MATERIAL RESOURCE INVESTMENTS AT MARRIAGE: EVOLUTIONARY, SOCIAL, AND ECOLOGICAL PERSPECTIVES[1]

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Marriage transactions (e.g., bride wealth, dowry) using cross-cultural data from the 60-culture Probability Sample Files of the Human Relations Area Files (HRAF) are considered from a neo-Darwinian perspective, focusing on the theories of kin and sexual selection. These theories account for a worldwide pattern of transferring wealth (1) from the groom's family to the bride's, and (2) from the couple's parents to the bride and groom. Multiple regression analyses show that social and ecological factors can intensify or weaken this general pattern. These variables are a society's paternal confidence level, polygyny rate, and amount of pathogen stress. Divorce rate and age at time of marriage were not significant predictors. (Kin selection, sexual selection, polygyny, paternal confidence, pathogen stress)

An investigation of marriage transactions, such as bride wealth and dowry, using ethnographic data from the Human Relations Area Files (HRAF) probability sample of 60 societies (most of these foraging, horticultural, pastoral, and agricultural) indicates that the bride and groom, their parents, and frequently their relatives and friends, exchange a variety of material resources at the time of marriage, including food, clothing, common house-hold goods, and money. The exchange of these items is generally a part of a more complex process during which prospective spouses and their kin meet, evaluate, and negotiate the terms of the marriage. The criteria they use to assess potential spouses include physical attractiveness, health, fecundity, character, social status, practical skills, and strength of commitment. When selecting long-term mates, the participants weigh the costs and benefits of alternatives, and broker a deal.

Ethnologists developed an early interest in marriage transactions (e.g., McLennan 1865), and have analyzed them from many perspectives. These include symbols and meaning (e.g., Comaroff 1980), labor needs, property, and status (e.g., Bell 1998; Bossen 1988; Goldschmidt 1974; J. Goody 1973; Harrell and Dickey 1985; Kressel 1977; Rao 1998; Schlegel 1991; Schlegel and Eloul 1988; Spiro 1975; Tambiah 1989), and their use by family members to maximize reproductive success (Apostolou 2007, 2008; Dickemann 1979;

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Fortunato, Holden, and Mace 2006; Gaulin and Boster 1990). All of these perspectives are best viewed as complementary approaches rather than mutually exclusive ones (c.f. Dickemann 1979, 1991, 1993; Gaulin and Boster 1991, 1993; Lang 1993; Schlegel 1991, 1993).

Cross-cultural researchers have made interesting and significant contributions to the study of marriage transactions, but their work had some limitations. For example, they commonly limited the analyses to six major types of transactions: bride service, bride wealth, dowry, indirect dowry, gift exchange, and woman exchange (J. Goody 1973; Murdock 1949, 1967; Schlegel and Eloul 1987). In a recent cross-cultural article, Huber, Danaher, and Breedlove (2011) identified six additional types found in some of the world's societies: groom service, groom wealth, dowry from the groom's parents, gift-giving to the couple, and gift-giving to the groom's and bride's parents. Another limitation of previous research was the tendency to treat societies as if they had only one kind of transaction. Although several researchers recognized that societies often have two or more transactions (Murdock 1967; Schlegel 1991, 1993; Schlegel and Eloul 1987, 1988), most disregarded this in their statistical analyses (e.g., J. Goody 1973). We now know that more than two-thirds of a world sample of societies have two, three, or more marriage transactions (Huber et al. 2011).

In addition to these issues, cross-cultural researchers frequently examined marriage transactions in isolation even though they are often part of a series of material exchanges, some of which are larger than the marriage transactions themselves. The transfer of dowry or bride wealth, for example, is commonly accompanied by a banquet; and in some societies, the primary participants host a series of feasts that spans several days.[2] Finally, researchers generally treated marriage transactions as if all of them were the same size. We address this issue with a methodology that explicitly recognizes differences in the value of material resources people customarily exchange.

This article focuses on the investments of material resources that the bride and groom and their parents make in support of the couple's courtship, and the arrangement, public recognition, and celebration of their marriage. It considers marriage transactions from a neo-Darwinian perspective, focusing on the theories of kin and sexual selection. These theories indicate that people transfer wealth in two directions at the time of marriage: horizontally, from the groom's family to the bride's, and vertically, from the couple's parents to the bride and groom. Social and ecological factors, however, can intensify or weaken these patterns. Multiple linear regression analyses show how marriage transactions are affected by a society's paternal confidence level, polygyny rate, pathogen stress, customary marriage age, and divorce rate.

MARRIAGE TRANSACTIONS IN EVOLUTIONARY PERSPECTIVE

From a neo-Darwinian perspective, marriage transactions have several important functions. First, material resources transferred at the time of marriage can contribute to the economic stability of the couple, making it easier for them to raise healthy children. We refer here to the gifts of cash, livestock, food, bedding, furniture, kitchen utensils, and clothing that the couple might receive upon being married. Hamilton's (1964) kin-selection theory predicts the bride's and groom's parents should make the largest gifts because 50 percent of the genes of parents and offspring are identical by descent.

Second, marriage transactions may be used by the bride and her parents to gauge the level of the groom's and his parents' commitment to marriage. That the bride and her parents must be assured of this commitment is understandable from the perspective of Trivers's (1972) theory of parental investment and sexual selection. Compared to men, women make much larger initial physiological investments in reproduction (e.g., gestating, bearing children, breast feeding). In addition, women provide considerably more direct parental care in holding, feeding, grooming, cleaning, touching, and spending time with offspring than men (Bjorklund and Pellegrini 2002; Geary 2000; Hewlett 1991). Because of these large investments in reproduction, women are a valuable resource for which men compete.

When selecting a long-term mate, a woman and her parents should discriminate among suitors, in part, on the amount of resources a man and his parents are able and willing to invest in the bride and her future children (Borgerhoff Mulder 1988). The problem for brides and their parents is identifying reliable signs of commitment. Evidently, brides and their parents in many cultures gauge marital commitment by demanding a substantial material outlay from prospective husbands and their parents. Imposing such a cost can serve as an "honest signal" of a groom's commitment to marriage (Apostolou 2008:90–91; Cronk and Dunham 2007; Zahavi 1975).

