, in press). In the absence of such policies, these children's needs may go unmet. It is particularly important that permanency planning for such children be specialized, to take account of the challenges faced by parents who are incarcerated as well as the problematic family histories that many of these children have.

Policies for children of incarcerated parents must also take account of their diversity. As we have seen, living arrangements for these children differ by a number of parental demographic characteristics including gender and race. Such demographic factors are consistently associated with type of living arrangement, and with risk factors for children. Children are much more likely to be placed with a non-parent if their mother is incarcerated, than if their father is incarcerated. There are also notable gender differences in the mean number of risk factors (2.7 for children of incarcerated mothers versus 1.9 for children of incarcerated fathers). Thus, children whose mothers go to prison are likely to have different, and more intensive, service needs than children whose fathers go to prison.

Another demographic factor that has a consistent influence on children's living arrangements is race. Given past research that suggests that children's living arrangements during a parent's incarceration vary by race (Baunach, 1985; Snell, 1994), this is not particularly

surprising. What is striking, however, is that being African-American increases the odds that children will be in any arrangement (grandparent, relative or foster care) other than with their parent for mothers, but not for fathers. This pattern of results suggests that fathers of African-American children whose mothers are incarcerated are relatively more disadvantaged in terms of their employment, earnings, and/or own incarceration (compared to other fathers), than are the mothers of African-American children whose fathers are incarcerated (compared to other mothers).

While our data suggest that children of incarcerated parents in all types of non-parental living arrangements may be at elevated risk by virtue of certain parental and environmental characteristics that they were exposed to prior to incarceration, it is important to remember that not all children will respond similarly to such environmental risk. As noted earlier, this is the point made by more transactional models of development, which posit dynamic interactions between characteristics of individuals and their social context over time (Sameroff & Chandler, 1975) and is implicit in research on resilience, which examines differential outcomes in the face of adversity (e.g., Rutter, 1987; 1993).

One of the most obvious limitations of the current study is that we do not have data on child outcomes. While the presence of several parental and environmental risk factors may increase the odds of adverse outcomes, this is probabilistic, not deterministic- especially since how well a child functions depends on many other factors. Longitudinal child outcome studies that examine what role pre-incarceration risk factors, children's living arrangements, relationships with their parents, and relationships with substitute caregivers play in children's functioning are sorely needed. Much of the existing literature on children whose parents are incarcerated is descriptive and/or anecdotal in nature, and the few studies that do exist fail to specify methods and measures in a manner which allows for replication. Moreover, data on children are typically collected through interviews with parents, which provide a limited view of children's behaviors. This may be of particular concern when a parent is incarcerated, as he or she does not have daily contact with the child. Some mothers do not know very basic information about their children, including developmental milestones and the names of children's teachers (Johnston, 2001). Studies that utilize multiple informants of child behavior and control for pre-incarceration risk factors and children's living arrangements will help us to determine the impact of parental incarceration on families and children. Understanding if and how parental absence due to incarceration differs from separation due to parental divorce or death will also be useful in designing interventions with families where a parent is incarcerated.

Another limitation of the current study, and an important direction for future research, is that we were not able to examine how children's living arrangements influence child outcomes and to what extent they might mitigate or heighten child risk. Under certain circumstances, being placed in the care of a relative or foster care agency rather than the other parent may be beneficial for the child. One such circumstance may be the attachment of the child to a new caregiver. While developmental research has examined attachment relationships between children and additional caregivers (e.g., teachers, daycare providers), we know less about attachment relationships with alternative caregivers, an issue of obvious relevance for some children whose parents go to prison. The extent to which these relationships may serve a compensatory function in the parent's absence is still unexplored, despite its importance for thinking about intervention. As Thompson (1999) points out, attachment relationships with different caregivers may serve different functions for children and influence different outcomes.

Thus, looking at the impact of relationships with surrogate caregivers as well as with the imprisoned parent may be useful.

A few other limitations are noteworthy. First, as mentioned earlier, the survey data do not allow us to identify children in "kinship care" separately from children living in informal care with grandparents or other relatives. Thus, our count of children in foster care may be too low. And, we do not know what share of children living with grandparents may be connected with the child welfare system. Second, the survey data do not allow us to identify the arrangements children were living in prior to the parent's incarceration, if they were not living with the parent. We know that many children, especially those whose fathers are in prison, did not reside their parent prior to the incarceration. Given the prevalence of drug use histories and prior incarcerations, it is likely that many of these children were already in non-parental care prior to the parent's current incarceration; however, we do not know how many from our data. Moreover, the amount of variance explained by our models (R^2) is relatively low across models, although higher for mothers. Thus, many factors other than those we consider here may influence where a child is placed, including the availability of non-relative care.

