Marriage and Assortative Matching in Rural Ethiopia*

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Abstract

This paper examines the determinants of human and physical capital at marriage. Using detailed data from rural Ethiopia, we find ample evidence of assortative matching at marriage. Assets brought to marriage are distributed in a highly unequal manner. Sorting operates at a variety of levels – wealth, schooling, and work experience – that cannot be summarized into a single additive index. For first unions, assets brought to marriage are positively associated with parents' wealth, indicating that a bequest motive affects assets at marriage. Parents' wealth also positively affects inheritance of both brides and grooms, although sibling competition also affects grooms' inheritance. Unlike most brides, grooms appear to accumulate individual assets over time and over marriages. The marriage market is a major conduit for rural and gender inequality, although avenues do exist for couples to accumulate wealth over their life cycle.

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1. Introduction

In agrarian societies marriage is an event of deep economic importance. First, it typically marks the onset not only of a new household but also of a new production unit, e.g., a family farm. Assets brought to marriage determine the start-up capital of this new enterprise. The success of the enterprise thus depends to a large extent on what happens in the 'marriage market', that is, on the arrangement reached by the bride and groom and their respective families regarding the devolution of assets to the newly formed household. Farm formation cannot be dissociated from marriage market considerations. Second, in an environment where asset accumulation takes time and is particularly difficult for the poor, assets brought to marriage play a paramount role in shaping the lifetime prosperity of newly formed households: well married daughters can expect a life of relative comfort while poorly married daughters may spend most of their life in utter poverty. Assortative matching between spouses – the rich marry the rich, the poor marry the poor – not only increases inequality, it also reduces social mobility due to intergenerational transfers of assets at marriage.

The purpose of this paper is to examine patterns of marriage and parental transfers in rural Ethiopia. We do so in two separate steps. First, we investigate the extent to which the socioeconomic characteristics of spouses are correlated. In particular, we examine the correlation between both parental and personal characteristics of husbands and wives at the time of marriage. We find that marriage in rural Ethiopia is better characterized as an assortative matching process rather than as assignment driven by non-economic factors. This is hardly surprising given that most marriages are arranged by parents and relatives. We then investigate how rural society endows new couples with the assets they need to set up a farm and family – typically land and livestock, utensils, grains, and consumer durables such as clothing and jewelry. We also examine the determinants of intergenerational transfers, both at marriage and through inheritance. We find that intergenerational transfers take place primarily at the time of marriage. This is particularly true for men, to whom most productive assets are bequeathed, whether at marriage or afterwards. We also examine the extent to which parental wealth affects the aggregate amount of wealth that the couple has at the beginning of marriage, controlling for characteristics of the couple which may enable them to accumulate assets on their own. We find that the correlation between parental wealth and

wealth at marriage is high, thereby suggesting relatively low intergenerational mobility. However, the correlation between assets at marriage and current assets is lower, indicating either that couples continue to accumulate assets over their married life, or that public redistribution policies have had an impact on current inequality.

Economic analysis of marriage and the family has grown tremendously since Becker's (1981) Treatise on the Family. Phenomena such as family formation, intergenerational transfers, and the allocation of resources within the family, previously the domain of anthropology and sociology, have increasingly been subject to economic investigation (e.g. Bergstrom 1997, Weiss 1997, Becker and Tomes 1986, Behrman 1997, Haddad, Hoddinott and Alderman 1997). Marriage, in particular, is an institution of great interest, since, in many developing countries, it represents the union not only of two individuals, but also of two family or kinship groups. Moreover, in many societies, marriage is the occasion for a substantial transfer of assets from the parent to the child generation (the other is the parent's death). Lastly, recent work testing the collective versus the unitary model of household decision making has paid increased attention to conditions prevailing at the time of marriage. In particular, it has been shown that the distribution of assets between spouses at the time of marriage acts as possible determinant of bargaining power within marriage (e.g. Thomas, Contreras and Frankenberg 1997, Quisumbing and de la Brière 2000, Quisumbing and Maluccio 1999). While it can be argued that assets at marriage do not completely determine the distribution of assets upon divorce (Fafchamps and Quisumbing 2002b), these measures are, in themselves, worth investigating because they shed light on the institution of marriage and inheritance in rural societies.

