

RELATEDNESS AND INVESTMENT IN ADOPTIVE HOUSEHOLDS

by

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This study uses self-reported interview data gathered from parents who have both biological and non-related adopted children to test the hypothesis that parents invest greater amounts of resources in their biologically-related children compared to their adopted children as kin selection theory predicts. Respondents were asked about the types and amounts of investment they made in their children. These investments were analyzed statistically to discern whether parents invested differentially in their adopted and biological children.

Contra the theory, parents did not invest more in their biological children on any measure. Adopted children received more investment in several areas including education. Two possible explanations for these findings were given. First, parents who adopted were motivated to do so by parenting effort, not mating effort. Next, highly altruistic people may be overrepresented in pools of adoptive parents.

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CHAPTER 1: INTRODUCTION

Adoption is a common phenomenon in the United States. It is estimated that 60% of Americans are directly affected by adoption meaning they, a friend, or a family member, has adopted a child, were adopted themselves, or have placed a child for adoption (Evan B. Donaldson Adoption Institute 1997). Adoptive families provide a useful context for the study of human behavior because they are often composed of genetically related and unrelated members. This genetically diversified condition provides a scenario in which environmental influences on behavior can be paired against relational influences.

The groups of people directly involved in the adoption process are known as the “adoption triad.” This triad, which will be referred to often within this thesis, is composed of 1) the person or people who place a child for adoption, 2) the child being placed, and 3) the person or people who adopt the child. In traditional societies, members of the adoption triad are often genetically related kin (Daly and Wilson 1980; Silk 1980; Silk 1987b). While this remains true in many instances in the United States, it is no longer the rule for substantial numbers of people. Recent estimates place the number of US adoptions involving kin vary from 33% to 47% in 1982 and 1986 respectively (Bachrach, et al. 1992), to 50.9% in 1989 (Stolley 1993).

Adoption remains a very private institution in the United States. In many ways, our society stigmatizes the institution. The commonly held notion that birthmothers “give their children up” when placing for adoption is one example that we often equate

adoption with abandonment. Adopted children must often cope with feelings that they came into the world unwanted and their adoptive parents face the stigma of raising “someone else’s” unwanted child (Bryan, et al. 1986; Miall 1996). In conducting informal interviews with adoptive parents, it became clear to me that they do not consider themselves surrogates, they consider their adopted children as much “their own” as their biological offspring. However, some did comment that members of their communities, and even members of their own families, outwardly considered their adopted children “lesser” family members compared to biological children.

These stigma, along with the inherently private nature of adoption, have historically made it difficult to conduct adoption research. But the increased popularity of “open” adoptions over the past 30 years has permitted some access for those interested in researching adoptive family dynamics. In open adoptions, postpartum contact remains between adopted children and their birthparents following placement. Open adoption has made it less difficult to conduct research because, from the point of placement forward, adoptive parents and birthparents usually provide information to their child about its origins. In open adoptions, the secrecy commonly associated with adoption becomes irrelevant.

In spite of the changes that have come with the recent popularity of open adoptions, the process of obtaining consent to conduct research from adoption agencies remains far from simple or straightforward because of legitimate privacy concerns for parents and their children. It was only after several iterations that the research design employed in this thesis was approved by the both the participating adoption agency and the University of Nebraska’s Institutional Review Board.

Those interested in adoptive families have not been wholly dissuaded by the difficult nature of obtaining data. Adoption has been studied extensively by sociologists and psychologists. Research in these fields has primarily focused explaining why people place children for adoption, the reasons people adopt, and the effects of adoption on birthmothers, adopted children, and adoptive parents (Bachrach 1986; Bachrach, et al. 1992; Hollingsworth 2000). Relatively few studies have compared the outcomes of adopted children to their biological siblings as this one does (see Brand and Brinich 1999; Case, et al. 2000; Feigelman 1997; Fergusson, et al. 1995; and Sharma 1995 for notable exceptions). The hypotheses tested within this thesis differ from the vast majority of those published in the psychological and sociological literature because they were designed with the primary intent of comparing the treatment of adopted and biological siblings within the same household using predictions drawn from evolutionary theory. This difference is noteworthy because the use of evolutionary theory affords researchers the ability to explain the behaviors adoptive parents and children exhibit on their ultimate, or most basic, levels. Research in other fields has primarily focused on explaining such behavior proximately. These proximate explanations provide answers to *how* behaviors work in the present while ultimate explanations answer *why* things exist based on historical and evolutionary evidence (Mayr 1961; Tinbergen 1952; Tinbergen 1963).

Evolutionary psychologists Martin Daly and Margo Wilson were among the first researchers to apply evolutionary theory to adoption in their (1980) paper *Discriminative Parental Solicitude: A Biological Perspective*. In it they demonstrate the key differences between proximate and ultimate explanations. Using spousal abuse as an example, they

remark that *conventional* psychologists have explained the existence of spousal abuse with the proximate notion that a men become jealous of other men who approach their wives. In some cases, these men react violently (towards their wives, the would-be suitors, or both) out of this jealousy. Daly and Wilson continue to explain how *evolutionary* psychologists might use ultimate explanations to describe the same behavior. They note that men have evolved the emotion of jealousy as a mechanism to protect themselves from investing resources in another man's child. Again, under certain circumstances, men may react violently from this jealousy (Daly and Wilson 1980). The authors note that ultimate explanations are not provided intention of competing with or overtaking current proximate notions, rather, the two are complimentary.

This thesis differs from the majority of studies presented by sociologists and psychologists because it looks at the differential treatment of children using theoretical underpinnings based in the evolutionary notion that people behave in ways forged by natural selection. The hypotheses tested within were drawn from kin selection theory which dictates that, in certain situations, people are more apt to act altruistically toward those whom they share the greatest in common, genetically (Irons 1979). While other researchers (Case, et al. 2000; Daly and Wilson 1980; Daly and Wilson 1981; Daly and Wilson 1985) have used kin selection theory to explain instances of discriminative parental solicitude, they generally do not state that their hypotheses were drawn directly from it. Here, the hypothesis that parents invest more in their genetically related children than their adopted children, as drawn from kin selection theory, is tested.

Previous researchers have focused largely on the *negative* treatment and outcomes of step, foster, and adoptive children. Daly and Wilson (1980; 1985) and Gordon and

Creighton (1988), for example, used police records to show that stepchildren are more likely to be the victims of sexual and physical abuse, neglect, and homicide than children who live in biologically intact homes. Many of the households examined in these studies could be considered abnormal because they were composed of at least one abusive, neglectful, or homicidal individual. The research presented here looks at the *positive* investments “normal” parents make into their children. Parents were asked whether they provided monetary or temporal investments beneficial to their children’s physical, personal, social, and educational development and wellbeing. These are all measures of “embodied capital” which is defined by Lancaster and Kaplan (2000) as:

[T]he stock of attributes embodied in an individual that can be converted, either directly, or, more commonly, in combination with other forms of capital, into fitness-enhancing commodities. Embodied capital includes investment in body mass and complexity, skills and knowledge, and social capital. Parental investment in the embodied and social capital of offspring can affect their survival, future income, and social status. The latter two, in turn, form the budget for each offspring’s investment in its own and the next generation’s reproduction.

Each of the items used to proxy parental investment in this thesis increase embodied capital. According to kin selection theory, these investments should be biased toward more closely genetically related kin because they increase the investor’s fitness.

Because of their limited nature, resources and effort must be divided between two realms. The first concerns the effort an individual makes in their own physical wellbeing and upkeep and is known as “somatic effort.” The second, “reproductive effort,” involves efforts dedicated to procuring mating opportunities and producing gametes. The social realm of reproductive effort can be further broken down in to “parenting” and “mating” effort. Parenting effort increases offspring quality, mating effort is meant to

increase offspring quantity. The allocation of effort in each of these areas affects fitness in different ways. For example, if a man uses a portion of his income to procure extramarital affairs, he cannot simultaneously use this income to pay for children's education. In other words, the quality of his current children is sacrificed so that he may produce a greater quantity of children. This mating strategy is more prominent in men than women because, while women are physically limited in the number of children they can produce, men are limited solely by the number of sexual opportunities they can procure (Lancaster and Kaplan 2000). Men take on other men's children in stepfamilies as a result of mating effort. Stepchildren are burdensome to men's resources and investing in them does not contribute to a stepfather's fitness because his stepchildren are not genetically related to him. However, by making investments in stepchildren, men are able to secure mating opportunities with their mother which may produce offspring and thus increase their genetic fitness (Lancaster and Kaplan 2000).

Adoptive families differ from stepfamilies because adoptive parents are not motivated to adopt by mating effort. When unrelated children are adopted, there is no genetic payoff for either parent. The addition of an adopted child to a family which already has a biological child may actually decrease the quality of the biological child because household resources and capital must be divided between two children instead of one. In order to adopt through an agency, as all of the respondents to the survey used in this thesis have, parents must demonstrate their want for, and ability to raise a child. This is indicative of parenting effort. Although the motivations for taking on extra children differs in adoptive and step households, the genetics of the two household compositions are similar. In each, children live with a parent or parents who are genetically unrelated

to them. Previous studies have shown that stepchildren are treated significantly worse at the hands of their parents than fully biological children (Daly and Wilson 1980; Daly and Wilson 1985; Gelles and Harrop 1991; Wilson and Daly 1987), yet few have attempted to determine whether the same is true for adopted children. This study attempts to do just that by comparing the investments parents make in their biological compared to their genetically unrelated children.

CHAPTER 2: REVIEW OF THE LITERATURE

SOCIOLOGICAL STUDIES OF ADOPTION

Sociologist Allan Fisher (2003) makes four key statements on why it is important to conduct adoption research. First, he states that four percent of Americans are adopted. This four percent translates into ten million Americans who deserve attention in the sociological literature. Second, due to their varied genetic makeup, adoptive households may provide ready-made scenarios in which “nature-nurture” hypotheses can be tested. Third, it may shed light on the influences race, income, and ethnicity have on society as a whole and its individual members. Fourth, Fisher states that the scope of adoption’s impact on our society is underestimated. Adoption undoubtedly changes the lives of the children placed, but it also leaves a lasting mark on birth and adoptive parents and their families.

The sociological literature on adoption provides a useful framework from which this thesis builds. Sociological research has elucidated many characteristics of the adoption triad. The general form and workings of adoptive families, birthparents, and adopted children in the United States are discussed in Christine Bachrach’s (1983) study

Children in Families: Characteristics of Biological, Step-, and Adopted Children.

Bachrach uses National Survey of Family Growth (NSFG) data to describe several key characteristics of adoptive households and adoptive parents in the contemporary United States. First, adoptive mothers are less likely to work than either step or biological mothers. Second, adoptive mothers are more highly educated than step or biological mothers. Third, adoptive mothers are older than step or biological mothers on average. Fourth, the proportion of adoptive households whose income falls below the poverty line is much lower than that of step or biological households. Fifth, adoptive families tend to be smaller than step or biological families.

Bachrach furthers her work with NSFG data in the (1986) paper *Adoption Plans, Adopted Children, and Adoptive Mothers*. In it, she looks at what type of people adopt, what kind of children are placed for adoption, and who places them. She reports several findings. First, those who adopt usually do so because of fertility issues. More specifically, they do so because of “childlessness, sterility, and age” (Bachrach 1986). Second, adopted children are better-off economically than non-adoptees. Third, of those women who become pregnant out of wedlock, Caucasians are more likely than African-Americans to place their children for adoption. Fourth, women whose fathers were college-educated were more likely to place for adoption than others. Fifth, women who gave birth premaritally and did not place their children for adoption were more likely to be on public assistance at the time than women who placed their children (Bachrach 1986).

In still another NSFG-based study Bachrach et al. (1992) shows that a mother’s age is positively related to the likelihood that she will place her child for adoption. This

bolsters earlier findings published by Conger et al. (1984), who showed that older mothers may be more likely to place their children because they “may develop important priorities other than childrearing, with an accompanying decrement in the rate of positive behaviors they emit to their children” (Conger, et al. 1984). Bachrach et al. continue to say that sons are less likely to be placed for adoption than daughters and white women are more likely than black women to place their children. Among white women, predictors for placement include the time period in which the child was born (before or after the legalization of abortion) and the amount of education attained by the birthmother’s mother; women are more likely to place their child for adoption if their mothers are college-educated (Bachrach, et al. 1992). The research presented by Bachrach and other sociologists provides a detailed picture of the people involved in the adoptive process and their motivations for participating in it. These insights will prove valuable in evaluating the findings presented within this thesis.

GENETICALLY DIVERSE HOUSEHOLDS

The normative North American household consists of a pair of parents, one male, one female, and their direct genetic offspring, but variations in household composition are common. This arrangement is culturally accepted, but it is not static and other types occur with some frequency in the forms of single-parent, step, foster, single gender, and adoptive households. According to recently available information from the US Census Bureau, 32% of children currently live within a household makeup different than the norm (Fields 2003). Many studies into these household variations have contributed to

our current understanding of human behavior. Several of those salient to the topics presented within this thesis will be detailed within this section.

Variations in household composition can arise for many reasons. In the normative biological household described above, a man and a woman produce a child. Under these conditions, the primary motivation for having a child is based in “parenting effort.” As defined by anthropologists, parenting effort is the measure of time and resources parents dedicate to their biological progeny in order to assure it survives to reproductive age (Marlowe 1999b). Parenting effort comes in opposition to “mating effort,” which is the measure of time and resources a person dedicates to securing future mating opportunities (Marlowe 1999a). Stepfamilies result from mating effort because when someone remarries, they do so not to raise another person’s child, but to procure future mating opportunities with that person.

In households comprised of two biological parents and their common offspring, the child receives half of its genes from each parent. In genetic terms, each parent is related to the child by 0.5 and the child is related to each parent by 0.5. The total degree to which a child living in a biological household is related to its parents can be figured using the expression $(rP_1 + rP_2) = rT$. The variable rP_1 represents the degree of genetic relatedness the child shares with its father, rP_2 represents the degree of genetic relatedness the child shares with its mother, and rT represents total degree of genetic relatedness the child has with its household. This total degree of relatedness is important because children who reside in households with non-genetic caretakers ($rT < 1$) are at higher risk of subjugation to abuse, homicide, neglect, and other deleterious treatment than those who reside with two biological parents (Anderson 1999; Anderson 2001;

Anderson, et al. 1999; Brand and Brinich 1999; Case, et al. 2000; Crighton 1988; Daly and Wilson 1980; Daly and Wilson 1996; Wilson 1980; Wilson and Daly 1987).

Table 2.1 compares several types of family structures. It describes the parental motivations leading to their formation and quantifies possible genetic relationships between parents and children within the household. The table details eight different ways in which children can come into a household. The first two columns provide the name and example of each mode of child acquisition. The third column describes the motivations that lead parents' decisions to bring a child into their home. The fourth column describes the degree of total genetic relatedness the child has with the parents in its household (assuming they are two parent households).

Table 2.1: Genetic Variation in Household Composition

Method of Child Acquisition	Example	Parental Motivations	$(rP_1 + rP_2) = \text{Total Genetic Relatedness (r) of Child to Parents (P) in Household}$
Biological	Occurs when parents have a biological child.	Parenting effort	$(0.5 + 0.5) = 1$
Intentional Kin Adoption	Occurs when parents adopt a genetically related child because they wish to have a family but are unable to. The child's biological parents may or may not be willing or able to provide care for it.	Kin selection and parenting effort	$(x + y) = z$ (z is always less than or equal to 0.5)
Incidental Kin Adoption	Occurs when parents unexpectedly adopt a genetically related child because the child's parents are unable or unwilling to care for it.	Kin selection	$(x + y) = z$ (z is always less than or equal to 0.5)
Altruistic Adoption	Occurs when parents adopt a genetically unrelated child because they wish to have a family but are unable to biologically or wish to adopt to "help out."	Parenting effort	$(0 + 0) = 0$
Foster Adoption	Occurs when parents adopt a child originally placed with them for foster care.	Parenting effort	$(0 + 0) = 0$

Step Adoption	Occurs when a stepparent adopts his or her spouse's child.	Mating effort and/or parenting effort	$(0 + 0.5) = 0.5$
Step	Occurs when a child comes into a home through remarriage.	Mating effort	$(0 + 0.5) = 0.5$
Foster	Occurs when a child comes into a home through fosterage.	Parenting effort/monetary	$(0 + 0) = 0$

Table 2.1 shows that parents adopt for a variety of reasons and their adopted children may be related to them in a variety of ways. Studies of adoptive families rarely describe the reasons adopted children came into the home, nor do they distinguish between the different genetic relationships shared by adoptive parents and their children. This ostensibly subtle oversight may irreparably bias the results of some research because it causes the affects of genetics and parental motivation to be overlooked.

Foster, step, and incidental kin adoptions may present adoptive parents with a set of challenges different than those faced in intentional kin and altruistic adoption, largely due to the child's age at adoption. Adoption agencies like the one that participated in this study generally place newborns. The median age at adoption of the children placed through the agency used here was 42 days (n=153). Foster and step adoptions, on the other hand, often involve older children. This older age at placement has been correlated with an increased likelihood of behavioral problems in adolescence and adulthood (Brand and Brinich 1999; Brodzinsky 1987; Brodzinsky, et al. 1998). It would be beneficial if future research disclosed the reasons for which adoptions took place and the genetic relationships of adopted children to their household because parental motivation for acquiring children may substantially affect their treatment of them.

The adoptions analyzed here can be considered "altruistic adoptions." Survey respondents' listed their reasons for adopting as; 1) infertility (57%) e.g. "We wanted a

child but were unable to conceive biologically,” 2) ego centered (26%) e.g. “We wanted a girl, a larger family, etc.,” and 3) altruism (16%) e.g. “We wanted to help a child out.” Not one respondent described adopting because of extenuating circumstances such as the death of a friend or family member, nor did any respondents cite remarriage as a reason for adopting. These responses, together with the fact that vast majority (98.4%) of parents adopted children biologically unrelated to them provides a solid basis to consider them “altruistic” adopters whose primary motivation for adopting stemmed from parenting effort.

ADOPTION STUDIES IN ANTHROPOLOGY

Kinship organization has long been a focus of study for anthropologists. When viewed through an anthropological lens, adoption is one of the many ways by which kinship ties form. The majority of adoption research conducted by anthropologists has focused on small-scale societies. Relatively few have attempted to document its causes and effects in post-industrial societies like those of the United States and Western Europe. Terrell and Modell (1994) summarize much of the adoption research done by anthropologists in the United States and paint the portrait of American adoption in a very pessimistic manner, saying:

Adoptive families are different [than biological families], for one thing, because adoption is not typical in American society. They are more profoundly different because, it is said, all parties in the ‘adoption triad’ (birth parents, adoptees, and adoptive parents) must cope with psychological pain and feelings of loss. Adoptive parents ‘lose’ the chance to have a biological child and the perpetuation of their blood line. An adopted child loses its natural heritage. And birth parents lose their children.

It can be argued that the preceding statement falls short in describing the true nature of the adoption triad. Terrell and Modell disregard the existence of open adoptions in the West and kin adoption in small-scale societies. At both of these levels of societal complexity, open adoptions afford adopted children the opportunity to know and interact with their birthparents. Further, not all adoptive parents lose the chance to have biological children. The data gathered for this thesis attests to this fact. Each of the 126 respondents to the questionnaire has at least one biological and one adopted child. While it may be true that adopted children lose their “natural” (which I suspect the authors to mean “birth” parents), they gain another family. In their argument, Terrell and Model appear to fall for the naturalistic fallacy because they make a judgment based on the assumption that if something occurs naturally, it is inherently “good,” or at least better than socially-constructed or artificial alternatives. This logic fails because there are many things that exist in nature that cannot be considered “good.” Influenza, for example, is a naturally occurring virus which kills tens of thousands of Americans each year. Can this virus be considered “good” simply because it is natural? The fact that the adopted children Terrell and Modell refer to do not live with their natural/birth parents assumes that the environment in birth households is always better than the environment in adoptive households. This is not always the case; most would not consider a “natural” but abusive home better for a child than a nurturing, yet “unnatural” adoptive home.

Joan Silk’s (1980) *Adoption and Kinship in Oceania* establishes the reasons adoption occurs in various small-scale societies in Oceania and discusses the costs and benefits it imposes upon all members of the adoption triad through an evolutionary framework. Silk argues that adoption serves as a method of regulating family size and

that “genetic relatedness is a fundamental, albeit not necessarily conscious, consideration in adoptive decisions” (Silk 1980). In Oceania, Silk notes, adoption occurs with some frequency, “The proportion of households in which at least one individual is involved in an adoption transaction ranges from 12% in Tonga to 83% in a community of the Ellice Islands (Tuvalu)” (Silk 1980), and usually involves close kin, “The proportion of related adopted children ranges from 73% in Hawaii to 100% in Nukuoro” (Silk 1980).

She later notes:

Adoption potentially influences the fitness of (1) the existing children in the adoptive parents’ family, (2) the remaining children in the adopted child’s natal family, and (3) the adopted child himself. When adoptive and biological parents are unrelated, decisions are expected to reflect the independent reproductive interests of each set of parents. Kinship, however, influences the costs and benefits among related participants and may alter adoption decisions (Silk 1980).

Silk makes the assumption that in order for an adoption to occur, it must be beneficial to both the biological and adoptive parents. She tests two hypothetical models to demonstrate conditions which may favor adoption, both concern kin selection and the manipulation of family size. She first hypothesizes that adoption becomes likely when the birth of a child places undue stress on its biological family’s resources. In this situation, the newly born child negatively affects its siblings’ wellbeing because it consumes resources which were once reserved for them. From the birth family’s perspective, placing the child for adoption relieves the resource stress imposed by the new child and positively affects the household’s remaining children. In this situation, the chance that the child will be adopted by non-relatives is low. This is because parents who might adopt an unrelated child would do so at the expense of their own biological children. But adoption is likely to occur if the adoptive parents are related to the

birthparents, and hence, their child. In this situation, “Although there will continue to be a negative impact upon the fitness of the adoptive parents’ existing children, there will always be a positive effect upon the fitness of the biological parents’ remaining offspring” (Silk 1980).