MARRIAGE INVESTMENTS: SOCIAL AND ECOLOGICAL CONSIDERATIONS

Paternal Confidence

Paternal confidence refers to the probability that children and their putative fathers are genetically related. Numerous researchers have investigated paternal confidence, and they have linked this variable to many others including land inheritance, type of post-marital residence and descent, and the amount of educational, financial, medical, and social support provided to paternal and maternal relatives (Anderson, Kaplan, Lam, and Lancaster 1999;

Anderson, Kaplan, and Lancaster 1999; DeKay, cited in Buss 2004:236–38; Cronk 1991; Flinn 1981, 1988; Gaulin, McBurney, and Brakeman-Wartell 1997; Gaulin and Schlegel 1980; Gray and Anderson 2010; Hartung 1985; Hoier, Euler, and Hänze 2001; Huber and Breedlove 2007; Laham, Gonsalkorale, and von Hippel 2005; Lancaster and Kaplan 2000; Low and Heinen 1993; McBurney, Simon, Gaulin, and Geliebter 2002; Pashos 2000).

Paternal confidence should also shape marriage transactions. The value of wives as a reproductive resource is greater in societies with a high paternal confidence level than in societies with low confidence. In high paternal confidence societies, grooms and their parents should be willing to invest more resources at the time of marriage because they are more certain the offspring of brides will be biologically related to them. Also, since fathers of brides are more confident of their biological relationship to their daughters and their future children, they should be willing to invest more resources. For these reasons, we predict that the higher the level of paternal confidence, the greater the amount of resources that brides gain at the time of marriage, and the greater the amount grooms and brides' and grooms' parents lose (Hypothesis 1).

Polygyny Rate

Polygyny is one of the most important social variables affecting human reproductive strategies (e.g., Borgerhoff Mulder 1988; Dickemann 1979, 1991; Draper 1989:145–50; Goldschmidt 1974:316–18; Hartung 1982; Schmitt and Rohde 2013). In general, polygynous men produce more offspring than monogamous men (Chagnon 2013; Low 2000). Polygyny also changes the operational sex ratio—the ratio of males and females in a population who are ready to mate at a given time—by decreasing the number of marriageable women (Emlen and Oring 1977). Further, the "greater the frequency of polygynous marriage in a society, the stronger the competition for women and therefore the younger the brides, on average" (Voland 1998:353). We predict that the higher the polygyny rate, the greater the amount of resources that brides and their parents gain at the time of marriage, and the greater the amount grooms and their parents lose (Hypothesis 2).

Level of Pathogen Stress

Human behavioral ecologists regard serious pathogens, such as those that cause malaria, schistosomiasis, Chagas' disease, and other acute and chronic infections as major selective forces. They discovered that high pathogen loads correlate with a variety of social phenomena including a collectivist orientation, greater cultural diversity, an emphasis on selecting healthy and

attractive mates, higher fertility and polygyny rates, and increased male competition for wives (Del Giudice 2009; Ember, Ember, and Low 2007; Low 1990, 2000:47, 68, 2005; Marlowe 2003; Nettle 2009; Quinlan 2007; Schmitt and Rohde 2013). Of special interest here are the findings that pathogen stress increases the rate of polygyny and intensifies male competition for wives. As was the case with the polygyny rate, we predict that the higher the level of pathogen stress, the greater the amount of resources that brides and their parents gain at the time of marriage, and the greater the amount grooms and their parents lose (Hypothesis 3).

Age at Time of First Marriage

Men are generally several years older than women at the time of their first marriage. This appears to be the case for foraging, horticultural, pastoral, and peasant societies (Frayser 1985), and for people who have many years of formal education, enjoy a high socio-economic status, and live in modern cities (Buss 1989; Dixon 1971). In general, increasing amounts of male competition for wives should amplify marriage age differences, with women marrying at increasingly younger ages and men waiting longer to acquire a wife.

The level of male competition for wives can vary for reasons besides polygyny and pathogen stress. Greater competition can be due to a male-biased sex ratio, warfare, or in- or out-migration (Angrist 2002; Brown, Laland, and Borgerhoff-Mulder 2009; Casterline, Williams, and McDonald 1986:372–73; Geary, Vigil, and Byrd-Craven 2004; Jiang and Sanchez-Barricarte 2012; Kruger, Fitzgerald, and Peterson 2010; Pollet and Nettle 2008). Relative age at first marriage should be a good proxy measure of the overall level of male competition for many reasons. We predict that the greater the age difference between the bride and groom at the time of their first marriage, the greater the amount of resources that brides and their parents gain, and the greater the amount grooms and their parents lose (Hypothesis 4).

Divorce Rate

Some scholars argue that bride wealth and dowry reduce the likelihood of divorce because couples or the bride's parents would need to return the gifts should the couple divorce. If the gifts are valuable, or if they have been distributed to other more distant kin, the couple may decide or be persuaded to remain married (S. Anderson 2007; Esteve-Volart 2004; Evans-Pritchard, 1934; Gluckman 1950, 1953; Schneider 1964; Spiro 1975). However, other scholars have correctly pointed out that the payment of bride wealth and dowry does not necessarily discourage divorce in some circumstances. In cases of adultery, for example, the married woman's illicit lover may be the

person responsible for compensation after a couple has separated and divorced. Under these conditions, the payment of bride wealth would not deter divorce (Goody 1962; Lloyd 1968; Ogbu 1978).

Also unclear is how divorce might interact with the variables discussed above. Polygynous societies are thought to have a higher divorce rate than monogamous societies. Nevertheless, polygyny can also stabilize an existing marriage bond because it may serve as an alternative to divorce in cases where the first wife is childless (Ardener 1962; Chojnacka 1980; Cohen 1971; Denga 1982; Gage-Brandon 1992; Goody 1962). In addition, since the most common cause of divorce cross-culturally is extramarital sex (Betzig 1989), the divorce rate might be linked to a society's paternal confidence level. As a result, we predict that the divorce rate affects resource transfers of brides, grooms, and their parents, but we do not predict the direction of these transfers (Hypothesis 5).

RESEARCH METHODS

The HRAF Probability Sample

The predictions above were tested with data from the 60-culture HRAF Probability Sample Files[3] (PSF), which is a cross-cultural sample designed to ensure representative coverage of the world's traditional and peasant societies. The developers of the PSF randomly selected one well-described culture from each of 60 world regions (Lagacé 1979; Naroll 1967). To locate ethnographic materials on marriage transactions in the HRAF, we searched three *Outline of Cultural Materials* (OCM) subject index codes: 583 (Mode of Marriage), 584 (Marriage Arrangements), and 585 (Nuptials). We collected information on marriage transactions for first marriages only, and for the most common type of marriage found in a society. In order to maximize comparability to prior research and to reduce random errors in statistical calculations (Ember and Ember 2001:64–65), we used the same time and place focus employed previously by Huber, Linhartova, and Cope (2004:58–59), and collected and coded information on marriage investments.