Following studies that suggest that it is not any one risk factor that may negatively influence child development, but rather an accumulation of such risk factors (Rutter, 1979; Sameroff et al., 1998), we utilized a multiple risk model in these analyses. Where a child is placed is a complicated decision that is influenced only in part by parental and environmental risk characteristics. However, in terms of identifying children who may be in need of services by virtue of multiple risk factors, this model has been useful. Our results suggest that even controlling for other child and family characteristics, children of incarcerated parents who are not living with a parent, and particularly children living in foster or agency care, face an elevated number of risk factors.

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Table 1: Sample Means (Standard Deviations)

	Mothers (n=2,047)	Fathers (n=6,870)
White	.327 (.469)	.289 (.453)
African-American	.480 (.499)	.507 (.499)
Other race	.037 (.188)	.033 (.179)
Hispanic	.155 (.362)	.170 (.376)
US Citizen	.942 (.233)	.924 (.265)
Age	33.4 (6.58)	33.8 (8.19)
Married	.229 (.420)	.262 (.439)
Previously married	.347 (.476)	.287 (.452)
Never married	.450 (.494)	.262 (.497)
Number of preschool aged children	.408 (.677)	.460 (.738)
Number of school aged children	1.93 (1.25)	1.66 (1.29)
Lived with child prior to incarceration	.697 (.459)	.468 (.499)
Less than 12^{th} grade education	.562 (.496)	.572 (.494)
Own parent was incarcerated	.201 (.401)	.173 (.378)
Ever in foster care	.106 (.308)	.101 (.301)
Previously incarcerated	.358 (.479)	.545 (.497)
Ever used heroin, crack or cocaine	.429 (.495)	.263 (.440)
Every physically or sexually abused	.541 (.498)	.131 (.337)
Mental or emotional problem	.131 (.337)	.068 (.252)
Received public assistance prior to arrest	.345 (.475)	.065 (.248)
Total number of risk factors	2.67 (1.59)	1.92 (1.32)

Table 2: Prevalence of Risk Factors

Number of Risk Factors	Mothers	Fathers
0	09.6%	14.5%
1	15.6%	26.1%
2	22.2%	28.7%
3	22.2%	18.8%
4	16.2%	08.0%
5	09.9%	03.1%
6+	04.4%	00.8%

Table 3: Children's Living Arrangements during the Parent's Incarceration

	Mothers (N=2,047)	Fathers (n=6,870)
1. Parent	17.2%	77.2%
2. Grandparent or other relative	65.4%	15.2%
3. Foster or agency care	05.7%	01.3%
4. Other	11.7%	06.3%
Total	100.0%	100.0

Table 4: Children's Living Arrangements, by Number of Risk Factors

A. Fathers

Number of risk factors	0	1	2	3	4	5	6-8
Share living with other parent	79.7%	79.0%	76.7%	74.3%	78.3%	70.3%	66.0%
Share living with grandparent/relative	14.9%	13.6%	15.6%	16.8%	13.3%	17.9%	22.6%
Share in foster care/agency	00.7%	00.6%	01.2%	02.3%	02.4%	01.9%	03.8%
Share in other arrangement	04.6%	06.7%	06.4%	06.5%	06.0%	09.9%	07.5%

B. Mothers

Number of risk factors	0	1	2	3	4	5	6-8
Share living with other parent	29.6%	22.5%	17.1%	15.4%	12.7%	12.4%	08.8%
Share living with grandparent/relative	65.3%	62.2%	67.0%	65.0%	67.4%	61.9%	72.5%
Share in foster care/agency	00.0%	03.8%	05.1%	05.7%	07.6%	10.4%	11.0%
Share in other arrangement	05.1%	11.6%	10.8%	13.9%	12.4%	15.3%	07.7%

Table 5: The Effect of Multiple Risks on Children's Living Arrangements during the Parent's Incarceration: Odds Ratios (and p-values) from Multinomial Logit Models, with Living with the Other Parent as the Reference Category