In leading up to her second hypothesis, Silk notes that some subsistence methods, such as intensive agriculture, require a “critical” family size in order to for the family to “function as a viable economic unit” (Silk 1980). Families who are either too large or too small may suffer based on their size. Building upon this groundwork, her second hypothesis proposes that, in cases where a family’s falls below the critical size, adopting a child out decreases the economic viability of the household because there are not enough people present to handle the required workload. When the family is larger than the critical size, placing a child for adoption is beneficial because it brings the family’s size closer to the optimal level. In this example, kinship ties between the families must not necessarily preclude adoption because both the birth and adoptive families benefit through the exchange. If the adoption does happen to occur between relatives, kinship ties may reinforce it and “extend the range of conditions under which adoptive and biological parents benefit from adoption” (Silk 1980).

Silk found support for both of these hypotheses in the ethnographic record. Parents who adopted were likely to have no children or fewer children than they wished, parents who placed a child for adoption cited “having too many children” as their central reason for doing so, and adoption between close kin occurred significantly more often than adoption between nonrelatives (Silk 1980). Using inheritance rules as a proxy, Silk also demonstrated bias in the treatment of adopted and biological children; the rules

explicitly favored biological children over adopted children except in those cases where “biological children neglect their parents in old age, or do not otherwise fulfill their filial obligations” (Silk 1980).

KIN SELECTION THEORY

The crux of kin selection theory lies in the notion that natural selection will select for behaviors which reduce an organism’s fitness if that behavior sufficiently increases the fitness of another, genetically related, organism (Cronk 1991; Dawkins 1976; Hamilton 1963; Hamilton 1964; Hamilton 1980; Irons 1979; Silk 1980; West-Eberhard 1975). Kin selection theory has been used to investigate topics ranging from altruistic behavior to parental investment and life history (Chisolm 1993; Hagan, et al. 2001; Silk 1980). The following paragraphs describe how it functions.

Each of us shares a portion of our genes with the members of both our nuclear and extended families. The degree to which we are related to another member of our family can be expressed using the formula $r = (1/2)^g$. The function r is known as the “coefficient of relationship” and is equal to the number of generations (g) between ego and ego’s relative (Dawkins 1976; Hamilton 1963; Hamilton 1980; Wright 1969). For example, ego’s grandmother is removed from ego by two generations, therefore, the equation is set up as $r = (1/2)^2$. Solving this example shows that ego is related to his or her grandmother by $1/4$ or .25. Barring any cuckoldry or inbreeding, each of us is related to our parents and siblings by .5, our grandparents by .25, our cousins and great-grandparents by .125, and so on.

Under certain conditions, kin selection theory predicts that organisms will act altruistically. Conditions which favor altruism can be identified using the inequality $C < rB$ where C equals the cost (in terms of individual fitness) to the altruist, r equals the degree of genetic relatedness between the two actors, and B equals the benefit to the receiver of the altruistic act (Irons 1979). An example of a scenario favorable to altruism was proposed by Irons (1979):

The logic of the conditions for adaptive altruism toward kin discovered by Hamilton, can be demonstrated by considering the hypothetical case of an organism which 'chooses' not to reproduce at all in order to assist a full sibling to reproduce. Whether natural selection will favor such a 'choice,' depends on C and B in the above inequality. For the sake of illustration, let us assume the individual in question would have had two offspring had it made the choice of reproducing itself and so would its sibling. If it helps the sibling as stated above, however, it has none and – let us assume – its sibling has eight offspring. In this case the cost, C to the altruist is two offspring, and the benefit, B , to the related organism is six offspring. The coefficient of relationship, r , is $\frac{1}{2}$, so that the benefit devalued by r is 3. Thus, the inequality is satisfied and the behavior is adaptive.

Few would argue that, from a genetic standpoint, adopting and parenting someone else's child is an altruistic act. Kin selection theory has been used to explain the patterning of adoption in a number of indigenous societies in Oceania, Alaska, and Africa (Silk 1980; Silk 1987a; Silk 1987b). In these societies, the investments of time and resources parents make in adopted their children can be classified as parenting effort because in the majority of adoptions occur between kin who share a high degree of genetic relatedness. Adoptive parents do not expect to recoup their parenting investments at a later date because they are related to their children by a degree higher than which they are related to the general population. Their investments "pay off" genetically because they help to assure that their adopted kin survive to an age where they can produce offspring

themselves. Because the adoptive parents and their adopted children share a percentage of their genes, kin adoption increases the chances of success for the adoptive parent's genes in future generations by increasing the parent's inclusive fitness.

DISCRIMINATIVE PARENTAL SOLICITUDE

In their seminal paper on the evolution of human parenting behavior *Discriminative Parental Solicitude: A Biological Perspective*, Daly and Wilson (1980) propose that natural selection has produced behaviors that make it adaptively beneficial to favor one child over another in certain situations. They label this phenomenon "discriminative parental solicitude." Daly and Wilson provide evidence showing that children who grow up with stepparents are subject to worse treatment than children who grow up in biologically intact families. Their data show that "children living with one natural and one stepparent were 2.2 to 6.9 times (age-specific rates) as likely to be abused as children living with two natural parents, and 1.1 to 4.1 times as likely to be neglected" (Daly and Wilson 1980). Subsequent reports by Daly and Wilson (1981; 1985; 1996; 2001), Wilson and Daly (1987; 1992) and Wilson et al. (1980) showed that discriminative parental solicitude is widespread in households with varied genetic makeup. It has evolved because, under certain pressures, parents must make the choice to favor one child over another when allocating resources and effort. These choices are rational in evolutionary terms (because they protect the parent's genetic interests) but are unlikely to be made consciously (Daly and Wilson 1980). The psychological mechanisms which underlie discriminative parental solicitude appear to form early on in the parent-child relationship. A lack of familiarity between parents and children very early in the child's

life appears to play an important role in forging future behavior in both parents and children (Brand and Brinich 1999; Daly and Wilson 1980). Daly and Wilson (1980) further this notion, saying that paternal attachment should:

[B]e relatively strongly influenced by cognitive considerations bearing on paternity confidence. These include, for example, perceived similarity of the child to the alleged father and his confidence in his wife's sexual fidelity.

The adaptability of discriminative parental solicitude rests in the idea that it makes little sense, evolutionarily, for men to invest resources in children who are not related to them; these resources would be better spent on genetic offspring because they directly increase the giver's fitness. According to Daly and Wilson (1980), men have evolved psychological mechanisms which enable them to make judgments regarding paternity.

SUPPORTING EVIDENCE FOR DISCRIMINATIVE PARENTAL SOLICITUDE

Other researchers have provided evidence to support the existence of DPS. In the paper, *Natal and Non-natal Fathers as Sexual Abusers in the United Kingdom: A Comparative Analysis*, Gordon and Creighton (1988) analyzed 198 cases of sexual abuse gathered from the National Society for the Prevention of Cruelty's 1983-1985 registers of child abuse. Of these cases, 46% involved non-natal fathers and 54% involved natal fathers (Gordon and Creighton 1988). At the time, estimates placed the percentage of households in which children lived with non-natal fathers in the range of 4% to 9.8% in (Ferri 1984; Golding and Finkelhor 1984; Gordon and Creighton 1988). In this sample, non-genetic fathers were significantly overrepresented as sexual abusers.

Gordon and Creighton note a proximate psychological explanation for the overrepresentation of non-natal fathers in their sample. It stems from Judith Herman's notion that, "The sexual division of labor, in which women nurture children and men do not, produces fathers who are predisposed to use their power exploitatively" (Herman 1981 *in* Gordon 1988). However, this explanation fails to take into account that the sexual division of labor in childrearing Herman alludes to is neither a Western, nor a modern phenomenon. Cross-culturally, "child care is almost always the responsibility of women" (Pasternak, et al. 1997). If Herman's idea were true, would not all fathers "use their power exploitatively" and sexually abuse their children?

Gordon and Creighton offer a more likely explanation in evolutionary-based concept known as the Westermarck effect. The Westermarck effect dictates that children who are raised together from birth do not find one another appealing as potential mates. The effect was first demonstrated empirically in Israeli kibbutz studies which showed that non-related individuals who were raised together showed negligible interest in each other martially (Gordon and Creighton 1988; Pasternak, et al. 1997; Shepher 1983; Talmon 1964; Wolf 1966; Wolf 1970). The Westermarck effect also applies to closely-related family units. Parents rarely demonstrate sexual interests in children and vice versa and siblings rarely engage with in sexual activity with each other (Pasternak, et al. 1997). The unfamiliarity between individuals in step, adoptive, and foster households may mute the influence of the Westermarck effect and make sexual contact between them becomes likely (Gordon and Creighton 1988).

Economists have also examined differential parental solicitude. In their paper *Educational Attainment in Blended Families*, Case, Lin, and McLanahan (2000) found

small but significant differences in the educational attainment of adopted, step, foster, and biological children. Using the 1988 Panel Study of Income Dynamics (PSID) report, they showed that in households where both biological and adopted children are present, adopted children complete 0.62 years less schooling than their biological counterparts. This compares to stepchildren who complete 0.75 years less schooling, and foster children, who complete 1.33 fewer years. The authors offer Daly and Wilson's idea of discriminative parental solicitude as one possible explanation for their findings. They note that parents may have stronger feelings of "child specific love and commitment" (as described in Daly and Wilson 1985) for their biological children than their adopted children. Supplemental evidence for this notion was also provided in a comparison of households who had both adopted and biological children to households with adopted children only. Children raised in purely adoptive households completed an average of 1.13 years *more* schooling than those raised with biological siblings and were the most highly educated group sampled, having completed 13.29 years of schooling on average (Case, et al. 2000). Although the authors do not give a reason for this finding, it *may* be due to the higher socioeconomic status of purely adoptive households (Bachrach 1986).

In another economics-oriented study Case and Paxson (2001) used the 1988 National Health Interview Survey Child Health Supplement to investigate differences in health investments made by step, adoptive, and biological parents. They report that children who live with step mothers are significantly less likely to visit doctors and dentists regularly, are less likely to wear seatbelts, and are more likely to live in a household with a cigarette smoker present. When stepchildren have regular contact with their biological mother, differences in doctor and dentist visits become statistically

insignificant. Children who lived in households composed of two adoptive parents visited doctors and dentists similar rates to children in biologically intact households.

In the appropriately titled paper *How Hungry is the Selfish Gene?* Case et al. (2000) used food expenditure as a proxy for investment in American and South African households. Their findings show that in the United States, mothers who look after non-biological children spend less on food than mothers who care for just their biological children. This reduction in spending was similar for step, adopted, and foster groups (Case 2000). However, the researchers could not pinpoint which groups of food (e.g. vegetables, fatty foods, fruits) were affected by this reduction. A reduction in spending on unhealthy foods could be construed as a positive investment in a child's welfare, while a reduction in spending on healthy foods would suggest the opposite (Case 2000). This ambiguity made it difficult for them to draw conclusions from the American data. In their review of South African household food expenditure they found that households with biological mothers spent more money on food in general, but especially on those foods which are beneficial to young children (Case 2000).

The research undertaken by Case and others provides a body of evidence for discriminative parental solicitude. They showed that children with non-genetic caretakers received lower investments of food and healthcare and completed less schooling on average except in households where only adopted children were present.

PSYCHOLOGICAL STUDIES OF ADOPTION

There is a significant amount of psychological literature on the adoption triad. In a meta-analysis of this literature, *Psychological Adjustment of Adoptees*, Michael Wierzbicki

tested the hypotheses that, “Compared to nonadoptees, adoptees have greater psychological maladjustment, are overrepresented in clinical populations, and have more externalizing disorders” (Wierzbicki 1993). His analysis supports the hypothesis that adopted children show significantly higher rates of maladjustment than biological children. Age at adoption bore no effects on psychological adjustment, but the length of time a child was institutionalized prior to being adopted did correlate positively with behavioral adjustment later in life (Wierzbicki 1993). Wierzbicki’s analysis does not directly explain why those who were adopted are more likely than biological children to exhibit psychological problems, but he does say (1993):

Both environmental and genetic factors may contribute to adoptees’ increased risk. Environmental factors include poor prenatal conditions and institutionalization prior to adoptive placement. If parents decide to place a child for adoption because they have a disorder that makes it difficult for them to rear a child and if this disorder has a genetic influence, then the adopted child will be at increased risk for genetic reasons. Research has shown that adoptees are at increased risk for the psychological disorders of their biological parents, including schizophrenia, bipolar disorder, alcohol abuse, depression, and antisocial personality.

It has yet to be definitively shown that parents who place their children for adoption pass down heritable psychological disorders at a rate higher than the general population, but one study has shown that adopted children may inherit an increased capacity for criminal behavior from their birthparents. Mednick, Gabrielli and Hutchings (1985) compared the criminal arrest records of 14,427 adoptees to those of their birthparents. They found a that adopted children whose parents were criminals were more likely than those whose parents were not to be criminals themselves (Mednick, et al. 1985). While not all criminals suffer from psychological disorders, it can be argued that type of anti-social

behavior exhibited by chronic criminals is indicative of underlying psychological problems. Mednick et al. provide evidence that these disorders may be passed from parents to children genetically.

The clinical representation of biological, foster, and step children was compared by Brand and Brinich (1999) using data from the Center for Disease Control and Prevention's *National Health Interview Survey* (NHIS). They tested the hypothesis that adopted and foster children are overrepresented in the clinical population. They first compared the number of contacts each group had with professionals in the mental health care field. Next, they compared the groups' scores on a psychological survey instrument known as the Behavioral Problem Index (BPI). They found that that foster and adopted children were more likely to have attended professional psychiatric counseling in the 12 months prior the survey. Foster and adopted children also had higher scores on the BPI than biological children, indicating a higher prevalence of behavioral problems among them. Children who were placed for adoption at six months of age or older were significantly more likely to come into contact with mental healthcare professionals and scored higher on the BPI than those placed when younger than six months (Brand and Brinich 1999). Brand and Brinich issue one caveat about the interpretation of their findings. They explain that the higher overall BPI scores and the higher number of contracts with the mental health profession among adopted children was largely due to the presence of a small number of outlying cases which skewed the data upward. When they controlled for these cases, there was no statistically significant difference between adopted and biological children on either scale. However, the presence of these outliers does not discount the importance of their findings. In fact, they provide very important

insight into the mental health problems adoptees face; when behavioral problems occur in adopted children they appear to be “worse” than they are in biological children. According to Brand and Brinich (emphasis added), “approximately 5% of adopted children have scores greater than *three standard deviations* from the mean of the BPI compared to 1.7% of nonadopted children” (Brand 1999).

The research presented above shows that adopted and foster children are more likely than biological children to develop psychological and behavioral problems. Possible causes for this include genetic and environmental factors such as lack of prenatal care, drug and alcohol use by the birthmother, and genetically transferred psychological disorders (Brand and Brinich 1999; Mednick, et al. 1985; Wierzbicki 1993).

DALY AND WILSON – ON ADOPTION

During the period in which the data for Daly and Wilson’s (1980) paper *Discriminative Parental Solicitude: A Biological Perspective* were collected (the mid-1970s) about 65% of adoption petitions given in the United States involved sanguineal relatives (National Center for Social Statistics *in* Daly and Wilson 1980). The authors use this statistic to point out the adaptive nature of kin adoption, but they further describe the benefits of adoption in general. For those people who are biologically unable to have children, adoption allows them to become parents and, if the adoption involves kin, contribute to their own inclusive fitness (Daly and Wilson 1980). And because the majority (68%) of children placed for adoption in their sample were born out of wedlock, they show that adoption can also benefit birthmothers. Placing a child for adoption gives birthmothers

the opportunity to give their children homes that may be superior to ones they can provide on their own (Daly and Wilson 1980).

In the paper *Risk of Maltreatment of Children Living with Stepparents* Wilson and Daly (1987) reiterate the adaptive role of differential parental solicitude in terms of evolutionary biology and psychology, saying:

People, like other organisms, have evolved by natural selection. We may therefore expect their most basic and characteristic traits to be adaptive. Adaptive has a special meaning in evolutionary biology: a trait is adaptive if it tends to contribute to 'fitness,' that is to the relative proliferation of the trait-bearer's genotype, and maladaptive if it tends to contribute to the relative proliferation of alternative genotypes.

The authors discuss the adaptive role of parental motivation in child care and solicitude in adoptive households. They propose that the ability of a parent to express a feeling of "genuine parental love" toward their children is an adaptive mechanism present in humans (Wilson and Daly 1987). They suggest that parents who adopt are more adept than stepparents at generating and projecting these feelings of love. A possible explanation for this was offered in a paper published by them two years earlier:

Nonrelative adoptions are primarily the recourse of childless couples who are strongly motivated to simulate a natural family experience; rather than having their position *in loco parentis* thrust upon them, they have actively sought it (Daly and Wilson 1985).

The key point to take away from Daly and Wilson is that adoptive parents *choose* to adopt. Adoptive parents have a strong desire to be parents which may translate into increased goodwill for their non-genetic children (Daly and Wilson 1985; Wilson and Daly 1987).

VIEWS OPPOSITIONAL TO DALY AND WILSON

The following section details research that is critical of Daly and Wilson's work with step and adoptive household dynamics. The three studies presented here ostensibly refute the existence of discriminative parental solicitude. Upon further review, all contain methodological flaws which lead to biased results. In *An Assessment of Some Proposed Exceptions to the Phenomenon of Nepotistic Discrimination Against Stepchildren*, Daly and Wilson review three reports which challenge discriminative parental solicitude. Daly and Wilson provide satisfactory evidence to refute these studies because their arguments are theoretically sound and clearly written.

The first study, *The Risk of Abusive Violence Among Children With Nongenetic Caretakers* (Gelles and Harrop 1991) shows, contrary to Daly and Wilson, that stepchildren are *not* more likely than biological children to be abused by their stepparents. Using data gathered from the *Second National Family Violence Survey*, Gelles and Harrop analyzed the severity of parental discipline in biological, step, foster and adoptive households. Disciplinary actions were grouped by their severity according to a standard instrument known as the *Conflict Tactics Scales*. Three levels of discipline were used to group responses. The least severe, "use of rational discussion and agreement" included the use of calm discussion or outside arbitration. The second, "use of verbal and non-verbal expressions of hostility" included threatening to physically hit the child, refusing to discuss the issue, throwing things about, etc.. The most violent level was described as the "use of physical force or violence." This category included pushing, slapping, spanking, burning, choking, threatening to use or using firearms or knives, and so on (Gelles and Harrop 1991). Respondents were asked how often each of

the levels of discipline described above had occurred in their homes. Possible responses ranged from never to more than twenty times (Gelles and Harrop 1991).

Gelles and Harrop compared the amount of overall and severe violence by family type. They found no statistically significant differences between child treatment in any household structure. However, there are two possible biases in Gelles and Harrop's findings. First, the *Second National Family Violence Survey* was conducted using self-reported telephone interviews and many of the questions on the survey dealt with issues that could be considered sensitive. This form of data collection makes it likely that levels of discipline which could have been considered were underreported because respondents may have feared repercussions if they admitted to "disciplining" their children with a knife or gun. Although respondent anonymity was presumably preserved by the interviewers, it is possible that the administration of the survey by telephone did little to place the respondents at ease; after all, how were they to be sure of the identity of the person on the other end. The authors themselves mention the possibility that "stepparents systematically reported less violence than occurred in their homes, perhaps because they were aware of the image of the cruel stepparent" (Gelles and Harrop 1991).

The second bias was not discussed by Daly and Wilson, but has a great deal to do with the ideas discussed within this thesis because it concerns the treatment adopted children. Gelles and Harrop found no differences in the treatment of adopted children compared to children in other households. However, in their statistical analysis of the data, they grouped foster and adopted children into the same cohort. This may have led to inaccurate findings because of the inherent differences in adoptive and foster households. Children are generally placed into foster care because their birthparents have

been deemed unfit to care for them by state or local governmental agencies. Foster children usually do not stay with one foster family for their entire childhood and adolescence, they may move from one foster family to another, back to their biological family, and back out again. Adoptive households are generally more stable because family cohesiveness is a characteristic actively sought by adoption agencies. Additionally, adopted children are often placed at infancy while foster children are often older and come into the household with their own preconceived notions of family. Gelles and Harrop's merging of these two cohorts undoubtedly distorted the picture of adoptive families for the worse.

A second challenge to Daly and Wilson was presented by Malkin and Lamb (1994). Using U.S. child abuse reports provided by the American Humane Association, they concluded that biological parents are actually more likely to kill or severely abuse their children than nonbiological parents (Malkin and Lamb 1994). But according to Daly and Wilson, "no estimates of abuse rates at the hands of stepparents or genetic parents were even attempted" (Daly and Wilson 2001). The flaw in Malkin and Lamb's paper comes from their method statistical analysis of relatedness and maltreatment described here:

To test the hypothesis that biological parents would abuse their own progeny less severely than nonbiological parents would abuse their nonrelated offspring, saturated and nonsaturated 2 X 3 log-linear analyses (relationship of victim to perpetrator: biological child, nonrelated child; type of maltreatment: minor physical injury, major physical injury, fatal) were conducted 11,064 cases without missing data. The difference in the L^2 s between the saturated and nonsaturated models ($L^2 = 29.58$; $df = 2$; $p < .0001$) suggested that the model of independence did not fit the data well, and that the two-way interactions should be retained in the model (Malkin and Lamb 1994).

According to Malkin and Lamb, their contingency tests show that biological parents are “more rather than less likely than nonbiological parents to abuse severely and to kill rather than cause major physical injuries to their children (1994). But their methods are *very* vaguely described and they do not provide sufficient information to support this. While there were significant differences between the biological and nonbiological maltreatment as a whole, the authors did not subject the specific areas of maltreatment to statistical scrutiny. They say only that (emphasis added) “a greater *proportion* of biological parents (11%) engaged in major physical abuse than did nonbiological parents (6.5%)” and that “the *percentage* of biological parents (1.2%, n = 106) who engaged in fatal abuse was slightly greater than the *percentage* of nonbiological parents (0.5%, n = 10) who committed fatal abuse” (Malkin and Lamb 1994). Their overgeneralization of the 2 X 3 contingency table lead them to make unsubstantiated assertions. In fact, according to their descriptive statistics, “nonbiological parents were proportionately more likely (93%) to engage in minor physical abuse than were biological parents (87.7%) (Malkin and Lamb 1994). However again, these proportions were not independently scrutinized for statistical significance. Daly and Wilson (2001) point out that Malkin and Lamb’s dataset actually shows evidence for the existence of discriminative parental solicitude:

[I]n the data archive that Malkin and Lamb analyzed, 39% of the abuse victims who resided with ‘two parents’ had a stepparent, compared to an expected value for a same-age sample of US children of less than 5%, and most of the identified abusers in those homes were indeed the stepparents; according to the data in this archive, every form of abuse was perpetrated at massively higher rates by stepparents than by genetic parents.

