

## AN ABSTRACT OF THE THESIS OF

Shari S. Sakashita for the degree of Master of Science in Human Development and Family Studies presented on July 24, 1996. Title: Different Worlds? Asymmetry in Graduate Student Marriages.

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Abstract approved: \_\_\_\_\_

Alan C. Acock and Anisa M. Zvonkovic

That graduate study is detrimental to marriages has received empirical support. This study utilized systems theory to examine and help explain the dissolution process of graduate student marriages. Specifically, it examined the impact of marital structure on perceptions of marital quality. Drawing primarily from Scheinkman's (1988) qualitative study, spouses in asymmetrical marriages (i.e., marriages where only one spouse is in graduate school), as opposed to symmetrical marriages (i.e., marriages where both spouses are in graduate school), were hypothesized to report (a) less satisfaction with the division of household labor, (b) lower perceptions of equity, and (c) less satisfaction with emotional intimacy. These, in turn, were hypothesized to lower perceptions of marital quality. ✓

Participants from a list of master's and doctoral-level students at a west coast university in the United States were randomly selected and contacted by phone. Only married students and their partners were solicited for participation. The final sample consisted of 121 married individuals (60 husband-wife pairs, 1

female) who responded to a mailed questionnaire. Of these 121 respondents, 85 were involved in asymmetrical arrangements and 36 in symmetrical arrangements.

Contrary to expectations, asymmetry did not indirectly (and negatively) affect marital quality through satisfaction with the division of household labor and perception of equity. There was, however, some evidence that asymmetry negatively influenced marital quality by lowering spouses' satisfaction with emotional intimacy. This latter finding was considered to be meaningfully significant because satisfaction with emotional intimacy was by far the strongest predictor of marital quality.

The findings are discussed primarily in terms of the education level of each spouse. Reconceptualizing asymmetry as an educational or power differential, or even more generally as a difference in emotional experiences, is recommended. In other words, it is not the number of spouses in school per se that matters; it is the understanding and emotional connectedness between them.

Different Worlds? Asymmetry  
in Graduate Student Marriages

by

Shari S. Sakashita

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

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Shari S. Sakashita, Author



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# Different Worlds? Asymmetry in Graduate Student Marriages

## CHAPTER 1: INTRODUCTION

Over a million graduate students in the United States juggle school and family responsibilities (Bruno & Adams, 1994). Many struggle, and the high student attrition and divorce rates reveal the strain. In a study of female graduate student retention (Hagedorn, 1993), for example, being married had increased the probability of withdrawal by 83.4%. Conversely, graduate school has been shown to have detrimental effects on the marital relationship. In their analysis of the United States census, Houseknecht and Spanier (1980) found that males and females with six or more years of college education had marital disruption rates that were second only to those who did not finish high school. The findings for males, however, was attributed to the increased proportion of them marrying highly educated females. A related study (Centra, 1975) found that nearly 40% of female doctoral students had separated or divorced during the course of their programs.

Despite the potentially destructive interplay of graduate school and marriage, particularly among student wives, research in this area is surprisingly limited. Moreover, there has been little attempt to explain the processes that lead many graduate student couples to divorce. Research on graduate student marriages has focused instead on the contextual and demographic correlates of marital dissolution (e.g., time constraints, social support, gender of student, and number of children) (see McLaughlin, 1985, for a review). Although contributory,

it is important for research to move beyond description and toward explanation. Only Scheinkman (1988) thus far has made this attempt.

### Theoretical Framework

Following Scheinkman's (1988) lead, this study utilized systems theory to examine and help explain the dissolution process of graduate student marriages. Families, according to this theory, are highly interdependent systems whose members interrelate to form a whole (Galvin & Brommel, 1991). Thus, the focus is not on individual family members, but on the relationships between and among them. Systems theory also recognizes systems at other levels and explores these relationships as well (Boss, Doherty, LaRossa, Schumm, & Steinmetz, 1993). How a larger suprasystem (graduate school) impacts a smaller subsystem (marital relationship) was explored in the present investigation. Before discussing graduate student marriages in systems terminology, subsystems and three other concepts (hierarchy, boundaries, and structure) are defined briefly below.

Subsystem. A subsystem is one element of the total system (Goldenberg & Goldenberg, 1985). In families, the individual members are subsystems, so are dyads of husband-and-wife and father-and-son, and other larger groups based on age, gender, or common interests.

Hierarchy. Hierarchy refers to "the arrangement of the system into layers of delegation" (Boss et al., 1993, p. 332). The level of hierarchy at which one

functions depends on the subsystem to which he or she currently belongs. For example, a mother would have more power when interacting with her child than when interacting with an older sibling. When one does not function at the level he or she desires, hierarchical confusion is a common result. A woman who completely subscribes to an egalitarian marriage, for example, is likely to express dissatisfaction with her marriage if she is relegated to the traditional housewife roles of cooking and cleaning.

Boundaries. Boundaries are rule-governed transactions that regulate the amount of contact with others, thus defining and preserving the separateness of each subsystem (Nichols, 1984). Boundaries can vary from being rigid to diffuse. For example, the boundary between individuals of a spousal subsystem is considered rigid if the spouses spend little time with one another and are more invested in outside interests than in their own marriage. At the other extreme, the boundary is considered diffuse if the spouses frequently call each other at work and rarely engage in independent activities. To ensure proper functioning, boundaries should not be inappropriately rigid or diffuse, but clear. That is, "they must be defined well enough to allow subsystem members to carry out their functions without undue interference, but they must [also] allow contact between the members of the subsystem and others" (Minuchin, 1974, p. 54).

Structure. Structure refers to the interactional patterns that arrange or organize how family members interact (Goldenberg & Goldenberg, 1985). Changing the structure presumably changes the behaviors and experiences of each member.

Graduate student marriages are structured in one of two ways: (a) asymmetrical, if only one spouse is in graduate school or (b) symmetrical, if both spouses are in graduate school. Research comparing the marital experiences between these two groups have noted some differences. For example, McKeon and Piercy (1980) and McRoy and Fisher (1982) found marital adjustment to be lower when only one spouse was in graduate school. Similar findings were reported by Scheinkman (1988), and earlier by Bergen and Bergen (1978), whose sample also included undergraduate students.

From a systems perspective, the differences in marital adjustment between symmetrical and asymmetrical couples may be partially attributed to the couple's organization. Asymmetrical marriages, according to Scheinkman (1988), are at greater risk because their arrangement fosters hierarchical confusion and the blurring of boundaries. For example, it is not uncommon for the couple's relationship to develop a parent-adolescent flavor, with the oft-demanding nonstudent spouse assuming the parental role and the seemingly irresponsible student the adolescent role. Such transactions, in light of egalitarian ideals, are often sources of conflict. It is also not uncommon for the student to be so engrossed in his or her studies that it becomes, to use

Scheinkman's words, "like a lover to whom the student is totally devoted" (p. 360). If the spouse is not similarly engaged in outside interests, he or she is likely to feel neglected and abandoned. Scheinkman's example of Paul, a former graduate student, eloquently sums up the difference between symmetrical and asymmetrical arrangements:

While Mary and I were both students, we were always anxious, broke, and tired, but we had an implicit understanding about each other's world....We shared similar schedules, friends, and a life style. Now that I have this great job and our material life is so much easier, somehow we are often at odds, and it takes us a lot more energy and tolerance to understand and sympathize with one another. (p. 355)

### Purpose of Study

The purpose of this study was to extend Scheinkman's (1988) qualitative research by empirically testing some of her major hypotheses. Specifically, it examined whether and how marital structure (i.e., asymmetrical versus symmetrical arrangements) indirectly influences spouses' perceptions of marital quality through (a) satisfaction with the division of household labor, (b) perception of equity, and (c) satisfaction with emotional intimacy, three areas of family life that are sources of hierarchical confusion or blurring of boundaries for many graduate student couples. In short, this study sought to investigate whether spouses in asymmetrical marriages indeed live in "different worlds."

## CHAPTER 2: LITERATURE REVIEW

The literature review presented here is divided into four principal sections. First, it defines marital quality (the main dependent variable) and uses selected text to show how it is influenced by satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy. Second, it defines marital structure (the main independent variable) and, primarily through Scheinkman's (1988) qualitative study, shows how it influences satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy in graduate student marriages. Third, it discusses gender, number of children under age 13, and length of marriage as other intervening variables that can influence perceptions of marital quality. Fourth, and finally, it presents the conceptual model.

### Marital Quality

Research on marital quality abounds, yet there is considerable debate and confusion over its conceptual definition. Some researchers (e.g., Spanier, 1976) view marital quality as a multidimensional construct that encompasses objective and subjective aspects of a marital relationship. In these instances, high marital quality is associated with good judgment, adequate communication, a high level of marital happiness, integration, and a high degree of satisfaction with the relationship. Others (e.g., Fincham & Bradbury, 1987; Glenn, 1991; Norton, 1983) favor a more evaluative, or global, definition that does not include



reports of specific behaviors. Methodologically, this global definition is superior because combining behavioral and evaluative items into the same scale does not allow researchers to examine the relationship between the two. For example, Fincham and Bradbury argue that it is tautological to examine the relationship between communication and dyadic adjustment when using Spanier's Dyadic Adjustment Scale to measure the latter because this scale already contains items on communication. In short, the two measures share an overlapping domain of content. Marital quality, as defined in the present investigation, is consistent with Norton (1983) and others, and is simply defined as one's global evaluation of his or her marriage.

The effect of satisfaction with the division of household labor on marital quality. That women shoulder a disproportionate share of the household chores has been well-documented (see Thompson & Walker, 1991, for a review). Research has consistently shown that wives do two to three times more of the housework than their husbands. Moreover, the work most women do is usually menial, unrelenting, and repetitive (e.g., cleaning, cooking, laundry); whereas, the work most men do is infrequent and nonroutine (e.g., household repairs, yard work, car maintenance). Although few men and women view this situation as unfair, the division of household labor is, for others, a source of hierarchical confusion and dissatisfaction. The importance of congruent attitudes and behaviors regarding household labor on perceptions of marital quality is demonstrated in the studies below.

Using the difference score between respondents' actual and ideal degrees of household responsibility to define satisfaction with the division of household labor, Sutor (1991) found that wives' satisfaction followed a U-shaped pattern across the life cycle, with higher satisfaction in the pre- and post-parental years and lower satisfaction in the childrearing years. Husbands' satisfaction did not follow a similar pattern, but like wives, their satisfaction was associated with higher perceptions of marital quality. In fact, satisfaction with the division of household labor was a greater determinant of husbands' and wives' perceptions of marital quality than were age, educational attainment, and the number of hours wives worked per week.

Perry-Jenkins and Crouter's (1990) study on men's provider-role attitudes and its impact on housework and marital satisfaction revealed similar findings. To determine whether and how men's attitudes about the provider role related to attitudinal and behavioral aspects of household labor, 43 men were placed into one of three provider role groups, as developed by Hood (1986): (a) main/secondary providers, if they believed that the husband's responsibility was to provide for the family and his wife's primary responsibility was in the home, (b) coproviders, if they believed that the provider role should be equally shared between husbands and wives, or (c) ambivalent coprovider, if they were dependent on their wives' income but expressed conflict over who was the provider. Based on the assumption that marital satisfaction is higher when attitudes and behaviors are congruent, main/secondary providers who

performed a low percentage of household tasks and coproviders who performed a high percentage of household tasks were predicted to have high levels of marital satisfaction. Support for these hypotheses lead Perry-Jenkins and Crouter to conclude:

Rather than stressing the importance of role sharing and equal responsibility in families, which is so often emphasized in the popular literature, the focus must shift to emphasizing the importance of congruence between attitudes about roles and the enactment of role behavior. (pp. 154-155)

The effect of equity on marital quality. Equity is another area of family life that can be a source of hierarchical confusion for couples and can affect one's perception of marital quality. As with the division of household labor, if spouses' expectations of equality and reciprocity are not being met, their overall perception of their marriage is likely to be negatively affected. The findings of several studies support this notion. Before reviewing these studies, however, an overview of equity theory follows.

Equity theory is a social psychological theory concerned with justice in interpersonal relationships (Walster, Walster, & Berscheid, 1978). Only recently, though, has equity theory been applied to intimate relations. Skeptics (e.g., Clark & Mills, 1979) argue that intimates transcend equity because they are more concerned with what they can provide for one another rather than what they can get. There has been a fair amount of evidence (e.g., Blair, 1993;

Perry-Jenkins & Folk, 1994; Prins, Buunk, & Van Yperen, 1993; Ward, 1993), however, that supports the applicability of equity theory to romantic and marital relationships.

Theoretically, an equitable relationship exists when both partners' relative gains (i.e., one's outcomes from the relationship minus one's contributions to the relationship) are equal. Conversely, inequity arises when one partner's relative gains is larger or smaller than his or her partner's. According to the theory, individuals in inequitable relationships will be distressed, regardless if they are the victims or beneficiaries of inequity (the underbenefited will feel angry about the way they are being treated; the overbenefited will feel guilty and uncomfortable with their favorable position), and that distressed individuals will try to restore equity (Walster et al., 1978; Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985).

Researchers who have tested equity theory on marital relationships have demonstrated a positive link between perceptions of equity and marital quality. In general, equitably treated men and women reported being more happy and satisfied with their marriage than their overbenefited and underbenefited counterparts (see Hatfield et al., 1985, for a review). More recently, Prins et al. (1993) tested the hypothesis that inequity in marriage would be related to desire and involvement in extramarital relationships as a way to restore equity. Their findings for women supported the hypothesis. Overbenefited and underbenefited women desired, and were involved in, more extramarital

relationships than women who felt equitably treated. Even those who morally objected to extramarital affairs contemplated such relationships when their marriages were inequitable and dissatisfying. The nonsignificant findings for men, however, suggested that their desire and involvement in extramarital affairs were independent of how they felt about their marriage.

The importance of wives' perceptions of equity on marital quality was also demonstrated in Blair's (1993) study on dual-earner couples. Husbands' and wives' perceptions of the likelihood of divorce, marital happiness, and whether their marriage was in trouble were strongly affected by wives' assessment of unfairness in the marriage, particularly over household chores and control of family income.

Other studies examining the relationship between household equity and marital quality revealed similar findings. Perceived fairness of household chores was positively related to women's perceptions of marital quality among dual-earner couples in which both spouses were younger than 65 (Perry-Jenkins & Folk, 1994) and among couples aged 50 and over (Ward, 1993). Like Prins et al. (1993), these researchers did not find a significant relationship between equity and men's perceptions of marital quality. They concluded that women, who are more likely than men to be the underbenefited, are more attuned to issues of fairness, and that because men spend little time in household chores, equity regarding this area of family life would not be an important factor in men's perceptions of marital satisfaction.

The effect of satisfaction with emotional intimacy on marital quality. Since the industrial revolution, American marriages have shifted from institution to companionship, with a concomitant purpose to satisfy each partner's intimate needs (Rampage, 1994). Despite the high value that marriage places on intimacy, however, the term remains loosely defined and its impact on the marital relationship has not been extensively studied (Harper & Elliot, 1988; Parelman, 1983; Rampage, 1994; Schaefer & Olson, 1981).

This study favored the conceptual definition of intimacy proposed by Schaefer and Olson (1981). Intimacy, according to these researchers, is an ongoing process that is never completed or fully accomplished. An intimate experience is a closeness of feelings and involves a temporary sharing in one or more areas of intimacy. An intimate relationship, on the other hand, involves a sharing of various intimate experiences with the expectation that it will persist over time. Five areas of intimacy have been identified. They include emotional intimacy (experiencing a closeness of feelings), social intimacy (sharing social networks), intellectual intimacy (sharing ideas), sexual intimacy (sharing general affection and/or sexual activity), and recreational intimacy (sharing interests and hobbies). This study focused on emotional intimacy.

Based on the assumption that individuals desire differing degrees of intimacy and that there is no ideal amount necessary for high marital quality (Schaefer & Olson, 1981), systems theory could also be used here to argue that persons with little or no discrepancy between their actual and ideal

perceptions of emotional intimacy would report higher levels of marital quality than persons experiencing larger discrepancies. In other words, if spouses' expectations of companionship are being met, their overall perception of their marriage should be positive. Indeed, Harper and Elliot (1988) found that the discrepancy between couple's perceived and desired intimacy was significantly related to perceptions of marital adjustment, especially among wives. Couples who perceived little intimacy in their marriage, but who also desired little intimacy, were equally as happy with their marriage as couples who scored higher. The authors concluded that the discrepancy between perceived and desired intimacy was a stronger predictor of marital satisfaction than the actual degree of intimacy alone.

### Marital Structure

There are two types of graduate student marriages: (a) asymmetrical, if only one spouse is in graduate school and (b) symmetrical, if both spouses are in graduate school. According to past research (e.g., McKeon & Piercy, 1980; McRoy & Fisher, 1982; Scheinkman, 1988), the type of arrangement one is in has important implications on his or her marital experience. For example, while working at a university student mental health clinic, Scheinkman observed that asymmetrical marriages were generally less stable than symmetrical ones. Whereas spouses in symmetrical arrangements were bound together by common interests, priorities, and lifestyles, spouses in asymmetrical arrangements often felt mismatched and misunderstood. An inherent problem of

these latter arrangements, Scheinkman contends, is the incongruence of spousal expectations and behaviors.

Influenced by the educated, middle-class ethos of equal roles and equal sharing, [graduate student couples] are likely to hold expectations about marriage that involve a sense of companionship, reciprocity, and equality. Yet...the inequality that graduate school imposes on their relationship makes it difficult for them to sustain their egalitarian ideals.  
(p. 356)

As a result, asymmetrical spouses are more likely to engage in ineffective patterns of family functioning. Indeed, confusion on how to relate to one another and the utilization of inappropriate boundaries are common among these marriages. Three areas of family life that are problematic for many asymmetrical couples include satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy.

The effect of marital structure on satisfaction with the division of household labor. Housework can be, and frequently is, a major source of conflict for couples. This seems to be particularly true for couples in asymmetrical arrangements, who in light of egalitarian ideals, often find themselves distributing the housework unequally (Scheinkman, 1988). The rigor of graduate school usurps most of the student's time, therefore the bulk of the chores is usually absorbed by the nonstudent spouse. If this pattern continues



over time, however, the nonstudent spouse is likely to resent the situation and will express his or her dissatisfaction. The following is a case in point.

A law student's wife divorced her husband because she felt he took for granted the sacrifices that she made as a working wife. She described one evening when after a long and difficult day at work she asked him to help with some simple household task and he refused, claiming fatigue because he had been attending classes all day and working in the library. She said this 'preciousness' was typical of much of his behavior and she did not want to put up with it. (Lozoff, 1976, p. 149)

Of course, not all couples divorce over such issues but many men and women view housework as "a central battleground in which they must define their equal rights" (Scheinkman, 1988, p. 358). In negotiating a more even distribution of household chores, the nonstudent spouse usually demands more help from the student. However, it is not uncommon for the student, especially a female student, to respond unfavorably because it is as if the nonstudent is expecting him or her to do the housework and therefore not treating him or her as an equal.

This is not to say that spouses in symmetrical arrangements are immune to disagreements but because of their similar academic pressures and schedules, these couples are more likely to share household tasks. They are also more likely to help each other academically, which then frees some of their time for other responsibilities. To put it in systems terms, it is easier for

symmetrical spouses to carry out their married functions and therefore act and treat each other like spouses.

The effect of marital structure on perception of equity. Confusion and conflict over who gives more or whose needs are more important also tend to be more prevalent in asymmetrical marriages (Scheinkman, 1988). Unlike their dual-student counterparts, asymmetrical spouses usually strive towards different goals, and often as a result, have difficulty defining and agreeing on what is equitable and fair. Should everything be sacrificed for the educational good of the student? Generally, this is what the couple agrees to but if the needs of the nonstudent spouse are consistently denied, he or she is likely to feel deprived. Other times, especially if the nonstudent voiced his or her anger, it is the student spouse who feels inequitably treated because the nonstudent is not accepting or understanding of the situation. According to systems theory, in order for couples to function properly, they must develop patterns of complementarity that allow each spouse to "give in" without feeling that he or she has "given up" (Minuchin, 1974). Asymmetrical couples, more so than symmetrical couples, have difficulty with this.

The effect of marital structure on satisfaction with emotional intimacy. Graduate students are involved in a "highly structured world...in terms of time commitments, responsibilities and the completion of products. Socially, students are in daily contact with other people in the academic community, and the

process of learning, discovering and doing research becomes all absorbing" (Namir, 1982, p. 3). Unless the nonstudent spouse leads a similarly structured life, he or she is likely to feel neglected and isolated (Scheinkman, 1988), as expressed in this student husband's account of his wife:

Her isolation, loneliness, and lack of challenge led to tears and I felt terrible....It is very critical right now for me to try and provide the kind of stimulation she needs and try to make her feel a part of the process that I am going through. (Lozoff, 1976, p. 150)

The dissimilar contexts inherent in asymmetrical couples are accentuated by their different schedules and frames of mind (Scheinkman, 1988). The nonstudent spouse goes to bed early; the student works late into the night. The nonstudent spouse views the weekend as a time to unwind and relax; the student views it as an opportunity to catch up or move ahead in school. The nonstudent's world is multidimensional; the student's world is almost exclusively academic. In systems terms, these spouses, wittingly or unwittingly, are allowing school to intrude into their subsystem functioning. The boundary between them is rigid, as evidenced by a high degree of independent activity. It will be recalled that an appropriate boundary is one that is rigid enough to protect the autonomy of its members yet flexible enough to insure mutual support and affection (Nichols, 1984).

Symmetrical couples, too, struggle to spend time together and the boundary between them may be just as rigid, but unlike their asymmetrical

counterparts, their lifestyles tend to be similar. And this similarity seems to alleviate problems with emotional intimacy (Scheinkman, 1988).

### Other Intervening Factors

Other factors that can influence perceptions of marital quality include gender, number of children under age 13, and length of marriage. Women, more than men, for example, have been found to be less satisfied with the division of household labor (Suitor, 1991), issues of equity (Perry-Jenkins & Folk, 1994; Prins et al., 1993; Ward, 1993), emotional intimacy (Harper & Elliot, 1988), and overall marital quality (Fowers, 1991). Gender differences are also apparent in the school setting, with student wives more commonly reporting higher levels of depression, anxiety, and role strain, and poorer relations with faculty and colleagues (Mallinckrodt & Leong, 1992; Mallinckrodt, Leong, & Kralj, 1989).

Children have also been found to affect the quality of marriage. In fact, according to Glenn (1991), the "now familiar curvilinear relationship between family stage and marital quality, whereby the average quality is higher in the preparental and postparental stages...is about as close to being certain as anything ever is in the social sciences" (p. 33). White, Booth, and Edwards (1986), in their analysis of a national sample of married individuals, explained the negative relationship between children and marital quality in two ways. First, children lower their parents' perceptions of marital quality by reducing their level of interaction, increasing their dissatisfaction with finances and the division of

labor, and for families with preschool-aged children, moving the division of labor in the traditional direction. Second, children, especially preschool-aged children, reduce the likelihood that unhappily married couples will actually divorce, thus retaining them in the parent population.

Length of marriage is yet another factor that can influence one's perception of marital quality. White and Booth (1991) found a weak, but significant, nonlinear relationship between years married and marital happiness. Marital happiness was higher at shorter (0-3 years) and longer (over 25 years) durations, and lower at mid (12-15 years) durations. In student marriages, however, newer marriages may be more vulnerable because the couples do not have a long-term perspective on which to rely if they find the graduate school situation temporarily unfitting (Scheinkman, 1988).