This paper differs from these other works in several respects. First, we distinguish assortative matching from assets brought to marriage. Second, we separate factors that affect intergenerational transfers from those that reflect the relative scarcity of brides and grooms. Third, unlike marriage market studies which focus on dowry and brideprice *per se*, that is, on transfers at marriage from one family to the other (e.g. Rao 1993, Foster 1998), we examine the totality of assets brought to marriage, whether these were acquired from parents or other sources prior to marriage or received at the time of marriage. [1] This more

[1] This is not entirely new in the literature. Quisumbing (1994) and Thomas et al. (1997) examined the effects of assets at marriage on the allocation of land and schooling among children in the Philippines and on child health in Indonesia, respectively. In their analysis of dowry in China, Zhang and Chan (1999) also investigate assets brought to marriage.

inclusive measure is more appropriate in rural Ethiopia because gifts from the families to each other and to the couple account for a small proportion of assets brought to marriage. The main purpose of these gifts seems to be to seal the marriage and cover the cost of the wedding rather than to endow the new couple. This lesson should be kept in mind when conducting marriage market studies in other (African) countries.

Ethiopia is an ideal site for studying marriage customs because it is characterized by extensive agro-ecological and ethnic diversity. Different religions, with widely divergent views regarding matrimonial issues and the status of women, are well represented and tend to dominate different parts of the country – the Orthodox church of Ethiopia in the north, Sunni Muslims in the east and west, recently converted Protestants in the South, and animist believers in parts of the south. The ethnic and cultural makeup of the country is also quite varied, with Semitic traditions in the north, Cushitic traditions in the south and east, and Nilotic traditions in the west. Climatic and ecological variation is equally high, given the mountainous terrain and the fact that the country stretches from the dry Sahel to the humid equatorial zone. Finally, local traditions have remained largely untouched given the lack of roads and the relative isolation of the countryside.

The paper is organized as follows. We begin in Section 2 by laying out the conceptual framework for our analysis. A brief description of the survey and the survey area follows in Section 3. Assortative matching is examined in Section 4. We continue in Section 5 with a descriptive analysis of assets brought to marriage, disaggregated by number of unions, and examine the possibility that assortative mating characterizes Ethiopian marriages using various correlation measures. We also examine the determinants of the value of assets brought to marriage by the bride and groom. The distribution of assets at marriage between spouses is analyzed as a function of personal, parental, and marriage market characteristics. Section 6 concludes.

2. Conceptual Framework

Economic analysis of marriage typically focuses on the gains from marriage and its distribution among the partners involved. These gains range from joint production and consumption of public goods (e.g.

children), to the division of labor and risk-pooling. They are maximized if the union is likely to last (Weiss 1997). The decision to form a particular union thus depends not only on the specific merits of a particular match, but also on the whole range of opportunities available to each partner. Since individuals in any society have many potential partners, this situation creates competition over the potential gains from marriage.

Following Becker (1981), we model the 'marriage market' as a process by which a bride and a groom are paired with each other from a population of suitable grooms and brides. The welfare W of the newlyweds depends upon what they bring to marriage, namely physical wealth A_m and A_f and human capital H_m and H_f, where m stands for groom and f stands for bride. We have:

$$W = W(A_m + A_f, H_m, H_f; Z) \tag{2.1}$$

where Z represents a vector of location or time-specific factors that exogenously affect the utility from marriage. We assume that $\frac{\partial W}{\partial A}' > 0$, $\frac{\partial W}{\partial H_m}' > 0$, and $\frac{\partial W}{\partial H_f}' > 0$: the utility from marriage increases with assets and human capital.

An interesting special case is when human capital is only valued for its income generating potential and there are no externalities from one spouse's human capital to the other's. In this case, the utility from marriage can be written:

$$W = W(A_m + A_f + \gamma_m H_m + \gamma_f H_f; Z) \tag{2.2}$$

where γ_m and γ_f denote life-time returns from human capital, with $\gamma_m > 0$, and $\gamma_f > 0$. In this special case, brides and grooms can be unambiguously ranked: all brides prefer grooms with high $A_m + \gamma_m H_m$ and all grooms prefer brides with high $A_m + \gamma_m H_m$.