Malkin and Lamb's methodological errors lead to their flawed assertion that stepchildren are not more likely to be mistreated than biological children. This was due to their attempt to generalize their statistical findings beyond their intended reach.

The third study which purportedly fails to confirm Daly and Wilson's findings was written by Temrin, Buchmayer and Enquist. Their (2000) paper, *Step-parents and Infanticide: New Data Contradict Evolutionary Predictions*, presents data gathered from the Census Bureau of Statistics in Sweden. Reported cases of infanticide were investigated in order to determine the relationship between the victims and their killers. Analysis of these cases showed that children living with a stepparent were not more likely to be the victims of infanticide than those living with two biological parents (Temrin, et al. 2000). But according to Daly and Wilson (2001), this finding is an artifact of a methodological error. In order to determine whether infanticide was more likely to occur in nongenetic households, Temrin et al. first consulted Swedish national data on the household arrangements in 1985. Statistics from this year became the population to which their sample was compared. But in extrapolating their population statistics, Temrin, et al. inadvertently overestimated the number of children living with two biological parents because "the proportion of children who reside with a stepparent is near zero at birth and increases steadily with age" (Daly and Wilson 2001). This led to an overrepresentation of two biological-parent households where an infanticide took place.

The preceding section described three purported exceptions to discriminative parental solicitude. Upon further scrutiny, each of these cases was shown to contain methodological flaws which lead to the erroneous support of hypotheses contra Daly and

Wilson. Daly and Wilson's critiques of these studies are fundamentally sound and empirical research strongly points to the existence of discriminative parental solicitude as an adaptively evolved psychological mechanism.

CHAPTER 3: METHODS AND HYPOTHESES

METHODS

This chapter describes the methods of the research design, the survey and its implementation, and data analysis. Details are given about the participant agency and study population including the characteristics of adoptive households and adopted children.

Obtaining consent to conduct adoption research, first from a participating agency, and then from birthparents, adopted children, and adoptive families is difficult. The survey instrument used in this thesis was written and delivered with the understanding that obtaining permission from adoption agencies to conduct research is not common. It is for this reason that several of the questions included on the survey will not be used to test hypotheses here. They were included here in order to avert the need to reissue another survey in the future.

This study was conducted in conjunction with a privately funded adoption agency located in Omaha, Nebraska. The agency has provided open adoption services to the public free of charge for decades. Their central office contains indexed paper records of thousands of adoptive parents, birthparents, and children. Agency personnel combed these records for subjects whose last names began with randomly selected letters. Files of adoptive parents were selected if the parents had at least one biological and one

adopted child who were both over the age of 22 at as of January, 2004. This 22 year cutoff was used so comparisons of total education and the ages at which children left home could be made. By the age of 22, the majority of college attendees have reached a terminal point in their education and have left home permanently. In addition, using older children allows comparisons of marriage history and drug or alcohol treatment to be made (while treatment is not unheard of for younger people, it becomes more common with age). In all, the files of 300 adoptive couples whose families met the criteria above were pulled.

Prior to mailing the survey packet, pre-letters (see Appendix A) were mailed to prospective respondents. Sending pre-letters is known to improve response rates in mail surveys (Dillman 2000). In addition, the pre-letters allowed subjects who had moved or passed away to be immediately identified and removed from the list of potential respondents. In these cases, replacement respondents were selected. Approximately two weeks after the pre-letters were sent, survey packets were mailed to 300 potential respondents whose addresses had been verified using the pre-letters. These packets consisted of a jointly written cover letter on the adoption agency's letterhead (Appendix B), an informed consent form on University of Nebraska letterhead, a copy of the University of Nebraska's Institutional Review Board project approval and disclosure (informed consent) letter, the survey itself, and a post-paid return envelope.

Three techniques were employed in preparing the survey packets in an attempt to raise response rates. These methods have been shown to improve response rates in mailings issued by the United States Census Bureau (Dillman 2000). First, the packets were addressed by hand. Second, they were mailed using first-class postage stamps

instead of bulk-rate postage. Third, the return envelopes were stamped with first-class stamps. Donald Dillman hypothesizes that the use of hand-addressed envelopes and “real” stamps signifies a “goodwill gesture,” whereby the respondent is entrusted with something of value. They feel a stronger obligation to respond because of this small yet valuable investment (Dillman 2000). Of the 300 surveys mailed, 126 (42%) were returned. Although some surveys were returned incomplete, all contained usable information. For this reason, the total number (n) varies in some results.

The majority (75.6%) of respondents were female. The average respondent was 57.47 years of age and their spouse was 57.33 years old. The median yearly household income for respondents who were younger than retirement age was between \$50,000 and \$74,999 and 41.1% of respondents reported a household income of more than \$75,000 per year. Respondent income was high compared to the Nebraska family average of \$48,032 (United States Census Bureau 2000). Only 5.9% (n = 125) of respondents were divorced. This number is very low compared to the 2002 Nebraska divorce ratio of 47.8% (n = 58,132) (Nelson, et al. 2003). This low instance of divorce among adoptive families may be due to the agency’s selection for stable households. The majority of respondents (57.7%) cited their prime reason for adopting as fertility-related.

Table 3.1 lists descriptive statistics on adopted and birth children by “birth” order from firstborn (1) to lastborn (8), dashes (-) represent a lack of data. With the exception of third born, nearly identical numbers of adopted and biological children are present for each birth cohort. Although birth order effects will not be tested here, the similar numbers of adopted and biological children in the majority of birth order cohorts suggests that birth order effects are similar for adopted and biological children in this sample as a

whole. The large variation in the current ages of children may cause certain investments to be over or underrepresented. For example, children born in the 1940s may have been less likely to receive orthodontic braces or contact lenses than children born in the 1970s simply because these things were less common then than they are now. This type of cohort biasing is likely to be minimal in this sample because the average ages of biological and adopted children in each cohort are similar.

Table 3.1: Descriptive Statistics of Respondent's Children

Birthorder	Adopted (n)	Biological (n)	Mean age (years)	Minimum age	Maximum age	Percent male	Percent female
1	60	61	30.8	3	58	57.1	42.9
2	61	62	27	0.75	56	41.7	58.3
3	21	54	25.4	5	55	49.3	50.7
4	16	16	21	3	53	61.8	38.2
5	3	5	17.25	5	50	50	50
6	1	1	9	4	14	100	0
7	1	0	no data	no data	no data	100	0
8	1	1	13	13	13	100	0
Total	164	200	26.96	0.75	58	50.8	49.2

All of the children who were adopted in this sample were placed through an open adoption process. That is, some degree of postpartum contact remained open between themselves, their adoptive parents, and their birth parents. According to social workers at the adoption agency, contact between birthparents and the children they place for adoption ranges from very little to sending cards on holidays to weekly or even daily contact. It is possible that higher degrees of contact increases the amount of investments adopted children receive because there are simply more people contributing to their needs. However, this hypothesis cannot be tested with the data gathered here. Future researchers may wish to evaluate the types and amounts of contact between birthparents

and the children they place in order to elucidate whether children who remain in contact with their birthparents fare differently than those who do not.

There was a concern that, within the sample of adopted children presented here, there may have been a greater than normal occurrence of children with developmental disabilities because of differences in prenatal care. If disabilities were more common in this sample, they would surely affect the educational and social outcomes of adopted children. However, this question was “impossible” for the agency to answer because the children were placed at a median age of 42 days (n=153). Social workers at the agency reported that at this age, the children they place “all look pretty healthy and normal.” Another concern which arose after the survey was issued centers around phenotypic variation, or race. It is probable that adopted children who exhibit racial qualities different from their adoptive parents face greater difficulty adapting to their home environments than children who are racially similar. Workers at the agency indicated that they actively seek to place children in racially similar households, yet they also reported that the vast majority (“98%”) of the parents in their pool are Caucasian and that transracial and transcultural placements (involving children from other countries) have occurred with some regularity. Interestingly, they also noted that interest in both of these forms of adoption has waned over the past five years. For transcultural adoptions, they attributed to this to the changes in the United States economy and international politics following the terrorist attacks of September 11, 2001. Adopting internationally has become more expensive since then, and travel overseas has become more difficult and dangerous. These factors have lead people to adopt fewer children from overseas. Interest in transracial adoptions has also plummeted to “just a handful” per year now.

Unfortunately, workers were unsure of why this trend has evidenced itself. Those who conduct similar research in the future may wish to ask parents questions whether their children were adopted with any deleterious preexisting physical or psychological conditions. They may also wish to query them about their children's racial background because transracial adoptions may affect children's adjustments to their familial and social environments.

HYPOTHESES

The hypotheses tested here were drawn from the literature on parental investment, kin selection theory, and discriminative parental solicitude detailed in the literature review. These studies showed that, compared to children who live with two biological parents, children who live in genetically-mixed households are more likely to be the victims of physical abuse, neglect, sexual abuse, and homicide. They also complete less education and are more likely to exhibit mental health problems (Brand and Brinich 1999; Brodzinsky 1987; Case 2000; Case, et al. 2000; Case and Paxson 2001; Conger, et al. 1984; Crighton 1988; Daly and Wilson 1980; Daly and Wilson 1981; Daly and Wilson 1985; Daly and Wilson 1996; Daly and Wilson 2001; Gordon and Creighton 1988; Silk 1980; Wierzbicki 1993; Wilson 1980; Wilson and Daly 1987; Wilson and Daly 1992; Wilson, et al. 1980).

This study differs from the majority of those reviewed earlier in two major ways. First, it does not look for differences in the *negative* treatment of children like abuse, neglect, and homicide. Rather, it attempts to elucidate differences in the *positive* investments parents make in their children like paying for college and helping them with homework. Second, only two of the 135 (1.5%) of adopted children in this sample are

genetically related to their adoptive parents. This number is exceptionally lower than would be expected based on previous research which showed that kin adoptions are generally more prevalent than non-kin adoptions (Daly and Wilson 1985; Silk 1980; Silk 1987a). This extremely low degree of relatedness greatly minimizes the chance that kin selection is working in any way to affect parents' behavior toward their adopted children.

Globally, the null and alternative hypotheses being tested here are:

H₀: Parents who raise both genetically-related and non-genetically related (adopted) children invest equally in them.

H₁: Parents who raise both genetically-related and non-genetically related (adopted) children invest more in their genetically-related children.

The questionnaire (Appendix C) was designed to gather both basic demographic data on the sample population as well as in-depth information regarding the types of investments parents have made in their children. In terms of the null and alternate hypotheses above, the survey allows us to test whether parents favor their biological over their adopted children based on their genetic relationship to them. As discussed during the introduction to this thesis, all of the investments analyzed here concern embodied capital, or "the stock of attributes embodied in an individual that can be converted, either directly, or, more commonly, in combination with other forms of capital, into fitness-enhancing commodities (Lancaster and Kaplan 2000). The survey attempts to quantify the types and amounts of investment which enhance the recipient's embodied capital. Survey questions deal with both material allocation (e.g., did the parent buy cars for their children?) and time allocation (e.g., how much did the parent help their children with homework?). Monetary investments are further broken down into four categories; personal (e.g. rent, personal loans), health (e.g. contact lenses, orthodontic braces), social

(e.g. scouts, summer camp), and educational (e.g. private tutors, paying for college tuition). Parental investment in each of these categories may result in different types of capital and fitness benefits but each category is related to the others. For example, if a parent buys an automobile (a “personal” investment) for their child, the child may experience an increase in embodied capital because they have greater access to work or schooling outside of their range of travel without a car.

The survey consists of 26 questions, 25 of these are multiple response or fill in the blank, the other is open-ended. In order to improve response rates, the survey was designed so one person could answer questions regarding themselves, their spouse, and their children, all within 20 minutes. The following paragraphs describe the hypotheses in detail.

The first three questions on the survey ask for basic demographic information concerning 1) the subject’s age, 2) their spouse’s age, and 3) their gender. Knowing the gender of the respondent allows the hypothesis that men and women allocate time toward their children differently to be tested, as measured in question number 26. Because responses to question 26 are ranked on a 1-5 Likert scale (1 = “I always did this”; 5 = “I rarely or never did this”), the exact amount of time respondents spent with their children cannot be ascertained. A relative scale was employed here because the question concerned events that may have taken place decades ago and recall bias was probable.

The following hypotheses were tested:

H₀: Men and women invest similar amounts of time helping their children with homework and academics..

H₁: Women invest the more time helping their children with homework and academics than men.

H₀: Men and women invest similar amounts of time helping their children with sports.

H₁: Women invest the more time helping their children with sports than men.

H₀: Men and women invest similar amounts of time helping their children with scholarships
 H₁: Women invest the more time helping their children with scholarships than men.

H₀: Men and women invest similar amounts of time helping their children personal and family issues.
 H₁: Women invest the more time helping their children with personal and family issues than men.

H₀: Men and women invest similar amounts of time helping their children with professional and career choices.
 H₁: Women invest the more time helping their children with professional and career choices than men.

H₀: Men and women invest similar amounts of time helping their children with dating and friendship issues.
 H₁: Women invest the more time helping their children with dating and friendship issues than men.

A member of the agency's search team believed there had been an increase in the number of divorces among adoptive parents within the last 10 years. Question five ("Have you ever been divorced? If so, in what year?") allows us to test this notion. We can also discern whether adoptive marriages are more or less stable than those of the general population. According to data from the Centers for Disease Control and Prevention (2002), the period from January 2000 through December 2002 saw 39,641 marriages and 18,491 divorces in the state of Nebraska. This translates to a 47.8% divorce to marriage ratio, this number is comparable to the national average. Data gathered from this question will be used to test two sets of hypotheses:

H₀: Divorce has not become more common among adoptive parents recently.
 H₁: Divorce has become more common among adoptive parents recently.

H₀: Adoptive parents divorce at rates similar to the general population.
 H₁: Adoptive parents divorce at rates lower than the general population.

Questions six and seven concern the marriage history of the adopted and biological children. They permit testing of the hypothesis that adopted children are more likely than biological children to divorce. The adopted children are then broken into two cohorts;

those who divorced and those who did not divorce. These two age groups will be compared to each other in order to show whether those adopted when older are more likely to divorce. As Brand and Brinich's (1999) study showed, children who were placed for adoption at older than six months were more likely to exhibit behavioral problems later in life. These behavioral problems may be a factor in marriage instability.

The following hypotheses will be tested using the data:

H₀: Adopted and biological children divorce at the similar rates.

H₁: Adopted children divorce are more likely to divorce than biological children.

H₀: Divorced adopted children were not adopted younger than non-divorced adopted children.

H₁: Divorced adopted children were adopted younger than non-divorced adopted children.

Question eight is a multi-part question aimed at gathering demographic information on the respondent's children. Data on each child's current age, gender, relationship to the parent (adopted, biological, or step) are gathered in this question along with the age at which the child came into the home (if they are adopted or step children) and their genetic relationship to the parent (if they were adopted or step children). This question ties in critically with several others in the survey. Most importantly, it allows the investigator to discern the relationship each child shares with his or her parents (adopted, biological, or step) so these cohorts can separately grouped and compared statistically.

Question 16 asks parents to report the highest year or grade of schooling their children had completed at the time of the survey. Prior research by Case et al. (2000) showed a small (0.62 year) but statistically significant difference in the amount of total schooling attained by adopted and biological children; biological children completed more on average. A similar hypothesis will be tested here using only children who were over 22 years of age at the time of the survey. This is done with the intention of only

including those children who have reached a terminal point in their education. The

hypotheses are as follows:

H₀: Biological and adopted children complete similar amounts of schooling.

H₁: Biological children complete more schooling than adopted children.

Question 17 asks the age at which the respondent's children left home permanently. This measure is used to proxy their overall attachment to their parents and household.

Although the age of majority in Nebraska (where most of the respondents reside) is 19, the majority of high school seniors graduate near the age of 18 and often leave their parent's home (often attend college) before their 19th year. This said, there are some children who leave home before they are legally allowed to do so. Parents reported two instances of children leaving home at 15 years. Because of the presence of these two cases, children 15 and older will be considered for statistical analysis using the

hypotheses:

H₀: Biological and adopted children leave home at similar ages.

H₁: Adopted children leave home younger than biological children.

Question 18 asks if the respondent's children attended daycare for periods greater than half a day prior to entering grade school. Daycare is used to proxy the amount of time parents spend engaged in direct care with their children. These hypotheses will be tested using daycare data:

H₀: Biological and adopted children are equally likely to attend daycare programs.

H₁: Adopted children are more likely to attend daycare programs than biological children..

Question 19 is the sole open-ended question in the survey. It asks what motivated the respondent to adopt. Responses were coded into three categories. The first category

includes fertility problems. The second category includes only altruistic motivations e.g. “We wanted to give a loving home to a child who needed one.” The third category includes ego-centered motivations e.g. “We wanted a larger family.” There was some overlap in the responses, but any mention of problems with fertility led to the response being coded as a fertility issue with the assumption that infertility was the *prime* motivation for adoption. The following hypotheses will be tested with this data:

- H₀: The prime motivation for adoption is not fertility-related.
- H₁: The prime motivation for adoption is fertility-related.

The following set of questions was devised to elucidate differences in the outcomes of adopted and biological children. They deal with behaviors that lie beyond the direct control of parents. Questions 20-22 ask whether the respondent’s children have ever required professional treatment for mental health issues (20), alcohol addiction (21), or drug addiction (22). Question 23 follows by asking if any of their children have been convicted of a crime. These questions allow for the testing of the following hypotheses:

- H₀: Adopted and biological children require mental health treatment at similar rates
- H₁: Adopted children require mental health treatment at higher rates than biological children.

- H₀: Children adopted before six months of age require mental health treatment at similar rates as those adopted at over six months.
- H₁: Children adopted at over six months of age require mental health treatment at higher rates than those adopted before six months.

- H₀: Adopted and biological children require treatment for alcohol abuse at similar rates.
- H₁: Adopted children require treatment for alcohol abuse at higher rates than biological children.

- H₀: Adopted and biological children require treatment for drug abuse at similar rates
- H₁: Adopted children require treatment for drug abuse at higher rates than biological children.

- H₀: Adopted and biological children are have been convicted of a crime at similar rates.
- H₁: Adopted children are more likely than biological children to have been convicted of a crime.

Question 24 lies at the heart of the survey and this thesis. It presents a chart to the respondent. The left-hand column of this chart lists 18 items parents commonly purchase for their children. The numbers one through eight run across the top row of the chart. These numbers correspond to each of the respondent's children ranked by birth order (first to last). Respondents were asked to place a check mark in the box which corresponded with each of their children if they purchased service or item listed for that child. The items included range from preschool to summer vacations and prom dresses, but all share a common thread; they are not basic necessities. It would be impossible to include every conceivable purchase parents make for their children in a single survey. These 18 items were chosen because they represent some of the common things parents purchase for their children in the Midwestern United States. They reflect several facets of life up to early adulthood and are broken into four groups for analysis. The first group consists of items that are often important to an individual's physical appearance and their social life by extension. These items are; orthodontic braces, contact lenses, cosmetic surgery, and prom dresses or tuxedos. The second group consists of educational investments; preschool, private tutors, summer school, and college tuition. Significant investments in these areas can have a large impact on a child's financial wellbeing, security, and independence later in life. The third group deals with contributions to the child's establishment of independence; rent, personal loans, cosigning on bank loans, and automobile purchases. The fourth group consists of purchases that are important in other ways that do not fit the previous classifications; music lessons, summer vacation, summer camp, boy's or girl's clubs, weddings, and honeymoons. The following sets of

hypotheses will be tested using the information gathered by question 24 (listed in the order in which they appear in the questionnaire):

H₀: Parents are equally likely to provide braces for their adopted and biological children.
H₁: Parents are more likely to provide braces for their biological versus adopted children.

H₀: Parents are equally likely to provide contact lenses for their adopted and biological children.
H₁: Parents are more likely to provide contact lenses for their biological versus adopted children.

H₀: Parents are equally likely to provide cosmetic surgery for their adopted and biological children.
H₁: Parents are more likely to provide cosmetic surgery for their biological versus adopted children.

H₀: Parents are equally likely to provide preschool for their adopted and biological children.
H₁: Parents are more likely to provide preschool for their biological versus adopted children.

H₀: Parents are equally likely to provide private tutors for their adopted and biological children.
H₁: Parents are more likely to provide private tutors for their biological versus adopted children.

H₀: Parents are equally likely to provide summer school for their adopted and biological children.
H₁: Parents are more likely to provide summer school for their biological versus adopted children.

H₀: Parents are equally likely to provide music lessons for their adopted and biological children.
H₁: Parents are more likely to provide music lessons for their biological versus adopted children.

H₀: Parents are equally likely to provide cars for their adopted and biological children.
H₁: Parents are more likely to provide cars for their biological versus adopted children.

H₀: Parents are equally likely to provide summer vacations for their adopted and biological children.
H₁: Parents are more likely to provide summer vacations for their biological versus adopted children.

H₀: Parents are equally likely to provide summer camp for their adopted and biological children.
H₁: Parents are more likely to provide summer camp for their biological versus adopted children.

H₀: Parents are equally likely to provide boy's or girl' clubs for their adopted and biological children.
H₁: Parents are more likely to provide boy's or girl's clubs for their biological versus adopted children.

H₀: Parents are equally likely to provide prom dresses or tuxedos for their adopted and biological children.
H₁: Parents are more likely to provide prom dresses or tuxedos for their biological versus adopted children.

H₀: Parents are equally likely to provide weddings for their adopted and biological children.
H₁: Parents are more likely to provide weddings for their biological versus adopted children.

H₀: Parents are equally likely to provide honeymoons for their adopted and biological children.
H₁: Parents are more likely to provide honeymoons for their biological versus adopted children.