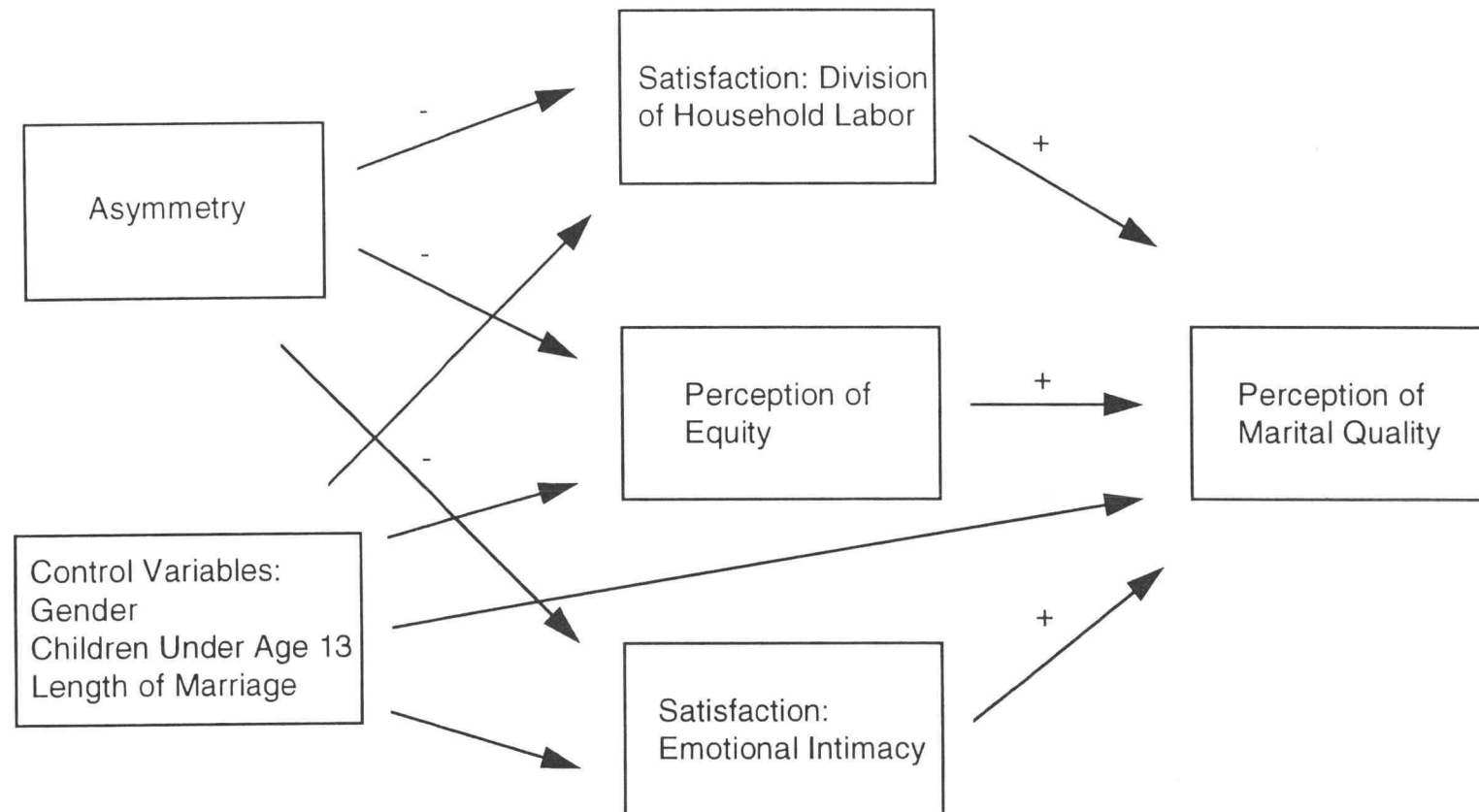
### Conceptual Model

Based on previous research, marital structure was conceptualized as having indirect effects on marital quality through satisfaction with the division of household labor, perceptions of equity, and satisfaction with emotional intimacy (see Figure 1). Under asymmetrical conditions, it was anticipated that the nonstudent spouse, who often has a freer schedule, would absorb most of the housework thereby creating or widening disparity between spouses' role expectations and role performances. This disparity, in turn, was expected to negatively influence marital quality. It was also anticipated that the asymmetry favors the student spouse, thus deviations from equity was expected to

decrease perceptions of marital quality. Finally, it was hypothesized that asymmetrical couples' lack of time and diverging interests, goals, and priorities would impede emotional intimacy, thus, lowering perceptions of marital quality.

Gender, number of children under age 13, and length of marriage were included as controls because of their possible influences on marital quality. No specific hypotheses regarding the control variables were made. Also, no hypotheses regarding the relationships between satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy were made. However, the residuals of these variables were conceptualized as being correlated to account for the effects of the variables not included in the model.

Figure 1. Conceptual Model



Note. In order to simplify the model, the correlations between exogenous variables and the correlations between satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy are not shown.

## CHAPTER 3: METHOD

### Participants

Participants were drawn from a list of master's- and doctoral-level students in varying fields at a west coast university in the United States. Through the university's cooperation, the names and telephone numbers of graduate students who were of United States citizenry and enrolled for at least nine credit hours during the 1995 fall quarter were acquired. The students on this list were then randomly selected, contacted by phone ( $N = 253$ ) (see Appendix A.1 and A.2 for telephone scripts), informed of the study, and queried on marital status. All 253 contacts reported their marital status. Only married students and their partners ( $N = 156$ ) were solicited for participation.

Of the 156 eligible participants, 122 completed and returned their questionnaires, yielding a 78% response rate. Due to missing data on an outcome variable, however, one female's data could not be used in the present analysis. The 121 respondents (60 husband-wife pairs, 1 female) that were included in the final sample were predominately White (86%); married a mean of 5.88 years ( $SD = 5.59$ ); and ranged in age from 22 to 58, with a median age of 29.50 ( $M = 32$ ,  $SD = 7.63$ ). Among those currently in graduate school ( $n = 77$ ), 34 (17 males, 17 females) were pursuing a master's degree and 43 (25 males, 18 females) were pursuing a doctoral degree. Among those not currently in graduate school ( $n = 42$ ), 48% held an undergraduate degree, 24% held a master's degree, and 2% held a doctoral degree. With respect to marital



structure, 85 were involved in an asymmetrical relationship and 36 in a symmetrical relationship. For demographic characteristics of the sample by marital structure, see Table 1.

Table 1 also shows the results of various tests for group differences. As the p-values indicate, the asymmetrical and symmetrical groups did not significantly differ in gender, ethnic identity, and income but did in their median numbers of children under 13, age, and length of marriage. The spouses in asymmetrical marriages had more younger children in the household, were older in age, and were married longer. To compensate for these differences, the number of children under age 13 and length of marriage, along with gender, were included as control variables. Age, although statistically significant, was not used as a control for two reasons. The small sample restricted the number of variables to be included in the analysis and a difference of three years did not appear to be substantively significant.

### Procedure

A 35-item questionnaire was designed to elicit information regarding spouses' satisfaction with the division of household labor, perception of equity, satisfaction with emotional intimacy, marital quality, marital structure, and some demographic information (see Appendix B). Prior to its distribution, the questionnaire was reviewed and approved by the university's Institutional Review Board for the Protection of Human Subjects (see Appendix C for a copy of the application) and pilot-tested on a small group of married graduate

Table 1

Sample Demographic Characteristics by Marital Structure

Variable	Asymmetrical		Symmetrical		H <sub>0</sub> = 0
	<u>n</u>	%	<u>n</u>	%	<u>p</u> ≤
Gender					.95 <sup>a</sup>
Female	43	51	18	50	
Male	42	49	18	50	
Ethnic Identity					.78 <sup>b</sup>
White, not of hispanic origin	72	85	31	89	
Mexican american	2	2	0	0	
Other hispanic	2	2	1	3	
Asian	5	6	2	6	
Other	4	5	1	3	
Current Monthly Personal Income					.18 <sup>c</sup>
No current income	8	9	1	3	
Less than \$500	11	13	2	6	
\$500-\$999	29	34	6	17	
\$1,000-\$1,999	25	29	20	56	
\$2,000-\$2,999	4	5	3	8	
\$3,000-\$3,999	4	5	2	6	
More than \$5,000	4	5	2	6	
Number of Children Under Age 13					.00 <sup>d</sup>
Zero	41	48	30	83	
One	22	26	6	17	
Two	14	17	0	0	
Three	6	7	0	0	
Four	2	2	0	0	
Median Age (in years)	31.00		28.00		.01 <sup>e</sup>
Median Length of Marriage (in years)	4.50		3.00		.01 <sup>f</sup>

<sup>a</sup>Based on chi-square with one degree of freedom. <sup>b</sup>Based on the Fisher's exact test, where ethnic identity was dichotomized into White and Other. <sup>c</sup>Based on chi-square with two degrees of freedom, where current monthly personal income was collapsed into three groups (less than \$500, \$500-\$1,999, and more than \$1,999). <sup>d</sup>Based on the median two-sample test in the Wilcoxon rank sum test. <sup>e</sup>Based on the median two-sample test in the Wilcoxon rank sum test. <sup>f</sup>Based on the median two-sample test in the Wilcoxon rank sum test.

students and their spouses to see whether its content and form were satisfactory.

With permission, survey packets containing two questionnaires (the questionnaires for husbands and wives were identical) and two (stamped) addressed return envelopes were delivered to students' departmental mailboxes. To safeguard confidentiality, participants were instructed to complete and return their questionnaires independently. Graduate students were asked to return their questionnaires through the university's campus mail system and non-graduate students through the United States postal system.

To increase the rate of survey return, two strategies were employed. First, phone calls encouraging participation were made to nonrespondents three weeks after the initial mailing. Second, couples who returned their questionnaires by the requested return date were entered in a lottery drawing for a \$15.00 gift certificate to the university's bookstore.

### Ethical Considerations

To be able to differentiate respondents and nonrespondents and to match marital pairs, each questionnaire had an identification number. As a result, the participants were not able to maintain their anonymity. Steps, however, were taken to protect their rights. For example, the first page of the questionnaire contained the basic elements of informed consent. It described the study and the role of the participants, explained how confidentiality is preserved, and identified a contact person should questions arise. As an

additional safeguard, the mailing list with the identifiers was properly disposed upon the completion of the study.

### Measures

Marital quality. Marital quality was assessed by Norton's (1983) Quality of Marriage Index (QMI), a 6-item scale that measures the quality of a relationship as perceived by married individuals. The items were as follows: (a) We have a good marriage, (b) My relationship with my partner is very stable, (c) Our marriage is strong, (d) My relationship with my partner makes me happy, (e) I really feel like part of a team with my partner, and (f) On the scale below, indicate the point which best describes the degree of happiness, everything considered, in your marriage. The first five items were measured on a 7-point scale, ranging from very strong disagreement (1) to very strong agreement (7). The remaining item was measured on a 10-point scale, ranging from very unhappy (1) to perfectly happy (10). Overall QMI scores were computed by summing the standardized scores for each item. Higher scores reflected higher marital quality.

The QMI was selected for its brevity and global properties, which was in line with the conceptual definition adopted in this study. It has demonstrated adequate interitem correlations (.68 to .85) and primary factor loadings (.68 to .83) (Norton, 1983), and good convergent and discriminant validity correlations, modest classification abilities, and high correlations with Spanier's Dyadic

Adjustment Scale and the Relationship Satisfaction Questionnaire (Heyman, Sayers, & Bellack, 1994). The scale for the present sample had a single principal component, with loadings ranging from .86 to .91, that accounted for 80% of the variation (see Table 2) and a standardized Cronbach's coefficient alpha reliability of .95.

Satisfaction with the division of household labor. Satisfaction with the division of household labor was assessed by the household task subscale in Cowan and Cowan's (1978) Who Does What scale. This 12-item subscale asked couples to describe their arrangement of responsibility or involvement in various household tasks (e.g., laundry, cooking, car maintenance) in terms of how they currently perceive it (actual) and how they would like it to be (ideal). Items were scored on a 9-point scale, with 1 indicating that the wife does/decides it all, 9 indicating that the husband does/decides it all, and 5 indicating that the couple shares the tasks about equally. Satisfaction with the division of household labor was computed by summing the absolute difference between actual and ideal scores. Higher scores reflected lower satisfaction.

The Who Does What Scale has demonstrated high internal consistency reliability, with Cronbach's alpha and Spearman-Brown's split-half reliabilities ranging from .92 to .99 (Touliatos, Perlmutter, & Straus, 1990). When factor and item analyzed, the scale in the present sample extracted five factors and had a Cronbach's coefficient alpha reliability of .66. To increase the validity and reliability of the scale, only those items that (a) loaded highest on the first

Table 2

Means, Standard Deviations, and Principal Component Loadings for Marital Quality Scale (N=121)

Item	<u>M</u>	<u>SD</u>	Loading
1. We have a good marriage.	6.06	1.10	.91
2. My relationship with my spouse is very stable.	6.04	1.14	.88
3. Our marriage is strong.	6.10	1.13	.91
4. My relationship with my spouse makes me happy.	6.12	1.21	.90
5. I really feel like part of a team with my spouse.	5.89	1.32	.86
6. [the degree of happiness, everything considered, in your marriage] <sup>a</sup>	8.24	1.53	.90
Eigenvalue			4.80

<sup>a</sup>This was the only item that was not scored on a 7-point scale. It was scored on a 10-point scale.

principal component, (b) had a loading of .50 and over, and (c) produced a higher Cronbach's alpha if deleted were retained. The resulting 6-item scale had a single principal component, with loadings ranging from .55 to .73, that accounted for 40% of the variation (see Table 3) and a standardized Cronbach's coefficient alpha reliability of .69.

Equity. Equity was assessed by the Walster et al. (1978) Global Measures of Participants' Inputs, Outcomes, and Equity/Inequity. This 4-item instrument asked participants to rate their own and their partners' contributions to the relationship and outcomes from the relationship on an 8-point scale, with -4 being extremely negative to +4 being extremely positive. Husbands' and wives' perceptions of equity, respectively, were calculated by the following formulas:

$$(a) \quad \frac{(o_h - i_h)}{(|i_h|)^{k_h}} - \frac{(o_w - i_w)}{(|i_w|)^{k_w}}$$

$$(b) \quad \frac{(o_w - i_w)}{(|i_w|)^{k_w}} - \frac{(o_h - i_h)}{(|i_h|)^{k_h}}$$

where  $o_h$  and  $o_w$  were husbands' and wives' outcomes,  $i_h$  and  $i_w$  were husbands' and wives' inputs,  $|i_h|$  and  $|i_w|$  were the absolute values of their inputs, and exponents  $k_h$  and  $k_w$  took on the value of +1 or -1 depending on the sign of husbands' and wives' inputs multiplied by their outcomes minus inputs (i.e.,  $k_h = \text{sign}(i_h) \times \text{sign}(o_h - i_h)$ ;  $k_w = \text{sign}(i_w) \times \text{sign}(o_w - i_w)$ ). Scores of zero indicated absolute equity; deviations from zero (in either direction) indicated inequity.

Table 3

Means, Standard Deviations, and Principal Component Loadings for Satisfaction with the Division of Household Labor Scale (N=121)

Item	<u>M</u>	<u>SD</u>	Loading
1. Planning and preparing meals	1.15	1.16	.55
2. Cleaning up after meals	1.23	1.44	.73
3. House cleaning	1.36	1.15	.64
4. Taking out the garbage	.91	1.34	.62
5. Buying groceries, household needs	1.00	1.24	.60
6. Laundry: washing, folding, ironing	1.03	1.15	.62
Eigenvalue			2.38



Information regarding the validity and reliability of the Global Measures of Participants' Inputs, Outcomes, and Equity/Inequity scale was not currently available. However, it has been used successfully on married student populations (e.g., Martin, 1985).

Satisfaction with emotional intimacy. Emotional intimacy was assessed by the emotional intimacy subscale in Schaefer and Olson's (1981) Personal Assessment of Intimacy in Relationships (PAIR) inventory. This 6-item subscale asked participants to describe their emotional relationship with their spouse in terms of how they currently perceive it (actual) and how they would like it to be (ideal). Sample items included "My spouse can really understand my hurts and joys" and "I often feel lonely when my partner and I are together." Responses ranged from strongly disagree (0) to strongly agree (4). Three items were reverse coded so that higher scores reflected a positive sentiment towards intimacy. Satisfaction with emotional intimacy was computed by summing the absolute difference between actual and ideal scores. Higher scores reflected lower satisfaction.

This subscale has demonstrated adequate validity and reliability (Fowers, 1990; Sabatelli, 1988; Schafer & Olson, 1981). It correlated significantly with the Waring Intimacy Questionnaire, the Locke-Wallace Marital Adjustment Scale, and the Moos Family Environment Scale, and had an alpha reliability coefficient of .75. The scale for the present sample had a single principal component, with

loadings ranging from .72 to .84, that accounted for 62% of the variation (see Table 4) and a standardized Cronbach's coefficient alpha reliability of .88.

Marital structure. Marital structure was determined by participants' response to the question "Are you currently enrolled in graduate school?" (no = 1, yes = 2). If only one spouse in the marriage was enrolled in school, the participant was classified as being in an asymmetrical relationship (coded as 1). If both spouses were enrolled in school, the participant was classified as being in a symmetrical relationship (coded as 0).

Control variables. Because of their possible direct and/or indirect effects on marital quality, gender (males were coded as 0, females were coded as 1), number of children under age 13, and length of marriage (in years) were controlled statistically. In other words, their effects were partialled out or held fixed so that they were no longer free to vary (Walsh, 1990).

### Preliminary Analyses

Missing data. Of the 121 respondents, 118 provided complete information for data analysis. Three failed to answer all the household items, two failed to answer all the equity items, and one failed to answer all the intimacy items. Rather than discarding these cases, the means for each item were calculated and subsequently imputed for the missing values.

Table 4

Means, Standard Deviations, and Principal Component Loadings for Satisfaction with Emotional Intimacy Scale (N=121)

Item	<u>M</u>	<u>SD</u>	Loading
1. My spouse listens to me when I need someone to talk to.	.72	.97	.80
2. I can state my feeling without my spouse getting defensive.	1.14	1.05	.72
3. I often feel distant from my spouse.	1.02	1.08	.84
4. My spouse can really understand my hurts and joys.	.91	.99	.78
5. I feel neglected at times by my spouse.	1.19	1.25	.76
6. I sometimes feel lonely when my spouse and I are together.	.70	1.11	.83
Eigenvalue			3.74

Note. Items 3, 5, and 6 were reverse coded so that higher scores reflected a positive sentiment towards intimacy.

Data transformation. Graphical assessment of scatterplots (see Figures D1 through D5), residual plots (see Figures E1 through E4), and normal probability plots (see Figures F1 through F4) for the model indicated problems with nonlinearity, non-constant variance, and non-normality. The matrix of scatterplots showing all possible pairwise combinations of exogenous and endogenous variables were clustered and skewed, the scatterplots of residuals versus predicted values had a funnel-shaped pattern, and the residual points in the normal probability plots did not lie well on the diagonal line.

Linearity, constant variance, and normality are basic assumptions of regression theory. To violate these assumptions can result in biased estimates and standard errors (Ramsey & Schaefer, 1994). Therefore, to help remedy the situation, all variables except gender and marital structure were transformed to their natural logarithms. Satisfaction with the division of household labor, perception of equity, satisfaction with emotional intimacy, number of children under age 13, and length of marriage were transformed by the general formula:  $Y_i = \text{LOG}(y_i + 1)$ , where  $Y_i$  is the transformed variable and  $y_i$  is the original variable. Adding a constant of one eliminated values of zero, which do not have logarithms. Marital quality was transformed using the formula:  $MQ = \text{LOG}(5.23 - mq + 1)$ , where MQ is the transformed marital quality variable, 5.23 is the maximum value of marital quality on its original scale, mq is the original marital quality variable, and 1 is a constant value added to eliminate values of zero. Subtracting the original value from 5.23 reversed the distribution such that the

maximum value became the minimum value and vice versa. This step was necessary as the logarithm is a transformation of positive data. The scatterplots, residual plots, and normal probability plots of the transformed variables appear in Figures D6 through D10, E5 through E8, and F5 through F8, respectively.

### Method of Analysis

The tenability of the conceptual model was assessed by path analysis, a method by which direct and indirect effects, linking exogenous and endogenous variables, are examined (Pedhazur, 1982). An exogenous variable is a variable that is not influenced by other variables in the model so its variability is not explained by the model. An endogenous variable, on the other hand, is internal to the model and is explained by exogenous and/or other endogenous variables. The conceptual model presented in Figure 1 contained four exogenous variables (asymmetry, gender, number of children under age 13, and length of marriage) and four endogenous variables (satisfaction with the division of household labor, equity, satisfaction with emotional intimacy, and marital quality).

Under certain conditions, path coefficients (i.e., the direct effect of one variable on another variable) take the form of standardized regression coefficients. Unlike ordinary regression analysis, however, path analysis allows the correlations among variables to be decomposed into direct, indirect,

unanalyzed, and spurious effects, thus enhancing the interpretation of the relationships (Pedhazur, 1982).

The paths in the model were estimated by the Linear Structural Relations program (LISREL 8.12). LISREL has two main advantages over a statistical package like SAS (Jöreskog & Sörbom, 1993). First, it simultaneously analyzes the series of regression equations thereby avoiding the need to decompose and calculate the direct and indirect effects by hand. Second, by allowing residuals (i.e., the effects of the variables not included in the model) to correlate, the probability of obtaining biased estimates is reduced. This is important because the three mediating variables in the model (satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy) had no direct paths linking them together. Therefore, the residuals for these variables were correlated through the program.

Structural models are usually assessed at two levels. The first level evaluates the overall fit of the model, or in other words, how well the model represents the data. The following five goodness-of-fit indices were used to assess the overall fit of the model in this study (Jöreskog & Sörbom, 1993):

Chi-square. The chi-square statistic measures how well the model reproduces the observed covariances of the variables. Contrary to the traditional chi-square test, a nonsignificant or small chi-square indicates a good fit.

Root mean square error of approximation. The root mean square error of approximation (RMSEA) estimates the degree of approximation in the population, adjusting for degrees of freedom. A value of .05, with a p-value greater than .05, indicates a close fit. A value up to .08 indicates a reasonable fit.

Goodness of fit index. The goodness of fit index (GFI) measures how much better the model fits as compared to no model at all. A value over .90 indicates a good fit.

Adjusted goodness of fit index. The adjusted goodness of fit index (AGFI) is a version of the GFI that adjusts for the complexity of the model. A value over .90 indicates a good fit.

Non-normed fit index. The non-normed fit index (NNFI) measures how much better the model fits as compared to a baseline model. A value over .90 indicates a good fit.

The second level in model assessment evaluates the specific relationships in the model. Because the model included directional effects, one-tailed tests were used to assess the statistical significance of each path. Paths with t-values greater than 1.645 were significant at the .05 level.