Equation (2.2) is not true in general, however. For instance, if there are positive externalities in education and farming, grooms rank brides differently depending on their own characteristics: highly educated grooms prefer highly educated brides while grooms with farm experience prefer brides with farm experience – and vice versa. With externalities, grooms and brides are ranked according to multiple

attributes. The same conclusion holds if preferences are correlated, so that individuals with particular traits prefer to choose mates with similar traits, or if they choose mates with traits to compensate for their own

We now move to the marriage market proper. There are M potential grooms and F potential brides in the economy, each with an endowment of assets A_i and human capital H_i. If equation (2.2) holds, then without loss of generality, potential grooms and brides can be indexed according to their physical and human capital such that:

$$\begin{aligned} A_m^1 + \gamma_m H_m^1 &> A_m^2 + \gamma_m H_m^2 > ... > A_m^M + \gamma_m H_m^M \\ A_f^1 + \gamma_f H_f^1 &> A_f^2 + \gamma_f H_f^2 > ... > A_f^F + \gamma_f H_f^F \end{aligned}$$

Empirical modeling of marriage markets, with the exception of a few studies that have used census data to model potential matches (Foster 1998), has thus been stymied by the absence of data on all potential matches, although proxies for potential opportunities-whether in the marriage or labor markets-have been used in other studies (Rao 1993).

For simplicity, assume that each of the above inequalities is strict. According to Becker, a pairing of potential brides and grooms is *not* a marriage market equilibrium if a groom (bride) wishes to attract another bride (groom) and this bride (groom) prefers to marry this groom (bride) than her (his) currently allotted partner. Ignoring polygamy, an assignment is stable if (1) there is no married person who would rather be single; and (2) there are no two persons who both prefer to form a new union with each other. Given our assumptions, we have:

Proposition 1. *(Assortative Matching) If equation (2.2) holds, the marriage market equilibrium is unique. In this equilibrium, the top ranked groom marries the top ranked bride, the second ranked groom marries the second ranked bride, etc. In the absence of polygyny and polyandry, supernumerary brides (if $M < F$) or grooms (if $M > F$) do not marry. (Proof: See Becker (1981).)*

Assortative matching implies that if we should observe a perfect rank correlation between the combined physical and human capital of all brides and grooms in a given marriage pool. Testing this simple

prediction is the object of Section 4. Spearman correlation coefficients are computed for each of the main asset categories. To compute the correlation on joint physical and human capital, we estimate parameters γ_m and γ_f using canonical correlation (e.g. Hotelling 1935, Hotelling 1936, Wicks 1962). To control for location and time factors, we subtract location-time specific averages from each variable so that ranks are expressed relative to their village and time of marriage.

The presence of assortative matching also makes it possible to investigate the existence of a single ranking for brides and grooms.

Proposition 2. *(Single ranking) Consider observations on a vector of bride and groom attributes X_m and X_f. If the welfare from marriage can be written as in equation (2.2), then there exist parameters β_m and β_f such that the correlation between $\beta_m X_m$ and $\beta_f X_f$ exhausts the relationship between X_m and X_f. (Proof: Let $\beta_m = \{1, \gamma_m\}$ and $\beta_f = \{1, \gamma_f\}$. This proves existence. Given equation (2.2), assortative matching implies that once we control for the correlation between $\beta_m X_m$ and $\beta_f X_f$, there does not exist another (orthogonal) index constructed using X_m and X_f that is also correlated across brides and grooms.)*

The idea behind the single ranking proposition is that, if individuals are ranked according to multiple attributes, their attributes will be correlated with each other but it is not possible to 'summarize' the correlation between all bride and groom attributes with the help of a single, optimally chosen index. In contrast, if the welfare from marriage follows equation (2.2), then such an index exists and it explains all the correlation between attributes that is present in the data. We test single ranking in Section 4 using canonical correlation analysis. Single ranking is an interesting hypothesis to test in general because it describes how the marriage market operates. For instance, it determines how ties between spouses with the same income generating potential are resolved. It may also affect how 'new' matching criteria such as education compare to 'old' matching criteria such as wealth. This has implications regarding intergenerational mobility. Suppose we find that education has become a ranking criterion in its own right. This means that knowing someone's wealth is no longer sufficient to predict their success in the marriage market: of two people with the same income generating potential, one may be preferred because he or she is better educated. To the extent that education is easier to acquire for the poor than wealth,

educating their children may become a way for poor parents to compensate for their lack of wealth. Single ranking can only be tested with respect to attributes observed by the researcher. Even if we fail to reject single ranking for observed attributes, there may be other, unobserved attributes (kinship and family ties, personal traits, geographical proximity) that violate it.