H₀: Parents are equally likely to provide college tuition for their adopted and biological children.

H₁: Parents are more likely to provide college tuition for their biological versus adopted children.

H₀: Parents are equally likely to provide rent for their adopted and biological children.

H₁: Parents are more likely to provide rent for their biological versus adopted children.

H₀: Parents are equally likely to provide personal loans for their adopted and biological children.

H₁: Parents are more likely to provide personal loans for their biological versus adopted children.

H₀: Parents are equally likely to cosign on bank loans for their adopted and biological children.

H₁: Parents are more likely to cosign on bank loans for their biological versus adopted children.

Question 25 is also central to the global hypothesis of this thesis. It asks parents to report the amount of time they spent with each of their children engaging in several tasks; homework, sports, scholarships, personal and family issues, career choices, and dating and friendship issues. Due to the high likelihood of recall bias, subjects were asked to rank the amount of time they spent with each of their children on a relative, not absolute scale. A 1-5 Likert scale was devised using responses ranging from “I did this a lot” to “I rarely or never did this.” The following hypotheses are tested using data gathered in question 25:

H₀: Parents spend equal time helping their adopted and biological children with their homework.

H₁: Parents spend more time helping their biological children with homework versus their adopted children.

H₀: Parents spend equal time playing sports with their adopted and biological children.

H₁: Parents spend more time playing sports with their biological children than their adopted children.

H₀: Parents spend equal time helping their adopted and biological children with scholarships.

H₁: Parents spend more time helping their biological children with scholarships versus their adopted children.

H₀: Parents spend equal time helping their adopted and biological children with personal and family issues.

H₁: Parents spend more time helping their biological children with personal and family issues versus their adopted children.

H₀: Parents spend equal time helping their adopted and biological children with professional and career choices.

H₁: Parents spend more time helping their biological children with professional and career choices versus their adopted children.

H₀: Parents spend equal time helping their adopted and biological children with dating and friendship issues.

H₁: Parents spend more time helping their biological children with dating and friendship issues versus their adopted children.

The majority of the hypotheses above were drawn from kin selection and parental investment theory. Others were tested at the request of the participating agency and its employees who were interested in the outcomes of their work. The results of these hypotheses are presented in the following chapter.

CHAPTER 4: RESULTS

In this section, results from the questionnaire are broken down into three groups. The first provides information about the adoptive parents, the second deals with the outcomes of adopted and biological children, and the third concerns the types of monetary and temporal investments parents make in their children. In general, the data support the null hypothesis that parents do *not* invest more in their biological children than their adopted children. Biological children do not receive higher amounts of investment than adopted children on any measure. In fact, the data show that the opposite occurs; *in several areas, adopted children are more likely to receive investment*. Although they receive greater amounts of overall investment, adopted children appear to fare worse than biological children in terms of education, marriage stability, and addiction. Possible reasons for these findings are explored at length in the discussion which follows this chapter.

Table 4.1 summarizes the study's results which are described in greater detail following the table. All p-values are two-tailed and supplemental statistical information

including charts, linear-by-linear associations, likelihood ratios, and confidence

intervals can be found in Appendix E:

Table 4.1: Results

Variable Category		Statistical Information		
Male vs. Female Time Investment	Test	p value	n	Notes
		test statistics		
Homework and academics	Mann-Whitney u-test	0.019	122	Women spend more time than men helping children with homework and academics.
		$u=1002$		
		$z=-2.353$		
Sports	Mann-Whitney u-test	0.678	114	Women and men spend similar amounts of time helping children with sports.
		$u=1197.5$		
		$z=-.416$		
Scholarships	Mann-Whitney u-test	0.431	94	Women and men spend similar amounts of time helping children with scholarships.
		$u=774$		
		$z=-.788$		
Personal or family issues	Mann-Whitney u-test	0.066	117	Women and men spend similar amounts of time helping children with personal or family issues.
		$u=998.5$		
		$z=-1.835$		
Professional and career choices	Mann-Whitney u-test	0.345	107	Women and men spend similar amounts of time helping children with professional and career choices.
		$u=1024.5$		
		$z=-.945$		
Dating and friendship issues	Mann-Whitney u-test	0.074	118	Women and men spend similar amounts of time helping children with dating and friendship issues.
		$u=987.5$		
		$z=-1.788$		
Divorce				
Divorce	Test	p value test statistics	n	Notes
Adoptive parent divorce rate	z-test	0.000	125	Adoptive parents are less likely to divorce than the general Nebraska population.
		$z=9.088$		
Adoptive parent divorce through time	chi square	0.995	6	Divorce has not become more common in adoptive couples through time.
		$\chi^2=0.667$		
		4 DF		
Adopted vs. biological divorce rate	chi square	0.000	166	Adopted children are more likely than biological to divorce.
		$\chi^2=19.67$		
		1 DF		
Age at adoption and divorce likelihood	t-test	0.768	69	Children adopted at younger than six months of age divorce at rates similar to children adopted at older
		$t=.296$		
		67 DF		

		<i>Mean Difference=38 days</i>		than six months.
Education	Test	p value test statistics	n	Notes
Adopted vs. biological total education	t-test	0.022	218	Adopted children complete less education than biological.
		<i>t=-2.314</i>		
		<i>216 DF</i>		
		<i>Mean Difference=0.95 year</i>		
Leave Home	Test	p value test statistics	n	Notes
Adopted vs. biological age left home permanently	t-test	0.831	255	Adopted children do not leave home earlier than biological children.
		<i>t=-.214</i>		
		<i>253 DF</i>		
		<i>Mean Difference=0.05 year</i>		
Daycare	Test	p value test statistics	n	Notes
Daycare and relationship	chi square	0.365	351	Adopted and biological children are equally likely to attend daycare.
		$\chi^2=.864$		
		<i>1 DF</i>		
Adoption Motivation	Test	p value test statistics	n	Notes
Parental motivation to adopt	chi square	0.000	118	Infertility is the prime motivation to adopt.
		$\chi^2=33.17$		
		<i>2 DF</i>		
Outcome/Treatment	Test	p value test statistics	n	Notes
Alcohol treatment	chi square	0.036	283	Adopted children are more likely to attend alcohol treatment programs.
		$\chi^2=4.962$		
		<i>1 DF</i>		
Drug treatment	chi square	0.003	285	Adopted children are more likely to attend drug treatment programs.
		$\chi^2=9.725$		
		<i>1 DF</i>		
Criminal conviction	chi square	0.104	272	Adopted and biological children have been convicted of a crime at similar rates.
		$\chi^2=2.815$		
		<i>1 DF</i>		

Mental health treatment	chi square	0.000	352	Adopted children are more likely to require mental health treatment.
		$\chi^2=17.318$		
		1 DF		
Age at adoption and mental health treatment	t-test	0.041	149	Adopted children who required mental health treatment were adopted later, in terms of age, than adopted children who did not require mental health treatment.
		$t=2.064$		
		147 DF		
		Mean Difference=232.9 days		
Monetary Investments	Test	p value test statistics	n	Notes
Personal				
Bank Loans	chi square	0.260	276	Parents cosign on bank loans for adopted and biological children at similar rates.
		$\chi^2=1.392$		
		1 DF		
Personal Loan	chi square	0.036	276	Loans are more likely given to adopted children than biological.
		$\chi^2=4.604$		
		1 DF		
Rent	chi square	0.021	275	Rent is more likely given to adopted children than biological.
		$\chi^2=5.501$		
		1 DF		
Prom	chi square	1.00	276	Prom dresses or tuxedos are given to adopted and biological children at similar rates.
		$\chi^2=.000$		
		1 DF		
Car	chi square	0.046	276	Cars are more likely given to adopted than biological.
		$\chi^2=4.422$		
		1 DF		
Wedding	chi square	0.822	169	Monetary contributions to weddings are given to adopted and biological children at similar rates.
		$\chi^2=.176$		
		1 DF		
Honeymoon	chi square	0.308	169	Monetary contributions to honeymoons are given to adopted and biological children at similar rates.
		$\chi^2=1.587$		
		1 DF		
Health	Test	p value test statistics	n	Notes
Braces	chi square	0.404	323	Braces are provided to adopted and biological children at similar rates.
		$\chi^2=.129$		
		1 DF		
Contact lenses	chi square	0.473	323	Contact lenses are provided to adopted and biological children at similar rates.
		$\chi^2=.650$		
		1 DF		

Cosmetic surgery	chi square	1.00	359	Cosmetic surgery is provided to adopted and biological children at similar rates.
		$\chi^2=.022$		
		1 DF		
<i>Social</i>	Test	p value test statistics	n	Notes
Scouts	chi square	0.907	325	Adopted and biological children attend scouts at similar rates.
		$\chi^2=.019$		
		1 DF		
Camp	chi square	0.312	325	Adopted and biological children attend camp at similar rates.
		$\chi^2=1.064$		
		1 DF		
Summer vacation	chi square	1.00	359	Adopted and biological children go on summer vacations at similar rates.
		$\chi^2=.005$		
		1 DF		
<i>Educational</i>	Test	p value test statistics	n	Notes
Pay for education	chi square	0.596	330	Parents pay for their adopted and biological children's education at similar rates.
		$\chi^2=.467$		
		1 DF		
Preschool	chi square	0.026	330	Preschool is more likely provided for adopted children than biological.
		$\chi^2=5.123$		
		1 DF		
Private tutors	chi square	0.020	330	Tutors are more likely provided for adopted children than biological.
		$\chi^2=4.923$		
		1 DF		
Summer school	chi square	0.000	330	Summer school is more likely provided for adopted children than biological.
		$\chi^2=13.593$		
		1 DF		
Music	chi square	0.732	330	Music lessons are provided for adopted and biological children at similar rates.
		$\chi^2=.177$		
		1 DF		
Time Investments	Test	p value test statistics	n	Notes
Homework and academics	Mann-Whitney u-test	0.002	316	Parents help their adopted children with homework more than their biological children.
		$u=9911$		
		$z=-3.081$		
Sports	Mann-Whitney u-test	0.114	335	Parents help their adopted and biological children with sports at similar rates.
		$u=12573$		
		$z=-1.581$		
Scholarships	Mann-Whitney	0.135	225	Parents help their adopted and biological children with scholarships
		$u=5441$		

	u-test	$z=-1.495$		at similar rates.
Professional and career choices	Mann-Whitney u-test	0.471	261	Parents help their adopted and biological children with professional and career choices at similar rates.
		$u=7889$		
		$z=-.720$		
Family and personal issues	Mann-Whitney u-test	0.084	343	Parents help their adopted and biological children with personal and family issues at similar rates.
		$u=13042$		
		$z=-1.727$		
Dating and friendship issues	Mann-Whitney u-test	0.846	341	Parents help their adopted and biological children with dating and friendship issues at similar rates.
		$u=14155$		
		$z=-.194$		

The preceding table list each of the study's findings. Those which are statistically significant will be discussed in the following three sections. The first focuses on adoptive parents and households, the second on differences in the outcomes of adopted and biological children, and the third, on differential investment in biological and adopted children.

ADOPTIVE PARENTS AND FAMILIES

Adoption agencies like the one that participated in this study follow strict guidelines in selecting potential adoptive parents. Agencies require parents to participate in home studies that involve legal background checks, reviews of family and personal history, and evaluations of overall marriage quality and parental readiness. Because of this selection process, it should not be surprising that the adopted parents in this sample are different from the general population in some important ways. Agency screening has produced a sample of parents whom they have deemed fit and the parents in this sample may have been exceptionally well prepared for childrearing. Many of them adopted because they were physically unable to have children. Fertility issues were cited as the primary motivation for adopting by 57.7% of parents and was listed significantly more often than

either altruistic or ego-centered motivations ($p = 0.000$; $\chi^2 = 33.169$; $df = 2$; $n = 118$).

The fact that the parents in this sample have gone to great lengths to acquire children and that the agency has made efforts to select only high quality households for placement has most likely caused biases in certain attributes of the sample population, these are described in the following paragraphs.

Although the agency does not use income as a household evaluation criterion, the median yearly income of adopted households was between \$50,000 and \$74,999 and 41.1% of respondents reported a household income of more than \$75,000 per year. Compared to the average Nebraska household income of \$48,032 (United States Census Bureau 2000), adoptive households are financially better off than the general population. Higher household incomes may facilitate greater investments in children, biological or adopted.

Perhaps the most striking attribute of the parents surveyed is their extremely low susceptibility to divorce. Only 5.9% ($n = 125$) of respondents were divorced. This percentage is well below the 2002 Nebraska divorce ratio (the measure of marriages to divorces over a given time) of 47.8% ($n = 58,132$) (Nelson, et al. 2003) and is statistically significant ($p = 0.000$; $z = 9.088$). The low occurrence of divorce is most likely due to agency selection. Stable adoptive households provide environments beneficial to the children raised within them.

Parents placed 21.7% of their children (adopted and biological) in daycare and adopted and biological children attended daycare at similar rates ($p = 0.365$; $\chi^2 = 0.864$; $df = 1$; $n = 351$). There is no local data available to which these statistics can be

compared, so it is difficult to ascertain whether daycare rates are lower or higher than average for adoptive parents.

Mothers and fathers reported spending equal amounts of time helping their children with most things. It should be restated here that answers to this question were ranked on a 1-5 Likert scale (1 = "I always did this, 5 = "I rarely or never did this"). The relative nature of this form of data collection makes it impossible to discern whether women or men actually spend different amounts of time with their children, it only allows for a comparison of their perceptions. There were no significant differences in the amount of time men and women recalled spending with their children on sports, scholarships, family and personal, dating and friendship, or professional and career issues. Women did report helping their children with homework and academics significantly more often than men ($p = 0.019$; $u = 1002$; $z = -2.353$; $n = 122$). This difference may be indicative of a real-world discrepancy, but it must be interpreted with caution for the reasons described above.

The agency appears to have done a good job selecting stable households with sufficient resources in which to place children. Due to agency screening, this sample of adoptive parents differs from the general population in their high incomes, high marriage stability, and high incidence of infertility. These attributes may affect the investments made in, and outcomes of, children raised by them, especially in terms of monetary investments and marriage stability.

OUTCOMES OF BIOLOGICAL AND ADOPTED CHILDREN

The data show that parents are more apt to endow their adopted children with personal and educational investments. This can be better understood by looking at the differences in adopted and biological outcomes. These outcomes provide a context on which to base the interpretations of differential parental investments discussed later on.

There were a number of differences in adopted and biological child outcomes. The first deals with educational attainment. The results show a significant difference in the amount of education adopted and biological children complete ($p = 0.022$; $t = -2.314$; $n = 218$). On average, adopted children completed the equivalent of two years of postsecondary education. Biological children completed about one year more schooling on average (mean difference = 0.95 years). The standard deviations in total education for adopted and biological children was similar at 3.05 years ($n = 94$) and 2.94 years ($n = 124$), respectively. This difference in education may be due to adjustment difficulties among adopted children. They may also be attributed to preexisting developmental disabilities in adoptive children. These possibilities will be explored in the subsequent discussion chapter, but there are other results which indicate that adopted children experience difficulties adjusting through childhood, adolescence, and into early adulthood. For example, adopted children were significantly more likely than biological children require professional treatment for alcohol addiction ($p = 0.036$; $\chi^2 = 4.962$; $df = 1$; $n = 283$), drug addiction ($p = 0.003$; $\chi^2 = 9.725$; $df = 1$; $n = 285$), and mental health problems ($p = 0.000$; $\chi^2 = 17.318$; $df = 1$; $n = 352$). Adopted children who required mental health treatment were adopted at significantly older ages than those who did not ($p = 0.041$; $t = 2.064$; $df = 147$; $n = 149$; mean difference = 232.9 days). Adopted

children were also significantly more likely to divorce than biological children ($p = 0.000$; $\chi^2 = 19.67$; $df = 1$; $n = 166$). These findings suggest that adopted children are more “troubled” than biological children and that the age at which children were adopted plays a role in the mental health of adopted children. This supports previous research showing an overrepresentation adoptees in clinical populations (Brand and Brinich 1999; Mednick, et al. 1985; Wierzbicki 1993).

DIFFERENCES IN PARENTAL INVESTMENT

The primary goal of this study was to investigate whether parents invest different types and amounts of resources in their adopted and biological children based on their genetic relationship to each. The items used to measure investment may increase the recipient’s embodied capital and, therefore, their genetic fitness. Four different categories of investments were measured: 1) personal, 2) health, 3) social, and 4) educational. There were no significant differences in health and social investments. Parents were equally likely to provide orthodontic braces, contact lenses, cosmetic surgery, scouts, summer camp, and summer vacations for their adopted and biological children. But differences in educational and personal investments were apparent. The following section details findings which, when viewed in conjunction with the outcomes described above, provide a basis to discuss the dynamics of adoptive households from an evolutionary perspective.

Although adopted children completed less overall education than biological children, they were significantly more likely than biological children to receive educational investments. Specifically, investments were more likely to be made in preschool ($p = 0.026$; $\chi^2 = 0.467$; $df = 1$; $n = 330$), summer school ($p = 0.000$; $\chi^2 =$

13.593; $df = 1$; $n = 330$), and private tutors ($p = 0.030$; $x^2 = 4.923$; $df = 1$; $n = 330$).

Parents also reported helping their adopted children significantly more with homework and academics ($p = 0.000$; $u = 9911$; $z = -3.081$; $n = 316$). These results take on greater importance when considered in conjunction with the finding that adoptees complete less education than biological children - although they receive more investment, they accomplish less. This seemingly counterintuitive notion can be explained by the types of investments they adopted children receive. In Nebraska, summer school and private tutors are generally provided as remedial measures in primary and secondary schools. It appears as though the foundation for lower overall educational attainment is set prior to the time adopted children enter college.

Parents were also more likely to make investments in their adopted children in personal areas. Parents provided rent ($p = 0.021$; $x^2 = 5.501$; $df = 1$; $n = 275$), personal loans ($p = 0.036$; $x^2 = 4.604$; $df = 1$; $n = 276$), and cars ($p = 0.046$; $x^2 = 4.422$; $df = 1$; $n = 276$) more for their adopted children than biological. These findings suggest that adopted children may experience some difficulty establishing themselves after they leave home. This idea will be furthered in the discussion.

This chapter provides an overview of the results of the data analysis. Adoptive families were shown to have higher incomes and divorce less frequently than the general population. These findings are most likely the result of the procedures and guidelines followed by the adoption agency in selecting potential adoptive parents. Adopted children completed less education than biological children, were more likely to require treatment for alcohol, drug, and mental health problems, and were more likely to divorce.

Parents were shown to invest greater amounts overall in their adopted children.

Adopted children were more likely receive educational and personal investments.

CHAPTER 5: DISCUSSION AND CONCLUSION

The hypotheses tested within this thesis were drawn from research on discriminative parental solicitude and kin selection theory. These bodies of reference predict that parents will favor their biological children in households with varied genetic makeup. The results presented here categorically fail to support this prediction. Instead, they show that this sample of parents invests more in their non-genetic offspring. While evidence discriminative parental solicitude is apparent, it is unambiguously biased toward adopted children. Because of this, kin selection theory cannot be used to explain its existence. This chapter attempts to explain why parents make greater investments in their adopted children. A discussion of adopted child outcomes is followed by a discussion of the types of investments children receive. Lastly, a section on the characteristics of adoptive parents and parental motivation is presented.

CHILD OUTCOMES

The fact that adopted children complete less schooling and are more likely than biological children to divorce and require professional treatment for alcohol, drug, and mental health problems suggests that they may be more “troubled” than biological children and may have difficulty in adjusting to some areas of life. The nature of the data gathered here makes it impossible to discern whether addiction, marital problems, and mental health issues lead adopted children experience difficulties establishing and

educating themselves, or if difficulties in establishment and education lead to addiction, mental health, and marital problems. However, there is some evidence that suggest the former. It appears as though mental predispositions form early adopted children's lives; previous research has shown that the earlier children are placed, the fewer mental problems they experience later on (Brand and Brinich 1999) and, in this sample, adopted children who required mental health treatment were placed when they were significantly older (232.9 days) than those who did not seek treatment. I was able to discuss the psychological pressures of adoptive life in an informal conversation with a 22 year old woman ("Jane") who was born in South Korea and adopted by a local Nebraska family. She related her difficulties in growing up adopted. She recalled that her parents had sent her to a psychiatrist when she was younger because they thought she was suicidal. She followed by saying, "and so I hated them [her parents] for that. I hated that stupid psychiatrist. I was so mad. I went to two different ones, actually, and I hated both of them." Eventually, she tried to move out of their house early and obtain a legal emancipation from them (although she did not follow through with either plan). While psychological evaluations and treatment may be welcomed by some teens, others may see them as personal attacks, as "Jane" did. Poor mental health may also be tied to drug and alcohol addiction, marital instability, and educational attainment. But again, it is difficult to say which factor is causal using this sample.

Adopted children may also face social stigma because of their adoption. In the introduction to this thesis, the notion that birthmothers "give their children up for adoption" was discussed, this is commonly held idea is one example that society often views adoption as abandonment. In turn, adopted children must cope with feelings that

their birthparents abandoned them and adoptive parents face the stigma of raising “someone else’s” abandoned child (Bryan, et al. 1986; Miall 1996). I was able to gain a personal understanding of some of the stigma faced by adoptees and their families through informal conversations with a 30 year old adopted woman. “Julie,” recently met her birthmother and said she (her birthmother) has yet to deal with, “tons of guilt, [and] tons of shame.” According to Julie, much of this guilt was based in the fact that her birthmother has not told her new husband about Julie’s birth “because she feels like she’d be jeopardizing her new marriage if she told him.” Julie also experienced difficulties with her extended family because she was adopted. Following her grandfather’s death, her uncles attempted to block her inheritance citing that she was not a “real” grandchild. She recalled her adoptive mother “being resentful as hell” and being unapologetic for her decision to adopt, saying things like, “I’m not going to go there if they don’t think my children are my children.” Julie’s experiences are surely not unique and they provide evidence that some adopted children face obstacles that biological children do not.