## CHAPTER 4: RESULTS

### Assessing the Overall Fit of the Model

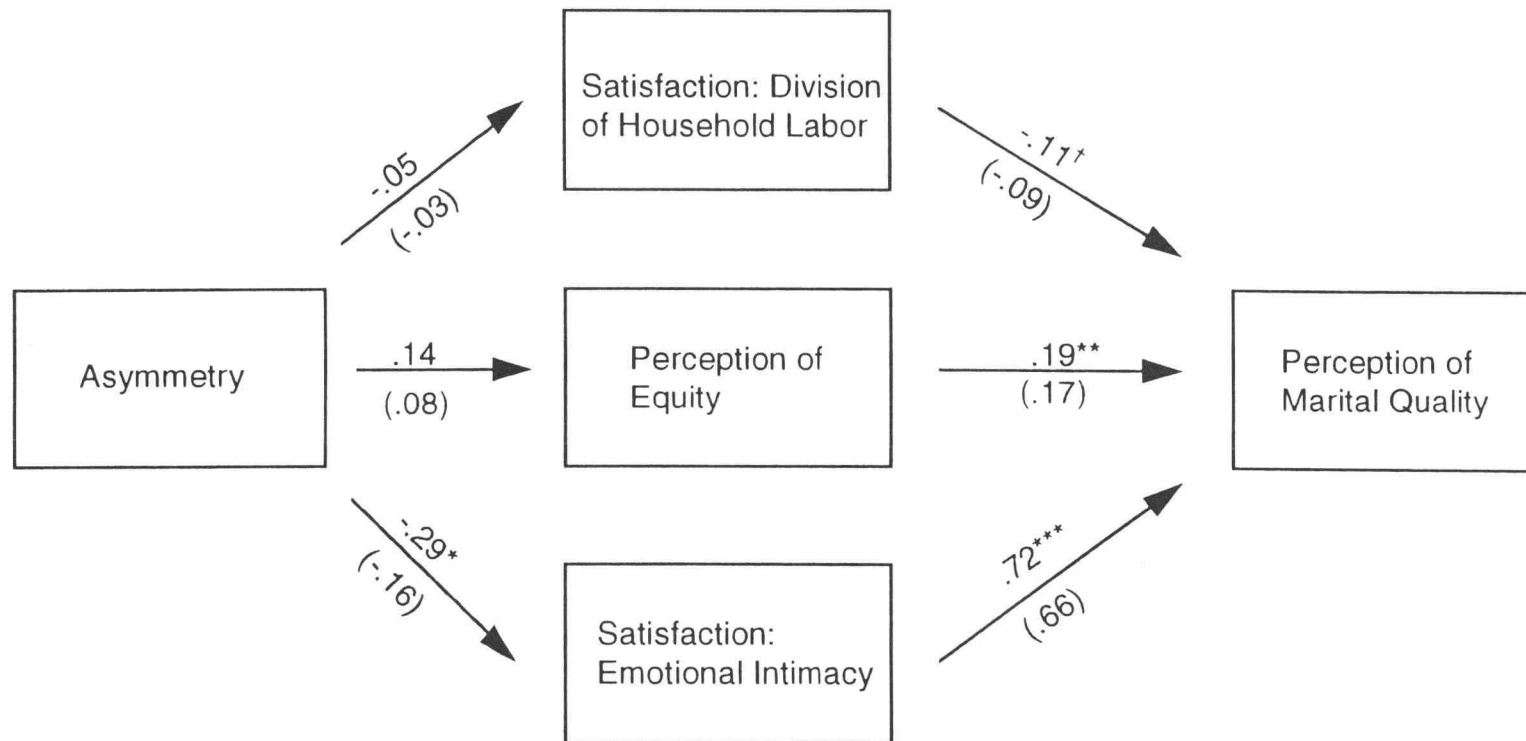
The overall fit of the model was acceptable (see Figure 2). The goodness-of-fit indices either approached or surpassed their recommended criteria. The chi-square statistic was small and nonsignificant ( $\chi^2_{(N = 121, df = 1)} = 1.85, p = .17$ ). The point estimate of RMSEA, although slightly over the acceptable range of .08, had a p-value greater than the .05 recommendation (RMSEA = .09,  $p = .23$ ). The GFI exceeded the criterion value of .90 (GFI = 1.00), and the AGFI and NNFI came close (AGFI = .86, NNFI = .85).

Modification indices and standardized residuals are other useful indications of model fitness (Jöreskog & Sörbom, 1993). Modification indices represent the expected drop in chi-square if a particular parameter in the model is estimated or "freed." Thus, adding paths with large indices (over 7.882) can significantly improve the fit of the model. Such additions, however, must be theoretically-based. None of the modification indices for the model were larger than 7.882.

Residuals are the observed covariances minus fitted covariances and standardized residuals are the residuals divided by their standard errors. Large standardized residuals (over  $\pm 2.00$ ) are indications of model misspecification. A large positive residual indicates that the model underestimated the covariance between two variables. Adding relevant paths (i.e., paths associated with the



**Figure 2.** Effects of Asymmetry, Satisfaction with the Division of Household Labor, Perception of Equity, and Satisfaction with Emotional Intimacy on Marital Quality (Unstandardized Coefficients, with Standardized Coefficients in Parentheses)



**Note.** In order to simplify the model, the effects of the control variables and the correlated residuals of satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy are not shown.

$\chi^2_{(N=121, df=1)} = 1.85$ . RMSEA = .09. GFI = 1.00. AGFI = .86. NNFI = .85.

† $p < .10$ , one-tailed test. \* $p < .05$ , one-tailed test. \*\* $p < .01$ , one-tailed test. \*\*\* $p < .001$ , one-tailed test.

particular covariance) can remedy the situation. Conversely, a large negative residual indicates that the model overestimated the covariance between the two variables and deleting relevant paths help in these situations. None of the standardized residuals for the model exceeded  $\pm 2.00$ .

In summary, the model appeared to fit the data reasonably well. The goodness-of-fit statistics were adequate, and according to the modification indices and standardized residuals, adding or deleting paths would not have significantly improved the fit of the model. The correlation matrix and standard deviations used to define the covariance matrix are located in Table 5.

#### Assessing Specific Relationships in the Model

The results of the path analysis appear in Figure 2 and Table 6. The first column of Table 6 reports the direct effects of satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy on marital quality (controlling for gender, number of children under age 13, and length of marriage). Contrary to expectations, satisfaction with the division of household labor was not positively related to marital quality. The unstandardized ( $B = -.11$ ,  $p < .10$ ) and standardized ( $\beta = -.09$ ) coefficients indicated instead a marginally significant negative relationship between the two.

It will be recalled that all variables except gender and marital structure were transformed to their natural logarithms. This requires that the interpretations of the unstandardized coefficients be phrased in terms of multiplicative changes rather than additive changes, and/or in terms of medians

Table 5

Correlations, Means, and Standard Deviations for All Variables

Variable	1	2	3	4	5	6	7	8
1. Gender <sup>a</sup>	--							
2. Number of children under age 13	.02	--						
3. Length of marriage	.02	.44	--					
4. Marital structure <sup>b</sup>	.01	.35	.25	--				
5. Satisfaction with household labor <sup>c</sup>	-.12	-.15	-.08	-.08	--			
6. Perception of equity <sup>d</sup>	.02	.01	-.24	.03	.16	--		
7. Satisfaction with emotional intimacy <sup>c</sup>	-.05	-.18	-.20	-.22	.25	.40	--	
8. Marital quality <sup>e</sup>	.07	.12	.18	.06	.10	.43	.71	--
<u>M</u>	.50	.38	1.60	.70	1.84	.64	1.60	1.47
<u>SD</u>	.50	.49	.84	.46	.67	.83	.83	.89

Note. All variables except gender and marital structure were transformed to their natural logarithms.

<sup>a</sup>Gender was coded as 1 for females and 0 for males. <sup>b</sup>Marital structure was coded as 1 for asymmetrical marriages and 0 for symmetrical marriages. <sup>c</sup>Higher scores reflect lower satisfaction. <sup>d</sup>Higher scores reflect lower equity. <sup>e</sup>Higher scores reflect lower marital quality.

Table 6

Unstandardized and Standardized Coefficients of Dependent Variables in Marital Quality Model

Independent variable	Dependent variable			
	Marital quality <sup>a</sup>	Satisfaction with household labor <sup>b</sup>	Perception of equity <sup>c</sup>	Satisfaction with emotional intimacy <sup>b</sup>
Satisfaction with household labor	-.11 <sup>†</sup> (-.09)			
Perception of equity	.19** (.17)			
Satisfaction with emotional intimacy	.72*** (.66)			
Marital structure <sup>d</sup>		-.05 (-.03)	.14 (.08)	-.29* (-.16)
Gender <sup>e</sup>	.16 <sup>†</sup> (.09)	-.16 <sup>†</sup> (-.12)	.04 (.02)	-.07 (-.04)
Number of children under age 13	-.02 (-.01)	-.18 (-.13)	.15 (.09)	-.11 (-.07)
Length of marriage	-.01 (-.01)	-.01 (-.01)	-.29** (-.30)	-.12 (-.13)
<u>R</u> <sup>2</sup>	.55	.04	.07	.07

Note. Standardized coefficients are presented in parentheses below unstandardized coefficients. All variables except marital structure and gender were transformed to their natural logarithms.

<sup>a</sup>Higher scores reflect higher marital quality. <sup>b</sup>Higher scores reflect higher satisfaction. <sup>c</sup>Higher scores reflect higher equity. <sup>d</sup>Marital structure was coded as 1 for asymmetrical marriages and 0 for symmetrical marriages. <sup>e</sup>Gender was coded as 1 for females and 0 for males.

<sup>†</sup> $p < .10$ , one-tailed test. \* $p < .05$ , one-tailed test. \*\* $p < .01$ , one-tailed test. \*\*\* $p < .001$ , one-tailed test.

rather than means (Ramsey & Schaefer, 1994). For example, it would be inaccurate to interpret the effect of satisfaction with the division of household labor on marital quality as "for every one-unit increase in satisfaction with the division of household labor, there was an associated .11 decrease in mean marital quality"--the typical additive interpretation. Instead, when the independent and dependent variables are logged (as in this case), the interpretation of the unstandardized coefficient of the independent variable is more conveniently expressed as "a doubling (or 10-fold increase) in the independent variable is associated with a multiplicative change in the median dependent variable." Thus, the effect of satisfaction with the division of household labor on marital quality can be interpreted in the following way. A doubling of satisfaction with the division of household labor was associated with a multiplicative change of  $2^{-.11}$ , or .93 (with a 95% confidence interval of .82 to 1.05), in the median perception of marital quality. The effects of perception of equity and satisfaction with emotional intimacy on marital quality will be similarly interpreted.

Perception of equity, as hypothesized, was significantly and positively related to marital quality. The unstandardized and standardized coefficients were .19 and .17 ( $p < .01$ ), respectively. The more equitably treated spouses felt, the more favorable they perceived their marriage. More specifically, a doubling of equity was associated with a  $2^{.19}$ -fold, or 1.14-fold, increase (with a 95% confidence interval of 1.02 to 1.27) in the median perception of marital

quality. Stated a little differently, there was a 14% increase in marital quality when equity scores doubled. Although this relationship was statistically significant at the .01 level, it was substantively weak. That is, in order for the impact of equity on marital quality to be meaningful, a much larger effect is needed.

The relationship between satisfaction with emotional intimacy and marital quality, on the other hand, was strong. The unstandardized and standardized coefficients were .72 and .66 ( $p < .001$ ), respectively. As predicted, the more satisfied husbands and wives were with the emotional aspects of their marriage, the higher they rated their marriage as a whole. More specifically, a doubling of emotional intimacy was associated with a  $2^{.72}$ -fold, or 1.65-fold, increase (with a 95% confidence interval of 1.47 to 1.84) in the median perception of marital quality. Again stated differently, there was a 65% increase in marital quality when intimacy scores doubled.

None of the control variables had a statistically significant effect on marital quality. Collectively, the primary predictors (satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy) plus the three control variables (gender, number of children under age 13, and length of marriage) were able to explain 52% of the variance in the perception of marital quality. Clearly, the main predictor of marital quality was satisfaction with emotional intimacy.

Although not reported in a figure or table, the significance of the correlated residuals should be noted. The covariance between the residuals of satisfaction with the division of household labor and perception of equity was marginally correlated ( $\Psi = .16$ ,  $p < .10$ , two-tailed test). The covariance between the residuals of satisfaction with the division of household labor and satisfaction with emotional intimacy was significantly correlated ( $\Psi = .21$ ,  $p < .05$ , two-tailed test). The covariance between the residuals of perception of equity and satisfaction with emotional intimacy was highly correlated ( $\Psi = .38$ ,  $p < .001$ , two-tailed test).

The second column of Table 6 reports the effect of marital structure on satisfaction with the division of household labor (controlling for gender, number of children under age 13, and length of marriage). The hypothesis that spouses in asymmetrical marriages would be less satisfied with the way household tasks are allocated than spouses in symmetrical marriages was not supported. There was no evidence that satisfaction with the division of household labor was related to marital structure in any way. The unstandardized ( $B = -.05$ ) and standardized ( $\beta = -.03$ ) coefficients were not statistically significant. In addition, none of the control variables were statistically significant. Collectively, marital structure and the control variables were able to explain 4% of the variance in satisfaction with the division of household labor.

The third column in Table 6 reports the effect of marital structure on perception of equity (controlling for gender, number of children under age 13,

and length of marriage). The hypothesis that perception of equity would differ by marital structure was also not supported. Spouses in asymmetrical marriages were no more likely to feel inequitably treated than their symmetrical counterparts. Again, the unstandardized ( $B = .14$ ) and standardized ( $\beta = .08$ ) coefficients were not statistically significant. Among the control variables, length of marriage was the only one with a statistically significant effect. The longer individuals were married, the more likely they were to report feelings of inequity. Collectively, marital structure and the control variables were able to explain 7% of the variance in perception of equity.

The fourth column in Table 6 reports the effect of marital structure on satisfaction with emotional intimacy (controlling for gender, number of children under age 13, and length of marriage). As predicted, spouses in asymmetrical marriages were significantly less satisfied with the emotional aspects of their marriage than spouses in symmetrical marriages. The unstandardized and standardized coefficients were  $-.29$  and  $-.16$  ( $p < .05$ ), respectively. Again, the interpretation of the unstandardized coefficient is more conveniently expressed in multiplicative and median terms because satisfaction with emotional intimacy was log-transformed (Ramsey & Schaefer, 1994). Unlike the effects of satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy on marital quality, however, the unstandardized coefficient of marital structure is not interpreted in terms of a "doubling effect" because only the dependent variable was logged here.



Instead, the effect of marital structure on satisfaction with emotional intimacy can be interpreted in the following way. The median intimacy for asymmetrical spouses was  $e^{-.29}$ , or .75 (with a 95% confidence interval of .53 to 1.05), times as large as the median for symmetrical spouses. None of the control variables had a statistically significant effect. Collectively, marital structure and the control variables were able to explain 7% of the variance in satisfaction with emotional intimacy.

Asymmetry was also predicted to indirectly influence marital quality through satisfaction with the division of household labor, perception of equity, and satisfaction with emotional intimacy. There was no evidence that asymmetry indirectly influenced marital quality through satisfaction with the division of household labor and perception of equity. The only nontrivial indirect effect of asymmetry on marital quality was through satisfaction with emotional intimacy. Spouses in asymmetrical arrangements reported larger discrepancies between actual and ideal degrees of intimacy, which in turn, negatively influenced how they perceived their marriage as a whole. It should be noted, however, that although the paths from asymmetry to satisfaction with emotional intimacy and from satisfaction with emotional intimacy to marital quality were statistically significant, the indirect/total effect of asymmetry to marital quality was not ( $\beta = -.09$ , ns). The decomposition of independent variables can be found in Table 7.

Table 7

Decomposition of Independent Variables (Standardized Coefficients)

Dependent variable	Independent variables	Effects		
		Direct	Indirect	Total
Satisfaction with household labor <sup>a</sup>	Marital structure <sup>b</sup>	-.03	--	-.03
	Gender <sup>c</sup>	-.12 <sup>†</sup>	--	-.12 <sup>†</sup>
	Children under age 13	-.13	--	-.13
	Length of marriage	-.01	--	-.01
Perception of equity <sup>d</sup>	Marital structure	.08	--	.08
	Gender	.02	--	.02
	Children under age 13	.09	--	.09
	Length of marriage	-.30 <sup>**</sup>	--	-.30 <sup>**</sup>
Satisfaction with emotional intimacy <sup>a</sup>	Marital structure	-.16 <sup>*</sup>	--	-.16 <sup>*</sup>
	Gender	-.04	--	-.04
	Children under age 13	-.07	--	-.07
	Length of marriage	-.13	--	-.13
Marital quality <sup>e</sup>	Satisfaction with household labor	-.09 <sup>†</sup>	--	-.09 <sup>†</sup>
	Perception of equity	.17 <sup>**</sup>	--	.17 <sup>**</sup>
	Satisfaction with emotional intimacy	.66 <sup>***</sup>	--	.66 <sup>***</sup>
	Marital structure	--	-.09	-.09
	Gender	.09 <sup>†</sup>	-.01	.07
	Children under age 13	-.01	-.02	-.03
	Length of marriage	-.01	-.13 <sup>*</sup>	-.15 <sup>†</sup>

<sup>a</sup>Higher scores reflect higher satisfaction. <sup>b</sup>Marital structure was coded as 1 for asymmetrical marriages and 0 for symmetrical marriages. <sup>c</sup>Gender was coded as 1 for females and 0 for males. <sup>d</sup>Higher scores reflect higher equity. <sup>e</sup>Higher scores reflect higher marital quality.

<sup>†</sup> $p < .10$ , one-tailed test. <sup>\*</sup> $p < .05$ , one-tailed test. <sup>\*\*</sup> $p < .01$ , one-tailed test.

<sup>\*\*\*</sup> $p < .001$ , one-tailed test.

## CHAPTER 5: DISCUSSION

This study empirically tested some of Scheinkman's (1988) major hypotheses regarding marital structure and marital quality in graduate student marriages. Specifically, the following three hypotheses were tested:

(a) Hypothesis 1: Asymmetry will indirectly (and negatively) affect marital quality through satisfaction with the division of household labor, (b) Hypothesis 2: Asymmetry will indirectly (and negatively) affect marital quality through perceptions of equity, and (c) Hypothesis 3: Asymmetry will indirectly (and negatively) affect marital quality through satisfaction with emotional intimacy. With a possible exception of emotional intimacy, marital structure (or more specifically, asymmetry) was not found to indirectly affect spouses' perceptions of marital quality. The findings for each hypothesis are discussed accordingly.

### Discussion of the Findings

Hypothesis 1. The hypothesis that spouses in asymmetrical arrangements would report larger discrepancies between their actual and ideal allocations of household chores, and that these discrepancies, in turn, would lower their perceptions of marital quality was unfounded. The path from asymmetry to satisfaction with the division of household labor was not statistically significant and the path from satisfaction with the division of household labor to marital quality was only marginally significant. The nonsignificant effect of asymmetry on satisfaction with the division of household

labor implies that asymmetrical couples are no more (nor less) likely than symmetrical couples to be dissatisfied with the way household tasks are allocated. This unanticipated finding could be attributed in part to the low variability in satisfaction scores. Few respondents reported being extremely dissatisfied with their division of household labor. In fact, out of a possible 48 points (with higher scores indicating dissatisfaction), the scores for all respondents ranged from 0 to 30, with 42% clustering in the 3- to 6-point range (table not shown). The low variability in scores may also help to explain why marital structure and the three control variables were only able to account for 4% of the variance.

The low dissatisfaction scores reflect little or no hierarchical confusion among these couples. In other words, there were no clear power struggles over who does more or who does less of the housework in either marital arrangement. Among asymmetrical couples, there was less than a .25 difference in mean household satisfaction between the student and nonstudent spouses (table not shown). Even gender did not have a strong effect. The difference between male and female scores was not statistically significant by conventional standards. The low dissatisfaction (or high satisfaction) reported by these women is somewhat surprising considering their educational backgrounds. Women who are highly educated have been found to report significantly more conflict over the division of household labor than women who are less educated (Mederer, 1993). However, the highly educated women in the

present study may have been influenced more by the following factors: women perform less housework when they are highly educated (Mederer, 1993; Shelton & John, 1993), women perform less housework when their partners are highly educated (Shelton & John, 1993), men perform more housework when they are highly educated (Ishii-Kuntz & Coltrane, 1992), men perform more housework when their partners are highly educated (Ishii-Kuntz & Coltrane, 1992; Shelton & John, 1993), and the housework that highly educated men and women perform are less sex-segregated (Blair & Lichter, 1991).

Another plausible explanation for the nonsignificant effect of marital structure on satisfaction with the division of household labor involves attributions, or the explanations spouses give for events that occur in their marriage (Bradbury & Fincham, 1990). Perhaps the spouses in asymmetrical arrangements look past their current situation and focus instead on the long-term benefits of having a spouse in graduate school. Any unequal or lopsided allocation of household chores, therefore, is tolerated for the moment. For whatever reason, it appears that the couples in this study, asymmetrical and symmetrical couples alike, have worked out arrangements that are satisfactory to both spouses.

The negative, albeit only marginally significant, direct effect of satisfaction with the division of household labor on marital quality was another interesting and unexpected finding. This finding suggests that satisfaction with the division of household labor is associated with lower perceptions of marital

quality. This is in direct contradiction to previous findings (Perry-Jenkins & Crouter, 1990; Suitor, 1991). On closer examination, however, we realize that this finding may be misleading. Adding a regressor (i.e., an independent or control variable) to a model usually changes the weights of the other regressors, at times even reversing their signs (Darlington, 1990). That appears to be the case here. The zero-order correlation between satisfaction with the division of household labor and marital quality was positive, but when satisfaction with the division of household labor was combined with other (stronger) regressors like equity and emotional intimacy, its direct effect on marital quality became marginally negative.

Hypothesis 2. The hypothesis that spouses in asymmetrical arrangements would report lower perceptions of equity, and hence, lower perceptions of marital quality was also unfounded. The path from equity to marital quality was statistically significant but the path from asymmetry to equity was not. Again, it appears that many of the couples in this study, regardless of marital structure, have worked out equitable arrangements such that the needs of both spouses are being met. Perhaps, the spouses in asymmetrical arrangements have learned to take turns catering to each other's needs--a strategy Scheinkman (1988) has recommended. For example, during periods of academic stress, the nonstudent spouse assumes a supportive role and caters to the student. Once this period passes, the roles switch. It is the student's turn to cater to the needs of his or her partner.

It should also be pointed out that this study did not distinguish the inequitably overbenefited from the inequitably underbenefited. Inequity included both types. It may be wise to make this distinction, however. The findings of Michaels, Edwards, and Acock (1984), for example, indicated a difference between the two. Overbenefited individuals had a higher threshold for inequity than underbenefited individuals. Perhaps reconceptualizing inequity to include only the underbenefited might alter the marital structure-equity relationship.

An interesting side note was the nonsignificant relationship between gender and equity. Contrary to previous findings (Perry-Jenkins & Folk, 1994; Prins et al., 1993; Ward, 1993), the women in this study did not report significantly lower perceptions of equity. A plausible explanation may be that their satisfaction with the division of household labor offset any feelings of inequity. Glass and Fujimoto's (1994) study, for example, documented the importance of household labor on women's perceptions of fairness. An equally plausible explanation is that these highly educated women have successfully negotiated equitable arrangements.

As predicted, equity had a positive influence on marital quality. The more equitably treated spouses felt, the higher their perceptions of marital quality. This finding validates past research (Blair, 1993; Perry-Jenkins & Folk, 1994; Ward, 1993) with a sample of graduate student couples.

Hypothesis 3. The only hypothesis that received nontrivial support involved emotional intimacy. The term nontrivial is used here to describe a

situation whereby the individual paths of asymmetry to satisfaction with emotional intimacy and satisfaction with emotional intimacy to marital quality were statistically significant but the indirect/total effect, as computed by LISREL, was not. Despite this latter finding, the fact that the individual paths were substantiated has meaningful significance.

Consistent with the findings of Scheinkman (1988), spouses in asymmetrical arrangements were less satisfied with the emotional aspects of their marriage than those in symmetrical arrangements. It appears that having different responsibilities, interests, and lifestyles has an alienating effect on the relationship. In discussing their findings, McKeon and Piercy (1980) attributed the higher marital adjustment scores of symmetrical couples to the shared schooling experience. With both in school, symmetrical couples have a significant area of communication in common. Asymmetrical couples, on the other hand, lack this shared experience and as a result, their communication tends to become one-sided or closed. The authors also described the graduate experience as a process of change and growth; if only one partner is experiencing this change, the couple may be at risk of growing apart instead of growing together.

As predicted, satisfaction with emotional intimacy had a positive effect on the perception of marital quality. Individuals who reported higher satisfaction scores also reported higher marital quality scores. In fact, intimacy was the main determinant of marital quality. Its effect was clearly stronger than the



effects of satisfaction with the division of household labor, perception of equity, gender, number of children under age 13, and length of marriage.