Independent Variables

Paternal Confidence Level. The measure of paternal confidence is a composite index based on four scales: (a) frequency of premarital[4] and (b) extramarital sex, and (c) the strength of the sanctions against premarital and (d) extramarital sex. Scores can range from 4 to 20, with 20 representing very high paternal confidence.[5] For a more detailed account of the operationalization of this variable, see Huber et al. (2004).

Polygyny Rate. The polygyny rate variable is based upon White's (1988:534–39) Standard Polygamy code, which is itself based on Murdock's (1949, 1967) three-point scale of polygyny, plus his category for polyandry, modified by the distinction between categories of limited polygyny (Categories 2 and 3) used by Whyte (1978). Scores for this variable can range from 0 to 4, with 4 representing 20 percent or more of married males in a polygynous marriage. White (1988) developed polygyny codes for the 186 societies of the Standard Cross-Cultural Sample (SCCS). Forty of these societies are part of the 60-society HRAF probability sample. Huber for the present essay used the HRAF OCM code 595 (Polygamy) to assign codes to the remaining 20 societies in the HRAF probability sample that are not found in the SCCS.

Pathogen Stress. The level of pathogen stress was coded by Low (1988) for the 186 societies of the SCCS. She rated the frequency of seven pathogens (leishmanias, trypanosomes, malaria, schistosomes, filariae, spirochetes, and leprosy) using a three-point scale. The individual scores were summed for a total pathogen stress score. Huber searched the same sources to assign codes to the remaining 20 societies in the HRAF probability sample (American Geographical Society of New York 1950–1955; Beaver, Jung, Cupp, and Craig 1984; Faust and Russell 1964; Faust, Russell, and Jung 1970; Markell and Voge 1981). Scores can range from 3 to 21, with 21 representing high pathogen stress.

Relative Marriage Age. A search of the OCM Code 582 (Regulation of marriage) for information on women's and men's mean age at the time of their first marriage found that some ethnographers reported mean marriage ages. Where they specified an age range, such as 14–15 years old, we used the midpoint of the range to code the mean marriage age; e.g., 14.5 years old. When an ethnographer reported that marriage takes place at puberty, we used 13.5 years.[6] We calculated relative marriage age by subtracting women's mean age from men's mean age.

Divorce Rate. This variable was originally coded by Broude and Greene (1983) for the 186 societies of the SCCS. They provide divorce rate codes for 24 of the 40 societies that are found in both the SCCS and the HRAF probability sample. From the OCM Code 586 (termination of marriage) Huber coded the remaining 36 societies of the probability sample, and reversed Broude and Greene's original values so that they range from 1 to 5, where 5 indicates divorce is "universal or almost universal."

Dependent Variables

Net Marriage Assets. The concern here is with investments of material resources[7] at the time of marriage, which is the provisioning of food, shelter, clothing, fuel, money, and other material resources to a couple, their families, and friends due to the couple's courtship and the arrangement and public recognition of their marriage. The amount of material resources exchanged is quite variable across societies. Table 1 (see Appendix) displays the seven-point coding scale we used to calculate net marriage asset scores of couples and their parents. An example of a "Level 1" investment is a gift of a man's shirt or a woman's blouse. We considered a trousseau consisting of three or more full sets of clothing, household linens, kitchen items, and three or more pieces of furniture as a Level 7 investment.

The net marriage asset score represents the value of material resources received at the time of marriage less the value of resources provided, as measured on our seven-point scale. Net asset scores can be positive or negative. For example, suppose it is customary for parents of brides to provide a horse to parents of grooms (Level 4) and a large trousseau to brides (Level 6), and for parents of brides to receive a cash gift valued at U.S. $200 from parents of grooms (Level 4) and a man's shirt from grooms (Level 1). In this case, we assign the brides' parents a net marriage asset score of -5, the sum of the amount received (4 + 1) less the amount provided (4 + 6). A negative score means that an individual provided a greater amount of resources than was received.

RESULTS

Net Marriage Assets of Brides and Grooms, and Their Parents

We calculated the mean net marriage assets of brides' parents and brides and grooms' parents and grooms for the societies of the HRAF probability sample. We found that brides in this worldwide sample benefit the most materially from marriage transactions (M = 4.2, SD = 4.80), while grooms (M = -0.42, SD = 5.65), brides' parents (M = -0.53, SD = 6.41), and especially grooms' parents (-4.20, SD = 7.72) tend to invest more material resources than they receive.[8]

These findings result from two common kinds of transfers with marriage: a horizontal transfer from grooms and grooms' parents to brides and brides' parents, and a vertical transfer from brides' and grooms' parents to couples. Wilcoxon signed-ranks tests were used to further investigate this pattern. The top third of Table 2 examines the frequency and direction of horizontal transfers. There are 42 societies (positive ranks) where the net marriage assets of

brides and their parents are higher than that of grooms and groom parents. In contrast, there are only 11 societies (negative ranks), where transfers are in the opposite direction, and six societies where net marriage assets of brides and their parents is the same (tied) as grooms and their parents. Vertical transfers of wealth can be examined by inspecting the middle and bottom sections of Table 2. Positive ranks, indicating net transfers of wealth from the brides' or grooms' parents to couples, are far more numerous than negative ranks and ties. Material wealth is most frequently transferred from the brides' and grooms' parents to couples. The significance tests suggest that it is unlikely that these patterns are due to chance.

Multiple Regression Analyses

The independent variables used for the multiple regression analyses are frequency of divorce, polygyny rate, pathogen stress, relative age of spouses, and paternal confidence. Basic descriptive statistics and intercorrelations of the five independent variables are in Table 3. Note that polygyny rate, pathogen stress, and relative ages of spouses positively correlate with each other. This finding is consistent with previous research (Goody 1973; Low 1988, 1990). In addition, pathogen stress and relative age of spouses positively correlate with divorce frequency, a finding that has not been previously reported. Basic descriptive statistics and intercorrelations of the four dependent variables used for the multiple regression analyses are found in Table 4.