The overall picture provided by the outcome variables shows that adopted children experience more difficulties than biological children as proxied by mental health, alcohol, and drug treatment. They are also more likely to divorce than biological children. Age at adoption appears to play a role in the overall adjustment of adoptees, those who are adopted younger are less likely to seek mental health treatment than those adopted older. Familial and social stigma may also play a role in making adjustment more difficult for adopted children.

PARENTAL INVESTMENTS

Parents were more likely to provide personal and educational investments for their adopted children. Preschool, summer school, private tutors, rent, cars, and personal loans were all given to adopted children more frequently. In addition, parents spent more time helping their adopted children with homework and academics. All other measures of monetary and temporal investment showed no statistically significant differences between adopted and biological investment. The quality of parental responses to questions is presumably good because questions about monetary investments were answered with a simple “yes” or “no.” This format is likely to be more reliable than asking parents to list the “major” investments they made in their children because some of these purchases were made quite long ago. This said, the possibility for bias still exists because respondents were asked to indicate investments made in their adopted and biological children in a side-by-side fashion. It may have been apparent to them that the goal of the survey was to compare their treatment of their adopted and biological children. In order to ameliorate this possible bias, future researchers should separate surveys concerning adopted and biological children temporally. For example, an initial survey on biological children could be followed several weeks later by a survey on adopted children. There are also other areas of investment that could be added. Those addressed here dealt with social, personal, educational, and health issues. These issues could be investigated at greater length by subsequent researchers. For example, if a parent indicated providing rent for their child, they could also describe why they did so.

The extra investments adopted children receive may have nothing to do with their parents desire to give them an advantage over their peers and more with “leveling the

playing field.” The most poignant example of this may be education. To review, the measures of education showed that adopted children completed less schooling than biological children (a difference of about one year). This occurred even though adopted children were more likely to receive educational investments from their parents. A look at where these increases in investment took place sheds light on this finding. Adopted children were more likely to receive summer school and private tutors. In Nebraska (where most of the respondents are from), summer school and private tutors are generally remedial. This suggests that adopted children may experience educational difficulties prior to reaching college which may explain their lower overall educational attainment. Although adoptive parents provide more time and money for their adopted children’s educations these resources may be made simply to help them “catch up” with their classes.

Adopted children are more likely than biological children to receive personal investments; cars, rent, and personal loans. These results may also be indicative that adopted children experience greater difficulty than biological children in establishing themselves through adolescence and early adulthood. This is because they suggest that adopted children cannot meet their financial obligations as well as biological children and parents respond to their needs by providing monetary assistance. It does not appear that the age at which a child left home plays a role in garnering adopted or biological children greater help from parents because they leave home at similar ages. The fact that adopted children achieve less education and are more likely to require drug and alcohol treatment may also factor into their parents’ increased inclination to give them rent, cars, and

personal loans because less education or addiction may translate into lower wages and more difficulty finding work. Money from parents may fill this gap.

CHARACTERISTICS OF ADOPTIVE PARENTS

The findings presented here differ vastly from those shown in previous research on step and foster households. Genetically unrelated adopted children actually received greater amounts of investments than biological children. One explanation for this concerns a pivotal difference between adoptive and step households; stepfamilies emerge from mating effort, adoptive families emerge from parenting effort. This difference may play a key role in determining the way parents treat their children. Parenting effort, as defined by evolutionary theorists, is the measure of time and resources a parent dedicates to his or her biological progeny in order to assure its survives to reproductive age (Marlowe 1999b). Mating effort is the measure of time and resources a person dedicates to securing future mating opportunities (Marlowe 1999a; Wilson and Daly 1987). Although stepfathers invest in their stepchildren, these investments are a form of mating effort because, in provisioning for his stepchildren, a stepfather assures himself future mating opportunities with their mother (Marlowe 1999b; Wilson and Daly 1987).

In order to adopt, adoptive parents must very deliberately go about acquiring a child. Adoption agencies are highly selective. Years often pass between the time potential adoptive parents first contact an agency and the time they actually adopt a child. Agency mediated adoptions do not happen by accident; they result only from deliberate and prolonged parenting effort. In effect, this effort may trump the evolutionarily-driven mechanisms of discriminative parental solicitude and kin selection.

This would not be the first case where human psychology has overridden evolved parenting strategies. Military institutions have long recruited young men and women (usually as they are just entering their primary reproductive years) and asked them to participate in activities that may well kill them. Some religious institutions also ask those in who hold positions within their ranks to sacrifice their reproductive abilities; Catholic nuns and priests are expected to maintain celibacy for life. In training for either of these institutions, men and women are told to refer to and rely on one another as “brothers and sisters” (Atran 2003). Additionally, contact with home is often limited and living quarters are close; they live as a family would. Psychologically, recruits become relatives. Non-genetic relatives like these are known as “fictive kin” (Atran 2003).

Adopted children are fictive kin within their adoptive families. The mechanisms that cause parents to act altruistically toward them may be similar to those that cause soldiers to act altruistically toward each other. Support for this notion comes from informal conversations I had with several adoptive parents prior to undertaking this thesis. I asked parents about their general feelings toward their adopted and biological children. They responded that they felt no difference between the emotional bonds they shared with them. In the words of Daly and Wilson (Daly and Wilson 1985) parents were able to develop and project “child specific love and commitment” toward their adopted children. Many of the people I interviewed considered their children equals who “simply came to them in different ways.” The fictive kinship bonds between parents and adopted children appear to be strong enough to lead them to treat them no differently than their biological children.

Adoption agencies screen potential adoptive parents rigorously. Parents and households are scrutinized in order to assure a safe and nurturing environment awaits an adopted child. These measures leave agencies with a “pool” of potential parents. The respondents in this study were once members of such a pool. Their demonstrated low divorce rate and high investment in their adopted children suggests that the adoption agency is successful in screening for quality adoptive households. In effect, the methods employed to select parents for the adoptive parent pool biased our sample. This bias most likely explains the very low number of divorces seen in the sample presented here. Sample bias may also explain why the parents we surveyed treated their children so fairly, they may be exceptionally altruistic people.

SUGGESTIONS FOR FURTHER RESEARCH

It is difficult to explain adoption in the United States using kin selection theory because people do not always adopt kin. In the U.S., there is usually no genetic payoff for adoptive parents. Other factors must be considered in the decision to adopt children who are not kin. Subsequent researchers may want to look further into the reasons parents adopt those unrelated to themselves and disclose the reasons for which adoptions take place, paying special attention to the genetic relationships of adopted children to their household. This could be done using a chart similar to Table 2.1 in this thesis. As this table shows, there are several ways in which members of adoptive households are related to one another genetically and several motivations for adopting. Acknowledging these genetic and motivational differences will allow for more robust comparisons of genetic and environmental factors within households in future projects. Using this methodology,

future researchers may wish to compare the treatment of kin and non-kin adoptees in order to discern whether the differences in treatment and outcomes adopted children exemplify are socially or genetically based. This would have been attempted here, but the low number ($n = 2$) of adopted children who were related to their parents in the sample made any meaningful statistical analyses impossible.

Future research may also benefit by attempting to identify discriminative parental solicitude using positive measures like those employed here rather focusing on negative outcomes such as neglect, homicide, and abuse. This approach increases the range of situations which can be used to test for discriminative parental solicitude because it potentially encompasses all households with children, not just those which have demonstrated incidents of deleterious treatment toward children.

In retrospect, there are several changes which could be made to the research design and survey employed here. The most important of these concerns “special needs” or developmentally disabled children. Future researchers may wish to ask parents to describe any preexisting mental or physical disabilities faced by their children because these factors would certainly affect the child’s educational and social experiences. In addition, they may wish to ask about phenotypic or racial differences. As a Caucasian social worker with the agency said, “We prepare our families to be sensitive and proactive in parenting a child that society may see as different from the parents...for example, if I am living in [small town Nebraska] with my bi-racial African American-Caucasian (or full African American) child, the child’s experience will probably be different than mine [would be growing up there].” Mental and racial differences must be

addressed so that they can be controlled for, doing so will provide higher quality results in subsequent research.

Future studies may also wish to explore how the evolved psychological mechanisms that drive us to have children are influenced by environmental factors. For example, when people lose their biological ability to have children do the psychological mechanisms which drive their desire to become parents change? Does this desire change differently in young people versus old people? It may be that the evolved psychological mechanisms that cause parents to favor one child over another become muted in those who experience infertility. In coping with the fact that they are biologically unable to have children, couples may adjust their attitudes toward unrelated children (consciously or not). Those who adopt and later have biological children may be less likely to favor their biological children because they have previously discouraged themselves from favoring children based on relation.

The parents sampled here do not invest more in their biological children over their adopted children as assessed by the measures used in this study. This may be explained psychologically: parents who are motivated to adopt may be less prone to bias their investments toward their biological progeny. The data show that parents invest more in terms of time and resources in their adopted children. This may be because adopted children endure greater difficulties establishing their independence and parents are quick to provide aid for them. These difficulties may be the result of three things: 1) adopted children may suffer higher rates of developmental disorders or heritable behavioral and mental problems than non-adoptees, 2) adopted children may face debilitating stigma from their families or peers, and 3) adopted children may be overrepresented in certain

measures of outcome and investment because their parents may be especially sensitive to their physical and emotional behaviors and needs. These factors can work together or separately to affect adopted children's lives.

Possible reasons for higher investments in adopted children were discussed in this section. The investments parents make in their adopted children seem to reflect a remedial need more than an outright bias. Parenting and mating effort were compared and very strong bonds were shown to be possible between non-relatives. These bonds establish and maintain themselves through networks of fictive kin. Selection bias was also described as a possible explanation for the very low divorce rate in this sample.

This thesis tested kin selection theory by quantifying the types and amounts of investments parents made in their adopted and biological children. The data showed that parents invest more, on average, in their biologically-unrelated (adopted) children than in their biological offspring. Parents were more likely to provide rent, private tutors, preschool, automobiles, summer school, and personal loans for their adopted children. This finding runs contrary to those presented in previous studies of step, foster, and adoptive families. The primary explanation for these findings was that the respondents' motivations for bringing a child into their household were centered in parenting effort. Some behavior may be explained by selection bias where the agency's methods selecting adoptive parents produced nonstandard results.

Appendix A: Pre-letter

March 16, 2004

Dear Parent,

A few weeks from now, you will receive in the mail a brief questionnaire from the ACME Adoption Agency.

The questionnaire concerns you and your children's experiences. It is part of a joint project by the University of Nebraska and ACME Adoption Agency.

We are writing in advance because we are aware that many people like to know ahead of time that they will be receiving things by mail. The project is an important one that may help the University of Nebraska and the ACME Adoption Agency to better understand how families adjust to adoption.

Your answers and identity will be kept completely confidential. You have been identified and contacted directly by the ACME Adoption Agency. No one outside of their organization has or will have access to any information that can allow you to be identified.

We hope you take a few minutes to participate in this survey. Your participation and experience are crucial in improving our understanding of adoption and in helping us to better serve adoptive parents, birthparents, and children.

Sincerely,

Kyle Gibson
Department of Anthropology
University of Nebraska – Lincoln

Jane Doe, LCSW
Director of Social Services
ACME Adoption Agency

Appendix B: Cover Letter

March 16, 2004

Dear Parent,

We are writing you to ask your help in a study being undertaken by the University of Nebraska and the ACME Adoption Agency. This study is part of an effort to understand adoption and its effects on families.

You have been selected from a random sample of parents whom the ACME Adoption Agency has provided with adoption services. We are asking you to provide us with some information on your family's experiences since adopting.

Results from the survey will be used to help researchers at the University of Nebraska and ACME Adoption Agency to better understand how families adjust to life following an adoption. Learning more about this may help ACME Adoption Agency and other agencies to provide improved services to adoptive parents and their children.

Your answers and identity will be kept completely confidential. You have been identified and contacted directly by the ACME Adoption Agency. No one outside of their organization has or will have access to any information that can allow you to be identified.

This survey is voluntary. However, you would help us very much by taking a few minutes to tell us about your experiences.

We expect to complete this project in June of 2004. At that time, a copy of it will be placed online at <http://www.unl.edu/anthro/thesis/gibson.pdf> We encourage you to visit this website and to read the results.

If you have any questions or comments about the survey, please feel free to contact us via telephone or e-mail.

Thank you very much for helping us with this important study.

Sincerely,

Kyle Gibson
Department of Anthropology
University of Nebraska – Lincoln
Telephone: (402)202-6558
E-mail: kylergibson@hotmail.com

Jane Doe, LCSW
Director of Social Services
ACME Adoption Agency
Telephone: (555)555-5555
E-mail: jdoe@acme.org

Appendix C: Questionnaire

The questionnaire was designed to be completed by a single individual in less than 20 minutes. It was designed so that parents could list their familial and parenting experiences without necessarily consulting other family members. The majority of questions are “yes” or “no” format. Parents were asked to place marks in boxes corresponding with investments or answers for each of their children ranked by birth/adoption order from oldest (1) to youngest (2). Overall, parents seemed to have little difficulty filling out the survey.

General

1. How old are you? _____
2. How old is your spouse? _____
3. Are you male or female? (circle one) Male Female

Marriage and Family

4. Have you ever been widowed?

	Yes	No	Year Widowed
<i>Example</i>	x		1986

5. Have you ever been divorced?

	Yes	No	Year of Divorce(s)
<i>Example</i>		x	

6. Please indicate whether or not your children are married.

	Yes	No	Year of Marriage
<i>Example</i>	x		1985
First Child			
Second Child			
Third Child			
Fourth Child			
Fifth Child			
Sixth Child			
Seventh Child			
Eighth Child			

7. Have any of your children ever been divorced?

	Yes	No	Year of Divorce(s)

<i>Example</i>	<i>x</i>		<i>1992</i>
First Child			
Second Child			
Third Child			
Fourth Child			
Fifth Child			
Sixth Child			
Seventh Child			
Eighth Child			

8. In the blanks below, please indicate the current age of each of your children, their gender, and your relationship to them (adopted, biological, or step). For adopted and step children, indicate the age at which they came into your home.

We are also interested in knowing how many people are biologically related to their adopted children. Please indicate your biological relationship, if any, to each of your adopted children by filling in the chart below. There are blanks for up to eight children. If you do not have this many children, please leave the remaining blanks empty.

	Current age	Gender	Relationship	Age adopted or step child came into home	No relation	Nephew or niece	Grandson or daughter	Cousin or cousin's child	Other (please explain)
<i>Example</i>	<i>24</i>	<i>Male Female</i>	<i>Adopted Biological Step</i>	<i>Three weeks</i>	<i>x</i>				
First Child		Male Female	Adopted Biological Step						
Second Child		Male Female	Adopted Biological Step						
Third Child		Male Female	Adopted Biological Step						
Fourth Child		Male Female	Adopted Biological Step						
Fifth Child		Male Female	Adopted Biological Step						
Sixth Child		Male Female	Adopted Biological Step						
Seventh Child		Male Female	Adopted Biological Step						
Eighth Child		Male Female	Adopted Biological Step						

Occupations and Income

9. About how much income from wages, salaries, commissions, and tips did your household receive in the last 12 months, before taxes and other deductions? Be sure to include income from self-employment.

- A) \$1-\$4999
- B) \$5000-\$9999
- C) \$10000-\$19999
- D) \$20000-\$24999
- E) \$25000-\$29999
- F) \$30000-\$34999
- G) \$35000-\$39999
- H) \$40000-\$49999
- I) \$50000-\$74999
- J) \$75000-\$99999
- K) \$100000-\$999999
- L) None / Not applicable

10. In the blanks below, please give a short description of your and your spouse's occupation.

	Occupational Description
<i>Example</i>	<i>Administrative assistant at an accounting firm.</i>
You	
Your spouse	

11. At any time in the past year have you or your spouse received any public assistance? Public assistance includes welfare, AFDC, general assistance, food stamps, and energy assistance? Do not include Supplemental Security Income (SSI).

	Yes	No
<i>Example</i>		<i>x</i>

12. If you answered "yes" to the preceding question, please indicate the amount of public assistance you received in the past year in the blank below.

\$ _____

13. At any time in the past year have any of your children received any public assistance? Public assistance includes welfare, AFDC, general assistance, food stamps, and energy assistance? Do not include Supplemental Security Income (SSI).

	Yes	No
<i>Example</i>		x
First Child		
Second Child		
Third Child		
Fourth Child		
Fifth Child		
Sixth Child		
Seventh Child		
Eighth Child		

14. In the blanks below, please give a brief description of your children's current occupations. If they do not currently have a job, please write "unemployed".

	Occupational Description
<i>Example</i>	<i>Human resources manager for an insurance company.</i>
First Child	
Second Child	
Third Child	
Fourth Child	
Fifth Child	
Sixth Child	
Seventh Child	
Eighth Child	

15. Please estimate your children's individual yearly incomes in the blanks below. Please indicate their income only, do NOT include their spouse's income.

	Income
<i>Example</i>	\$45,000
First Child	
Second Child	
Third Child	
Fourth Child	
Fifth Child	
Sixth Child	
Seventh Child	
Eighth Child	

Education

16. What was the last year of schooling each of your children *completed*? The example below would represent a child who graduated from a four-year college or university.

	High School			Trade		College				Graduate or Professional					
	10	11	12	1	2	1	2	3	4	1	2	3	4	5	6
<i>Example</i>									x						
First Child															
Second Child															
Third Child															
Fourth Child															
Fifth Child															
Sixth Child															
Seventh Child															
Eighth Child															

17. How old were each of your children when they left home (i.e. you did not expect them to live with you from that age on)?

	Age left home
<i>Example</i>	18
First Child	
Second Child	
Third Child	
Fourth Child	

Fifth Child	
Sixth Child	
Seventh Child	
Eighth Child	

18. Did any of your children go to daycare for more than a half day prior to entering grade school?

	Yes	No
<i>Example</i>		x
First Child		
Second Child		
Third Child		
Fourth Child		
Fifth Child		
Sixth Child		
Seventh Child		
Eighth Child		

19. In the blanks below, please describe your motivations for adopting.

20. Given the choice, would you prefer to adopt a boy or a girl?

	Boy	Girl
<i>Example</i>		x

Health

21. Have any of your children ever required mental health treatment?

	Yes	No
<i>Example</i>	x	
First Child		
Second Child		

Third Child		
Fourth Child		
Fifth Child		
Sixth Child		
Seventh Child		
Eighth Child		

22. At any time, have any of your children required professional treatment for alcohol addiction?

	Yes	No
<i>Example</i>		x
First Child		
Second Child		
Third Child		
Fourth Child		
Fifth Child		
Sixth Child		
Seventh Child		
Eighth Child		

23. At any time, have any of your children required professional treatment for drug addiction?

	Yes	No
<i>Example</i>		x
First Child		
Second Child		
Third Child		
Fourth Child		
Fifth Child		
Sixth Child		
Seventh Child		
Eighth Child		

Legal

24. Have any of your children been convicted of a crime?

	Yes	No
<i>Example</i>	x	
First Child		
Second Child		
Third Child		
Fourth Child		
Fifth Child		
Sixth Child		

Time Assistance

26. In the following tables, please mark the column which best describes the amount of time you helped each of your children with the task listed.

<i>I helped my EXAMPLE child with:</i>	<i>I did this a lot</i>	<i>I usually did this</i>	<i>I did this sometimes</i>	<i>I rarely or never did this</i>	<i>Don't know or issue did not arise</i>
<i>Homework and academics</i>		x			
<i>Sports</i>			x		
<i>Scholarships</i>					x
<i>personal or family issues</i>	x				
<i>professional and career choices</i>				x	
<i>dating and friendship issues</i>		x			

I helped my FIRST child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my SECOND child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my THIRD child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my FOURTH child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my FIFTH child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my SIXTH child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my SEVENTH child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career choices					
Dating and friendship issues					

I helped my EIGHTH child with:	I did this a lot	I usually did this	I did this sometimes	I rarely or never did this	Don't know or issue did not arise
Homework and academics					
Sports					
Scholarships					
Personal or family issues					
Professional and career					

choices					
Dating and friendship issues					

Thank you very much for your time in filling out this survey.