Summary. The findings of this study did not support the hypotheses that spouses in asymmetrical arrangements would be less satisfied with the division of household labor and would feel more inequitably treated than spouses in symmetrical arrangements. However, there was some support for the hypothesis that asymmetrical spouses would report less satisfaction with emotional intimacy. Taken together, perhaps asymmetry is not just a matter of nonsimultaneous school enrollment, but reflects instead an educational (or power) differential between the spouses. In other words, knowing the number of spouses in school may not be as important as knowing the educational background of each spouse. As we will see, the findings of this study can be better explained by taking a closer look at the educational background of the nonstudent spouses.

Of the 42 nonstudent spouses, 10 (24%) had some college education, 20 (48%) had an undergraduate degree, 1 (2%) had some graduate experience, 10 (24%) had a master's degree, and 1 (2%) had a doctoral degree (table not shown). The fact that all had at least some college education helps to explain why asymmetry, as originally defined, did not influence satisfaction with the division of household labor and perceptions of equity. As previously argued, highly educated individuals are better negotiators of equitable arrangements. This line of reasoning, however, does not bode well with emotional intimacy.

Here, it is not enough to know that the nonstudent spouse is highly educated; it is more important to know whether he or she had some graduate school experience. Logically, individuals with some graduate experience should be more understanding and supportive of their spouses' situation. Thus, the significant effect of asymmetry on satisfaction with emotional intimacy was partially attributed to the fact that the majority of the nonstudent spouses lacked this experience.

In their study on economic resources, influence, and stress, Greaves, Zvonkovic, Evans, and Hall (1995) found economic disparity to be related to husbands' and wives' levels of stress. Specifically, husbands reported higher levels of stress when they were more educated than their wives, and wives reported higher levels of stress when they earned more income than their husbands. These findings highlight the importance of examining relative resources of married couples. It would be fruitful for future studies on graduate student marriages, then, to take a closer look at the educational level of the nonstudent spouses.

### Limitations

At least three important limitations of this study must be recognized. First, although the sample was randomly selected, it may not be representative of all graduate student couples. The fact that it was small, predominately of one race, and taken from one institution severely limits the generalizability of the findings. Furthermore, despite a respectable return rate, 22% ( $n = 34$ ) of the

questionnaires were still unaccounted for. This could be problematic if the nonrespondents were systematically less satisfied with their marriages and thus removed themselves from the study. A related sampling concern involves the cross-sectional nature of the data. According to Glenn (1991):

Cross-sectional data from a sample of married persons are not, strictly speaking, appropriate for a causal analysis in which marital quality is the dependent variable....Since the influences that tend to lower marital quality also tend to drive persons out of the married population, the effects of those influences tend to be underestimated, or not detected at all, in studies of persons in intact marriages. (p. 30)

This may help to explain the nonsignificant, and weak but significant, findings in this study. Future studies would profit by collecting data from large and diverse samples over time. Better sampling would not only increase generalizability but would also allow the researcher to have better control of extraneous variables, be in a better position to make causal inferences, and be able to separate and compare husband and wife data.

Second, marital quality was treated as an outcome variable rather than a mediating variable. However, it may well be that marital quality influences satisfaction with the division of household labor, equity, and/or intimacy rather than the reverse. For example, individuals who are dissatisfied with their marriage may be more inclined, or less hesitant, to report problems with intimacy. Again, a longitudinal study would be helpful here. Having data from at

least two different points in time would help the researcher disentangle the direction of causality.

Third, this study is susceptible to the usual problems of self-reported data, most notably the social desirability bias. There is always a tendency for respondents to reply according to the norm or to what is socially desirable (Bailey, 1987). How honest these respondents were in supplying information about their marriage is unknown but steps were taken to reduce further bias by promising confidentiality and requesting that the questionnaires are completed and returned independently.

### Implications

In spite of the above limitations, the findings of this study have important implications, particularly for the graduate institution. Corroborating with previous researchers (Gilbert, 1982; Mallinckrodt & Leong, 1992; McLaughlin, 1985), it is important for institutions to not only offer academic services to its students but to make family-related services available as well. Although many of the respondents in this study reported having good relations with their spouses, others (particularly those in asymmetrical arrangements) reported problems with emotional intimacy, and hence, could benefit from institutional services. Considering the importance of emotional intimacy on marriage (emotional intimacy was by far the strongest predictor of marital quality), it is important for institutions to provide services that promote communication, interaction, and understanding between the spouses (e.g., marital counseling, child care

services, departmental family get-togethers). It is also important that these programs conduct ongoing evaluations. Are they successful? If not, these services will need to reassess their objectives and change accordingly.

Continued research on graduate student marriages, in general, also has important implications. For the institution, the retention and progress of married graduate students should be major concerns because they make up a large portion of the population. To neglect such a large group would be financially costly. Thus, the ability to recognize and understand the interplay of school and marriage is an imperative for all graduate institutions.

#### Recommendations for Future Research

Several recommendations for future research have been made throughout this chapter. Three of the more important, however, bear repeating. First, future studies should attempt to collect larger, more diverse samples over time. With a large sample, the researcher might want to control for such variables as income, employment status, grade point average, year in school, and when married in relation to school enrollment (i.e., whether the couple married before school or whether the couple married while in school). These variables may have confounding effects on marital quality. It would also be interesting to compare husband and wife data and to determine whether satisfaction with emotional intimacy indeed affects marital quality and not vice versa.

Second, future studies might want to reconceptualize asymmetry as an educational or power differential, or even more generally as a difference in emotional experiences. According to the findings of this study, it is not the number of spouses in school per se that matters, rather it is the understanding and emotional connectedness between them. It might be more appropriate and accurate, for example, to classify spouses in symmetrical arrangements with very different program experiences (e.g., one has to take a comprehensive examination, the other does not; one is in a friendly department, the other is not) as being asymmetrical instead.

Third, future studies should test the effectiveness of the institutional interventions. Are the institutions providing services that graduate student couples want and need? Are these programs really helping? Asking such questions and continuing research on graduate student marriages are needed. It is hoped that this study sparks further interest and sets an example by which future studies can follow.

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## APPENDICES

## APPENDIX A.1: TELEPHONE SCRIPT (STUDENT)

Hi, may I speak to \_\_\_\_\_. Hi, \_\_\_\_\_, my name is Shari. I'm a master's student at OSU. As part of my thesis, I will be surveying married graduate students (and their spouses), and I was wondering if this describes you.

NO - Thank you for your time.

YES - Would you and your spouse be willing to fill out a short questionnaire for me? I've been told that it takes 10 minutes or so to complete. Some of the questions ask about the division of household labor in your family. There's also some general questions about your marital relationship.

-----  
NO - Thank you for your time.

YES - Great. This research is not funded so to minimize costs, could I send the questionnaires through campus mail? Do you have a departmental mailbox?

-----  
NO - Could you tell me if the home address I have for you is correct? \_\_\_\_\_. I'd like to address your spouse separately, could you tell me his/her name (spelling?)? Does \_\_\_\_\_ have the same last name as you? And is \_\_\_\_\_ a graduate student as well? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - What is your campus address? Is your spouse also a graduate student? At OSU?

-----  
NO - Would it be okay if I send your spouse's questionnaire through you?

NO - Could you tell me his/her name (spelling?) and address? Does \_\_\_\_\_ have the same last name as you? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - I'd like to address your spouse separately, could you tell me his/her name (spelling?)? Does \_\_\_\_\_ have the same last name as you? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - Does your spouse have a departmental mailbox?

NO - Would it be okay if I send your spouse's questionnaire through you?

NO - Could you tell me his/her name (spelling?) and address? Does \_\_\_\_\_ have the same last name as you? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - I'd like to address your spouse separately, could you tell me his/her name (spelling?)? Does \_\_\_\_\_ have the same last name as you? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - Could you tell me his/her name (spelling?) and address? Does \_\_\_\_\_ have the same last name as you? Please let your spouse know that he/she should be receiving his/her questionnaire in a couple of weeks. Thank you for your time and cooperation.

## APPENDIX A.2: TELEPHONE SCRIPT (SPOUSE)

Hi, may I speak to \_\_\_\_\_.

NOT HOME - Maybe you could help me. My name is Shari and I'm a master's student at OSU. As part of my thesis, I will be surveying married graduate students and their spouses. Would you be able to tell whether \_\_\_\_\_ is married?

NOT MARRIED - Thank you for your time.

YES - Are you \_\_\_\_\_'s spouse, by any chance?

-----  
NO - Do you know when the best time for me to get in touch with \_\_\_\_\_ would be?

YES - Would you and your spouse be willing to fill out a short questionnaire for me? I've been told that it takes 10 minutes or so to complete. Some of the questions ask about the division of household labor in your family. There's also some general questions about your marital relationship.

-----  
NO - Thank you for your time.

YES - Great. Are you a graduate student as well? At OSU?

-----  
NO - My research is not funded so to minimize costs I'm asking if I could send the questionnaires through campus mail. Do you know if \_\_\_\_\_ has a departmental mailbox? Would it be better for me to call back and talk with your wife/husband?

CALL BACK - When would the best time for me to call? Thank you for your time.

YES - He/she is majoring in \_\_\_\_\_, correct? Would it be okay if I send your questionnaire through your spouse?

NO - May I have your name (spelling?) and address? Do you have the same last name as your spouse? You should be receiving your questionnaire in a couple of weeks. Please let your spouse know that he/she should

be receiving his/her questionnaire in a couple of weeks as well. Thank you for your time and cooperation.

YES - I'd like to address you separately, may I have your name (spelling)? Do you have the same last name as your spouse? Please let your spouse know that he/she should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - My research is not funded so to minimize costs, could I send the questionnaires through campus mail?

---

NO - May I have your name (spelling?) and address? Do you have the same last name as your spouse? You and your spouse should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.

YES - May I have your name (spelling?) and campus address? Do you have the same last name as your spouse? You should be receiving the questionnaires in a couple of weeks. Thank you for your time and cooperation.



## APPENDIX B: QUESTIONNAIRE

Oregon State University  
Dept. of Human Development and Family Sciences  
Corvallis, Oregon 97331

**\*\*Date\*\***

Many graduate students are married, yet little is known about graduate student marriages. For example, does school affect the way you and your spouse divide household chores? Are you satisfied with the emotional closeness in your marriage? Few researchers have asked such questions. As a married graduate student or the spouse of a graduate student, you can provide valuable information that will help others better understand the graduate student marriage experience.

You and your spouse have been randomly selected to participate in this survey. You are under no obligation to participate but to adequately represent the opinions and experiences of graduate student couples, it is important that each questionnaire is completed and returned.

The information you provide will be for research purposes only. It will not be shared with any family members of yours and any publications or talks based on this survey will never include information that could identify you. The number on your questionnaire is only to identify marital pairs and to check names off a mailing list as questionnaires come in. Your name will not be placed on the questionnaire and your responses will not be linked to your name in any way.

Please complete your questionnaire independently. In other words, please refrain from discussing your answers with your spouse until you have returned your questionnaire. I also ask that OSU graduate students return their questionnaires through campus mail (separately, if both spouses are graduate students) and spouses of OSU graduate students through regular mail. The appropriate envelope has been enclosed for your convenience.

I realize that this may be a busy time of the year for you but I would appreciate receiving your completed questionnaire by **\*\*date\*\***. Couples who return their questionnaires by this date will be entered in a lottery drawing for a \$15.00 gift certificate to OSU bookstore. The winning couple will be notified by mail.

If you have any questions or concerns, feel free to contact me. Thank you for your assistance.

Sincerely,

Shari Sakashita  
753-xxxx

All couples develop ways of dividing family household tasks. This page asks you to describe how you and your spouse divide these tasks.

**FAMILY HOUSEHOLD TASKS.** Using the scale below, please write in the number that best indicates how it is now down the left side and how you would like it to be down the right side. If other household members contribute to housework, consider only that portion that you and your spouse do. For example, if the father and child do most of the cooking, you would choose a score on the right side of the scale to indicate how it is now because the husband is cooking more often than the wife. In the case where the child does all of the cooking, you would choose 5 because you and your spouse equally do (or not do) this task.

	1	2	3	4	5	6	7	8	9
	-----			-----			-----		
	she			we both do this			he		
	does it all			about equally			does it all		
HOW IT IS NOW								HOW I WOULD LIKE IT TO BE	
_____	1.	Planning and preparing meals					_____		
_____	2.	Cleaning up after meals					_____		
_____	3.	Repairs around the home					_____		
_____	4.	House cleaning					_____		
_____	5.	Taking out the garbage					_____		
_____	6.	Buying groceries, household needs					_____		
_____	7.	Paying bills					_____		
_____	8.	Laundry: washing, folding, ironing					_____		
_____	9.	Writing letters/making calls to family and friends					_____		
_____	10.	Looking after the car					_____		
_____	11.	Providing income for our family					_____		
_____	12.	Caring for plants, garden, yard					_____		

The next four questions deal with inputs and outcomes of a relationship. Examples of inputs and outcomes are located below.

**Inputs:** These are the personal characteristics and behaviors that people put into their marriage. Inputs can be positive or negative. For example, the things that people give in relationships can be very positive like giving understanding or love. But a person's inputs to a relationship also can be negative, like not helping with the household chores, or being too critical.

**Outcomes:** Outcomes are the things people get as a consequence of being married. Just as with inputs, outcomes can be positive or negative, good or bad. For example, from your marriage you may get a lot of appreciation for your efforts, a good outcome. A bad outcome could be that now that you're married you have less money to spend on things just for you.

Use the following 8-point scale to circle the best response to questions 13 to 16.

- 4 = **extremely negative**
- 3 = **very negative**
- 2 = **moderately negative**
- 1 = **slightly negative**
- +1 = **slightly positive**
- +2 = **moderately positive**
- +3 = **very positive**
- +4 = **extremely positive**

13. All things considered, how would you describe your inputs to your marriage?

-4      -3      -2      -1      +1      +2      +3      +4

14. All things considered, how would you describe your spouse's inputs to your marriage?

-4      -3      -2      -1      +1      +2      +3      +4

15. All things considered, how would you describe your outcomes from your marriage?

-4      -3      -2      -1      +1      +2      +3      +4

16. All things considered, how would you describe your spouse's outcomes from your marriage?

-4      -3      -2      -1      +1      +2      +3      +4



Because people and their interests differ in many ways, it helps to know a little about your background. Please fill out the following demographic information.

29. What is your gender? (Circle number)

- 1 FEMALE
- 2 MALE

30. What is your current age? \_\_\_\_\_ YEARS

31. Which category best describes your ethnic identity? (Circle number)

- 1 AFRICAN AMERICAN
- 2 WHITE, NOT OF HISPANIC ORIGIN
- 3 MEXICAN AMERICAN, CHICANO, MEXICANO
- 4 PUERTO RICAN
- 5 CUBAN
- 6 OTHER HISPANIC
- 7 AMERICAN INDIAN
- 8 ASIAN
- 9 OTHER

32. Are you currently enrolled in graduate school? (Circle number)

- 1 NO (If no, answer questions 32a, 32b, and 32c then proceed to question 33)
- 2 YES (If yes, skip to and answer questions 32d to 32j)

IF YOU ANSWERED "NO" TO QUESTION 32...

a. Which category best describes your current employment status? (Circle number)

- 1 EMPLOYED FULL-TIME (30+ HOURS A WEEK) IN THE WORK FORCE
- 2 EMPLOYED PART-TIME (LESS THAN 30 HOURS A WEEK) IN THE WORK FORCE
- 3 EMPLOYED FULL-TIME AS A HOMEMAKER
- 4 EMPLOYED AS A HOMEMAKER AND PART-TIME IN THE WORK FORCE
- 5 UNEMPLOYED AND SEEKING WORK
- 6 UNEMPLOYED AND NOT SEEKING WORK

b. What is the highest level of education that you completed? (Circle number)

- 1 GRADE SCHOOL
- 2 SOME HIGH SCHOOL
- 3 HIGH SCHOOL GRADUATE
- 4 SOME COLLEGE
- 5 COLLEGE GRADUATE
- 6 SOME GRADUATE SCHOOL
- 7 MASTER'S DEGREE
- 8 PH.D. DEGREE

c. Are you currently enrolled in a degree program (for example, are you currently pursuing a bachelor's degree)? (Circle number)

- 1 NO (If no, proceed to question 33)
- 2 YES (If yes, proceed to question 33)

IF YOU ANSWERED "YES" TO QUESTION 32...

d. What degree are you pursuing? (Circle number)

- 1 MASTER'S
- 2 PH.D.

e. What is your major? \_\_\_\_\_

f. In what year of the program are you? (Circle number)

- 1 FIRST YEAR
- 2 SECOND YEAR
- 3 THIRD YEAR
- 4 FOURTH OR MORE YEARS

g. How many credit hours are you enrolled in this term?

\_\_\_\_\_ CREDIT HOURS

h. Which category best describes your current grade point average? (Circle number)

- 1 THIS IS MY FIRST TERM
- 2 BELOW 3.00
- 3 3.00-3.24
- 4 3.25-3.49
- 5 3.50-3.74
- 6 3.75-4.00

- i. How many hours a week, on average, do you spend studying for school?

\_\_\_\_\_ HOURS A WEEK

- j. Are you currently employed (e.g., graduate assistantship, part-work in the labor force, full-time work in the labor force)? If yes, please indicate how many hours a week, on average, you are employed.

1 NO

2 YES, AND I AM EMPLOYED \_\_\_\_\_ HOURS A WEEK

33. Which category best describes your monthly income before taxes? Please do not include your spouse's income. (Circle number)

1 I'M NOT CURRENTLY RECEIVING INCOME

2 LESS THAN \$500

3 \$500-\$999

4 \$1,000-\$1,999

5 \$2,000-\$2,999

6 \$3,000-\$3,999

7 \$4,000-\$5,000

8 MORE THAN \$5,000

34. How long have you been married to your current spouse?

\_\_\_\_\_ YEARS (OR IF LESS THAN A YEAR, \_\_\_\_\_ MONTHS)

35. Do you have children? (Circle number)

1 NO

2 YES (If yes, answer question 35a)

- a. How many children, in each age group, have lived with you for at least 3 months during the past year? If none, write "0".

Number of children

\_\_\_\_\_ UNDER 5 YEARS

\_\_\_\_\_ 5 TO 6 YEARS

\_\_\_\_\_ 7 TO 12 YEARS

\_\_\_\_\_ 13 TO 18 YEARS

\_\_\_\_\_ 19 TO 25 YEARS

\_\_\_\_\_ OVER 25 YEARS

THANK YOU FOR YOUR COOPERATION!

## APPENDIX C: APPLICATION FOR APPROVAL OF THE INSTITUTIONAL REVIEW BOARD

Application for Approval of the OSU Institutional Review Board (IRB)

Principal Investigator Alan C. Acock  
 Department Human Development and Family Sciences Phone 737-xxxx  
 Project Title Different Worlds? Asymmetry in Graduate Student Marriages  
 Present or Proposed Source of Funding None  
 Type of Project:      Faculty Research Project  
                     X   Student Project or Thesis  
                   Student's name Shari S. Sakashita Phone 753-xxxx  
                   Student's mailing address xxxx SW E Ave., Corvallis OR 97333  
 Type of Review Requested:   X   Exempt      Expedited      Full Board

1. A brief description (one paragraph) of the significance of this project in lay terms.

Most of the studies investigating the high divorce rate among graduate students have focused on descriptive factors such as gender of the student, enrollment status, and number of children. Few have investigated *how* graduate school impacts the marital relationship. In addition, few have collected and analyzed data from both spouses in the marriage. This study will move beyond description and towards explanation and will gather information from both spouses, thereby expanding the view of graduate student marriages.

2. A brief description of the methods and procedures to be used during this research project.

Questionnaires will be administered to graduate students currently enrolled at Oregon State University and their spouses. Before the actual study is conducted, the questions will be pilot tested to see whether their content and form are satisfactory. Survey packets containing one questionnaire and a return envelope will be distributed to a small group of interested couples. After making the necessary revisions, the survey packets will be distributed to a different and larger sample of OSU graduate student couples.

To increase the rate of survey return, follow-up letters and another copy of the questionnaire will be mailed to nonrespondents 10 days after the initial mailing. In order to identify who has and hasn't returned questionnaires,



each questionnaire will contain an identification number that will be used to check off names as the questionnaires come in. The identification number will also be used to match marital pairs. Also, couples who have returned their questionnaires by a requested date will be entered into a lottery drawing to win a \$15.00 gift certificate to the OSU bookstore.

3. A description of the benefits (if any) and/or risks to the subjects involved in this research.

Requesting participation from persons in the same family can threaten confidentiality but this study will try to minimize this risk by clearly stating on the questionnaire that their participation is voluntary and that all information will be kept confidential and not shared with any family members. In addition, husbands and wives will be given separate envelopes for survey return.

4. A description of the subject population, including number of subjects, subject characteristics, and method of selection. Justification is required if the subject population is restricted to one gender or ethnic group.

Participants for the pilot study will be acquired by the convenience sampling method. Persons known to the researcher to be in graduate student marriages will be contacted, informed about the study, and solicited for participation. Three to five couples will be recruited.

Participants for the actual study will be acquired by a random sampling method. A list of graduate students (by department) will be requested from Milne Computing Center. This list will then be taken to various departments in hopes of identifying married students. Potential participants will be randomly selected and contacted from this shortened list. At least 50 couples will be recruited.

Participation will not be restricted to a particular gender or ethnic group. To the contrary, this study hopes to get a balanced sample of males and females and a mix of racial backgrounds.

5. A copy of the informed consent document. The informed consent document must include the pertinent items from the "Basic Elements of Informed Consent" and must be in lay language.

See the first page of the questionnaire.

6. A description of the methods by which informed consent will be obtained.

No official consent form will be collected but the first page of the questionnaire contains the basic elements of informed consent. It describes the study, explains participants' roles and rights, and mentions who to contact should questions arise.

7. A description of the method by which anonymity or confidentiality of the subjects will be maintained.

Respondents will not be able to maintain their anonymity because the questionnaires will contain identification numbers but steps will be taken to maintain confidentiality. Respondents' names will not be placed on the questionnaires, responses will not be linked to the respondents' names in any way, publications or talks based on this survey will not reveal any identifying information, and the mailing list with the identification numbers will be discarded once the study is completed.

8. A copy of any questionnaire, survey, testing instrument, etc. (if any) to be used in this project.

See attached for a draft of the questionnaire.

9. Information regarding any other approvals which have been or will be obtained (e.g., school districts, hospitals, cooperating institutions).

Cooperation and permission from Milne Computing Center and various departments throughout OSU will be requested in order to obtain names, addresses, and phone numbers of married graduate students.

10. If this is part of a proposal to an outside funding agency, attach a copy of the funding proposal.

Not applicable.