The marriage market equilibrium does not, however, provide a complete characterization of assets brought to marriage. Since these assets in large part come from the parents of the bride and groom, bequest considerations come into play as well. In agrarian societies, most inheritance indeed takes place at marriage. The bequest choice facing altruistic parents marrying off their children can thus be represented as:

$$\max_{A_m, A_f, H_m, H_f} U(S - \sum_b A_m - \sum_g A_f - \sum_b sH_m - \sum_g sH_f; Z) +$$
$$\sum_b \omega_b W(A_m + \overline{A}_f + \gamma_m H_m + \gamma_f \overline{H}_f; Z) +$$
$$\sum_g \omega_g W(\overline{A}_m + A_f + \gamma_m \overline{H}_m + \gamma_f H_f; Z)$$

where the b and g subscripts denote boys and girls, respectively, $U(.)$ is the utility of parents, S is their wealth, s is the cost of human capital (e.g., school fee), and the ω's are welfare weights for sons and daughters. Variables A_m and A_f denote the assets given to sons and daughters as they marry; H_m and H_f denote their level of human capital. Variables $\bar{A}_m$, $\bar{A}_f$, $\bar{H}_m$, and $\bar{H}_f$ represent the assets and human capital of the people sons and daughters marry. For simplicity, we have assumed symmetry among sons and among daughters.[2] We also assume that $W'' < 0$, so that parents have an incentive to equalize the welfare of their children.

The above conceptual framework is not, however, the only possible one. For instance, parents may act strategically when they endow their children at the time they enter the mariage market. This possibility is not explored here but is examined in detail by Fafchamps and Quisumbing (2002a). It is also conceivable that the parents of the bride and groom jointly decide how to endow their offspring. Dropping human

[2] For a discussion of asymmetric bequest norms such as primogeniture, see for instance Platteau and Baland (2001) and Chu (1991).

capital to simplify notation, this situation can be represented as:

$$\max_{A_m, A_f} \ \omega_p U(S_p - A_m; Z) + \omega_q U(S_q - A_f; Z) + (\omega_b + \omega_g) W(A_m + A_f; Z)$$

where the ω's represent welfare weights and subscripts p and q stand for the groom's parents and the bride's parents, respectively. In this framework, assets devoted to the newlyweds are decided jointly, one set of parents compensating for the other. Total assets at marriage $A_m + A_f$ are a function of the wealth levels of both sets of parents S_p and S_q. Joint decision can thus be tested as a pooling restriction. These possibilities are discussed and investigated in their respective estimation sections.

3. Study site and survey description

Having presented our conceptual framework and outlined our testing strategy, we purport to apply these ideas to marriage outcomes in rural Ethiopia. The choice of country is dictated by the fact that Ethiopia is primarily an agrarian economy where marriage market issues are important determinants of welfare. Ethiopia is indeed a low-income, drought-prone economy with the third largest population on the African continent. While some work has been done on South Asia (Foster 1998) and West Africa (Jacoby 1995), very little is known about marriage markets in East Africa. An additional attraction of Ethiopia as a study site is that it has extensive agro-ecological and ethnic diversity, with over 85 ethnic groups and allegiance to most major world and animist religions (Webb, von Braun and Yohannes 1992). This diversity should provide enough variety in marriage market outcomes to identify important determinants.

For our analysis, we rely on the 1997 Ethiopian Rural Household Survey (ERHS) which was undertaken by the Department of Economics of Addis Ababa University (AAU) in collaboration with the International Food Policy Research Institute (IFPRI) and the Center for the Study of African Economies (CSAE) of Oxford University. The 1997 ERHS covered approximately 1500 households in 15 villages across Ethiopia, capturing much of the diversity mentioned above. While sample households within villages were randomly selected, the choice of villages themselves was purposive to ensure that the major farming systems were represented. Thus, while the 15 sites included in the sample may not be statistically representative of rural Ethiopia as a whole, they are quite representative of its agro-ecological, ethnic, and religious

diversity.

The questionnaire used in the 1997 round includes a set of fairly standard core modules, supplemented with modules specifically designed to address intrahousehold allocation issues, particularly conditions at the time of marriage. These modules were designed not only to be consistent with information gathered in the core modules, but also to complement individual-specific information. These modules were pretested by the authors in February/March 1997 in four non-survey sites with a level of ethnic and religious diversity similar to the sample itself. Data collection took place between May and December 1997. Questionnaires were administered in several separate visits by enumerators residing in the survey villages for several months. Careful data cleaning and reconciliation across rounds were undertaken in 1998 and 1999 by Bereket Kebede and IFPRI staff.