In the future, we are interested in interviewing adoptive couples in a more in-depth fashion. If you are interested in participating in this future research, please email us at:
unl_adoption_survey@hotmail.com

Appendix D: Codebook

VARIABLE DESCRIPTION	TYPE	RESPONSE	CODE
Subject's age in years	Scale	varies	varies
Subject's spouse's' age in years	Scale	varies	varies
Subject's gender	Nominal	male	1
		female	2
Is the subject a widow(er)?	Nominal	yes	1
		no	2
If the subject is a widow(er), what year were they widowed?	Ordinal	varies	varies
Has the subject been divorced?	Nominal	yes	1
		no	2
		separated	3
If the subject has been divorced, what year were they divorced?	Ordinal	varies	varies
Has the subject's first child ever been married?	Nominal	yes	1
		no	2
Has the subject's second child ever been married?	Nominal	yes	1
		no	2
Has the subject's third child ever been married?	Nominal	yes	1
		no	2
Has the subject's fourth child ever been married?	Nominal	yes	1
		no	2
Has the subject's fifth child ever been married?	Nominal	yes	1
		no	2
Has the subject's sixth child ever been married?	Nominal	yes	1
		no	2
Has the subject's seventh child ever been married?	Nominal	yes	1
		no	2
Has the subject's eighth child ever been married?	Nominal	yes	1
		no	2
If the subject's first child has been married, in what year were they married?	Scale	varies	varies
If the subject's second child has been married, in what year were they married?	Scale	varies	varies
If the subject's third child has been married, in what year were they married?	Scale	varies	varies
If the subject's fourth child has been married, in what year were they married?	Scale	varies	varies
If the subject's fifth child has been married, in what year were they married?	Scale	varies	varies
If the subject's sixth child has been married, in what year were they married?	Scale	varies	varies
If the subject's seventh child has been married, in what year were they married?	Scale	varies	varies
If the subject's eighth child has been married, in what year were they married?	Scale	varies	varies
If the subject's first child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's second child has been married, have they	Nominal	yes	1

ever been divorced?			
		no	2
If the subject's third child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's fourth child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's fifth child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's sixth child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's seventh child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's eighth child has been married, have they ever been divorced?	Nominal	yes	1
		no	2
If the subject's first child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's second child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's third child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's fourth child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's fifth child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's sixth child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's seventh child has been divorced, in what year were they divorced?	Scale	varies	varies
If the subject's eighth child has been divorced, in what year were they divorced?	Scale	varies	varies
Subject's first child's age in years.	Scale	varies	varies
Subject's second child's age in years.	Scale	varies	varies
Subject's third child's age in years.	Scale	varies	varies
Subject's fourth child's age in years.	Scale	varies	varies
Subject's fifth child's age in years.	Scale	varies	varies
Subject's sixth child's age in years.	Scale	varies	varies
Subject's seventh child's age in years.	Scale	varies	varies
Subject's eighth child's age in years.	Scale	varies	varies
Gender of subject's first child.	Nominal	male	1
		female	2
Gender of subject's second child.	Nominal	male	1
		female	2
Gender of subject's third child.	Nominal	male	1
		female	2
Gender of subject's fourth child.	Nominal	male	1
		female	2

Gender of subject's fifth child.	Nominal	male	1
		female	2
Gender of subject's sixth child.	Nominal	male	1
		female	2
Gender of subject's seventh child.	Nominal	male	1
		female	2
Gender of subject's eighth child.	Nominal	male	1
		female	2
Relationship of first child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of second child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of third child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of fourth child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of fifth child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of sixth child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of seventh child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Relationship of eighth child to subject.	Nominal	adopted	1
		biological	2
		step	3
		guardian	4
Age first child was when adopted in days.	Scale	varies	varies
Age second child was when adopted in days.	Scale	varies	varies
Age third child was when adopted in days.	Scale	varies	varies
Age fourth child was when adopted in days.	Scale	varies	varies
Age fifth child was when adopted in days.	Scale	varies	varies
Age sixth child was when adopted in days.	Scale	varies	varies
Age seventh child was when adopted in days.	Scale	varies	varies
Age eighth child was when adopted in days.	Scale	varies	varies
If adopted, genetic relationship first child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2

	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship second child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship third child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship fourth child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship fifth child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship sixth child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship seventh child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5
	Nominal	other	6
If adopted, genetic relationship eighth child shares with parents.	Nominal	no relationship	1
	Nominal	nephew/niece	2
	Nominal	grandson/daughter	3
	Nominal	cousin/cousin's child	4
	Nominal	spouse's son/daughter	5

	Nominal	other	6
Subject's income in US dollars	Scale	varies	varies
Subject's occupation	Ordinal		
Subject's spouse's occupation	Ordinal		
Has the subject received public assistance money within the past year?	Nominal	yes	1
		no	2
If the subject receives public assistance, how much in US dollars?	Scale	varies	varies
Has the subject's first child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's second child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's third child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's fourth child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's fifth child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's sixth child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's seventh child received public assistance within the past year?	Nominal	yes	1
		no	2
Has the subject's eighth child received public assistance within the past year?	Nominal	yes	1
		no	2
Subject's first child's occupation	Ordinal	varies	varies
Subject's second child's occupation	Ordinal	varies	varies
Subject's third child's occupation	Ordinal	varies	varies
Subject's fourth child's occupation	Ordinal	varies	varies
Subject's fifth child's occupation	Ordinal	varies	varies
Subject's sixth child's occupation	Ordinal	varies	varies
Subject's seventh child's occupation	Ordinal	varies	varies
Subject's eighth child's occupation	Ordinal	varies	varies
Subject's first child's income in US dollars.	Scale	varies	varies
Subject's second child's income in US dollars.	Scale	varies	varies
Subject's third child's income in US dollars.	Scale	varies	varies
Subject's fourth child's income in US dollars.	Scale	varies	varies
Subject's fifth child's income in US dollars.	Scale	varies	varies
Subject's sixth child's income in US dollars.	Scale	varies	varies
Subject's seventh child's income in US dollars.	Scale	varies	varies
Subject's eighth child's income in US dollars.	Scale	varies	varies
Highest year of education completed by subject's first child.	Scale	High School 10	1
	Scale	High School 11	2

	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's second child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's third child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional	10

		1	
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's fourth child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's fifth child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14

	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's sixth child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's seventh child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6
	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Highest year of education completed by subject's eighth child.	Scale	High School 10	1
	Scale	High School 11	2
	Scale	High School 12	3
	Scale	Trade 1	4
	Scale	Trade 2	5
	Scale	College 1	6

	Scale	College 2	7
	Scale	College 3	8
	Scale	College 4	9
	Scale	Graduate/Professional 1	10
	Scale	Graduate/Professional 2	11
	Scale	Graduate/Professional 3	12
	Scale	Graduate/Professional 4	13
	Scale	Graduate/Professional 5	14
	Scale	Graduate/Professional 6	15
Age, in years, when subject's first child left home permanently.	Scale	varies	varies
Age, in years, when subject's second child left home permanently.	Scale	varies	varies
Age, in years, when subject's third child left home permanently.	Scale	varies	varies
Age, in years, when subject's fourth child left home permanently.	Scale	varies	varies
Age, in years, when subject's fifth child left home permanently.	Scale	varies	varies
Age, in years, when subject's sixth child left home permanently.	Scale	varies	varies
Age, in years, when subject's seventh child left home permanently.	Scale	varies	varies
Age, in years, when subject's eighth child left home permanently.	Scale	varies	varies
Did the subject's first child attend daycare?	Nominal	yes	1
		no	2
Did the subject's second child attend daycare?	Nominal	yes	1
		no	2
Did the subject's third child attend daycare?	Nominal	yes	1
		no	2
Did the subject's fourth child attend daycare?	Nominal	yes	1
		no	2
Did the subject's fifth child attend daycare?	Nominal	yes	1
		no	2
Did the subject's sixth child attend daycare?	Nominal	yes	1
		no	2
Did the subject's seventh child attend daycare?	Nominal	yes	1
		no	2
Did the subject's eighth child attend daycare?	Nominal	yes	1
		no	2
What motivated the subject to adopt?	Nominal	fertility issues	1
		altruism toward children	2
		Personal gratification	3
		other	4

Given the choice, what gender child would the subject prefer to adopt?	Nominal	male	1
		female	2
		no preference	3
Has the subject's first child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's second child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's third child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's fourth child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's fifth child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's sixth child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's seventh child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's eighth child required mental healthcare treatment?	Nominal	yes	1
		no	2
Has the subject's first child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's second child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's third child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's fourth child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's fifth child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's sixth child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's seventh child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's eighth child required treatment for alcohol addiction?	Nominal	yes	1
		no	2
Has the subject's first child required treatment for drug	Nominal	yes	1

addiction?			
		no	2
Has the subject's second child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's third child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's fourth child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's fifth child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's sixth child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's seventh child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's eighth child required treatment for drug addiction?	Nominal	yes	1
		no	2
Has the subject's first child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's second child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's third child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's fourth child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's fifth child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's sixth child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's seventh child been convicted of a crime?	Nominal	yes	1
		no	2
Has the subject's eighth child been convicted of a crime?	Nominal	yes	1
		no	2
Did the subject provide braces for their first child?	Nominal	yes	1
		no	2
Did the subject provide braces for their second child?	Nominal	yes	1
		no	2
Did the subject provide braces for their third child?	Nominal	yes	1
		no	2
Did the subject provide braces for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide braces for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide braces for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide braces for their seventh child?	Nominal	yes	1

		no	2
Did the subject provide braces for their eighth child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their first child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their second child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their third child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their fourth child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their fifth child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their sixth child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their seventh child?	Nominal	yes	1
		no	2
Did the subject and their spouse provide contact lenses for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their first child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their second child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their third child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide cosmetic surgery for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their first child?	Nominal	yes	1

		no	2
Did the subject provide preschool for their second child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their third child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide preschool for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their first child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their second child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their third child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide a private tutor for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their first child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their second child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their third child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their fifth child?	Nominal	yes	1
		no	2

Did the subject provide summer school for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide summer school for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their first child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their second child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their third child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide music lessons for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide a car for their first child?	Nominal	yes	1
		no	2
Did the subject provide a car for their second child?	Nominal	yes	1
		no	2
Did the subject provide a car for their third child?	Nominal	yes	1
		no	2
Did the subject provide a car for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide a car for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide a car for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide a car for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide a car for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their first child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their second child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their third	Nominal	yes	1

child?			
		no	2
Did the subject provide summer vacation(s) for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide summer vacation(s) for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their first child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their second child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their third child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide summer camp for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their first child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their second child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their third child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their fifth	Nominal	yes	1

child?			
		no	2
Did the subject provide boy's or girl's clubs for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide boy's or girl's clubs for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their first child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their second child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their third child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their fourth child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their fifth child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their sixth child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their seventh child?	Nominal	yes	1
		no	2
Did the subject provide a prom dress or tuxedo for their eighth child?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their first child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their second child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their third child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fourth child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fifth child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their sixth child's wedding?	Nominal	yes	1
		no	2

Did the subject provide monetary help for their seventh child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their eighth child's wedding?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their first child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their second child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their third child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fourth child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fifth child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their sixth child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their seventh child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their eighth child's honeymoon?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their first child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their second child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their third child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fourth child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fifth child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their sixth child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their seventh child's college education?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their eighth child's college education?	Nominal	yes	1

		no	2
Did the subject provide monetary help for their first child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their second child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their third child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fourth child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their fifth child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their sixth child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their seventh child's rent?	Nominal	yes	1
		no	2
Did the subject provide monetary help for their eighth child's rent?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their first child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their second child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their third child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their fourth child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their fifth child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their sixth child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their seventh child?	Nominal	yes	1
		no	2
Did the subject provide a personal loan to their eighth child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their first child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their second child?	Nominal	yes	1
		no	2

Did the subject cosign on a bank loan for their third child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their fourth child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their fifth child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their sixth child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their seventh child?	Nominal	yes	1
		no	2
Did the subject cosign on a bank loan for their eighth child?	Nominal	yes	1
		no	2
How often did the subject help their first child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their second child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4

		Don't know/did not arise	5
How often did the subject help their sixth child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with homework?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their first child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their second child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3

		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their sixth child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with sports?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their first child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their second child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with scholarships?	Ordinal	I did this a lot	1

		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their sixth child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with scholarships?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their first child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not	5

		arise	
How often did the subject help their second child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their sixth child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with personal and family issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3

		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their first child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their second child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their sixth child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with	Ordinal	I did this a lot	1

professional and career issues?			
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with professional and career issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their first child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their second child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their third child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fourth child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their fifth child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4

		Don't know/did not arise	5
How often did the subject help their sixth child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their seventh child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5
How often did the subject help their eighth child with dating and friendship issues?	Ordinal	I did this a lot	1
		I usually did this	2
		I did this sometimes	3
		I rarely or never did this	4
		Don't know/did not arise	5

Appendix E: Supplemental Statistical Information

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MALE AND FEMALE TIME INVESTMENTS

Parents were asked to indicate the relative amount of time they spent with each of their children engaged in the following tasks on a 1-5 Likert scale. A response of “1” indicates that the parent “always” helped their child with the described activity and “5” indicates that they “rarely or never” did. Thus, the lower the score, the more time the parent spent with their child engaged in the activity. Responses from men and women were compared for independence.

Mann-Whitney Test: Male vs Female Time Investment

Ranks: Male vs Female Time Investment

	GENDER	N	Mean Rank	Sum of Ranks
Homework and Adcademics	Male	30	74.10	2223.00
	Female	92	57.39	5280.00
	Total	122		
Sports	Male	30	59.58	1787.50
	Female	84	56.76	4767.50
	Total	114		
Scholarships	Male	25	51.04	1276.00
	Female	69	46.22	3189.00
	Total	94		
Personal and Family Issues	Male	29	68.57	1988.50
	Female	88	55.85	4914.50
	Total	117		
Professional and Career Choices	Male	30	49.65	1489.50
	Female	77	55.69	4288.50
	Total	107		
Dating and Friendship Issues	Male	28	69.23	1938.50
	Female	90	56.47	5082.50
	Total	118		

Test Statistics: Male vs Female Time Investment ^a

	Homework	Sports	Scholarships	Personal and Family	Professional and Career	Dating and Friendship
Mann-Whitney U	1002.000	1197.5	774.000	998.500	1024.500	987.500
Wilcoxon W	5280.000	4767.5	3189.000	4914.500	1489.500	5082.500
Z	-2.353	-.416	-.788	-1.835	-.945	-1.788
Asymp. Sig. (2-tailed)	.019	.678	.431	.066	.345	.074

a. Grouping Variable: GENDER

DIVORCE

Parents were asked to indicate whether they and/or their children had divorced. If they answered “yes,” they were asked the year in which the divorce was finalized.

Chi-Square Test: Adoptive Parent Divorce by Year

DIVORCYR

	Observed N	Expected N	Residual
1959.00	1	1.2	-.2
1981.00	2	1.2	.8
1991.00	1	1.2	-.2
1997.00	1	1.2	-.2
2003.00	1	1.2	-.2
Total	6		

Test Statistics

	DIVORCYR
Chi-Square ^a	.667
df	4
Asymp. Sig.	.955

a. 5 cells (100.0%) have expected frequencies less than 5. The minimum expected cell frequency is 1.2.

Parental Divorce Rates

	Marriages	Divorces	Percent Divorced
Population	39641	18491	47.8
Sample	118	7	5.9

z score = 9.088 p=0.000

Divorce: Adopted Compared to Biological Children

Crosstabulation: Divorce of Adopted Compared to Biological Children

Count

		Has child ever divorced?		Total
		Yes	No	
Relationship	Adopted	35	38	73
	Biological	15	78	93
Total		50	116	166

Chi-Square Tests: Divorce of Adopted Compared to Biological Children

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	19.669 ^b	1	.000		
Continuity Correction ^a	18.186	1	.000		
Likelihood Ratio	19.893	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	19.550	1	.000		
N of Valid Cases	166				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.99.

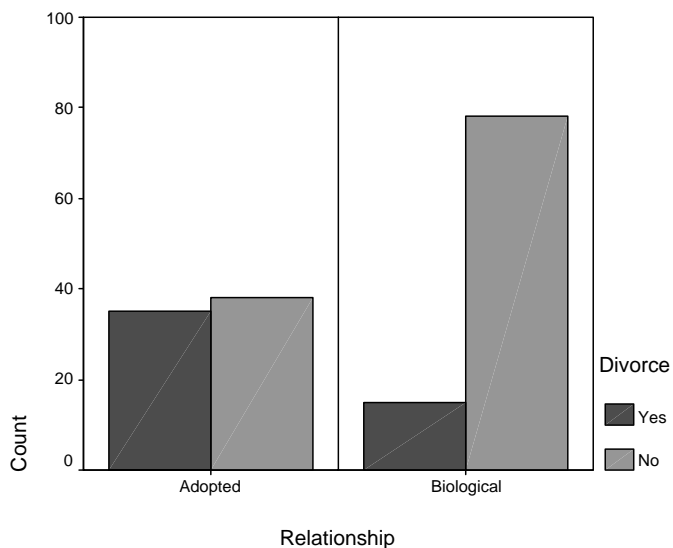
Symmetric Measures: Divorce of Adopted Compared to Biological Children

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval	Pearson's R	.344	.073	4.695	.000 ^c
Ordinal by Ordinal	Spearman Correlation	.344	.073	4.695	.000 ^c
N of Valid Cases		166			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



T-Test: Children's Age at Adoption and Divorce

Group Statistics

	Is child divorce	N	Mean	Std. Deviation	Std. Error Mean
Age at Adoption (Days)	Yes	32	186.7188	461.86189	81.64642
	No	37	148.4324	592.91392	97.47445

Independent Samples Test: Children's Age at Adoption and Divorce

		Levene's Test for equality of Variance		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Age at Adoption (Days)	Equal variance assumed	.105	.747	.296	67	.768	38.2863	29.45989	220.117	6.68933
	Equal variance not assumed			.301	66.323	.764	38.2863	27.15111	215.556	2.12862

EDUCATION

Parents were asked to list the last year of schooling their children had completed. An indication of “1” equals 10th grade, “2,” 11th grade, and so on up to “15” which indicates the completion of a two year graduate or professional program.

T-Test: Total Education

Group Statistics: Total Education

	Relationship	N	Mean	Std. Deviation	Std. Error Mean
Total	Adopted	94	7.0213	3.05145	.31473
Education	Biological	124	7.9677	2.94374	.26436

Independent Samples Test: Total Education

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Total Education	Equal variances assumed	.708	.401	-2.314	216	.022	-.9465	.40899	-1.75258	-.14035
	Equal variances not assumed			-2.303	196.545	.022	-.9465	.41102	-1.75705	-.13588

LEAVING HOME

Parents were asked to list the age (in years) at which their children left home permanently i.e. they did not expect them to return.

T-Test: Age at Which Children Left Home Permanently

Group Statistics: Age at Which Children Left Home Permanently

	CH1REL	N	Mean	Std. Deviation	Std. Error Mean
CH1LEAVE	Adopted	112	19.13	2.051	.194
	Biological	143	19.19	2.021	.169

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CH1LEAVE	Equal variances assumed	1.407	.237	-.214	253	.831	-.05	.257	-.560	.451
	Equal variances not assumed			-.213	236.901	.831	-.05	.257	-.561	.452

MOTIVATION FOR ADOPTION

In an open ended format, parents were asked to describe their motivations for adopting. Responses were coded into three areas; fertility, altruism, and ego-centered.

Chi-Square Test: Motivation for Adoption

Motivation for Adoption

	Observed N	Expected N	Residual
Fertility	68	39.3	28.7
Altruism	19	39.3	-20.3
Ego-centered	31	39.3	-8.3
Total	118		

Test Statistics: Motivatin for Adoption

	Motivation for Adoption
Chi-Square ^a	33.169
df	2
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 39.3.

DAYCARE

Parents were asked to indicate whether each of their children had attended daycare.

Daycare: All Ages

Crosstabulation: Daycare by Relationship

Count		Did child attend daycare?		Total
		Yes	No	
Relationship	Adopted	30	125	155
	Biological	46	150	196
Total		76	275	351

Chi-Square Tests: Daycare by Relationship

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.864 ^b	1	.353		
Continuity Correction ^a	.638	1	.424		
Likelihood Ratio	.869	1	.351		
Fisher's Exact Test				.365	.213
Linear-by-Linear Association	.861	1	.353		
N of Valid Cases	351				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 33.56.

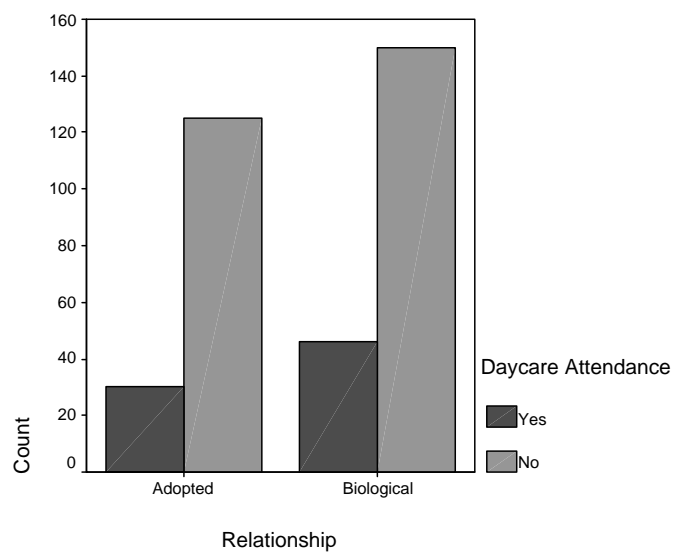
Symmetric Measures: Daycare by Relationship

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.050	.053	-.928	.354 ^c
Ordinal by Ordinal	Spearman Correlation	-.050	.053	-.928	.354 ^c
N of Valid Cases		351			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



TREATMENT AND CRIMINAL CONVICTIONS

Parents were asked to indicate whether each of their children had required treatment for drug addiction, alcohol addiction, mental health issues. They were also asked whether their children had been convicted of a crime.

Alcohol Treatment

Crosstabulation: Alcohol Treatment

Count		Did child receive alcohol treatment?		Total
		Yes	No	
Relationship	Adopted	11	108	119
	Biological	5	159	164
Total		16	267	283

Chi-Square Tests: Alcohol Treatment

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.962 ^b	1	.026		
Continuity Correction ^a	3.868	1	.049		
Likelihood Ratio	4.922	1	.027		
Fisher's Exact Test				.036	.025
Linear-by-Linear Association	4.944	1	.026		
N of Valid Cases	283				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.73.

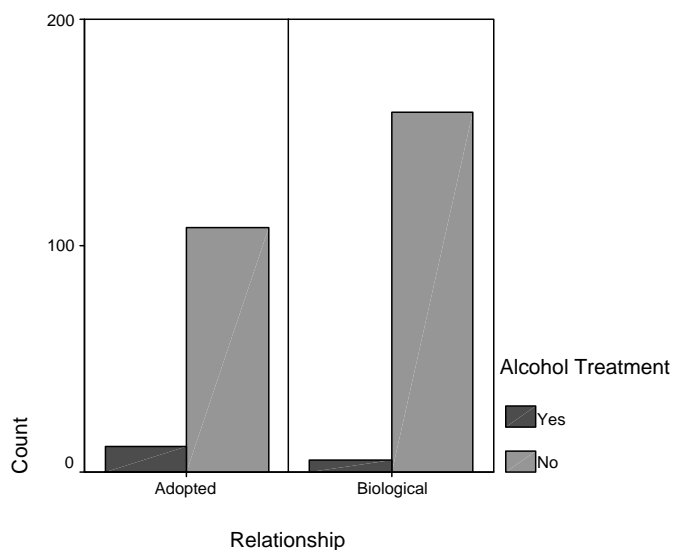
Symmetric Measures: Alcohol Treatment

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.132	.058	2.239	.026 ^c
Ordinal by Ordinal	Spearman Correlation	.132	.058	2.239	.026 ^c
N of Valid Cases		283			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Drug Treatment

Crosstabulation: Drug Treatment

		Did child receive drug treatment?		Total
		Yes	No	
Relationship	Adopted	11	111	122
	Biological	2	161	163
Total		13	272	285

Chi-Square Tests: Drug Treatment

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.725 ^b	1	.002		
Continuity Correction ^a	8.018	1	.005		
Likelihood Ratio	10.184	1	.001		
Fisher's Exact Test				.003	.002
Linear-by-Linear Association	9.691	1	.002		
N of Valid Cases	285				

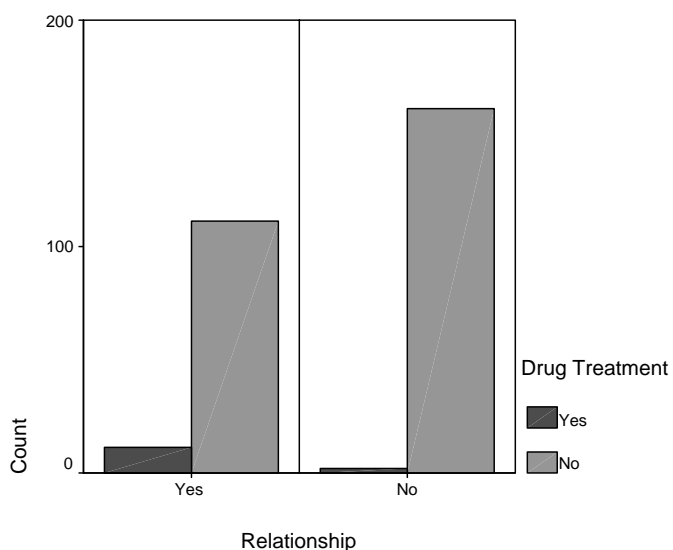
a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.56.