A. Mothers

	Grandparent / Relative	**Foster care/Agency**	**Other Arrangement**
Multiple-risk score	**1.164****	**1.535****	**1.370****
	(.000)	**(.000)**	**(.000)**
Age	.980*	1.052**	1.106**
	(.064)	(.013)	(.000)
Number of preschool children	1.280**	2.970**	1.215
	(.034)	(.000)	(.253)
Number of school aged children	1.094	1.313**	1.040
	(.106)	(.002)	(.602)
African-American	2.543**	1.747**	1.424*
	(.000)	(.041)	(.094)
Other race	1.610	2.709*	1.703
	(.163)	(.059)	(.235)
Hispanic	1.640**	1.207	1.263
	(.012)	(.609)	(.394)
Non-citizen	1.302	1.117	1.293
	(.364)	(.857)	(.517)
Married	.294**	.289**	.329**
	(.000)	(.000)	(.000)
Previously married	.703**	.644	.900
	(.044)	(.128)	(.654)
Lived with child prior to incarceration	1.154	.419	1.100
	(.312)	(.000)	(.623)
Psuedo R^2 .185			
N 2, 047			

** denotes statistically significant at p<.05 * denotes marginally significant at p<.10

Table 5 (continued)

B. Fathers

	Grandparent / Relative	**Foster care/Agency**	**Other Arrangement**
Multiple-risk score	**1.067****	**1.470****	**1.193****
	(.014)	**(.000)**	**(.000)**
Age	.997	1.065**	1.130**
	(.544)	(.000)	(.000)
Number of preschool children	.940	1.171	.868
	(.232)	(.348)	(.196)
Number of school aged children	.991	1.148*	.851**
	(.762)	(.097)	(.001)
African-American	1.126	.696	.922
	(.173)	(.165)	(.514)
Other race	1.066	.794	1.123
	(.747)	(.708)	(.684)
Hispanic	.943	1.027	.731
	(.631)	(.936)	(.094)
Non-citizen	1.152	1.094	.925
	(.346)	(.846)	(.760)
Married	.699**	.762	1.124
	(.000)	(.384)	(.489)
Previously married	1.021	1.092	1.722
	(.821)	(.755)	(.000)
Lived with child prior to incarceration	1.573**	1.158	1.021
	(.000)	(.512)	(.850)
Psuedo R^2	.090		
N	6,870		

** denotes statistically significant at p<.05 * denotes marginally significant at p<.10

Table 6: The Effect of Specific Risk Factors on Children's Living Arrangements during the Parent's Incarceration: Odds Ratios (and p-values) from Multinomial Logit Models, with Living with the Other Parent as the Reference Category

A. Mothers

	Grandparent / Relative	**Foster care/Agency**	**Other arrangement**
Ever used heroin or crack regularly	1.338**	1.283	1.222
	(.043)	(.304)	(.305)
Ever physically or sexually abused	.962	2.469**	1.595**
	(.780)	(.001)	(.017)
Own parent was incarcerated	.839	.884	.880
	(.307)	(.664)	(.596)
Ever lived in foster care growing up	1.434	1.955**	1.333
	(.115)	(.047)	(.355)
Prior sentence to incarceration	1.172	1.066	1.064
	(.276)	(.792)	(.752)
Did not complete high school	.955	2.305**	1.950**
	(.735)	(.001)	(.000)
Mental or emotional health problem	1.212	1.448	1.349
	(.352)	(.233)	(.255)
Received public assistance prior to arrest	1.914**	1.755**	1.861**
	(.000)	(.029)	(.003)
Psuedo R^2	.206		
N	2,047		

Note: Model includes all the controls from Table 5, except the multiple risk score.

** denotes statistically significant at p<.05
* denotes marginally significant at p<.10

Table 6 (continued)

B. Fathers

	Grandparent / Relative	**Foster care/Agency**	**Other Arrangement**
Ever used heroin or crack regularly	1.049	1.657**	1.168
	(.550)	(.057)	(.195)
Ever physically or sexually abused	1.157	2.161**	1.097
	(.160)	(.003)	(.557)
Own parent was incarcerated	1.014	1.317	1.313*
	(.877)	(.320)	(.081)
Ever lived in foster care growing up	.852	.807	.805
	(.181)	(.550)	(.271)
Prior sentence to incarceration	1.028	1.007	1.357**
	(.697)	(.977)	(.008)
Did not complete high school	1.149*	1.825**	1.210*
	(.053)	(.011)	(.083)
Mental or emotional health problem	1.217	1.135	1.216
	(.137)	(.721)	(.287)
Received public assistance prior to arrest	1.207	2.602**	1.383*
	(.156)	(.001)	(.085)

Psuedo R^2 .093
N 6, 870

Note: Model includes all the other controls from Table 5, except the multiple risk score.

** denotes statistically significant at p<.05
* denotes marginally significant at p<.10