The intrahousehold modules collect information on: the parental background and marriage histories of each spouse; the circumstances surrounding the marriage (e.g. type of marriage contract, involvement in the choice of a spouse); and the premarital human and physical capital of each spouse. A variety of assets brought to the marriage were recorded, as well as all transfers made at the time of marriage. These questions, which were asked separately for each union listed by the household head, pertained to assets brought to marriage by the head and his spouse(s) (or if the household head was female, for herself and her last husband). Questions were as exhaustive as possible; they covered the value and quantity of land and livestock, as well as the value of jewelry, linen, clothing, grains, and utensils that each spouse brought to marriage. In the analysis, values at the time of marriage are converted to current values using the consumer price index. Given the difficulties inherent in a long recall period and in the choice of an inflation correction factor suitable for all 15 villages, these values are likely to be measured with error. We also collected information on the value of the house brought to marriage by each spouse, if any. Although questions were asked about cash as well, they yielded very few responses, if any. This is because accumulation in the form of cash or financial instruments is essentially absent in the study area. Questions were asked about transfers from the bride's and groom's families at the time of marriage, whether to the couple, or to a specific individual. Parental background information was collected for each spouse and each union; these included landholdings of the parents at the time the household head was

married, as well as educational attainment of each parent of each spouse. Human capital characteristics of each spouse included age, education, and experience in three categories of work prior to marriage: farm work, wage work, and self-employment.

One asset, land, deserves a few words of caution. For some twenty years prior to the survey, rural land was owned by the Ethiopian state and distributed to individual farmers by the Peasants' Association (PA), a local authority operating at the village level. Land is then periodically reallocated between farmers to accommodate the needs of young couples. Between these reallocations, farmers hold full user rights on the land. In practice, reallocations have occurred rather infrequently. Different regions also seem to have interpreted the law differently, some opting for a collectivist approach while others essentially followed the old system of inheritance (e.g. The World Bank 1998, Gopal and Salim 1999). The absence of land sales markets implies that land purchases, which could be an avenue for couples to accumulate land during their lifetime, are not possible. Thus, young couples typically obtain land through their parents, either directly (gift or land loan) or indirectly by having their parents lobby the PA (Fafchamps and Quisumbing 2002b). Households can also acquire land to cultivate using share-tenancy agreements (Pender and Fafchamps 2002) It is also worth noting that, although the sale of agricultural land has been illegal in Ethiopia for over twenty years, virtually all surveyed households were able to value the land they had brought to marriage.[3] This leads us to expect that, in rural Ethiopia, parents continue to determine the land base of newly formed couples.

Table 1 breaks down the sample by household category. We see that twenty percent of surveyed households are headed by unmarried individuals, most often divorced or widowed women. Monogamous couples living together represent some 62% of the sample. Polygamous households – or parts thereof – account for 7.6% of the sample, while separated couples account for the remaining 9%. Starting from these household level data, we construct a marriage data set that contains information recorded for each union separately. The rest of the analysis presented here is based on this union-level data set.

Survey results show that grooms bring nearly ten times more assets than brides to the newly formed

[3] The absence of land sales markets also implies that respondents' valuation of land will be subjective, as there are no current market prices with which to value land. In practice, respondents recalled the value of the land when they received it.

family unit (Table 2), an average of 4,270 Birr (in 1997 prices), compared to 430 birr for brides. For grooms, land is the asset with the highest average value. The next most valuable asset is livestock, followed by grain stocks and other minor assets. In contrast, brides bring very little land to the marriage. They bring some livestock but less than grooms. Two-thirds of the brides report bringing no asset to marriage. Gifts at the time of marriage are distributed more evenly between the groom and the bride but they are very small relative to assets brought to marriage, except for the bride where they are roughly equivalent. The survey area can thus be described as a system where grooms bring most of the start-up capital of the newly formed household. Indeed, parental landholdings of the bride are considerably less than those of the groom. This could reflect respondent biases in answering questions about one's in-laws (the husband was the person interviewed, owing to the reluctance to have wives interviewed except in female-headed households) as well as postmarital residence. The predominantly virilocal pattern of postmarital residence (husbands bring in a bride first to their parents', and then to their own homestead) implies that the transfer of labor is from the bride's family to the groom's Pankhurst (1992): 112-113). Where uxorilocal marriages are reported, it is usually because the bride's family is wealthier, or has a greater need for a male laborer owing to larger landholdings. Given the prevalence of male-headed households in our sample, one can conclude that most of our survey households followed virilocal residence patterns.