Signed \_\_\_\_\_ Date \_\_\_\_\_  
Principal Investigator

Figure D.1. Matrix of Scatterplots for Perception of Marital Quality, Satisfaction with the Division of Household Labor, Perception of Equity, and Satisfaction with Emotional Intimacy (Before Transformation)

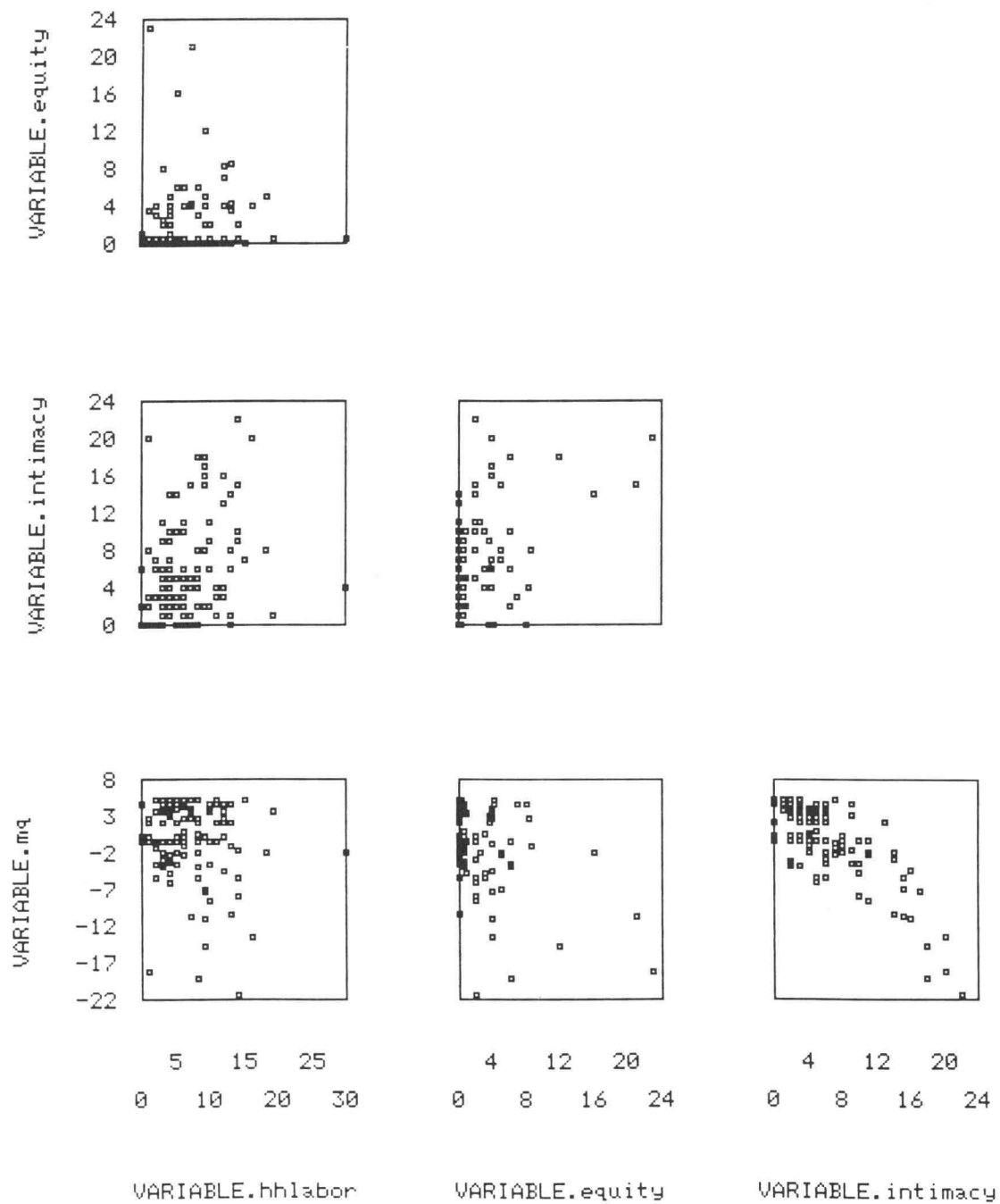


Figure D.2. Matrix of Scatterplots for Perception of Marital Quality, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

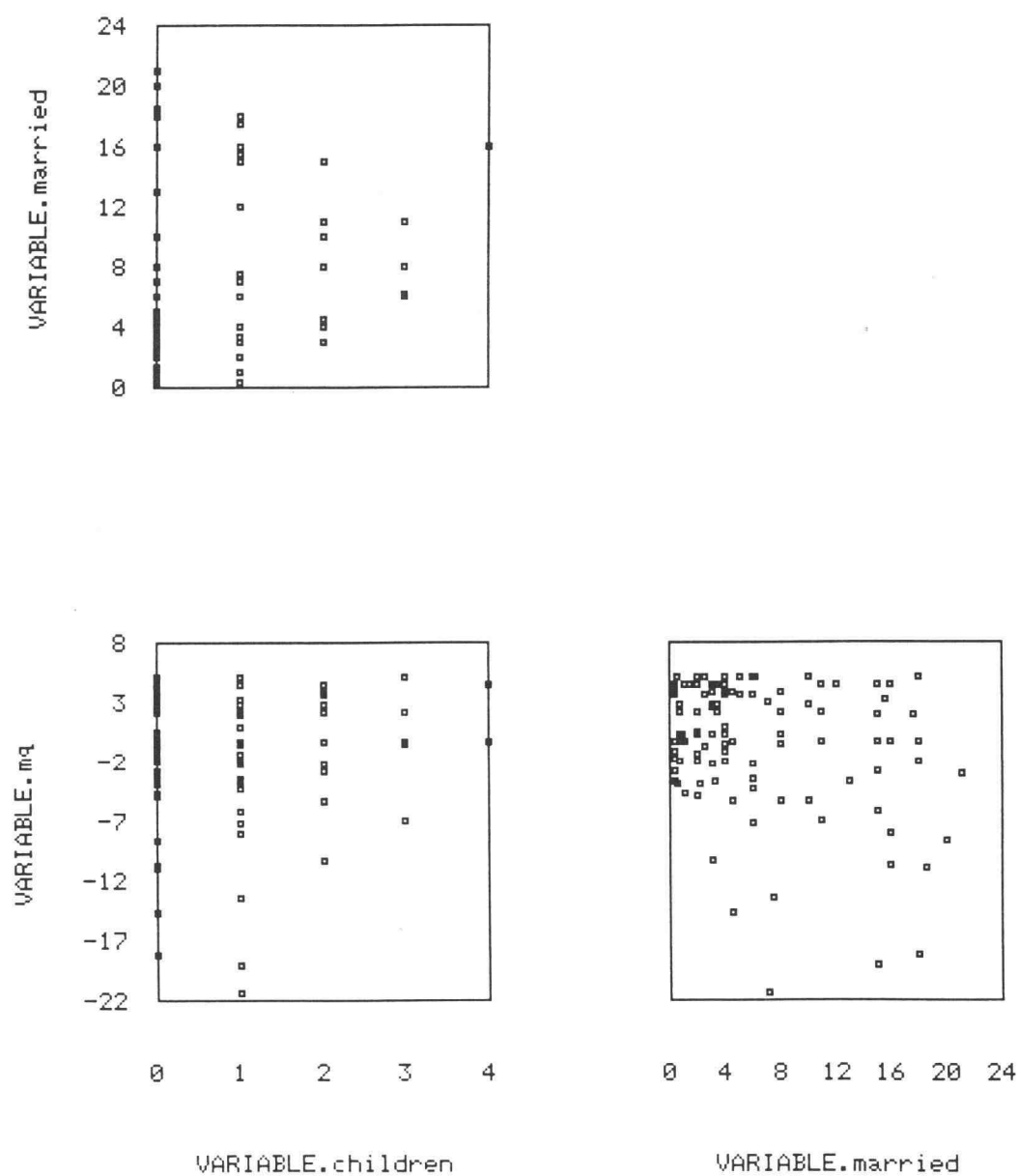


Figure D.3. Matrix of Scatterplots for Satisfaction with the Division of Household Labor, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

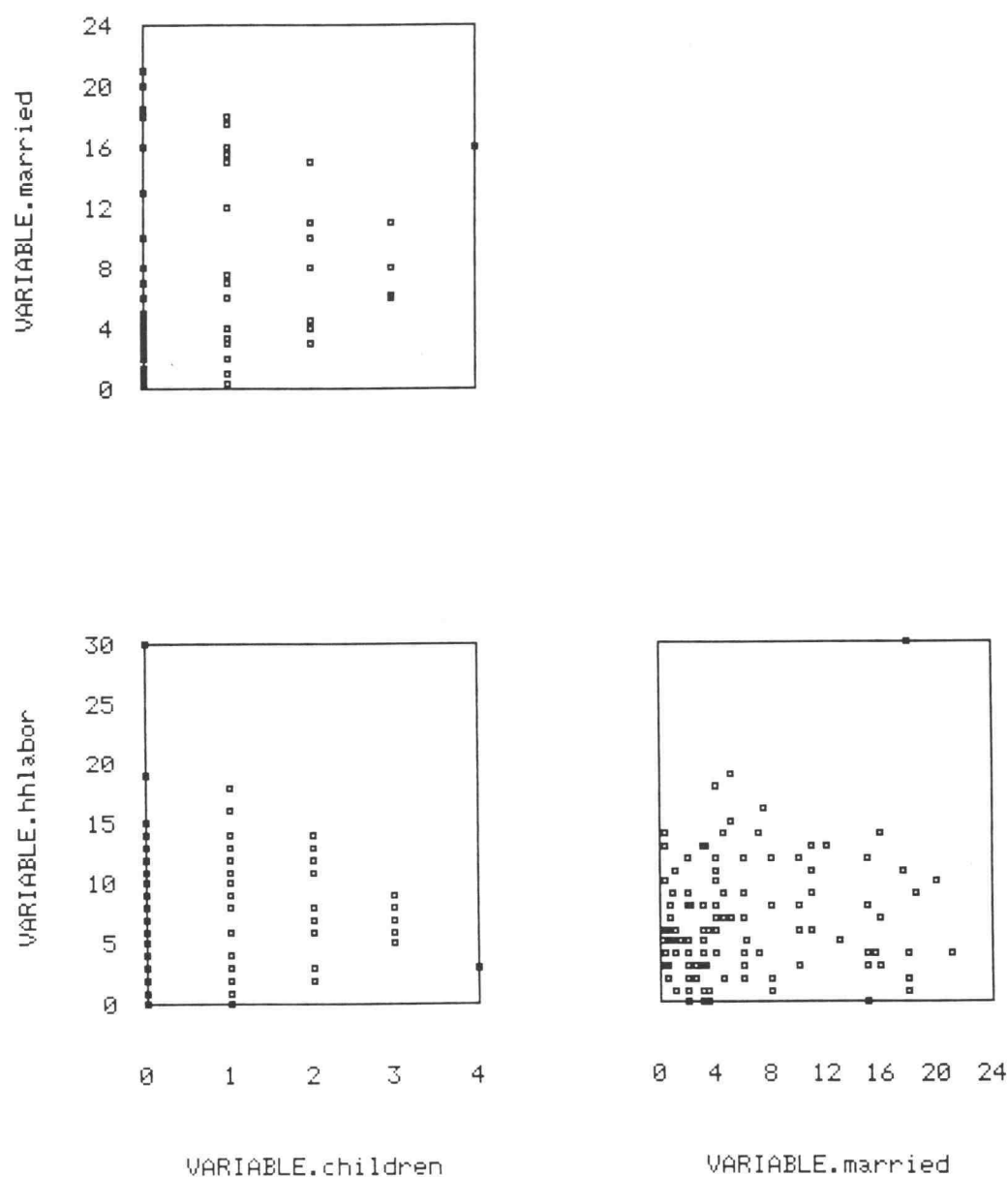


Figure D.4. Matrix of Scatterplots for Perception of Equity, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

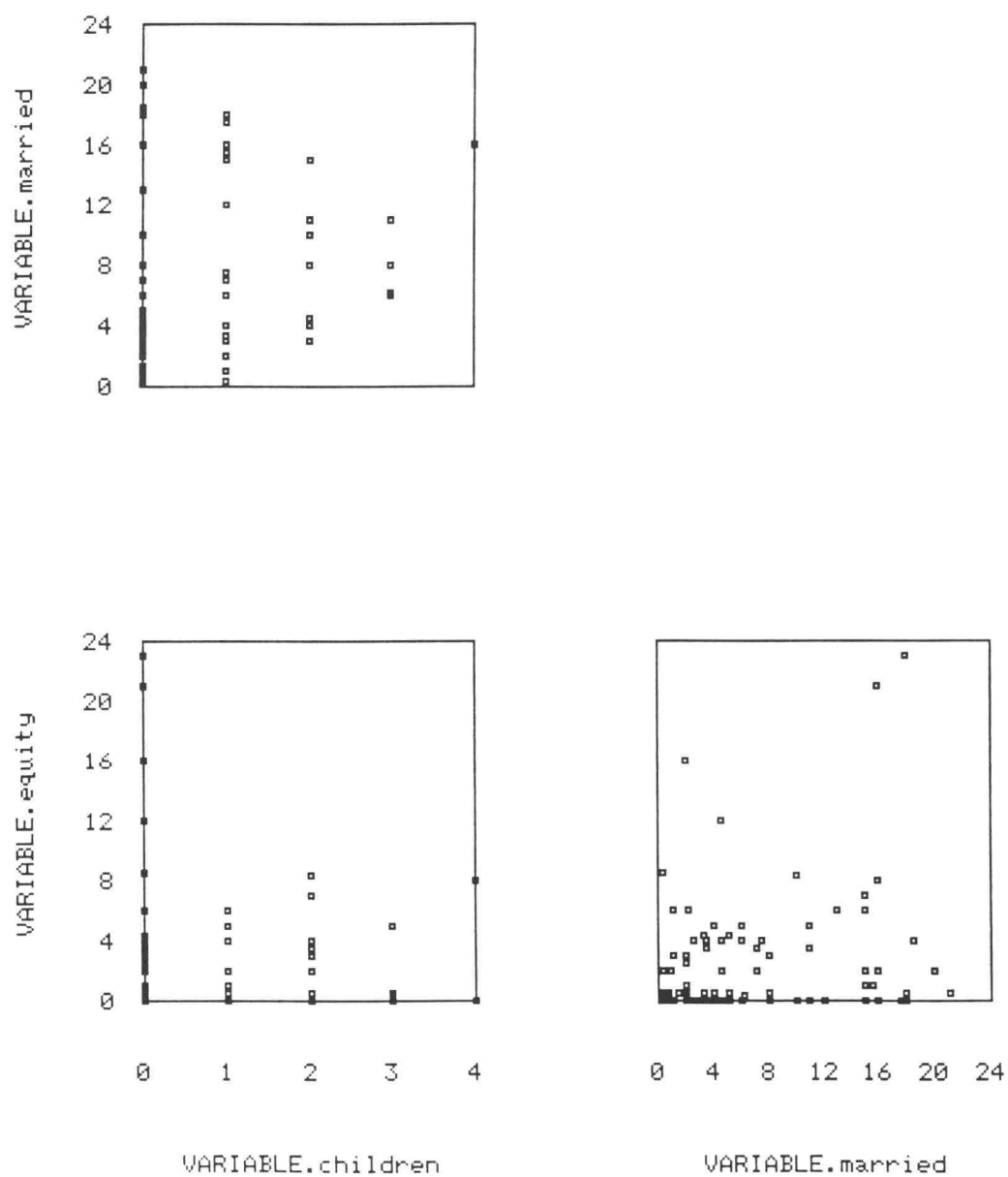


Figure D.5. Matrix of Scatterplots for Satisfaction with Emotional Intimacy, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

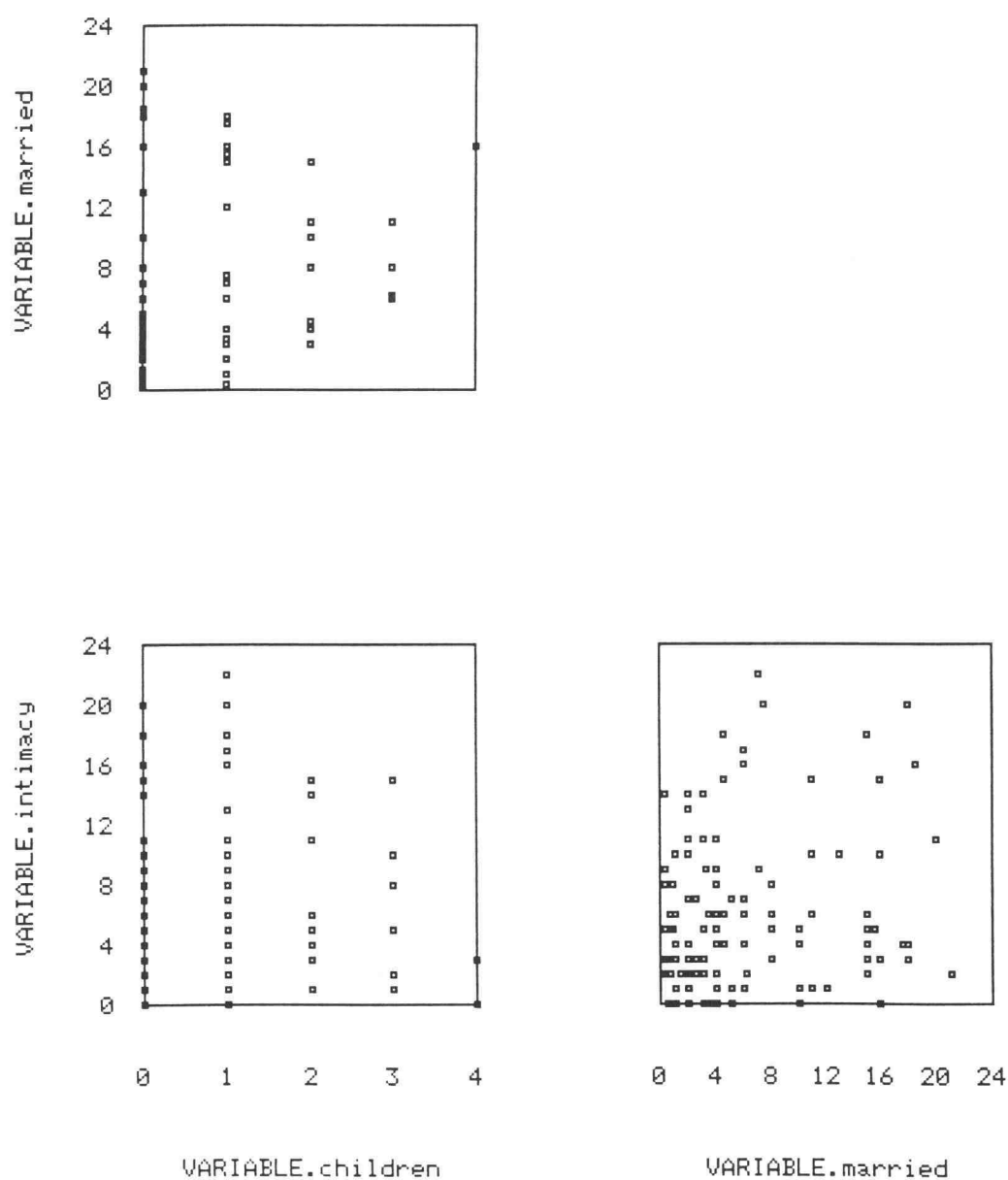


Figure D.6. Matrix of Scatterplots for Perception of Marital Quality, Satisfaction with the Division of Household Labor, Perception of Equity, and Satisfaction with Emotional Intimacy (After Transformation)

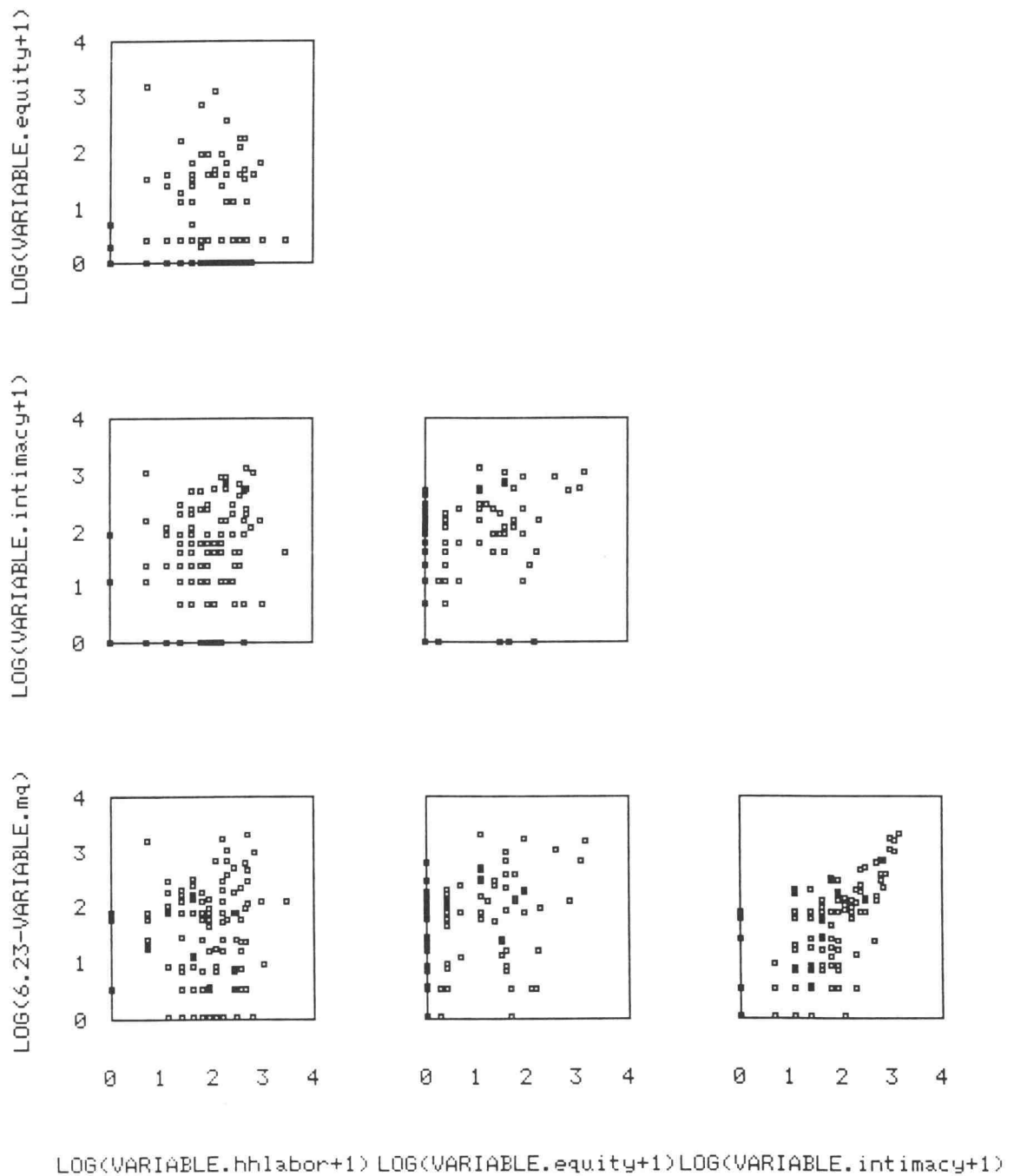




Figure D.7. Matrix of Scatterplots for Perception of Marital Quality, Number of Children Under Age 13, and Length of Marriage (After Transformation)