We conducted four multiple regression analyses to assess how well the five independent variables predict the net marriage assets of brides' parents, brides, grooms' parents, and grooms. The first analysis indicated that approximately 30 percent of the variance of the brides' parents' net marriage assets is accounted for by the linear combination of the five independent variables (Adjusted $R^2 = .297$, $F(5, 41) = 4.889$, $p = .001$). As Table 5 indicates, brides' parents' net assets were primarily predicted by higher rates of polygyny and lower amounts of paternal confidence. We evaluated a multiple regression model used to predict brides' net assets. The linear combination of our five predictors was significantly related to this variable (Adjusted $R^2 = .135$, $F(5, 41) = 2.442$, $p = .050$), accounting for approximately 14 percent of the variance. Variance in brides' net marriage assets was explained primarily by higher levels of paternal confidence (see Table 6).

A multiple regression analysis was designed to predict grooms' parents' net assets. Our prediction model was statistically significant (Adjusted $R^2 = .198$, $F(5, 41) = 3.274$, $p = .014$), and accounted for approximately 20 percent of the variance. Table 7 shows that grooms' parents' net marriage assets were predicted by lower levels of pathogen stress and paternal confidence.

Finally, a multiple regression analysis was used to develop a prediction model for grooms' net marriage assets. The model that included all five independent variables was not statistically significant (Adjusted $R^2 = .043$, $F(5, 41) = 3.53$, $p = .241$). Since two variables—divorce rate and relative ages of spouses—were not significant predictors in any of our previous analyses, we examined a model with only three independent variables: polygyny rate, pathogen stress, and paternal confidence. This model did significantly predict grooms' net marriage assets (Adjusted $R^2 = .121$, $F(3, 52) = 3.53$, $p = .021$), accounting for approximately 12 percent of the variability. Groom's net assets were predicted primarily by lower polygyny rates (see Table 8).

DISCUSSION AND CONCLUSIONS

Although there are exceptions, we discovered a general cross-cultural pattern of material resource transfers at the time of marriage. This pattern comprises: (1) a horizontal transfer from the groom's family to the bride's family, and (2) a vertical transfer from the couple's parents to the bride and groom. This pattern in many societies is not surprising in light of the theories of kin and sexual selection (Hamilton 1964; Trivers 1972). Kin selection theory explains why parents often invest heavily in their offspring at the time of marriage. Since 50 percent of the genes of parents and offspring are identical by descent, parents who invest in their children when they marry increase the likelihood of their offspring producing viable children. This increases their children's as well as their own reproductive success.

Sexual selection theory helps explain the common pattern of transferring resources horizontally from the groom and his parents to the bride and her parents. Because women initially invest more than men in reproduction, they are a valuable resource for which men compete. When selecting a long-term mate, women (and their parents) discriminate among suitors, in part, on the amount of resources they are able and willing to invest in her and her children. This investment demonstrates the seriousness of the groom's commitment to marriage.

We presume that kin and sexual selection strongly influence marriage transactions in all societies. Nevertheless, local social and ecological conditions can significantly alter the two basic transfer patterns identified above. Although the rate of divorce and the relative ages of spouses were not good predictors in any of our four regression models, paternal confidence level is quite important. With high paternal confidence, brides' fathers and groom's fathers make larger investments at the time of marriage, doing so because they can be more confident of their biological relatedness to their children and their future grandchildren. From a material resource perspective, brides appear to be the main beneficiaries of high paternal confidence. Apparently, they are

rewarded for adhering to the restrictions they and others place on their sexuality.

Another important variable modulating transfers of marriage wealth is a society's polygyny rate. The polygyny rate is negatively related to the net marriage assets of grooms. This is because a high polygyny rate decreases the supply of marriageable women in a society, and increases their reproductive value. Brides and their parents can be choosy when selecting grooms and ask them to transfer relatively large amounts of wealth at marriage while receiving relatively little in return. Polygyny shifts the balance of payments, so to speak, with the grooms' net assets declining with a higher rate of polygyny. It is noteworthy that brides do not benefit materially from a high polygyny rate even though their reproductive value is high. The main beneficiaries are brides' parents, whose net assets increase with a higher polygyny rate.

The level of pathogen stress is a significant predictor in only one of the regression models. It is negatively related to the net marriage assets of grooms' parents. In environments with high pathogen loads, the net assets of grooms' parents tend to decrease, suggesting that having sons marry healthy spouses is especially important to parents under these adverse conditions. Like Low (1990), we assume that "Mates with proven health, implying resistance, possibly heritable, to currently prevalent pathogens become more valuable in the presence of [acute, possibly fatal] pathogens ..." (Low 1990:325–26). Although pathogen stress is negatively related to the net marriage assets of grooms' parents, it was not a significant predictor in the other three regression models.

In addition to these substantive findings, we developed a new methodological approach to analyze the resource contributions of couples and their parents at the time of marriage. This methodology is more precise than previous ones, which did not take into account variability in transaction size, and treated societies as if they had only one kind of marriage transaction. We developed a seven-point scale to quantify the different amounts of material resources that individuals provide and receive at the time of marriage. In addition, our analyses included all of the different kinds of marriage transactions found in a society as well as the other material outlays that customarily accompany marriage transactions. These methodological innovations make possible more accurate comparisons of the amount and kind of material resources that brides, grooms, and their parents exchange.

As with all research, our analyses have some limitations. Although we take into account differences in the number of marriage transactions found in a society, as well as variability in transaction size, our methodology ignores intra-cultural variation in marriage customs. For example, major marriages, necessitating a matchmaker, engagement, dowry, bride wealth, and a wedding

ceremony, were much more common among the Taiwan Hokkien in the 1940s than uxorilocal and minor marriages, such as *simpua*—when parents raise adopted daughters as their sons' wives (Wolf and Huang 1980). The resource transactions associated with these less common types of marriage differ from those of major marriages. Developing a methodology that takes into account this intracultural variability would further enhance analyses of marriage transactions. Unfortunately, this would be challenging because ethnographic descriptions of less common forms of marriage are generally not as complete as those of common marriage types.

That we examined a relatively small number of independent variables is another limitation of our research. The five variables used in the multiple regression analyses accounted for less than one-third of the variance in net marriage assets. Obviously, other significant factors influence marriage investment patterns. They may include amount of warfare, a society's sex ratio, immigration and emigration rates, and men's and women's contribution to subsistence (c.f. Angrist 2002; Brown et al. 2009). In addition, our sample did not include industrialized societies whose citizens may widely use contraceptives or have experienced demographic transitions. For theoretical reasons, it would be interesting to employ a methodology similar to the one we developed to investigate marriage transactions in societies where people voluntarily reproduce at low levels. Nonetheless, the study of marriage transactions has long been a central part of anthropology and will continue to be a rich area of research.