Symmetric Measures: Drug Treatment

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.185	.050	3.162	.002 ^c
Ordinal by Ordinal Spearman Correlation	.185	.050	3.162	.002 ^c
N of Valid Cases	285			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.



Criminal Conviction

Crosstab: Arrest

		Has Child Been Arrested?		Total
		Yes	No	
CH1REL	Adopted	9	113	122
	Biological	5	159	164
Total		14	272	286

Chi-Square Tests: Arrest

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.815 ^b	1	.093		
Continuity Correction ^a	1.962	1	.161		
Likelihood Ratio	2.786	1	.095		
Fisher's Exact Test				.104	.081
Linear-by-Linear Association	2.805	1	.094		
N of Valid Cases	286				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.97.

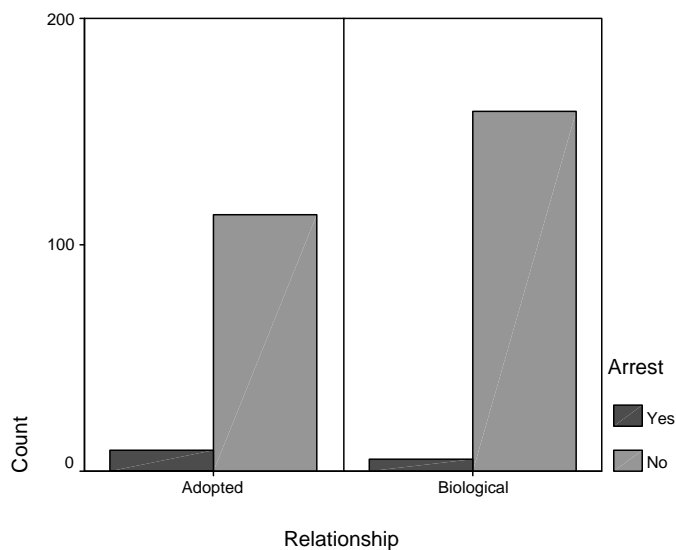
Symmetric Measures: Arrest

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval	Pearson's R	.099	.059	1.680	.094 ^c
Ordinal by Ordinal	Spearman Correlation	.099	.059	1.680	.094 ^c
N of Valid Cases		286			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Mental Health Treatment

Crosstabs: Mental Health Treatment

Crosstabulation: Mental Health Treatment

Count		CH1MENT		Total
		1.00	2.00	
CH1REL	1.00	36	122	158
	2.00	14	180	194
Total		50	302	352

Chi-Square Tests: Mental Health Treatment

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.318 ^b	1	.000		
Continuity Correction ^a	16.064	1	.000		
Likelihood Ratio	17.540	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	17.269	1	.000		
N of Valid Cases	352				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.44.

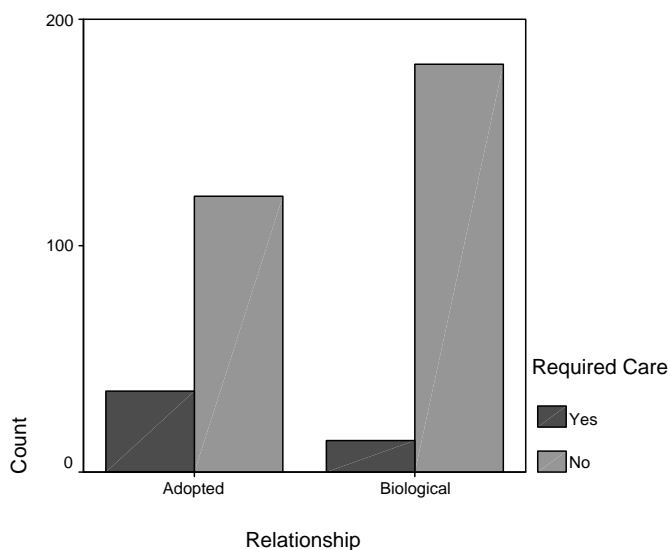
Symmetric Measures: Mental Health Treatment

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.222	.050	4.256	.000 ^c
Ordinal by Ordinal	Spearman Correlation	.222	.050	4.256	.000 ^c
N of Valid Cases		352			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



T-Test: Age at Adoption and Mental Health Contact

Group Statistics: Age at Adoption and Mental Health Contact

	CH1MENT	N	Mean	Std. Deviation	Std. Error Mean
CH1AGEAD	1.00	34	437.0882	716.39829	122.86129
	2.00	115	204.2261	531.30733	49.54466

Independent Samples Test: Age at Adoption and Mental Health Contact

	Levene's Test for quality of Variance:	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
CH1AGEA	Equal varianc assumed	8.809	.004	2.064	147	.041	232.8621	12.84000	9.86397	5.86032
	Equal varianc not assumed			1.758	44.266	.086	232.8621	32.47479	4.07787	9.80217

T-Test: Age at Adoption and Mental Health Contact

Group Statistics: Age at Adoption and Mental Health Contact

	Age at Adoption (Days)	N	Mean	Std. Deviation	Std. Error Mean
Mental Healthcare	>= 180.00	31	1.6452	.48637	.08736
	< 180.00	118	1.8051	.39782	.03662

Independent Samples Test: Age at Adoptoin and Mental Health Contact

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
CH1MEN	9.990	.002	-1.898	147	.060	-.1599	.08425	-.32641	.00657
Equal variance assumed									
Equal variance not assumed			-1.688	41.147	.099	-.1599	.09472	-.35120	.03135

MONETARY INVESTMENTS

Parents were asked to indicate whether they had purchased the following items for each of their children. .

Braces

Crosstab: Braces

Count		Did children receive braces?		Total
		Yes	No	
Relationship	Adopted	55	90	145
	Biological	71	107	178
Total		126	197	323

Chi-Square Tests: Braces

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.129 ^b	1	.720		
Continuity Correction ^a	.059	1	.807		
Likelihood Ratio	.129	1	.720		
Fisher's Exact Test				.732	.404
Linear-by-Linear Association	.128	1	.720		
N of Valid Cases	323				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 56.56.

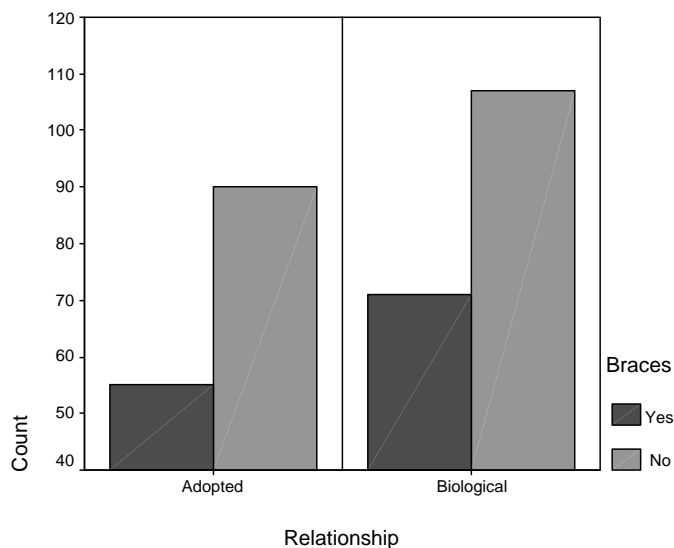
Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.020	.056	-.358	.721 ^c
Ordinal by Ordinal	Spearman Correlation	-.020	.056	-.358	.721 ^c
N of Valid Cases		323			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Contact Lenses

Crosstab: Contact Lenses

		Did children receive contact lenses?		Total
		Yes	No	
CH1REL	Adopted	43	101	144
	Biological	61	118	179
Total		104	219	323

Chi-Square Tests: Contact Lenses

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.650 ^b	1	.420		
Continuity Correction ^a	.471	1	.492		
Likelihood Ratio	.652	1	.419		
Fisher's Exact Test				.473	.247
Linear-by-Linear Association	.648	1	.421		
N of Valid Cases	323				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 46.37.

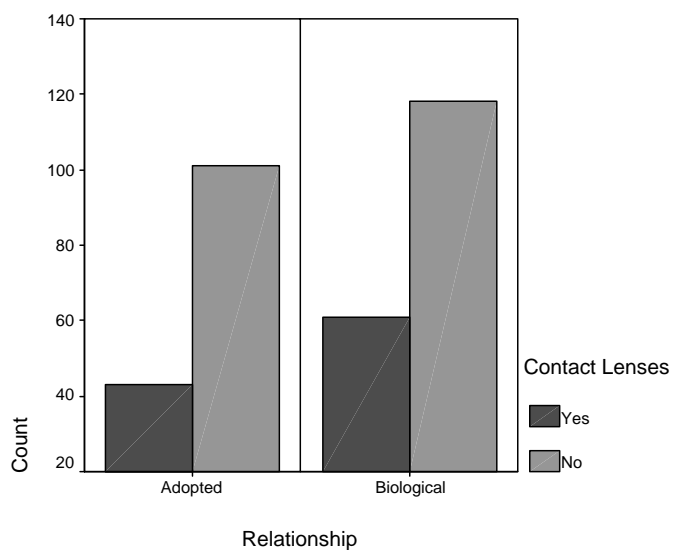
Symmetric Measures: Contact Lenses

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-.045	.055	-.805	.422 ^c
Ordinal by Ordinal Spearman Correlation	-.045	.055	-.805	.422 ^c
N of Valid Cases	323			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Cosmetic Surgery

Crosstab: Cosmetic Surgery

		Did child receive cosmetic surgery?		Total
		Yes	No	
Relationship	Adopted	1	160	161
	Biological	1	197	198
Total		2	357	359

Chi-Square Tests: Cosmetic Surgery

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.022 ^b	1	.883		
Continuity Correction ^a	.000	1	1.000		
Likelihood Ratio	.021	1	.883		
Fisher's Exact Test				1.000	.697
Linear-by-Linear Association	.022	1	.883		
N of Valid Cases	359				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .90.

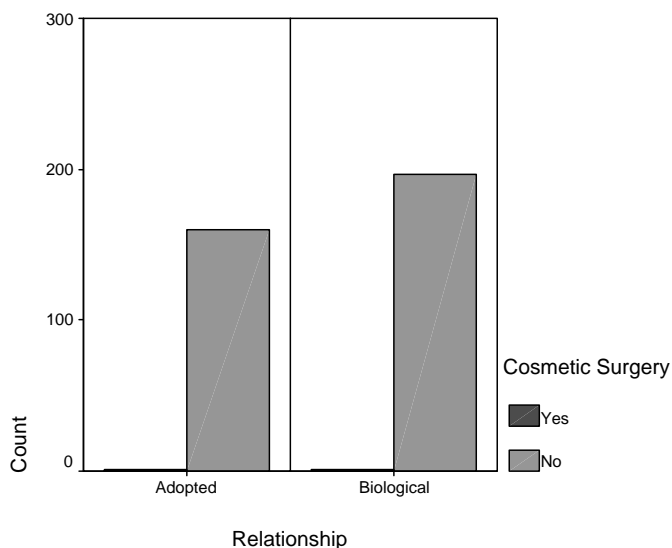
Symmetric Measures: Cosmetic Surgery

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.008	.053	.147	.884 ^c
Ordinal by Ordinal	Spearman Correlation	.008	.053	.147	.884 ^c
N of Valid Cases		359			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Preschool

Crosstab: Preschool

Count		Did child receive preschooling?		Total
		Yes	No	
Relationship	Adopted	94	54	148
	Biological	93	89	182
Total		187	143	330

Chi-Square Tests: Preschool

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.123 ^b	1	.024		
Continuity Correction ^a	4.630	1	.031		
Likelihood Ratio	5.150	1	.023		
Fisher's Exact Test				.026	.016
Linear-by-Linear Association	5.108	1	.024		
N of Valid Cases	330				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 64.13.

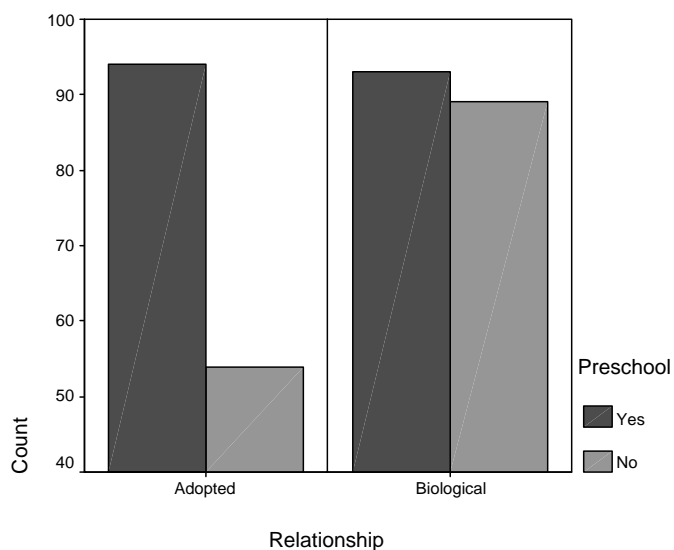
Symmetric Measures: Preschool

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.125	.054	2.274	.024 ^c
Ordinal by Ordinal	Spearman Correlation	.125	.054	2.274	.024 ^c
N of Valid Cases		330			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Private Tutor

Crosstab: Private Tutor

		Did the child receive a private tutor?		Total
		Yes	No	
Relationship	Adopted	25	123	148
	Biological	16	166	182
Total		41	289	330

Chi-Square Tests: Private Tutor

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.923 ^b	1	.027		
Continuity Correction ^a	4.206	1	.040		
Likelihood Ratio	4.904	1	.027		
Fisher's Exact Test				.030	.020
Linear-by-Linear Association	4.908	1	.027		
N of Valid Cases	330				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.39.

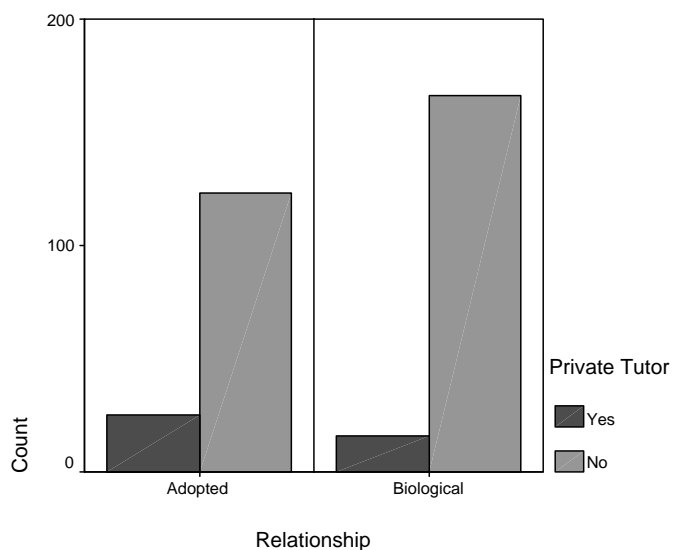
Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.122	.055	2.229	.027 ^c
Ordinal by Ordinal Spearman Correlation	.122	.055	2.229	.027 ^c
N of Valid Cases	330			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Summer School

Crosstab: Summer School

		Did the child receive summer school?		Total
		Yes	No	
Relationship	Adopted	36	112	148
	Biological	17	165	182
Total		53	277	330

Chi-Square Tests: Summer School

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	13.593 ^b	1	.000		
Continuity Correction ^a	12.505	1	.000		
Likelihood Ratio	13.660	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	13.552	1	.000		
N of Valid Cases	330				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 23.77.

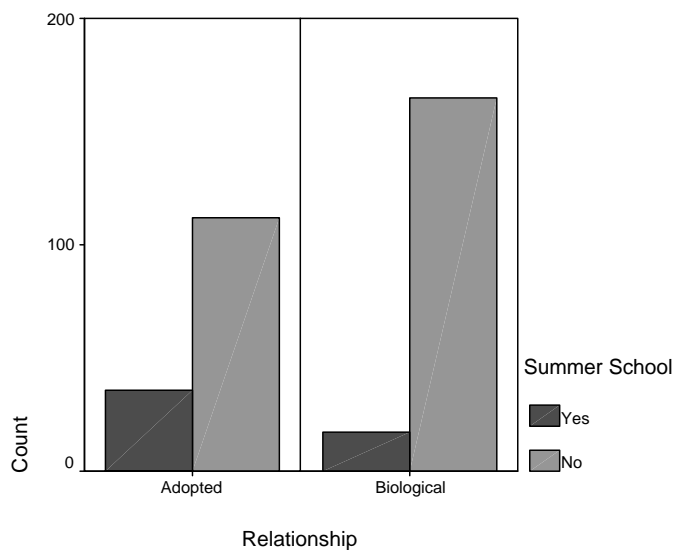
Symmetric Measures: Summer School

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.203	.053	3.754	.000 ^c
Ordinal by Ordinal	Spearman Correlation	.203	.053	3.754	.000 ^c
N of Valid Cases		330			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Music Lessons

Crosstab: Music Lessons

		Did the child receive music lessons?		Total
		Yes	No	
Relationship	Adopted	91	57	148
	Biological	116	66	182
Total		207	123	330

Chi-Square Tests: Music Lessons

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.177 ^b	1	.674		
Continuity Correction ^a	.094	1	.760		
Likelihood Ratio	.177	1	.674		
Fisher's Exact Test				.732	.380
Linear-by-Linear Association	.176	1	.675		
N of Valid Cases	330				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 55.16.

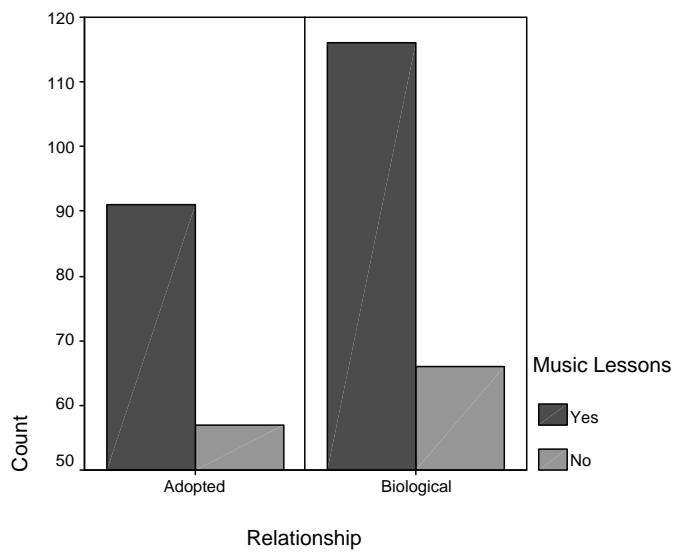
Symmetric Measures: Music Lessons

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.023	.055	-.419	.675 ^c
Ordinal by Ordinal	Spearman Correlation	-.023	.055	-.419	.675 ^c
N of Valid Cases		330			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Car

Crosstab: Car

		Did child receive a car?		Total
		Yes	No	
Relationship	Adopted	96	21	117
	Biological	113	46	159
Total		209	67	276

Chi-Square Tests: Car

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.422 ^b	1	.035		
Continuity Correction ^a	3.845	1	.050		
Likelihood Ratio	4.526	1	.033		
Fisher's Exact Test				.046	.024
Linear-by-Linear Association	4.406	1	.036		
N of Valid Cases	276				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.40.

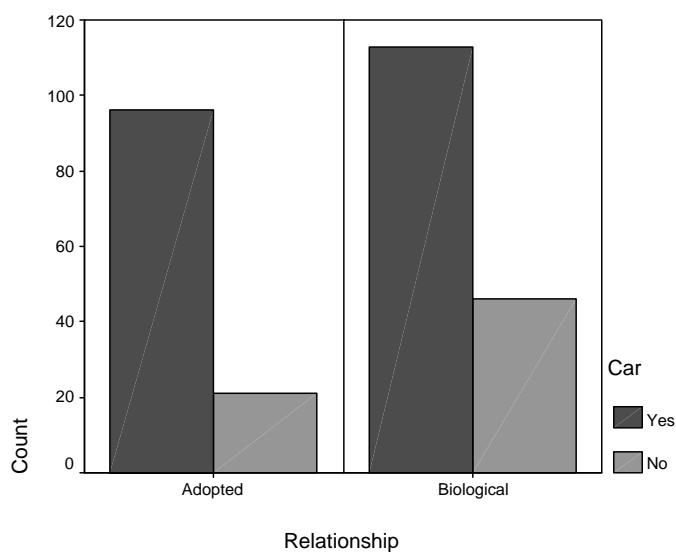
Symmetric Measures: Car

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.127	.058	2.112	.036 ^c
Ordinal by Ordinal Spearman Correlation	.127	.058	2.112	.036 ^c
N of Valid Cases	276			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Summer Vacation****Crosstab: Summer Vacation**

		Did child receive summer vacation(s)?		Total
		Yes	No	
Relationship	Adopted	116	45	161
	Biological	142	56	198
Total		258	101	359

Chi-Square Tests: Summer Vacation

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.005 ^b	1	.944		
Continuity Correction ^a	.000	1	1.000		
Likelihood Ratio	.005	1	.944		
Fisher's Exact Test				1.000	.520
Linear-by-Linear Association	.005	1	.945		
N of Valid Cases	359				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 45.30.