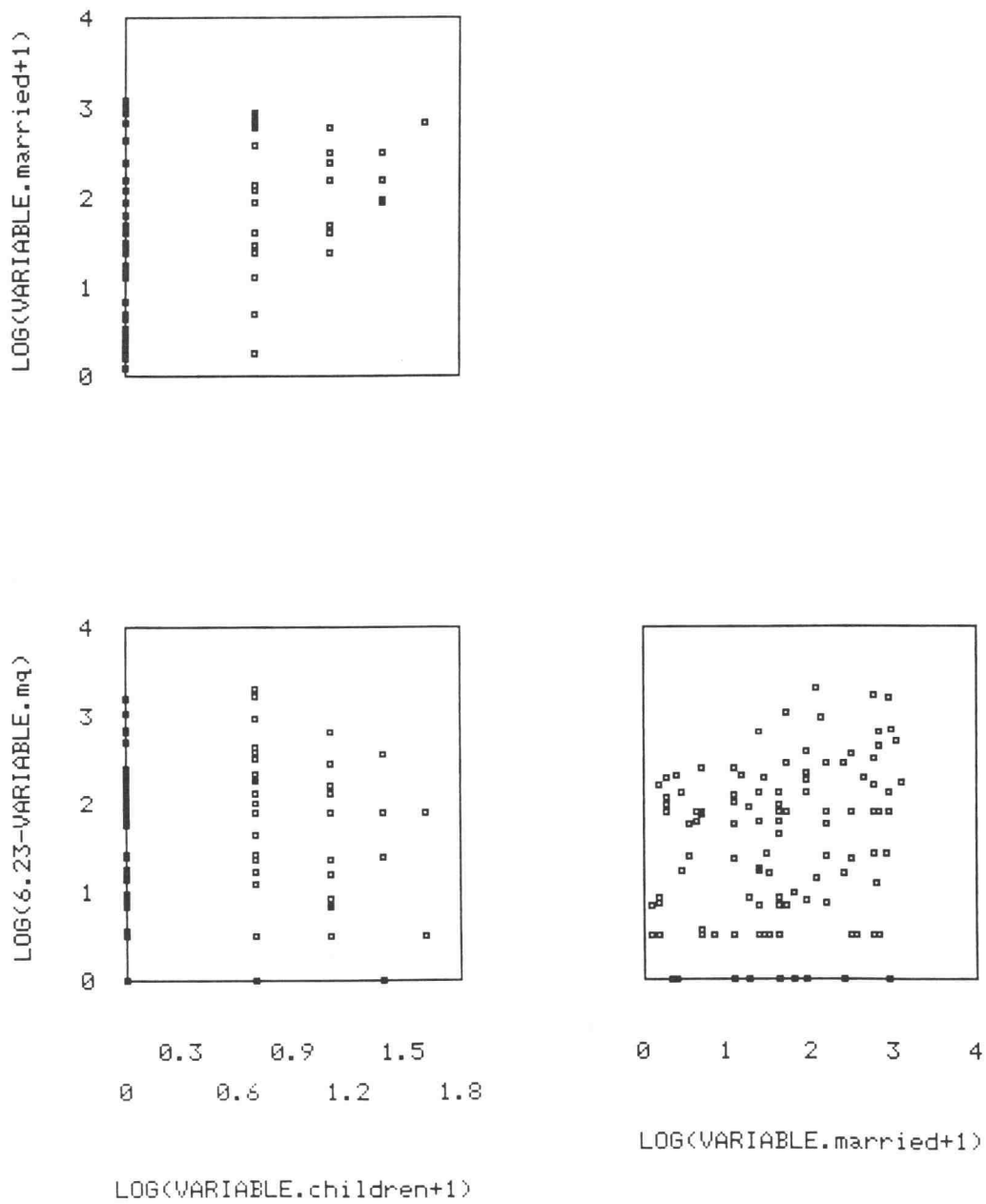


Figure D.8. Matrix of Scatterplots for Satisfaction with the Division of Household Labor, Number of Children Under Age 13, and Length of Marriage (After Transformation)

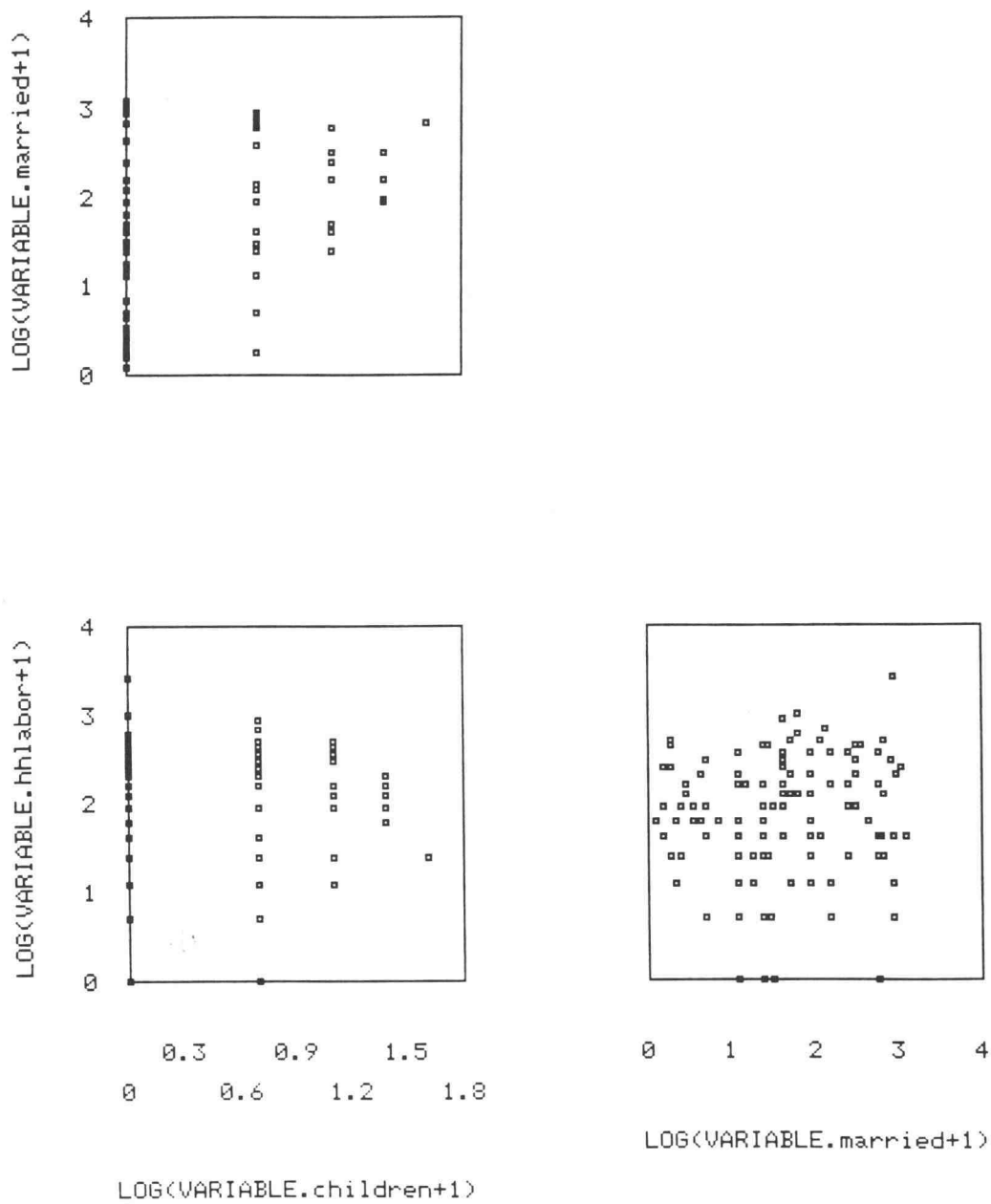


Figure D.9. Matrix of Scatterplots for Perception of Equity, Number of Children Under Age 13, and Length of Marriage (After Transformation)

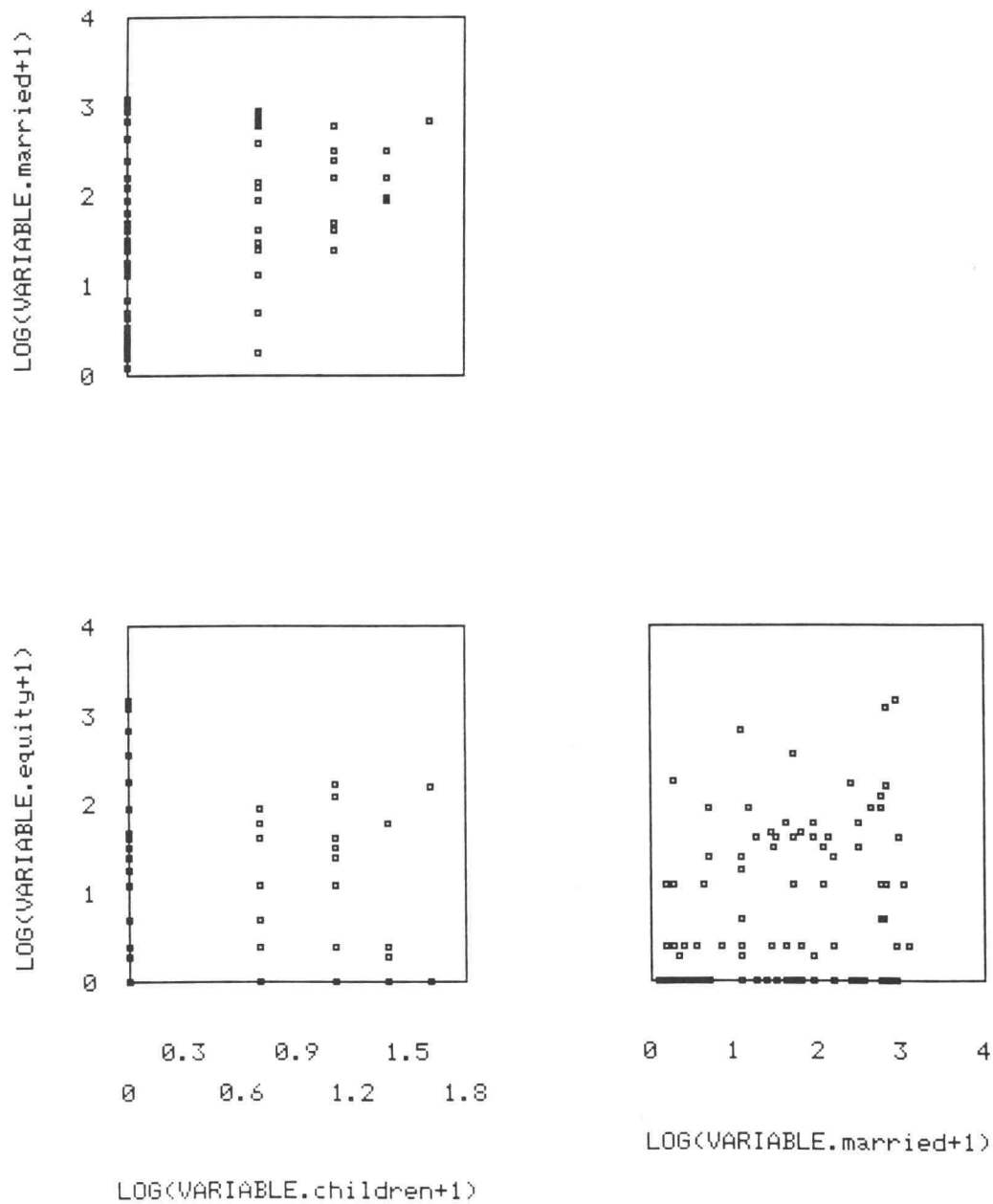


Figure D.10. Matrix of Scatterplots for Satisfaction with Emotional Intimacy, Number of Children Under Age 13, and Length of Marriage (After Transformation)

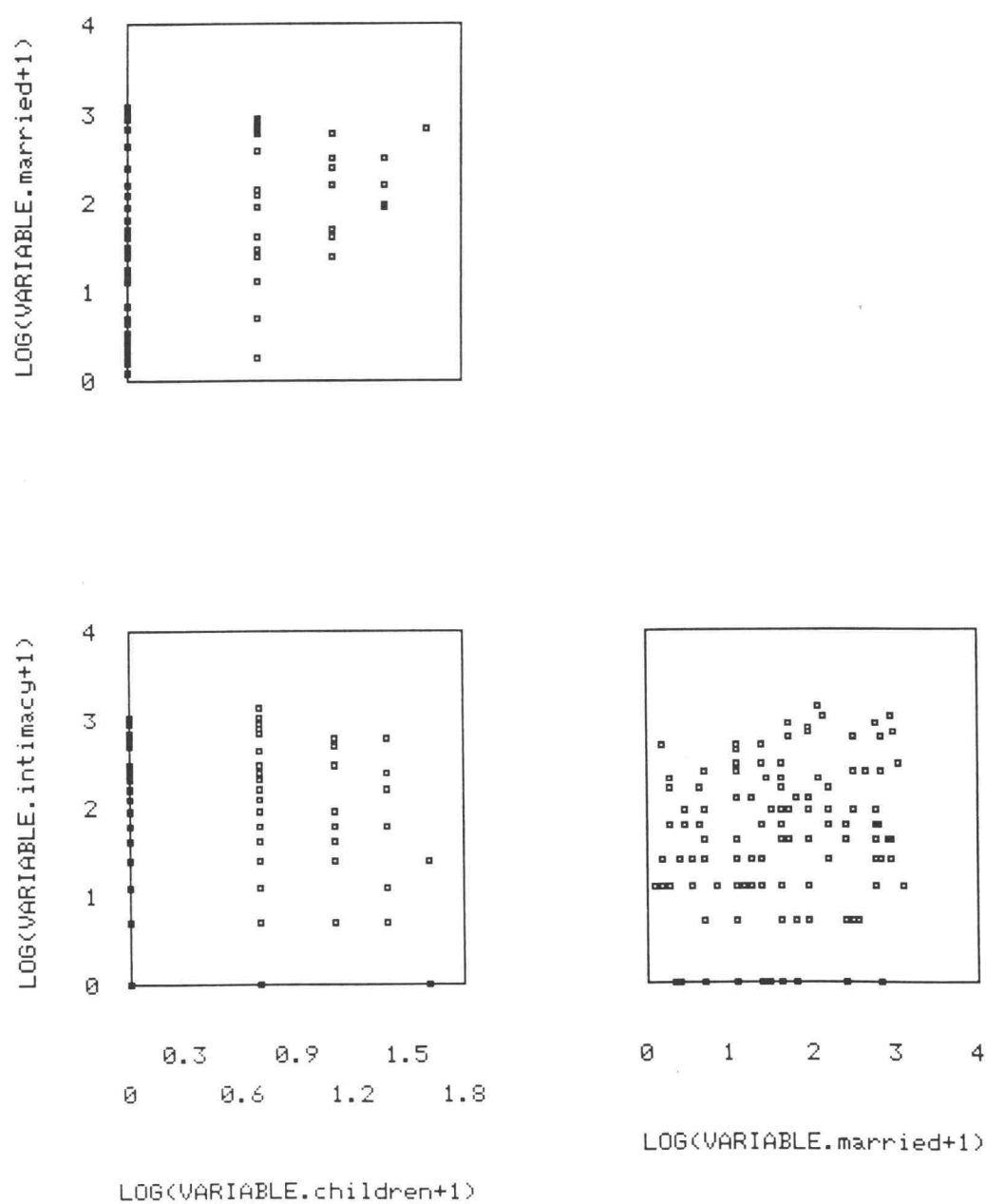


Figure E.1. Residual Plot from the Regression of Perception of Marital Quality on Satisfaction with the Division of Household Labor, Perception of Equity, Satisfaction with Emotional Intimacy, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

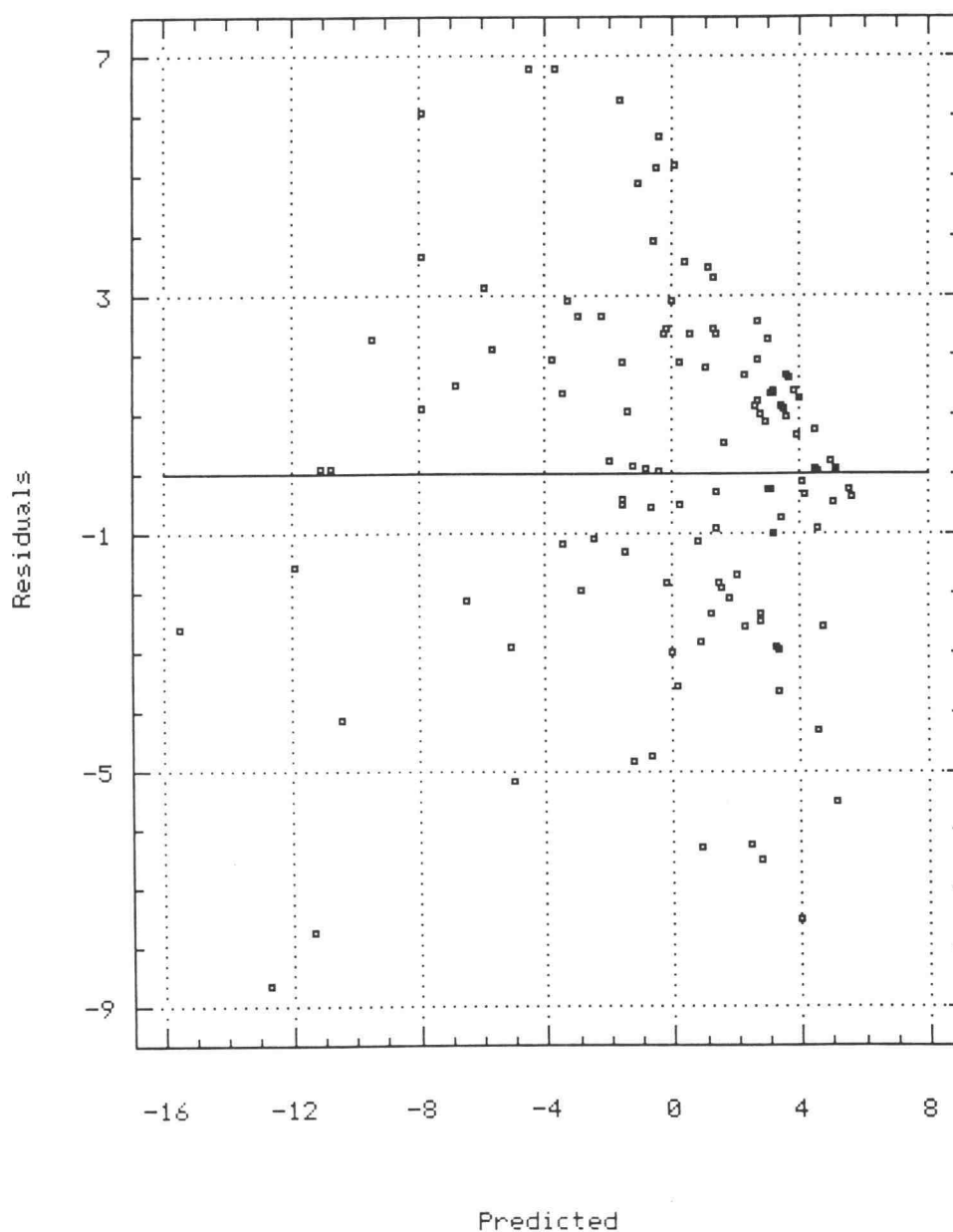


Figure E.2. Residual Plot from the Regression of Satisfaction with the Division of Household Labor on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

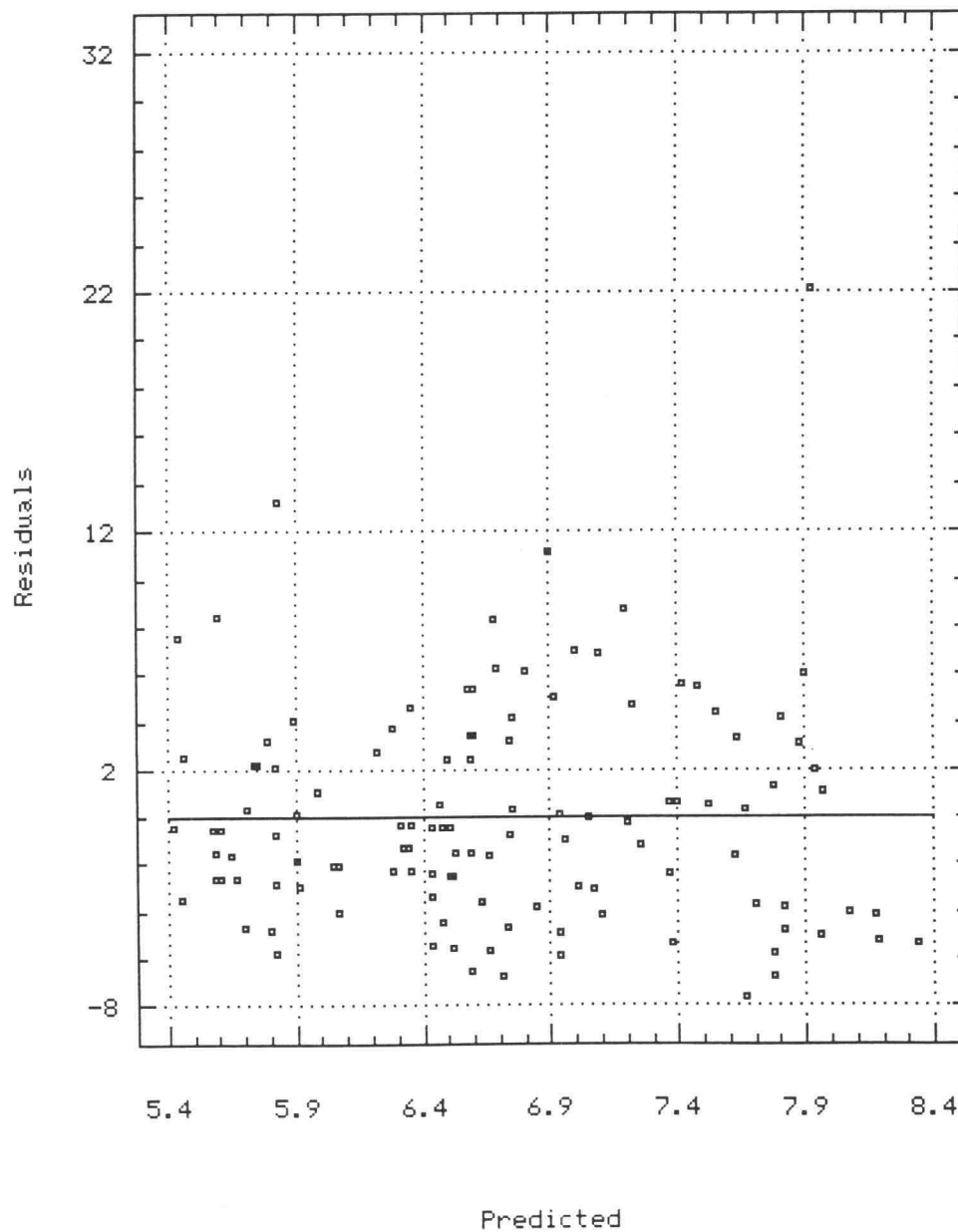


Figure E.3. Residual Plot from the Regression of Perception of Equity on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

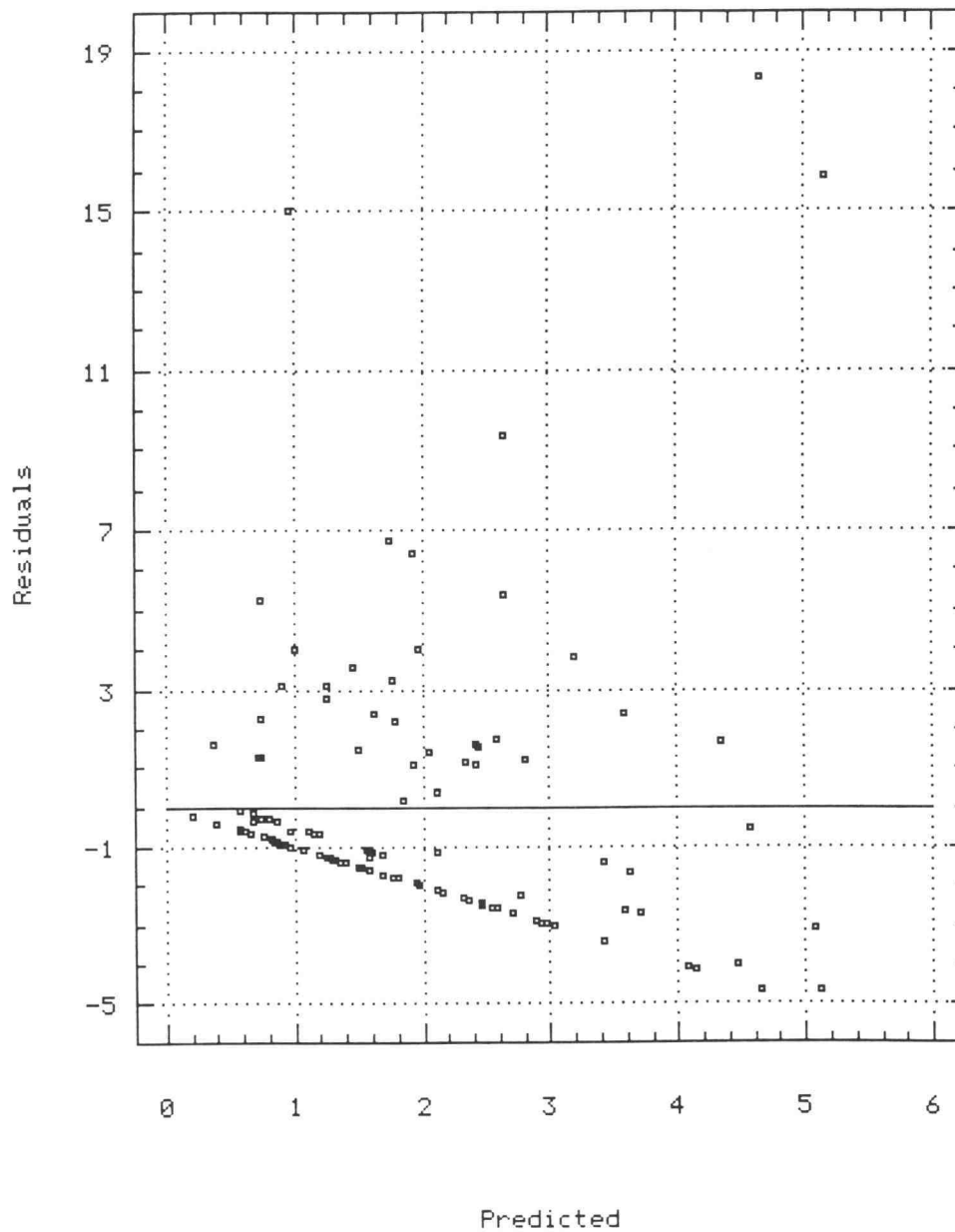


Figure E.4. Residual Plot from the Regression of Satisfaction with Emotional Intimacy on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