NOTES

1. The authors thank Laura Betzig, Tracy Burkett, Kathryn Coe, Hector Qirko, Rebecca Sear, Beverly Strassmann, Eckart Voland, and anonymous reviewers for their comments on earlier drafts of this article.

2. Meals, banquets, or feasts sponsored by the bride's parents are found in roughly half (54.2%) of the sample societies, while those sponsored by the groom's parents are found in about two-fifths (42.3%) of these societies (n = 59).

3. Http://www.yale.edu/hraf/index.html

4. The measure of paternal confidence has two scales treating premarital sex. The probability that a man is the genitor of his putative children can vary with premarital or extramarital sex.

5. The codes for this variable and the others mentioned here are available upon request.

6. In earlier research, Frayser (1985:471) developed cross-cultural codes for the variable, "age at marriage." She assumed that girls reach puberty "between 12–15 years old" on average. This assumption is problematic in some cases since average age of menarche worldwide is more variable (Voland 1998:350).

7. This article focuses on indirect marriage investments. They can be distinguished from direct marriage investments, which are "efforts made by an individual on behalf of the couple's courtship, and the arrangement, public recognition, and celebration of their marriage." Direct investments require an expenditure of effort only.

8. Mean net assets do not sum to zero because brides and grooms, and their parents, transfer some wealth to more distantly related kin and friends, as well as receive gifts from these individuals.

BIBLIOGRAPHY

American Geographical Society of New York. 1950–1955. Atlas of Distribution of Diseases. American Geographic Society.

Anderson, K. G., H. Kaplan, and J. Lancaster. 1999. Paternal Care by Genetic Fathers and Stepfathers I: Reports from Albuquerque Men. Evolution and Human Behavior 20(6):405–31.

Anderson, K. G., H. Kaplan, D. Lam, and J. Lancaster. 1999. Paternal Care by Genetic Fathers and Stepfathers II: Reports by Xhosa High School Students. Evolution and Human Behavior 20(6):433–51.

Anderson, S. 2007. The Economics of Dowry and Brideprice. The Journal of Economic Perspectives 21(4):151–74.

Angrist, J. 2002. How Do Sex Ratios Affect Marriage and Labor Markets? Evidence from America's Second Generation. The Quarterly Journal of Economics 117(3):997–1038.

Apostolou, M. 2007. Sexual Selection under Parental Choice: The Role of Parents in the Evolution of Human Mating. Evolution and Human Behavior 28(6):403–09.

——— 2008. Bridewealth and Brideservice as Instruments of Parental Choice. Journal of Social, Evolutionary, and Cultural Psychology 2(3):89–102.

Ardener, E. 1962. Divorce and Fertility: An African Study (Vol. 3). Oxford University Press.

Beaver, P. C., R. C. Jung, E. W. Cupp, and C. F. Craig. 1984. Clinical Parasitology (9th ed.). Lea & Febiger.

Bell, D. 1998. Wealth Transfers Occasioned by Marriage: A Comparative Reconsideration. Kinship, Networks, and Exchange, eds. T. Schweizer and D. R. White, pp. 187–209. Cambridge University Press.

Betzig, L. (1989). Causes of Conjugal Dissolution: A Cross-cultural Study. Current Anthropology 30(5):654–76.

Bjorklund, D. F., and A. D. Pellegrini. 2002. The Origins of Human Nature: Evolutionary Developmental Psychology. American Psychological Association.

Borgerhoff Mulder, M. 1988. The Relevance of the Polygyny Threshold Model to Humans. Human Mating Patterns, eds. C. G. N. Mascie-Taylor and A. J. Boyce, pp. 209–30. Cambridge University Press.

Bossen, L. 1988. Toward a Theory of Marriage: The Economic Anthropology of Marriage Transactions. Ethnology 27(2):127–44.

Broude, G. J., and S. J. Greene. 1983. Cross-cultural Codes on Husband-Wife Relationships. Ethnology 22(3):263–80.

Brown, G. R., K. N. Laland, and M. Borgerhoff Mulder. 2009. Bateman's Principles and Human Sex Roles. Trends in Ecology and Evolution 24(6):297–304.

Buss, D. M. 1989. Sex Differences in Human Mate Preferences: Evolutionary Hypotheses Tested in 37 Cultures. Behavioral and Brain Sciences 12(1):1–49.

——— 2004. Evolutionary Psychology: The New Science of the Mind (2nd ed.). Pearson Education, Inc.

Casterline, J. B., L. Williams, P. McDonald. 1986. The Age Difference between Spouses: Variations Among Developing Countries. Population Studies 40(3):353–74.

Chagnon, N. A. 2013. Yanomamo (6th ed.). Wadsworth, Cengage Learning.

Chojnacka, H. 1980. Polygyny and the Rate of Population Growth. Population Studies 34:91–107.

Cohen, R. 1971. Dominance and Defiance: A Study of Marital Instability in an Islamic African Society. American Anthropological Association.

Comaroff, J. L. (ed.). 1980. The Meaning of Marriage Payments. Academic Press.

Cronk, L. 1991. Human Behavioral Ecology. Annual Review of Anthropology 20:25–53.

Cronk, L., and B. Dunham. 2007. Amounts Spent on Engagement Rings Reflect Aspects of Male and Female Mate Quality. Human Nature 18(4):329–33. doi:10.1007/s12110-007-9018-9

Del Giudice, M. 2009. Sex, Attachment, and the Development of Reproductive Strategies. Behavioral and Brain Sciences 32(1):1–21.

Denga, D. I. 1982. Childlessness and Marital Adjustment in Northern Nigeria. Journal of Marriage and the Family 44:799–802.

Dickemann, M. 1979. The Ecology of Mating Systems in Hypergynous Dowry Societies. Social Science Information 18(2):16395.

——— 1991. Women, Class, and Dowry. American Anthropologist 93(4):944–46.

——— 1993. Dowry Disputes: A Reply to Schlegel. American Anthropologist 95(1):159–60.

Dixon, R. B. 1971. Explaining Cross-cultural Variations in Age at Marriage and Proportions Never Marrying. Population Studies 25(2):215–33.

Draper, P. 1989. African Marriage Systems: Perspectives from Evolutionary Ecology. Ethology and Sociobiology 10(1–3):145–69.

Ember, C. R., and M. Ember. 2001. Cross-cultural Research Methods. Altamira Press.