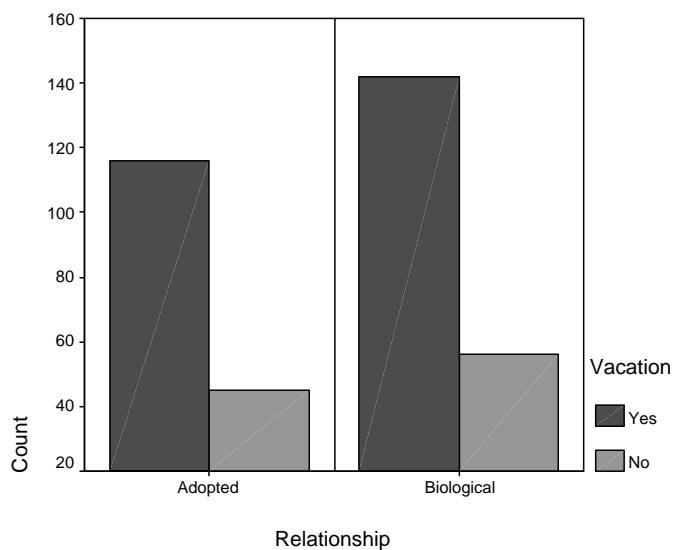
Symmetric Measures: Summer Vacation

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval	Pearson's R	.004	.053	.069	.945 ^c
Ordinal by Ordinal	Spearman Correlation	.004	.053	.069	.945 ^c
N of Valid Cases		359			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Summer Camp

Crosstab: Summer Camp

		Did children go to summer camp?		Total
		Yes	No	
Relationship	Adopted	88	57	145
	Biological	99	81	180
Total		187	138	325

Chi-Square Tests: Summer Camp

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.064 ^b	1	.302		
Continuity Correction [¶]	.844	1	.358		
Likelihood Ratio	1.066	1	.302		
Fisher's Exact Test				.312	.179
Linear-by-Linear Association	1.061	1	.303		
N of Valid Cases	325				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 61.57.

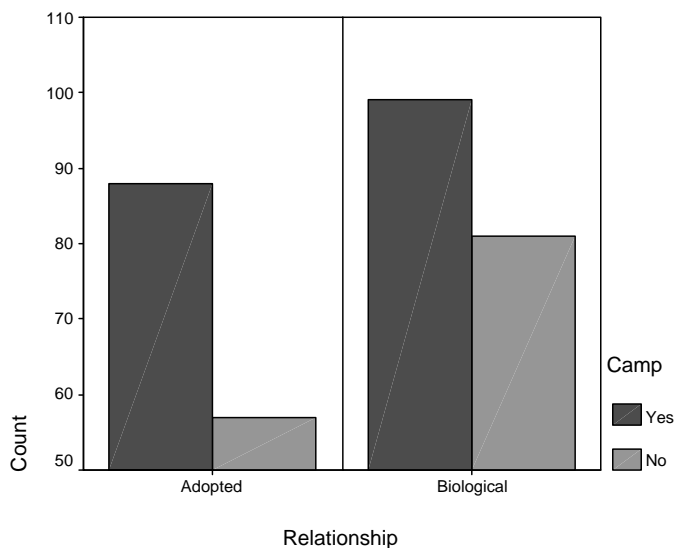
Symmetric Measures: Summer Camp

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.057	.055	1.030	.304 ^c
Ordinal by Ordinal	Spearman Correlation	.057	.055	1.030	.304 ^c
N of Valid Cases		325			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Scouts

Crosstab: Scouts

		Did children go to scouts?		Total
		Yes	No	
Relationship	Adopted	94	51	145
	Biological	118	62	180
Total		212	113	325

Chi-Square Tests: Scouts

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.019 ^b	1	.891		
Continuity Correction ^a	.000	1	.984		
Likelihood Ratio	.019	1	.891		
Fisher's Exact Test				.907	.492
Linear-by-Linear Association	.019	1	.891		
N of Valid Cases	325				

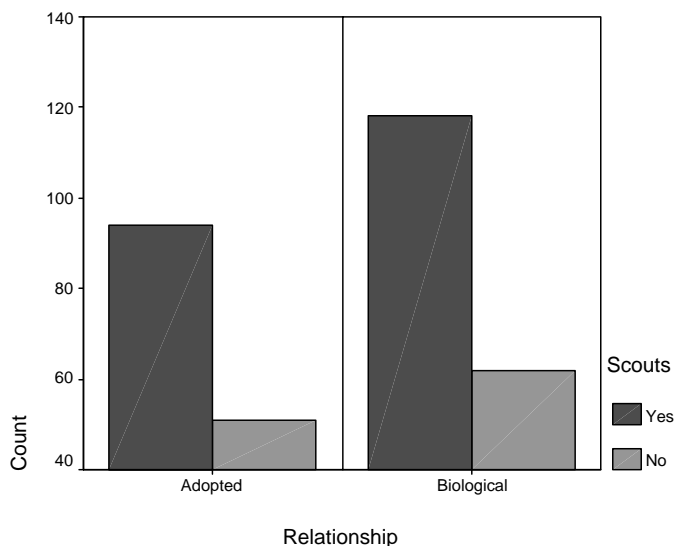
a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 50.42.

Symmetric Measures: Scouts

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval Pearson's R	-.008	.055	-.137	.891 ^c
Ordinal by Ordinal Spearman Correlation	-.008	.055	-.137	.891 ^c
N of Valid Cases	325			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.



Prom Dress or Tuxedo

Crosstab: Prom Dress or Tuxedo

		Did child receive prom dress or tuxedo?		Total
		Yes	No	
Relationship	Adopted	86	31	117
	Biological	117	42	159
Total		203	73	276

Chi-Square Tests: Prom Dress or Tuxedo

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.000 ^b	1	.988		
Continuity Correction ^a	.000	1	1.000		
Likelihood Ratio	.000	1	.988		
Fisher's Exact Test				1.000	.548
Linear-by-Linear Association	.000	1	.988		
N of Valid Cases	276				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 30.95.

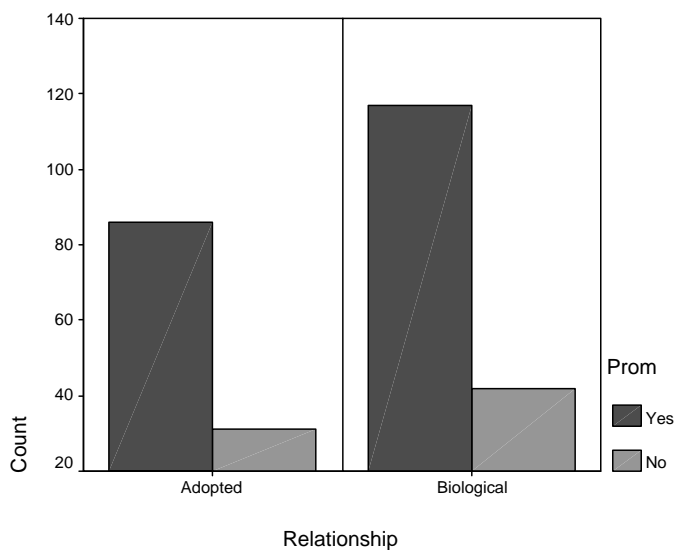
Symmetric Measures: Prom Dress or Tuxedo

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval Pearson's R	-.001	.060	-.015	.988 ^c
Ordinal by Ordinal Spearman Correlation	-.001	.060	-.015	.988 ^c
N of Valid Cases	276			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Wedding

Crosstabs: Wedding

Count

		Did child receive help with wedding?		Total
		Yes	No	
Relationship	Adopted	63	11	74
	Biological	83	12	95
Total		146	23	169

Chi-Square Tests: Wedding

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.176 ^b	1	.674		
Continuity Correction [†]	.038	1	.846		
Likelihood Ratio	.176	1	.675		
Fisher's Exact Test				.822	.421
Linear-by-Linear Association	.175	1	.675		
N of Valid Cases	169				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.07.

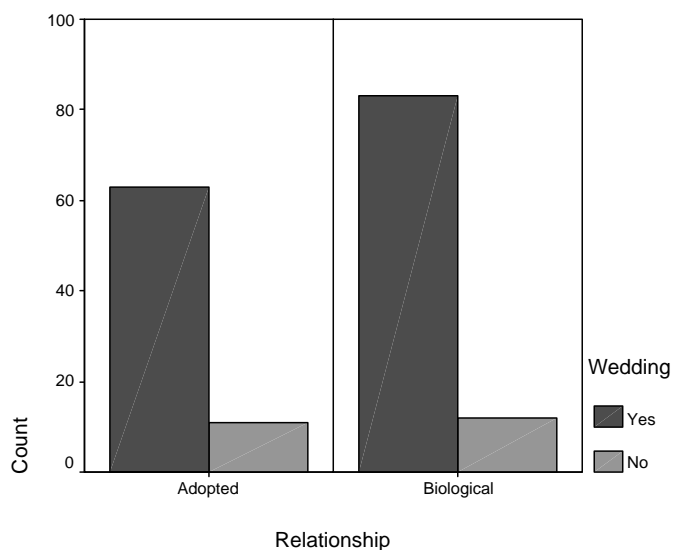
Symmetric Measures: Wedding

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	-.032	.077	-.418	.677 ^c
Ordinal by Ordinal	Spearman Correlation	-.032	.077	-.418	.677 ^c
N of Valid Cases		169			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Honeymoon

Crosstab: Honeymoon

		Did child receive help with their honeymoon?		Total
		Yes	No	
Relationship	Adopted	5	69	74
	Biological	12	83	95
Total		17	152	169

Chi-Square Tests: Honeymoon

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.587 ^b	1	.208		
Continuity Correction ^a	1.004	1	.316		
Likelihood Ratio	1.645	1	.200		
Fisher's Exact Test				.303	.158
Linear-by-Linear Association	1.577	1	.209		
N of Valid Cases	169				

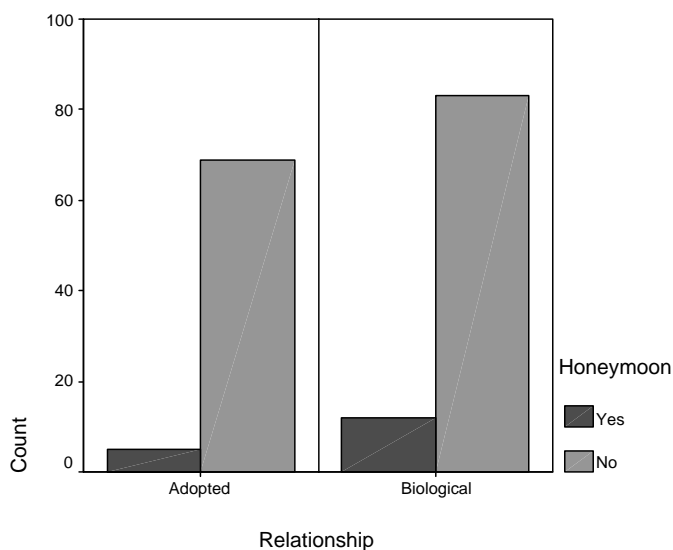
a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.44.

Symmetric Measures: Honeymoon

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-.097	.072	-1.258	.210 ^c
Ordinal by Ordinal Spearman Correlation	-.097	.072	-1.258	.210 ^c
N of Valid Cases	169			

- a. Not assuming the null hypothesis.
- b. Using the asymptotic standard error assuming the null hypothesis.
- c. Based on normal approximation.



College Tuition

Crosstabulation: College Tuition

		Did child receive college tuition?		Total
		Yes	No	
Relationship	Adopted	68	19	87
	Biological	100	22	122
Total		168	41	209

Chi-Square Tests: College Tuition

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.467 ^b	1	.495		
Continuity Correction ^a	.256	1	.613		
Likelihood Ratio	.463	1	.496		
Fisher's Exact Test				.596	.305
Linear-by-Linear Association	.464	1	.496		
N of Valid Cases	209				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.07.

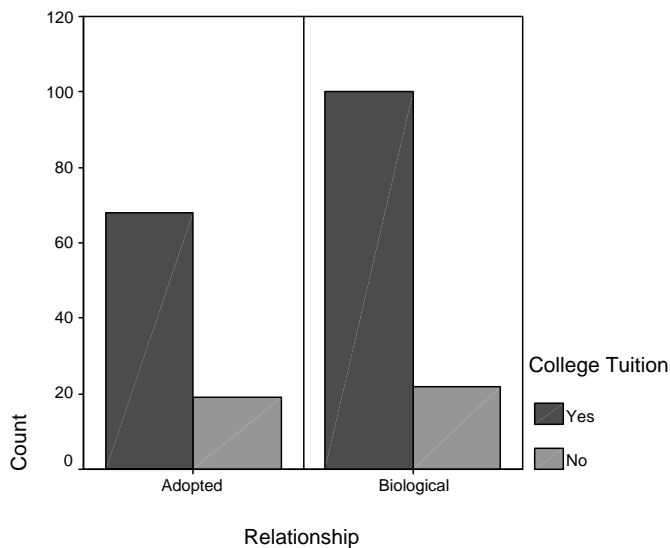
Symmetric Measures: College Tuition

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. ^c
Interval by Interval	Pearson's R	-.047	.070	-.681	.497 ^c
Ordinal by Ordinal	Spearman Correlation	-.047	.070	-.681	.497 ^c
N of Valid Cases		209			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Rent

Crosstab: Rent

		Did child receive help with rent?		Total
		Yes	No	
Relationship	Adopted	64	52	116
	Biological	65	94	159
Total		129	146	275

Chi-Square Tests: Rent

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.501 ^b	1	.019		
Continuity Correction ^a	4.942	1	.026		
Likelihood Ratio	5.511	1	.019		
Fisher's Exact Test				.021	.013
Linear-by-Linear Association	5.481	1	.019		
N of Valid Cases	275				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 54.41.

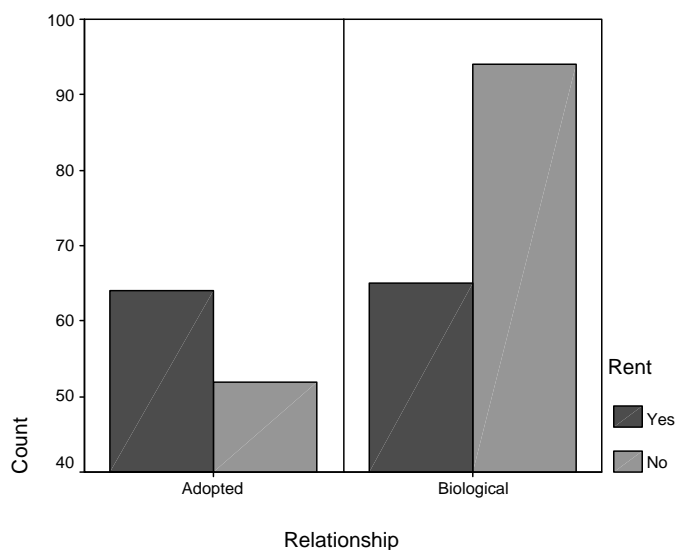
Symmetric Measures: Rent

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval	Pearson's R	.141	.060	2.361	.019 ^c
Ordinal by Ordinal	Spearman Correlation	.141	.060	2.361	.019 ^c
N of Valid Cases		275			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



Personal Loan

Crosstab: Personal Loan

		Did child receive a personal loan?		Total
		Yes	No	
Relationship	Adopted	57	60	117
	Biological	57	102	159
Total		114	162	276

Chi-Square Tests: Personal Loan

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.604 ^b	1	.032		
Continuity Correction ^a	4.089	1	.043		
Likelihood Ratio	4.598	1	.032		
Fisher's Exact Test				.036	.022
Linear-by-Linear Association	4.588	1	.032		
N of Valid Cases	276				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 48.33.

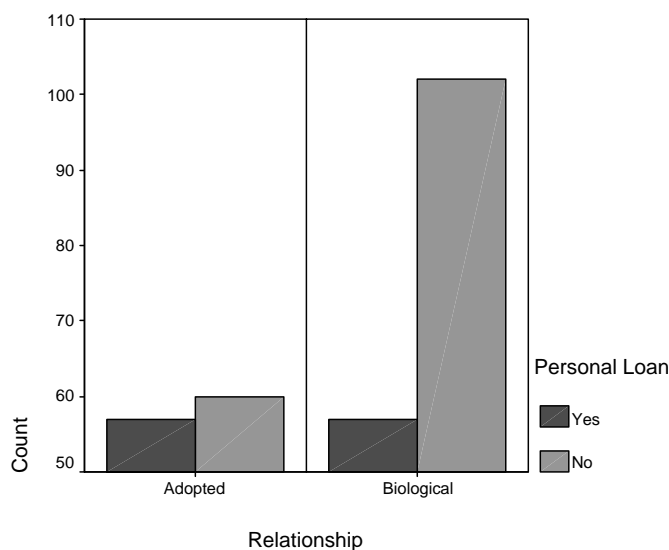
Symmetric Measures: Personal Loan

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	.129	.060	2.156	.032 ^c
Ordinal by Ordinal Spearman Correlation	.129	.060	2.156	.032 ^c
N of Valid Cases	276			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Bank Loan****Crosstab: Bank Loan**

		Did parent cosign on bank loan for child?		Total
		Yes	No	
Relationship	Adopted	33	84	117
	Biological	35	124	159
Total		68	208	276

Chi-Square Tests: Bank Loan

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.392 ^b	1	.238		
Continuity Correction ^a	1.079	1	.299		
Likelihood Ratio	1.383	1	.240		
Fisher's Exact Test				.260	.150
Linear-by-Linear Association	1.387	1	.239		
N of Valid Cases	276				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 28.83.

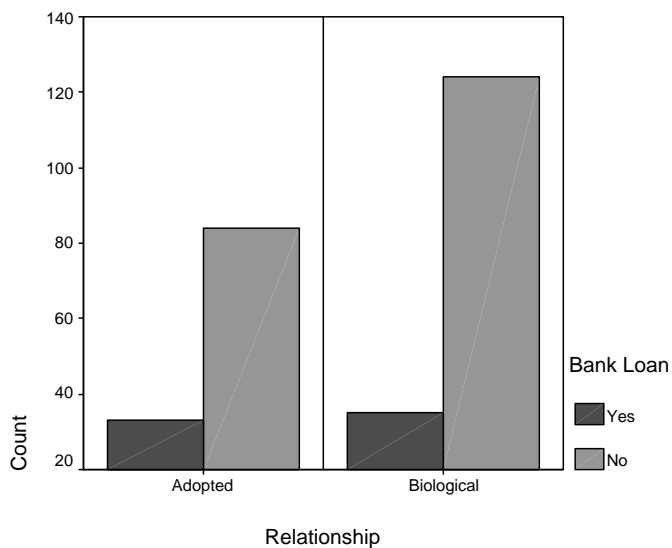
Symmetric Measures: Bank Loan

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig. Approx. Sig.
Interval by Interval Pearson's R	.071	.061	1.179	.240 ^c
Ordinal by Ordinal Spearman Correlation	.071	.061	1.179	.240 ^c
N of Valid Cases	276			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.



TIME INVESTMENTS

Parents were asked to indicate the relative amount of time they spent with each of their children engaged in the following tasks on a 1-5 Likert scale. A response of “1” indicates that the parent “always” helped their child with the described activity and “5” indicates that they “rarely or never” did. Thus, the lower the score, the more time the parent spent with their child engaged in the activity.

Homework: Age > 6 Years

Mann-Whitney Test: Homework Age > 6 Years

Ranks: Homework Age > 6 Years

	Relations	N	Mean Rank	Sum of Ranks
Homework	Adopted	139	141.30	19641.00
	Biological	177	172.01	30445.00
	Total	316		

Test Statistics: Homework Age > 6 Years^a

	Homework
Mann-Whitney U	9911.000
Wilcoxon W	19641.000
Z	-3.081
Asymp. Sig. (2-tailed)	.002

a. Grouping Variable: CH1REL

Scholarships and Professional Choices: Age > 13

Mann-Whitney Test: Scholarships and Professional Choices Age > 13

Ranks: Scholarships and Professional Choices Age > 13

	Relatinshi	N	Mean Rank	Sum of Ranks
Scholarships	Adopted	93	120.49	11205.50
	Biological	132	107.72	14219.50
	Total	225		
Professional and Career Choices	Adopted	110	127.22	13994.00
	Biological	151	133.75	20197.00
	Total	261		

Test Statistics: Scholarships and Professional Choices Age > 13

	Scholarships	Professional and Career
Mann-Whitney U	5441.500	7889.000
Wilcoxon W	14219.500	13994.000
Z	-1.495	-.720
Asymp. Sig. (2-tailed)	.135	.471

a. Grouping Variable: CH1REL

Sports, Family/Personal, Dating/Friendship: All Ages

Mann-Whitney Test: Sports, Family/Personal, Dating/Friendship All Ages

Ranks: Sports, Family/Personal, Dating/Friendship All Ages

	Relations	N	Mean Rank	Sum of Ranks
Sports	Adopted	153	159.18	24354.00
	Biological	182	175.42	31926.00
	Total	335		
Family and Personal Issues	Adopted	154	162.19	24977.00
	Biological	189	179.99	34019.00
	Total	343		
Dating and Friendship Issues	Adopted	150	172.13	25819.50
	Biological	191	170.11	32491.50
	Total	341		

Test Statistics: Sports, Family/Personal, Dating/Friendship All Ages

	Sports	Family and Personal	Dating and Friendship
Mann-Whitney U	12573.000	13042.000	14155.500
Wilcoxon W	24354.000	24977.000	32491.500
Z	-1.581	-1.727	-.194
Asymp. Sig. (2-tailed)	.114	.084	.846

a. Grouping Variable: CH1REL

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