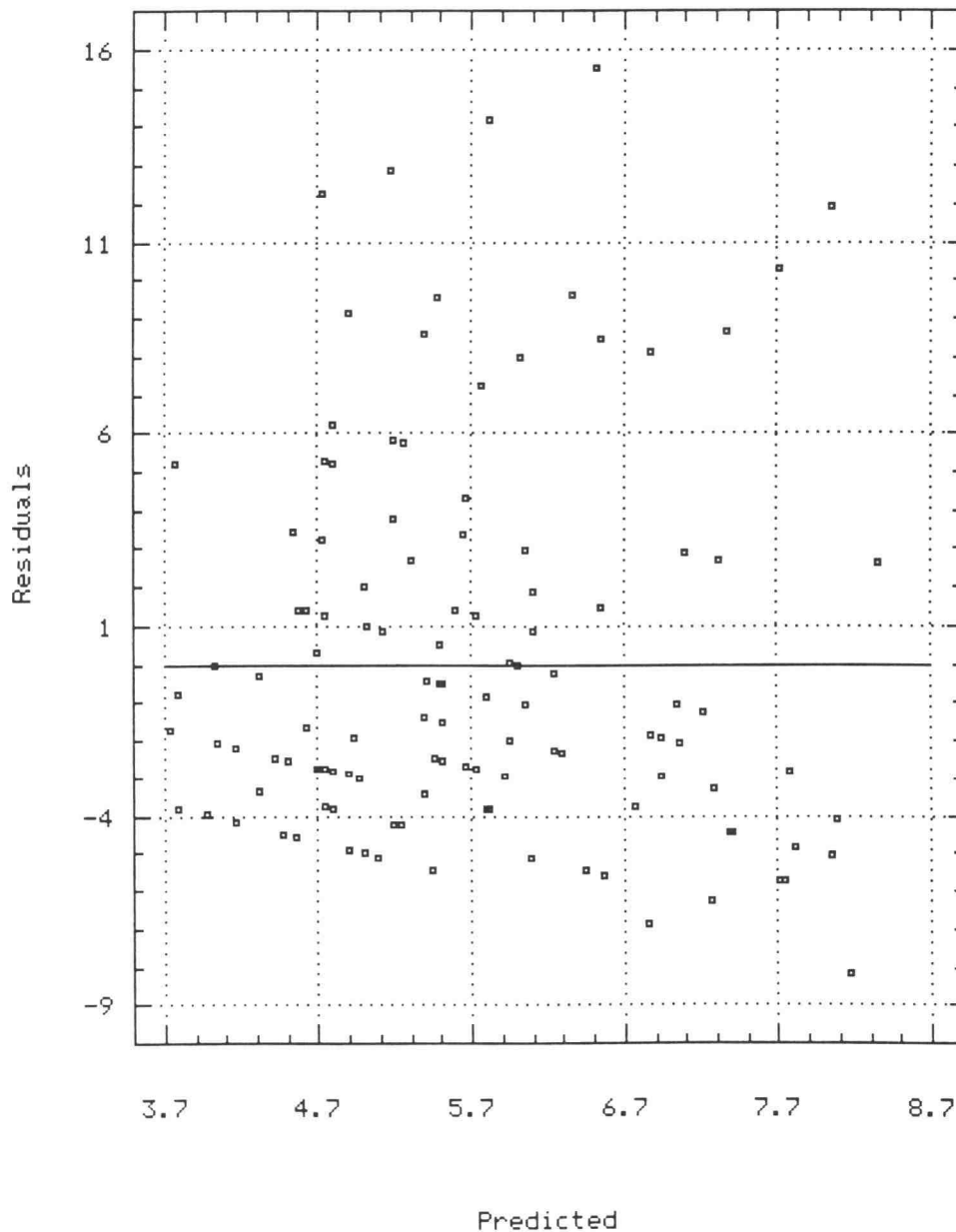




Figure E.5. Residual Plot from the Regression of Perception of Marital Quality on Satisfaction with the Division of Household Labor, Perception of Equity, Satisfaction with Emotional Intimacy, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

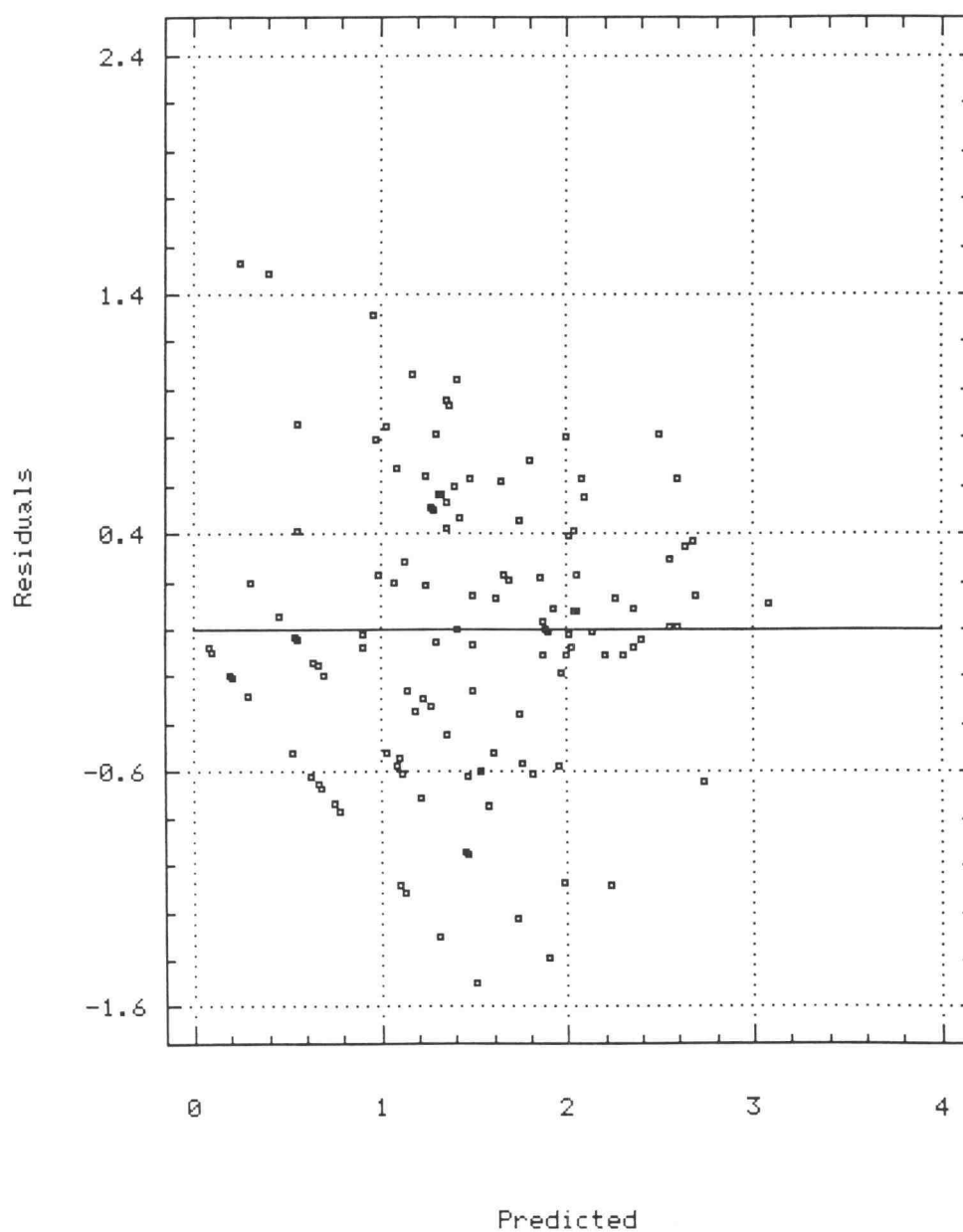


Figure E.6. Residual Plot from the Regression of Satisfaction with the Division of Household Labor on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

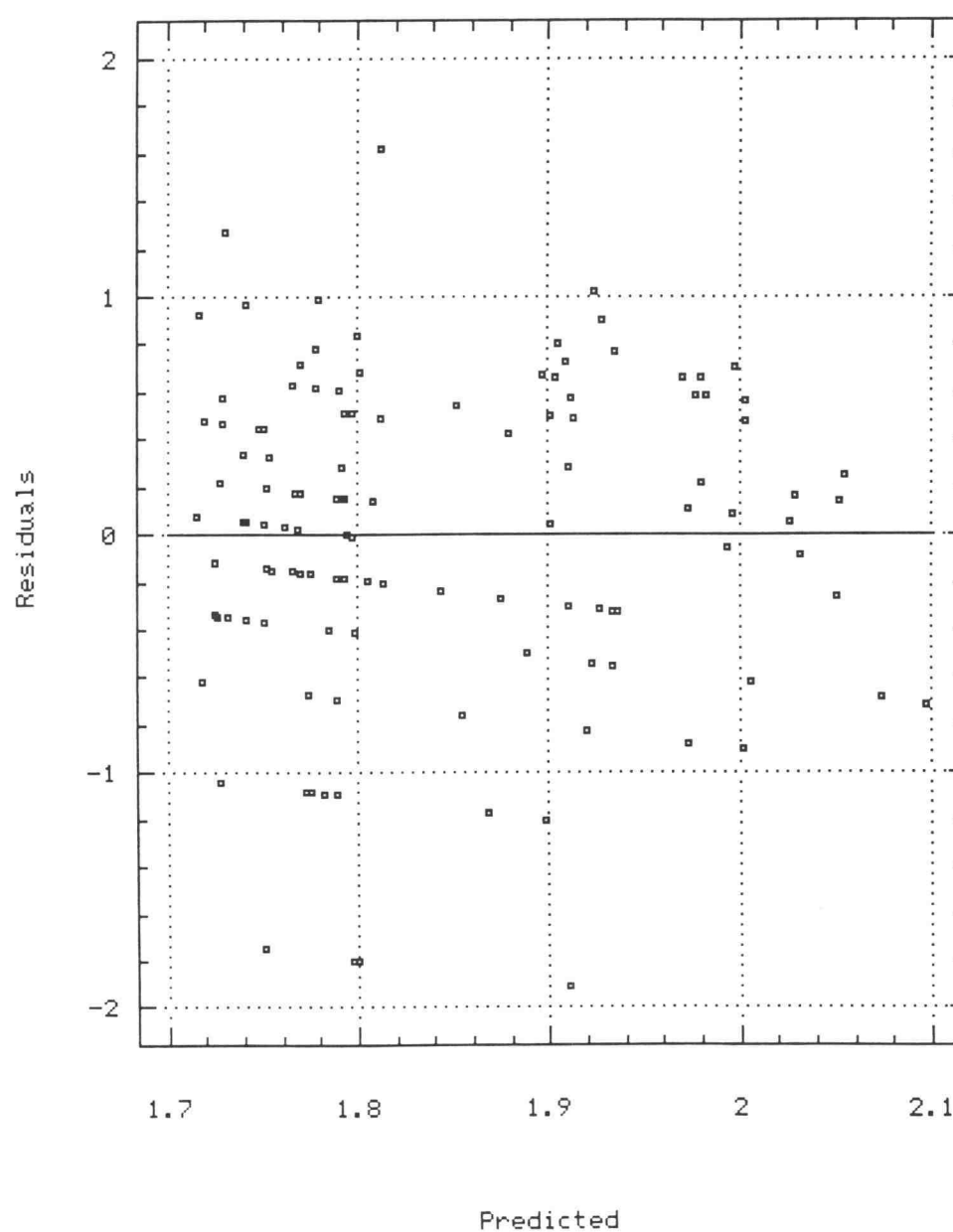


Figure E.7. Residual Plot from the Regression of Perception of Equity on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

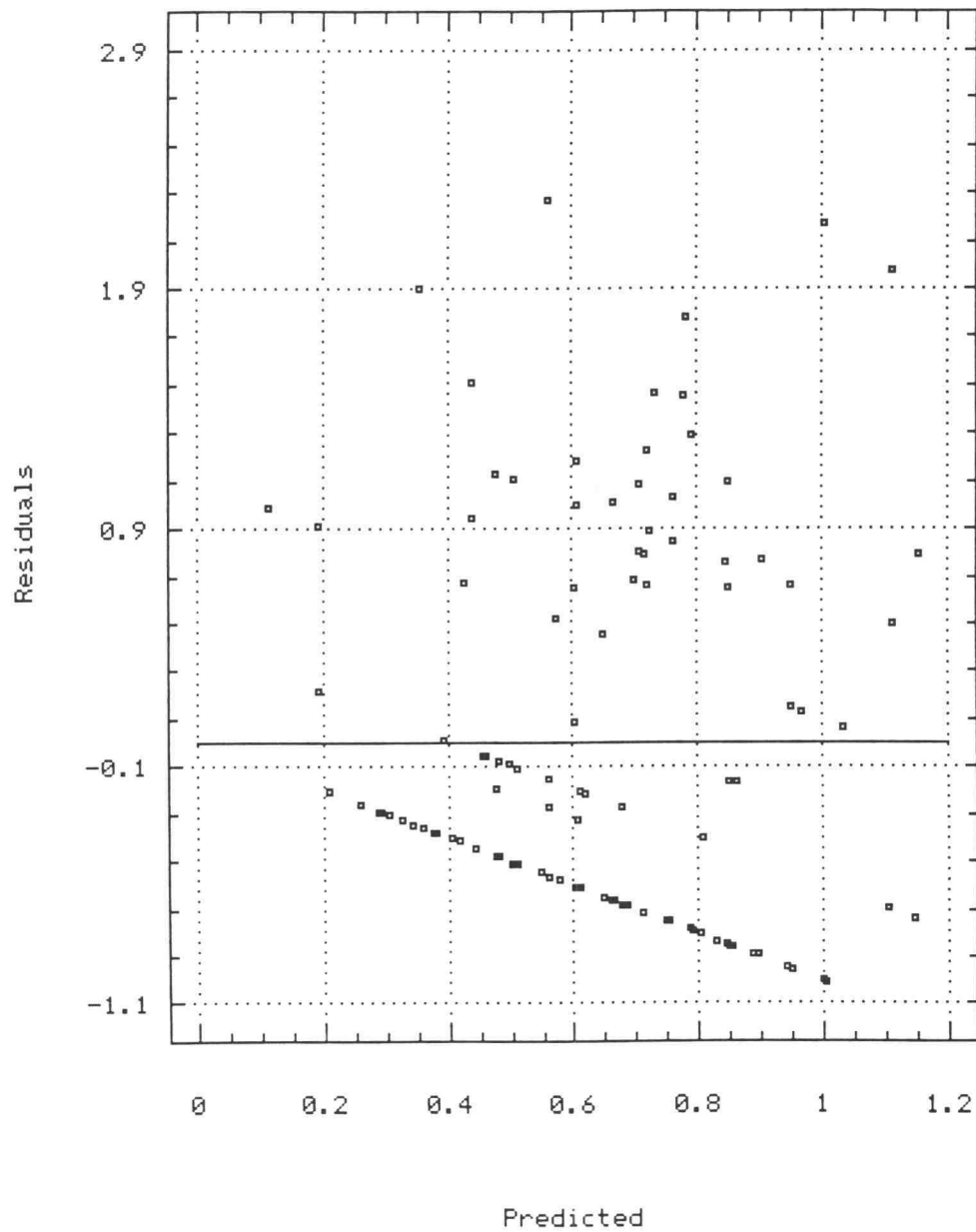


Figure E.8. Residual Plot from the Regression of Satisfaction with Emotional Intimacy on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

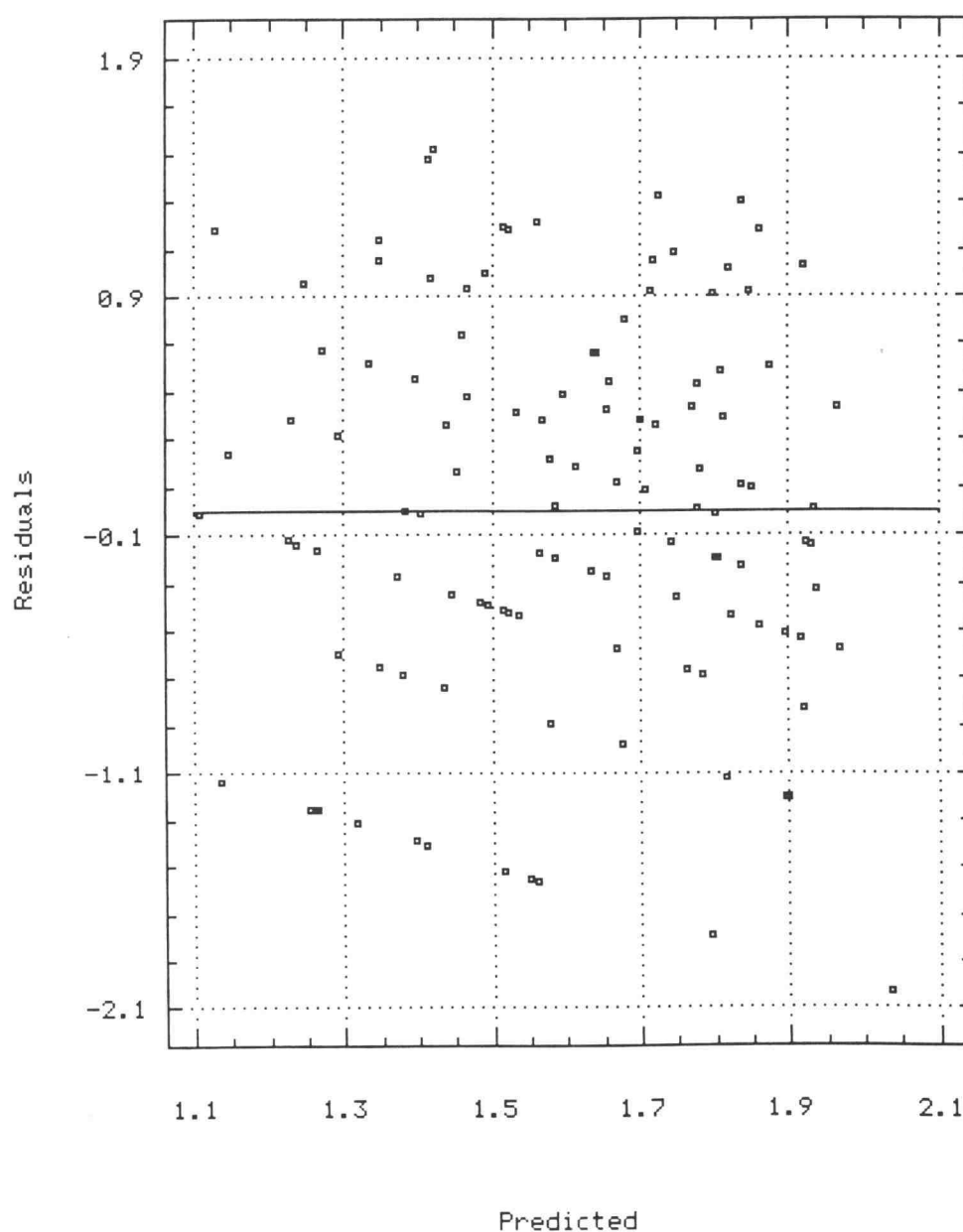


Figure F.1. Normal Probability Plot from the Regression of Perception of Marital Quality on Satisfaction with the Division of Household Labor, Perception of Equity, Satisfaction with Emotional Intimacy, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

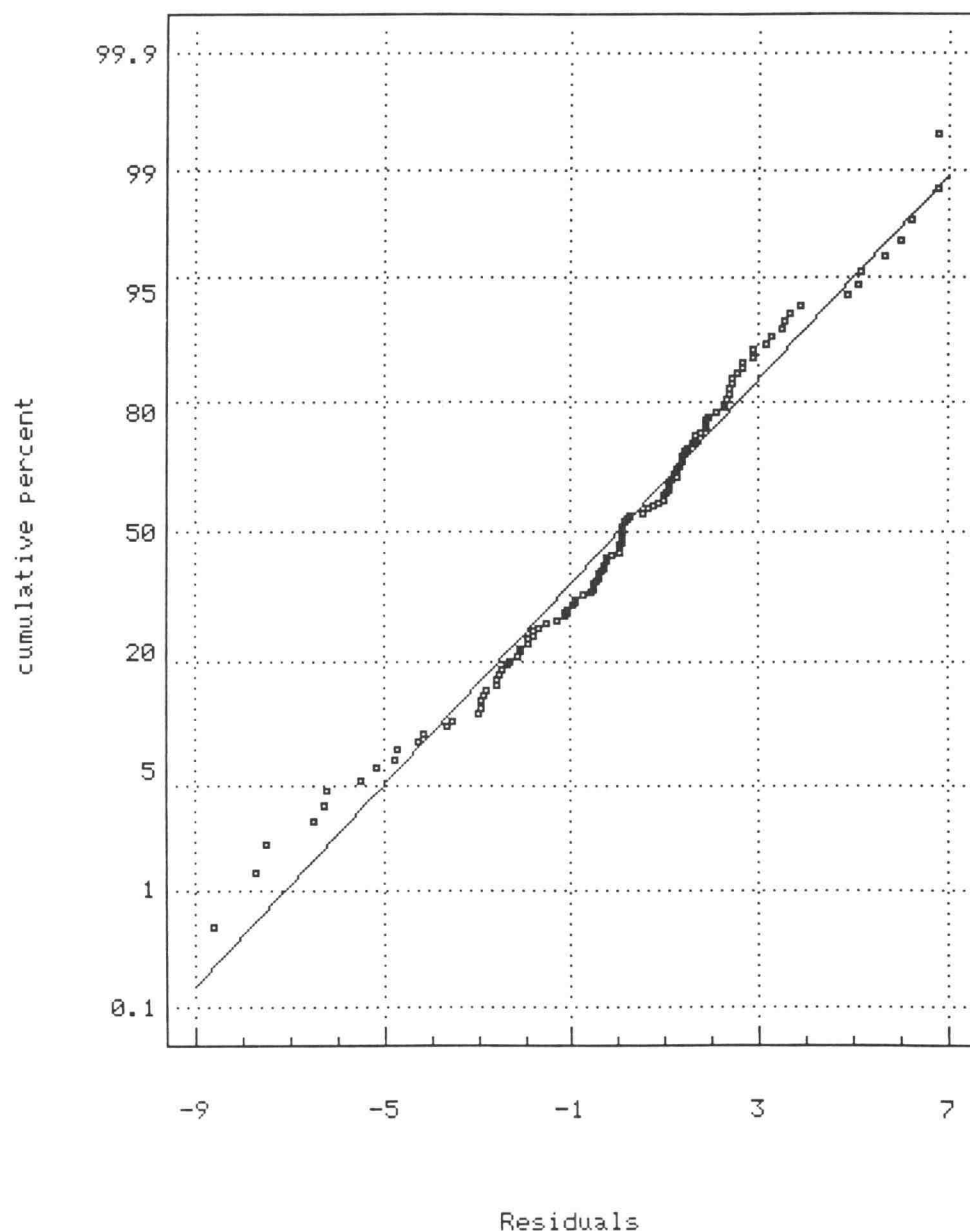


Figure F.2. Normal Probability Plot from the Regression of Satisfaction with the Division of Household Labor on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