Ember, M., C. R. Ember, and B. S. Low. 2007. Comparing Explanations of Polygyny. Cross-Cultural Research 41(4):428–40.

Emlen, S. T., and L. W. Oring. 1977. Ecology, Sexual Selection, and the Evolution of Mating Systems. Science 197(4300):215–23.

Esteve-Volart, B. 2004. Dowry in Rural Bangladesh: Participation as Insurance against Divorce. http://dev3.cepr.org/meets/wkcn/3/3520/papers/esteve_volart.pdf

Evans-Pritchard, E. E. 1934. Social Character of Bride-wealth, with Special Reference to the Azande. Man 34:172–75.

Faust, E. C., and P. F. Russell. 1964. Clinical Parasitology (7th ed.). Lea & Febiger.

Faust, E. C., P. F. Russell, and R. C. Jung. 1970. Craig and Faust's Clinical Parasitology (8th ed.). Lea & Febiger.

Flinn, M. 1981. Uterine vs. Agnatic Kinship Variability and Associated Cousin Marriage Preferences: An Evolutionary Biological Analysis. Natural Selection and Social Behavior: Recent Research and New Theory, eds. R. D. Alexander and D. W. Tinkle, pp. 439–75. Chiron Press.

——— 1988. Parent-Offspring Interactions in a Caribbean Village: Daughter Guarding. Human Reproductive Behavior: A Darwinian Perspective, eds. L. Betzig, M. Borgerhoff Mulder, and P. Turke, pp. 189–200. Cambridge University Press.

Fortunato, L., C. Holden, and R. Mace. 2006. From Bridewealth to Dowry? A Bayesian Estimation of Ancestral States of Marriage Transfers in Indo-European Groups. Human Nature 17(4):355–76.

Frayser, S. G. 1985. Varieties of Sexual Experience: An Anthropological Perspective on Human Sexuality. HRAF Press.

Gage-Brandon, A. J. 1992. The Polygyny-Divorce Relationship: A Case Study of Nigeria. Journal of Marriage and the Family, vol. 54, no. 2, pp. 285–92.

Gaulin, S. J. C., and J. S. Boster. 1990. Dowry as Female Competition. American Anthropologist 92(4):994–1005.

——— 1991. Dowry and Female Competition: A Reply to Dickemann. American Anthropologist 93(4):946–48.

——— 1993. Testing Explanatory Models of Dowry: A Reply to Schlegel. American Anthropologist 95(1):157–59.

Gaulin, S. J. C., D. H. McBurney, and S. L. Brakeman-Wartell. 1997. Matrilateral Biases in the Investment of Aunts and Uncles. Human Nature 8(2):139–51.

Gaulin, S. J. C., and A. Schlegel. 1980. Paternal Confidence and Paternal Investment: A Cross Cultural Test of a Sociobiological Hypothesis. Ethology and Sociobiology 1(4):301–09.

Geary, D. C. 2000. Evolution and Proximate Expression of Human Paternal Investment. Psychological Bulletin 126(1):55–77. doi:0.1037/0033-2909.126.1.55

Geary, D. C., J. Vigil, and J. Byrd-Craven. 2004. Evolution of Human Mate Choice. Journal of Sex Research 41(1):27–42.

Gluckman, M. 1950. Kinship and Marriage Among the Lozi of Northern Rhodesia and the Zulu of Natal. African Systems of Kinship and Marriage, eds. A. R. Radcliffe-Brown and C. D. Forde, pp. 166–206. Oxford University Press.

——— 1953. Bridewealth and the Stability of Marriage. Man 53:141–43.

Goldschmidt, W. 1974. The Economics of Brideprice Among the Sebei and in East Africa. Ethnology 13(4):311–31.

Goody, E. 1962. Conjugal Separation and Divorce Among the Gonja of Northern Ghana. Marriage in Tribal Societies, ed. M. Fortes, pp. 14–54. Cambridge University Press.

Goody, J. 1973. Bridewealth and Dowry in Africa and Eurasia. Bridewealth and Dowry, eds. J. Goody and S. J. Tambiah, pp. 1–58. Cambridge University Press.

Gray, P. B., and K. G. Anderson. 2010. Fatherhood: Evolution and Human Paternal Behavior. Harvard University Press.

Hamilton, W. D. 1964. The Genetical Evolution of Social Behaviour. II. Journal of Theoretical Biology 7(1):17–52.

Harrell, S., and S. A. Dickey. 1985. Dowry Systems in Complex Societies. Ethnology 24(2):105–20.

Hartung, J. 1982. Polygyny and Inheritance of Wealth. Current Anthropology 23(1):1–12.

——— 1985. Matrilineal Inheritance: New Theory and Analysis. Behavioral and Brain Sciences 8(4):661–88.

Hewlett, B. S. 1991. Intimate Fathers: The Nature and Context of Aka Pygmy Paternal Infant Care. University of Michigan Press.

Hoier, S., H. A. Euler, and M. Hänze. 2001. Diskriminative fürsorglichkeit von tanten und onkeln. Zeitschrift für Differentielle und Diagnostische Psychologie 22(3):206–15.

Huber, B. R., and W. L. Breedlove. 2007. Evolutionary Theory, Kinship, and Childbirth in Cross-cultural Perspective. Cross-Cultural Research 41(2):196–219.

Huber, B. R., W. F. Danaher, and W. L. Breedlove. 2011. New Cross-cultural Perspectives on Marriage Transactions. Cross-Cultural Research 45(4):339–75.

Huber, B. R., V. Linhartova, and D. Cope. 2004. Measuring Paternal Certainty Using Cross-cultural Data. World Cultures 15(1):48–59.

Jiang, Q. B., and J. J. Sanchez-Barricarte. 2012. Bride Price in China: The Obstacle to "Bare Branches" Seeking Marriage. History of the Family 17(1):2–15. doi:10.1080/1081602x.2011.640544

Kressel, G. M. 1977. Bride-price Reconsidered. Current Anthropology 18(3):441–58.

Kruger, D. J., C. J. Peterson, and T. Peterson. 2010. Female Scarcity Reduces Women's Marital Ages and Increases Variance in Men's Marital Ages. Evolutionary Psychology 8(3):420–31.

Lagacé, R. O. 1979. The HRAF Probability Sample: Retrospect and Prospect. Behavior Science Research 14(3):211–29.