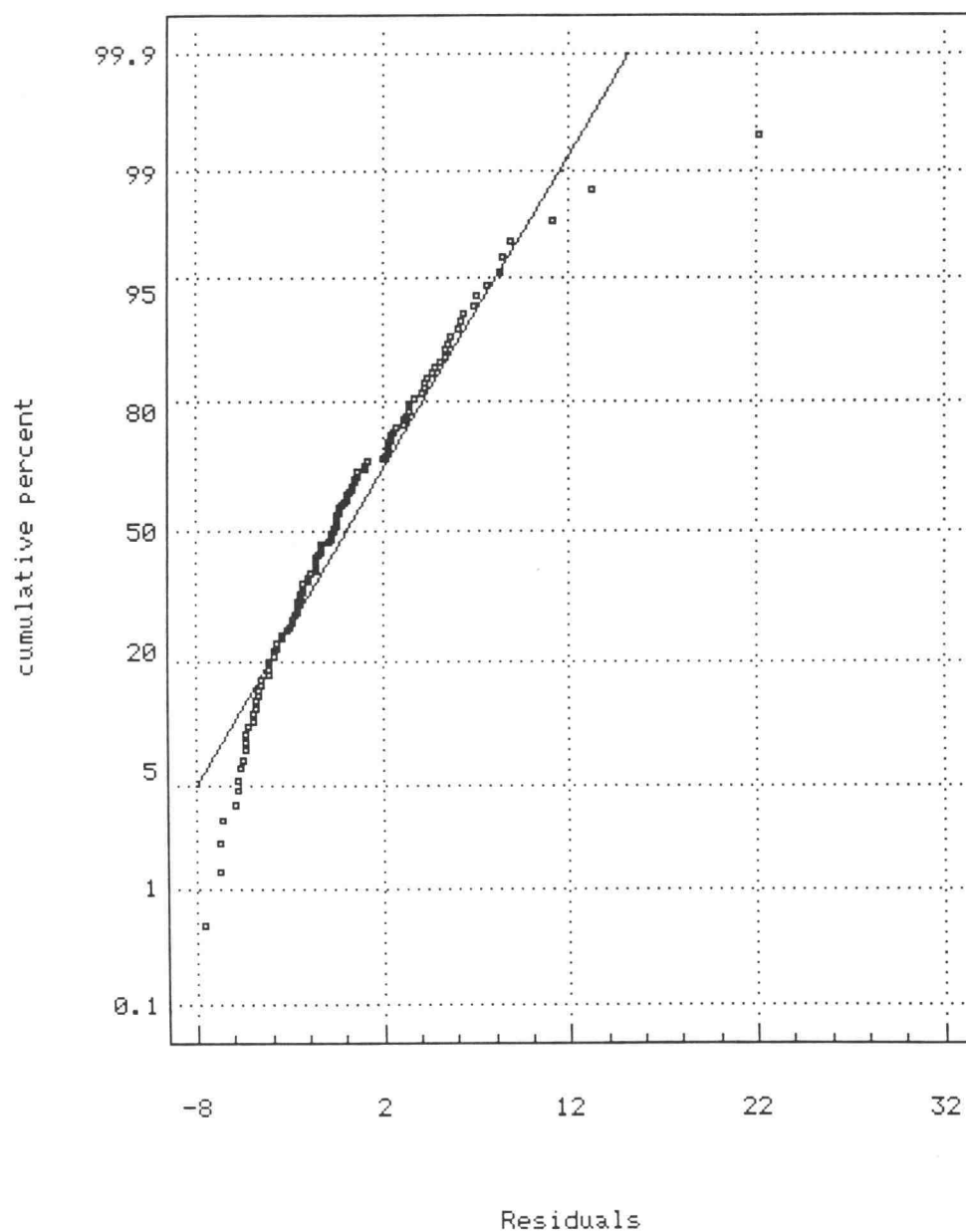


Figure F.3. Normal Probability Plot from the Regression of Perception of Equity on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

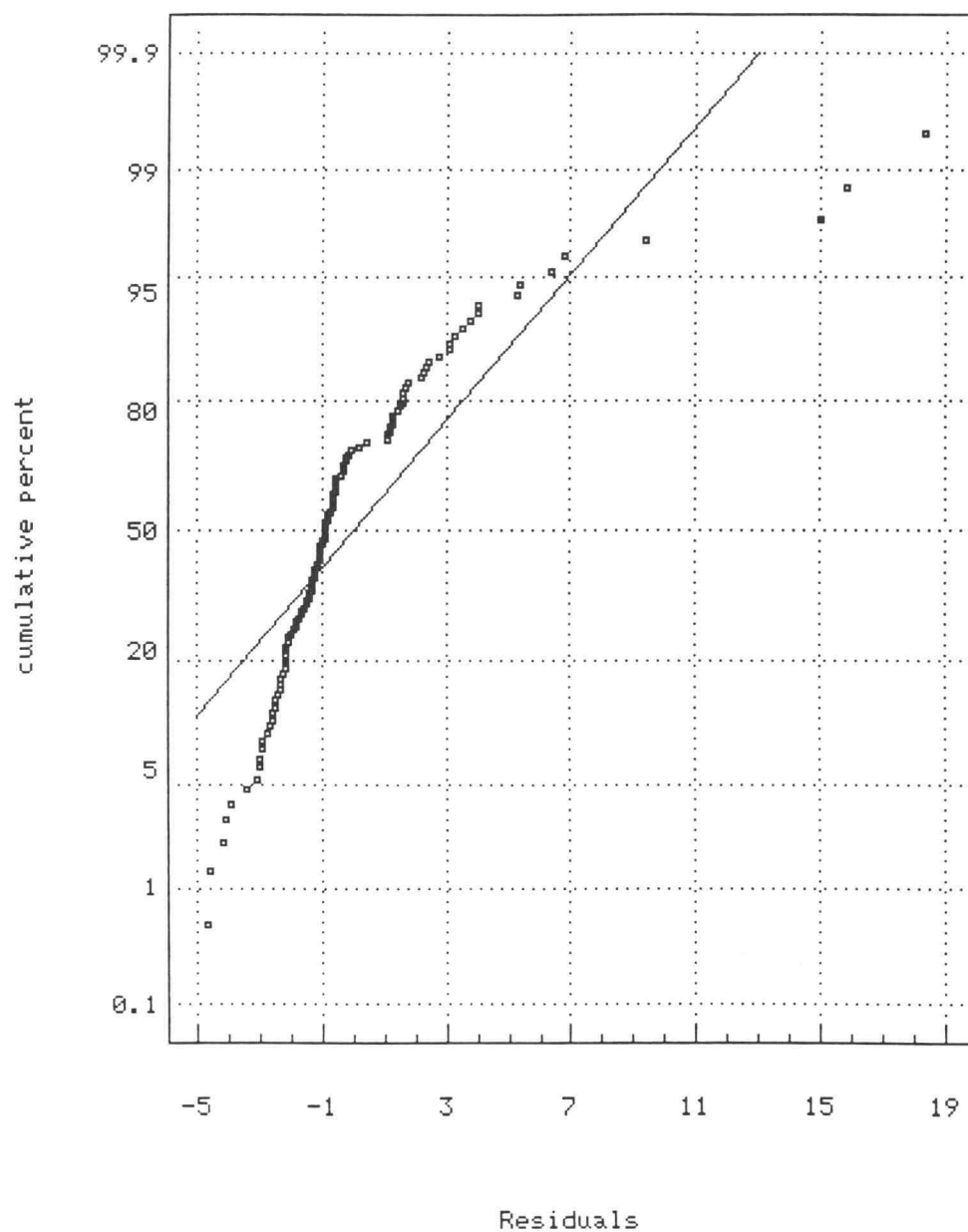


Figure F.4. Normal Probability Plot from the Regression of Satisfaction with Emotional Intimacy on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (Before Transformation)

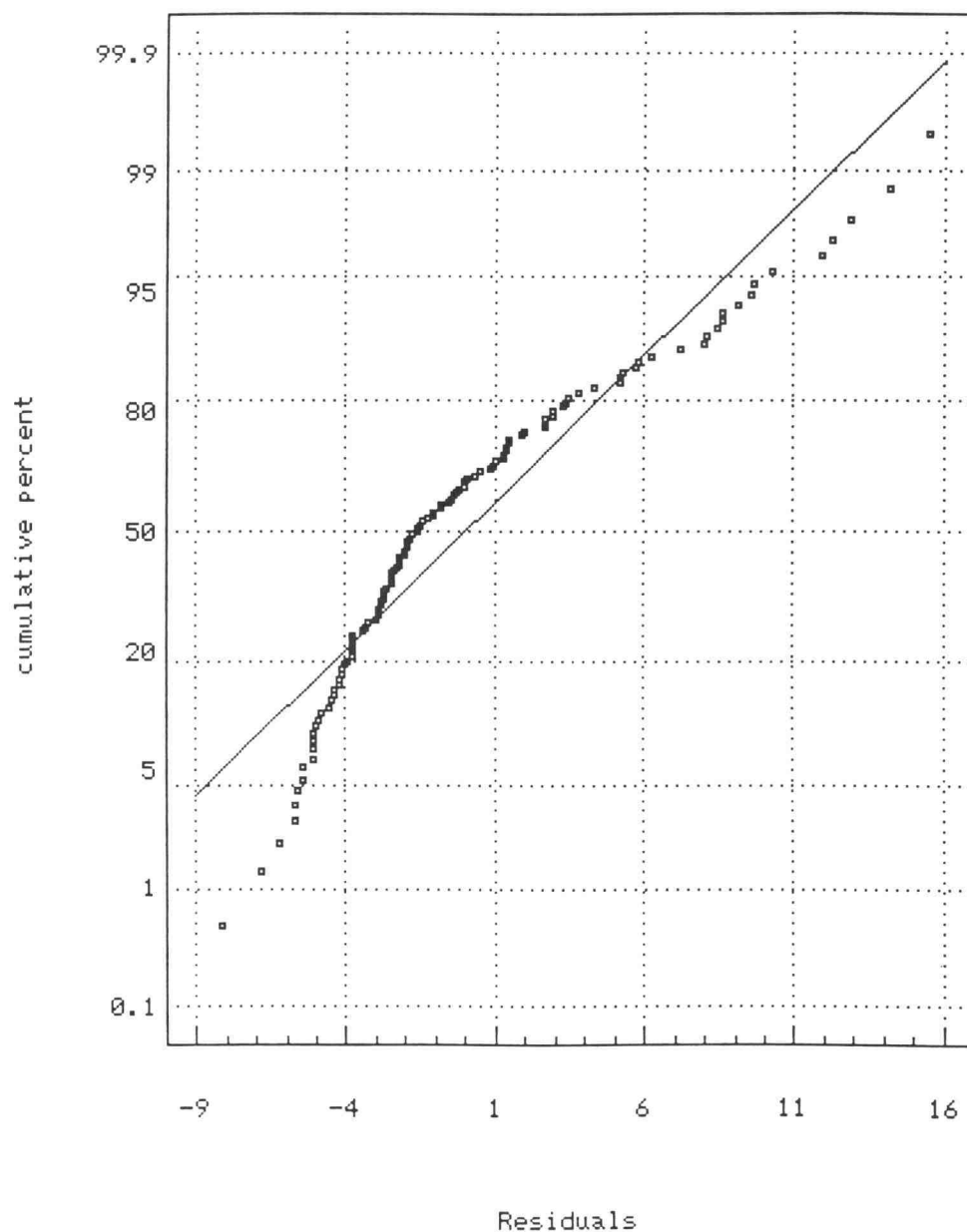




Figure F.5. Normal Probability Plot from the Regression of Perception of Marital Quality on Satisfaction with the Division of Household Labor, Perception of Equity, Satisfaction with Emotional Intimacy, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

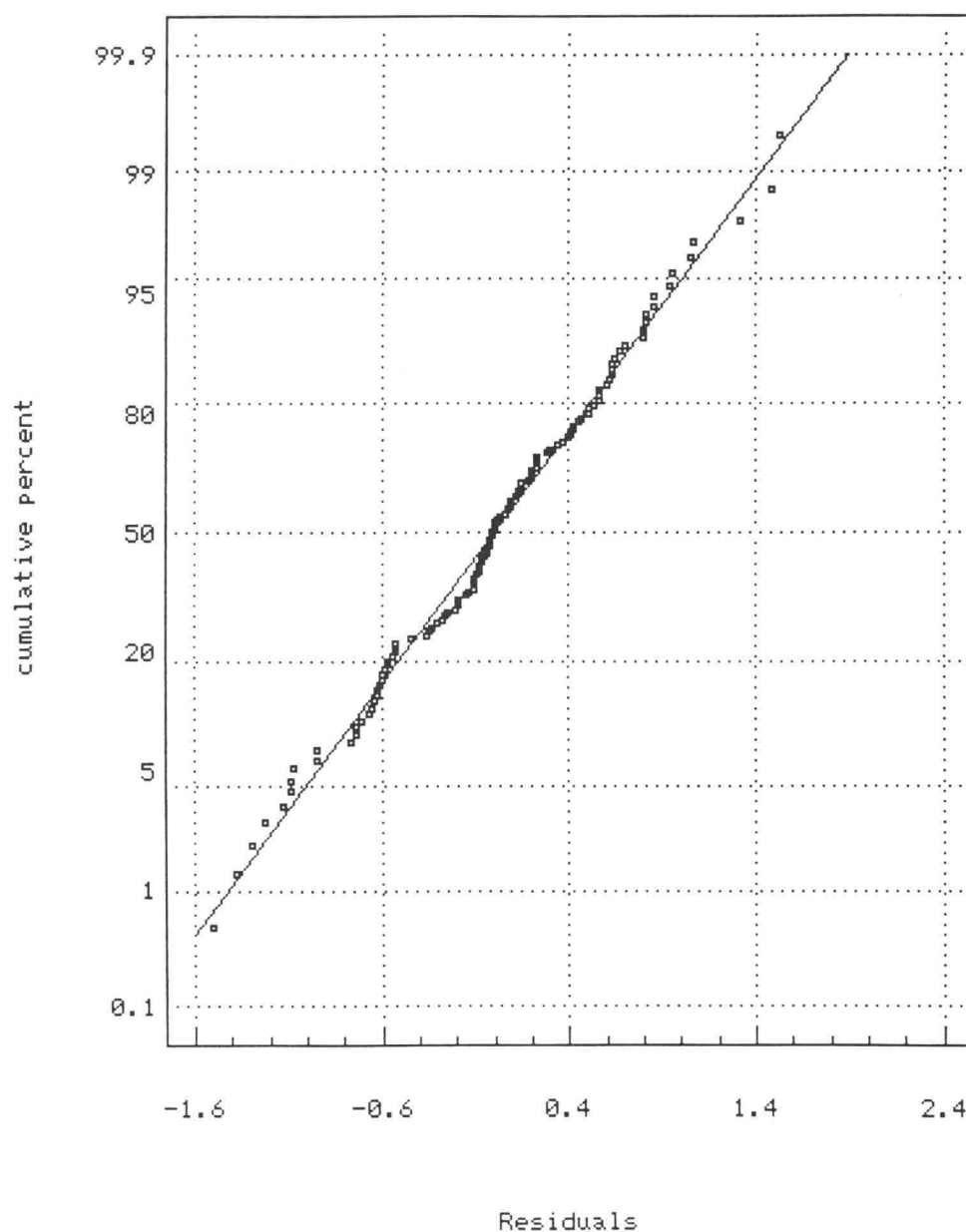


Figure F.6. Normal Probability Plot from the Regression of Satisfaction with the Division of Household Labor on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

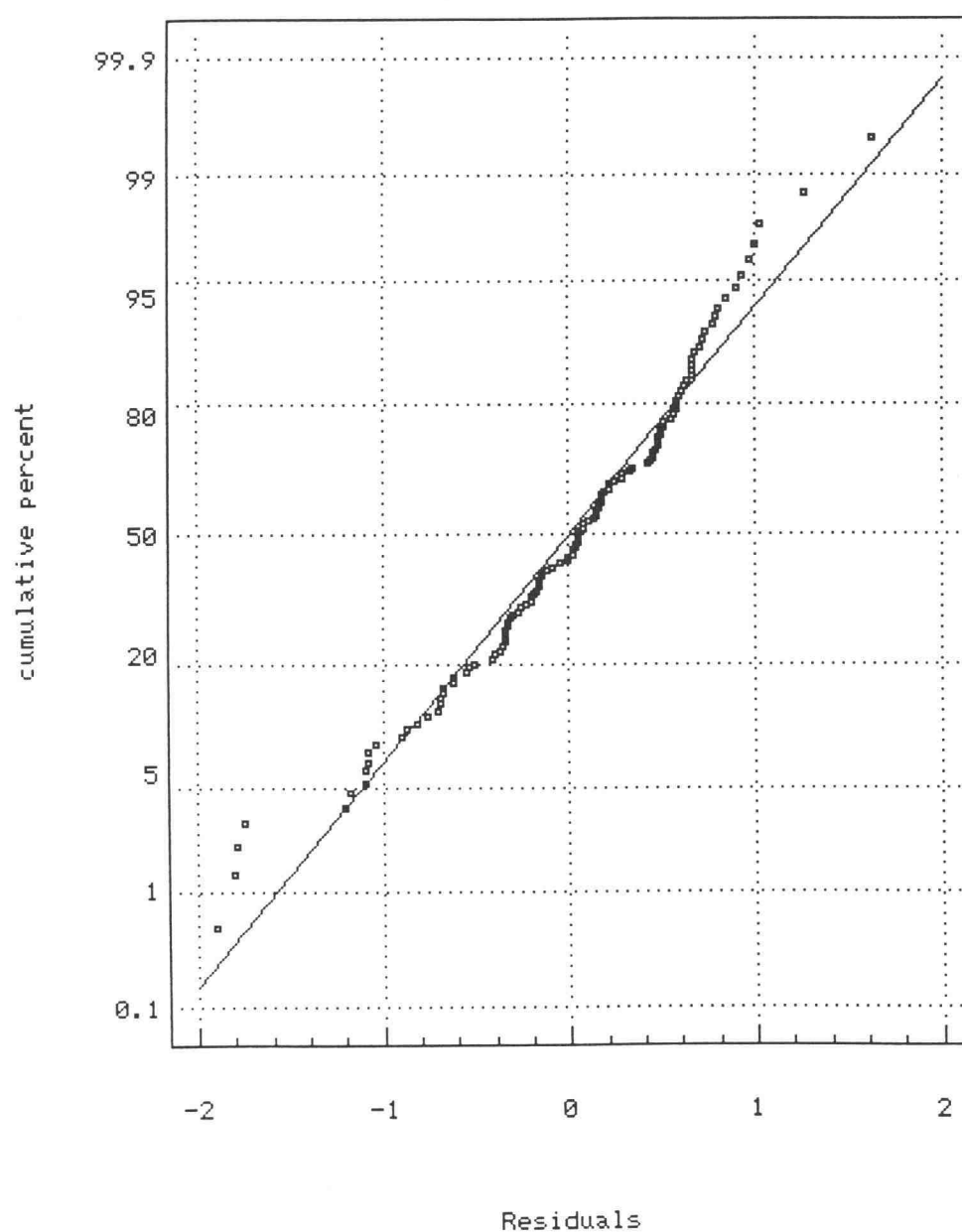


Figure F.7. Normal Probability Plot from the Regression of Perception of Equity on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

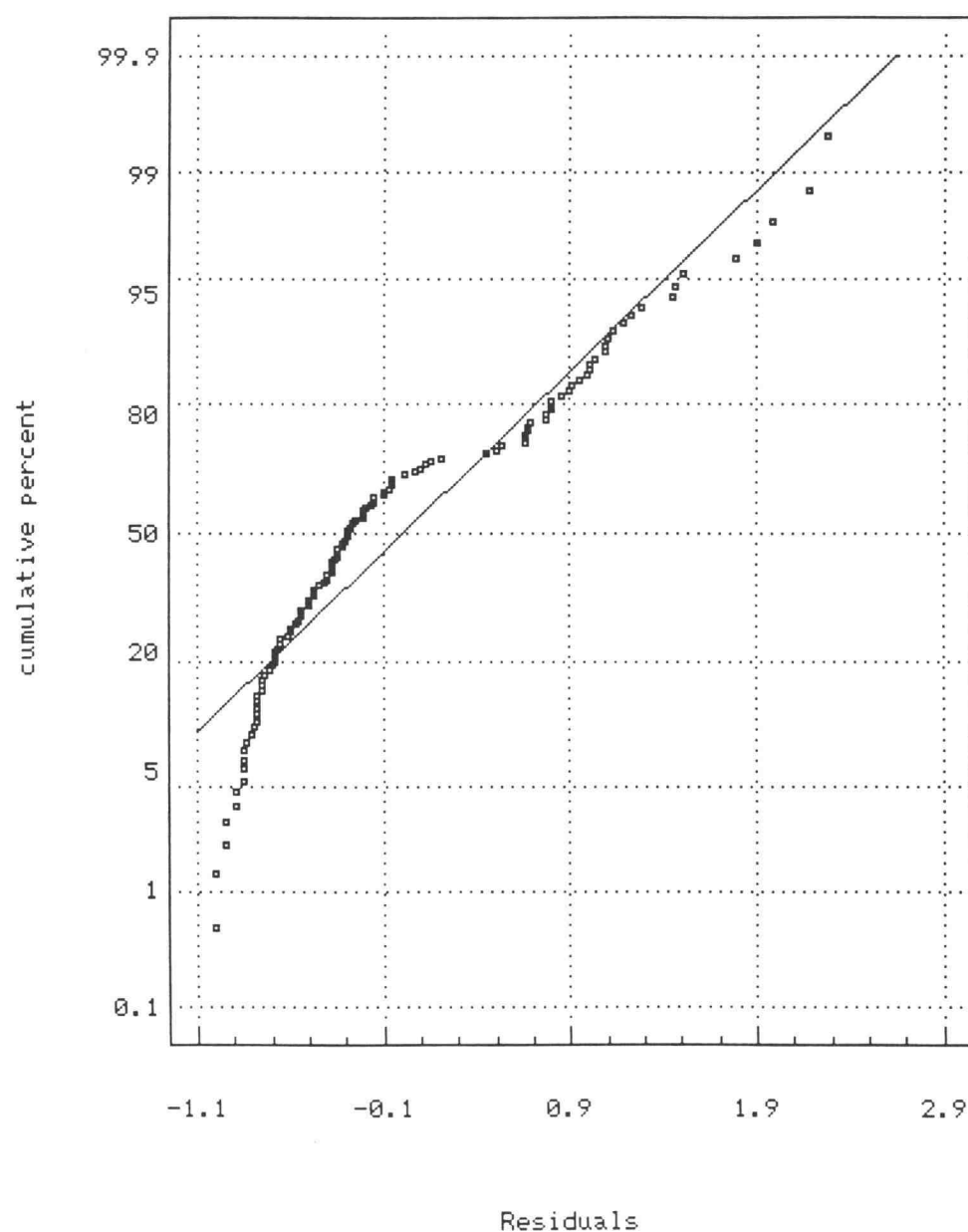


Figure F.8. Normal Probability Plot from the Regression of Satisfaction with Emotional Intimacy on Marital Structure, Gender, Number of Children Under Age 13, and Length of Marriage (After Transformation)