Laham, S. M., K. Gonsalkorale, and W. von Hippel. 2005. Darwinian Grandparenting: Preferential Investment in More Certain Kin. Personality and Social Psychology Bulletin 31(1):63–72.

Lancaster, J. B., and H. S. Kaplan. 2000. Parenting Other Men's Children: Costs, Benefits, and Consequences. Adaptation and Human Behavior: An Anthropological Perspective, eds. L. Cronk, N. Chagnon, and W. Irons, pp. 179–201). Aldine de Gruyter.

Lang, H. 1993. Dowry and Female Competition: A Boolean Reanalysis. Current Anthropology 34(5):775–78.

Lloyd, P. C. 1968. Divorce Among the Yoruba. American Anthropologist 70(1)67–81.

Low, B. S. 1988. Pathogen Stress and Polygyny in Humans. Human Reproductive Behaviour: A Darwinian Perspective, eds. L. Betzig, M. Borgerhoff Mulder, and P. Turke, pp. 115–27. Cambridge University Press.

——— 1990. Marriage Systems and Pathogen Stress in Human Societies. American Zoologist 30(2):325–40.

——— 2000. Why Sex Matters: A Darwinian Look at Human Behavior. Princeton University Press.

——— 2005. Women's Lives There, Here, Then, Now: A Review of Women's Ecological and Demographic Constraints Cross-culturally. Evolution and Human Behavior 26(1):64–87.

Low, B. S., and J. T. Heinen. 1993. Population, Resources, and Environment: Implications of Human Behavioral Ecology for Conservation. Population and Environment 15(1):7–41.

Markell, E. K., and M. Voge. 1981. Medical Parasitology (5th ed.). Saunders.

Marlowe, F. W. 2003. The Mating System of Foragers in the Standard Cross-cultural Sample. Cross-Cultural Research 37(3):282–306.

McBurney, D. H., J. Simon, S. J. C. Gaulin, and A. Geliebter. 2002. Matrilateral Biases in the Investment of Aunts and Uncles. Human Nature 13(3):391–402.

McLennan, J. F. 1865. Primitive Marriage: An Inquiry into the Origin of the Form of Capture in Marriage Ceremonies. Adam and Charles Black.

Murdock, G. P. 1949. Social Structure. Macmillan.

——— 1967. Ethnographic Atlas: A Summary. Ethnology 6(2):109–236.

Naroll, R. 1967. The Proposed HRAF Probability Sample. Cross-Cultural Research 2:70–80.

Nettle, D. 2009. Ecological Influences in Human Behavioural Diversity: A Review of Recent Findings. Trends in ecology and evolution 24(11):618–24.

Ogbu, J. U. 1978. African Bridewealth and Women's Status. American Ethnologist 5(2):241–62.

Pashos, A. 2000. Does Paternal Uncertainty Explain Discriminative Grandparental Solicitude? A Cross-cultural Study in Greece and Germany. Evolution and Human Behavior 21(2):97–109.

Pollet, T. V., and D. Nettle. 2008. Driving a Hard Bargain: Sex Ratio and Male Marriage Success in a Historical US Population. Biology Letters 4(1):31–33.

Quinlan, R. J. 2007. Human Parental Effort and Environmental Risk. Proceedings of the Royal Society B: Biological Sciences 274(1606):121–25.

Rao, A. 1998. Prestations and Progeny: The Consolidation of Well-being Among the Bakkarwal of Jammu and Kashmir (Western Himalayas). Kinship, Networks, and Exchange, pp. 210–33. Cambridge University Press.

Schlegel, A. (1991). Status, Property, and the Value on Virginity. American Ethnologist 18(4):719–34.

——— 1993. Dowry: Who Competes for What? American Anthropologist 95(1):155–57.

Schlegel, A., and R. Eloul. 1987. A New Coding of Marriage Transactions. Behavior Research Methods 21:118–40.

——— 1988. Marriage Transactions: Labor, Property, Status. American Anthropologist 90(2):291–309.

Schmitt, D. P., P. A. Rohde. 2013. The Human Polygyny Index and Its Ecological Correlates: Testing Sexual Selection and Life History Theory at the Cross-National Level. Social Science Quarterly. http://onlinelibrary.wiley.com/doi/10.1111/ssqu.12030/pdf.

Schneider, H. K. 1964. A Model of African Indigenous Economy and Society. Comparative Studies in Society and History 7(1):37–55.

Spiro, M. E. 1975. Marriage Payments: A Paradigm from the Burmese Perspective. Journal of Anthropological Research 31(2):89–115.

Tambiah, S. J. 1989. Bridewealth and Dowry Revisited: The Position of Women in Sub-Saharan Africa and North India. Current Anthropology 30(4):413–35.

Trivers, R. L. 1972. Parental Investment and Sexual Selection. Sexual Selection and the Descent of Man: 1871–1971, ed. B. Campbell, pp. 136–79). Aldine.

Voland, E. 1998. Evolutionary Ecology of Human Reproduction. Annual Review of Anthropology 27:347–74.

White, D. R. 1988. Rethinking Polygyny: Co-wives, Codes, and Cultural Systems. Current Anthropology 29(4):529–59.

Whyte, M. K. 1978. Cross-cultural Codes Dealing with the Relative Status of Women. Ethnology 17(2):211–37. doi:10.2307/3773145

Wolf, A. P., and C. Huang. 1980. Marriage and Adoption in China: 1845–1945. Stanford University Press.

Zahavi, A. 1975. Mate Selection: A Selection for a Handicap. Journal of Theoretical Biology, 53(1):205–14.

APPENDIX

Table 1
Level of Marriage Investments

Level 1

- 1 small gift; 1 item of food or drink; 1 meal
- 1–2 chickens
- An article of clothing
- Lodging for 1 person-night[1]
- < $10 U.S.[2]

Level 2

- 2–5 small gifts; 2–5 items of food or drink; 2–5 meals
- 1–4 turkeys; 1–4 sheep, pig, or llama heads
- A full set of clothing or 2 articles of clothing
- Lodging for 2–5 people-nights
- 1 day of housework,[3] cultivation, animal husbandry, or foraging; 1 day's supply of firewood
- $10–$25 U.S.

Level 3

- 6–20 small gifts; 6–20 items of food or drink; 6–20 meals
- Lodging for 6–20 people-nights
- 2–6 days of housework, cultivation, animal husbandry, or foraging; 2–6 days' of supply of firewood
- 2 sets of clothing or 4 articles of clothing
- 1–2 caribou sleds; 1–2 used rifles
- 1–4 medium-sized animals (sheep, goats, pigs, or caribou)
- $26–$100 U.S.

Level 4

- 21–40 small gifts; 21–40 items of food or drink; 21–40 meals
- lodging for 21–40 people-nights
- 1–2 weeks of housework, cultivation, animal husbandry, or foraging; 1–2 weeks' supply of firewood
- Small trousseau (3 sets of clothing or 6 articles of clothing)
- 3–4 caribou sleds
- 1 large animal (cow, horse, or mule)
- $101–$200 U.S.

Level 5

- 41–99 small gifts; 41–99 items of food or drink; 41–99 meals
- Lodging for 41–99 people-nights
- More than 2 weeks but less than 1 month of housework, cultivation, animal husbandry, or foraging
- A medium trousseau (3 or more sets of clothing, plus household linens and kitchen items)
- 5–6 caribou sleds
- 2–3 large animals or 1 land parcel or 1 hut
- $201–$1,000 U.S.

Level 6

- 100–199 small gifts; 100–199 items of food or drink; 100–199 meals
- Lodging for 100–199 people-nights
- More than 1 month but less than 1 year of housework, cultivation, animal husbandry, or foraging
- A large trousseau (3 or more sets of clothing, plus household linens, kitchen items, and 1 or 2 pieces of furniture)
- 4–9 large animals
- $1,001–$2,000 U.S.

Level 7

- 200 or more small gifts; 200 or more items of food or drink; 200 or more meals
- Lodging for 200 or more people-nights
- More than 1 year of housework, cultivation, animal husbandry, or foraging
- 10 or more large animals
- A very large trousseau (3 or more sets of clothing, household linens, kitchen items, plus 3 or more pieces of furniture)
- $2,001 U.S. or more

Notes

1. We calculate person-nights by multiplying the number of people by the number of nights that lodging is provided to them.
2. Foreign currency amounts were first converted to "old" U.S. dollars using the exchange rate at the time of fieldwork. Then "old" U.S. dollars were converted to 2005 U.S. dollars using the Consumer Price Index (http://www.measuringworth.org/exchangeglobal).
3. This includes food preparation, sewing, and other productive activities.

Table 2
Wilcoxon Signed-Ranks Tests Comparing
Net Marriage Assets of Brides and Brides' Parents to
Grooms and Grooms' Parents; Couples to Brides' Parents;
and Couples to Grooms' Parents

Net Marriage Assets	Ranks	N	Test Statistics
Brides' and brides' parents' minus grooms' and grooms' parents'	Positive ranks	42	
	Negative ranks	11	
	Ties	6	
	TOTAL	59	Z = -4.493, p < .000; one-tailed
Couples' minus brides' parents'	Positive ranks	37	
	Negative ranks	17	
	Ties	5	
	TOTAL	59	Z = -2.665, p < .004; one-tailed
Couples' minus grooms' parents'	Positive ranks	39	
	Negative ranks	14	
	Ties	6	
	TOTAL	59	Z = -3.789, p < .000; one tailed

Table 3
Basic Descriptive Statistics and
Intercorrelations of the Five Independent Variables

		Divorce Frequency	Polygyny Rate	Total Pathogen Stress	Relative Ages of Spouses	Paternal Confidence
Polygyny Rate	Pearson Corr.	.184				
	Sig. (1-tailed)	.083				
	N	58				
Total Pathogen Stress	Pearson Corr.	.290	.386			
	Sig. (1-tailed)	.014	.001			
	N	58	59			
Relative Ages of Spouses	Pearson Corr.	.277	.397	.415		
	Sig. (1-tailed)	.027	.002	.001		
	N	49	50	51		
Paternal Confidence	Pearson Corr.	-.159	.079	.085	-.052	
	Sig. (1-tailed)	.121	.282	.266	.364	
	N	56	56	57	48	57
Mean		3.3	2.6	12.4	4.4	11.4
SD		1.4	1.1	3.7	3.7	2.9
Minimum		1	0	7	-3	5
Maximum		5	4	20	15	20

Table 4
Basic Descriptive Statistics and Intercorrelations of
the Four Dependent Variables

		Brides' Parents' Net Assets	Brides' Net Assets	Grooms' Parents' Net Assets	Grooms' Net Assets
Brides' Net Assets	Pearson Corr.	-.209			
	Sig. (1-tailed)	.056			
	N	59			
Grooms' Parents' Net Assets	Pearson Corr.	-.050	-.461		
	Sig. (1-tailed)	.352	.000		
	N	59	59		
Grooms' Net Assets	Pearson Corr.	-.333	.302	-.439	
	Sig. (1-tailed)	.005	.010	.000	
	N	59	59	59	59
Mean		-.5	4.2	-4.2	-.4
SD		6.4	4.8	7.7	5.7
Minimum		-17.0	-5.3	-27.5	-15.0
Maximum		17.2	18.5	12.0	11.1

Table 5
Determinants of Brides' Parents' Net Assets for
All Types of Marriage Transactions (n = 47)

Variables	B	SE B	Beta	p
Divorce Rate	-.528	.620	-.115	.400
Polygyny Rate	2.641	.762	.472	.001
Pathogen Stress	.434	.255	.243	.096
Relative Ages of Spouses	-.080	.259	-.043	.760
Paternal Confidence	-.735	.281	-.337	.012

Table 6
Determinants of Brides' Net Assets for
All Types of Marriage Transactions (n = 47)

Variables	B	SE B	Beta	p
Divorce Rate	.166	.513	.048	.749
Polygyny Rate	-1.117	.631	-.268	.084
Pathogen Stress	.384	.211	.288	.076
Relative Ages of Spouses	.102	.214	.075	.637
Paternal Confidence	.575	.233	.353	.018

Table 7
Determinants of Grooms' Parents' Net Assets for
All Types of Marriage Transactions (n = 47)

Variables	B	SE B	Beta	p
Divorce Rate	.383	.725	.076	.601
Polygyny Rate	1.216	.891	.119	.180
Pathogen Stress	-.672	.298	-.344	.030
Relative Ages of Spouses	-.215	.303	-.107	.483
Paternal Confidence	-.910	.329	-.381	.008

Table 8
Determinants of Grooms' Net Assets for All Types of
Marriage Transactions (n = 47)

Variables	B	SE B	Beta	p
Polygyny Rate	-1.865	.677	-.377	.008
Pathogen Stress	-.108	.205	-.072	.601
Paternal Confidence	.168	.243	.088	.491