Couples also acquire assets through inheritance, although typically this happens several years after marriage. The value of land inherited by grooms is slightly higher than what they receive at marriage, while the value of livestock inherited is considerably less. Brides inherit a larger value of land than they bring to marriage – the latter is negligible – although the median value is zero. Similar to grooms, livestock inheritance is less than the value brought to marriage.

Regarding human capital, newlyweds in rural Ethiopia bring very little in terms of education: one male out of four in our sample and one woman out of 10 has been to school (Table 2). If we include other forms of education such as literacy campaigns and religious education, only one third of surveyed husbands have a minimum level of literacy. Work experience prior to marriage is more extensive, especially for men who typically have 12 years of farming experience at the time of marriage, vs. 4 years for brides. This is a reflection of both the younger age of brides and the fact that women participate minimally in field

work. Age at marriage also differs markedly, with an average age gap of 10 years. Work experience other than farming is extremely limited, especially for women – a finding consistent with the negligible role of non-farm employment in the Ethiopian countryside.

There is a lot of inequality with respect to assets brought to marriage (Table 3). The Gini coefficient for all combined assets is 0.621. Married couples thus do not all start equal. Some have much more assets with which to create a new farming enterprise. We also observe extreme inequality in assets brought to marriage by brides: most brides bring nothing while a few bring a lot. In such a polarized society, the presence of a few rich brides is likely to attract competition, an issue studied by Fafchamps and Quisumbing (2002a). Gini coefficients for individual assets are higher than for total assets combined, the highest being for land, reflective of the high inequality in parental landholdings. This is a paradoxical finding, given that the stated objective of the state-run land allocation system is to give land to the tiller. Because land reallocations do not take place every year, however, many starting couples have no land of their own, unless they are fortunate enough that their parents can spare land for them or unless they had already gained access to land prior to marriage. Inequality is also very large in initial livestock assets, an area in which there has been very little if any government intervention. It is of course conceivable that inequality in asset holdings diminishes over time as periodic land reallocations shift land toward younger generations, and as families accumulate livestock over the life cycle. In fact, we find that, despite high inequality in the distribution of assets at marriage, the Gini coefficient for current assets is much lower, at 0.419. This reflects the low correlation between the value of assets at marriage and current asset values (Table 4).[4] Correlation coefficients of grooms' assets at marriage with parental assets are much higher than the corresponding correlations with current assets.[5] This may reflect some improvement in long-run asset distributions, either because couples continue to accumulate assets over their married life, or because public redistribution policies have had an impact on current inequality. Further study along these lines is needed.

[4] We present only the household aggregate for current assets since assets brought into the household are marriage are managed by the household head, regardless of their original ownership at the time of marriage (Fafchamps and Quisumbing 2002b).

[5] We use simple correlation coefficients for descriptive purposes in this section. Correlation coefficients of the bride's assets with both parental land and current assets are very low. Correlation coefficients of land area with parental land (measured in hectares) are higher than the similar coefficients computed using land values because of the variation in land values across survey sites.

Table 5 breaks down married couples by number of marriages of each spouse. While the majority of surveyed husbands (57%) and a higher proportion of wives (67%) have been married only once, multiple successive marriages are common. Twenty-three percent of husbands have been married twice, and 11% have been married thrice. Although we observe men who have been married more than three times, they account for only nine percent of the sample. Multiple unions are also common among wives, with 23% having been married twice, and 7% thrice. Only three percent of wives have been married more than thrice, and these numbers are driven by individuals with a large number of spouses. The fluidity of marriage is consistent with the anthropological evidence (Pankhurst 1992); divorce is frequent and serial marriages are common. Rules regarding divorce and inheritance vary dramatically between different locations in Ethiopia. Assets brought to marriage affect the disposition of land and livestock upon divorce, although the correspondence is not exact, contrary to what is often assumed in empirical work on intrahousehold issues (Fafchamps and Quisumbing 2002b). Women expect to receive more land and commonly held livestock upon divorce if they brought in some land. Conversely, they expect to get less if their husband brought a lot of land into the marriage. Control over productive resources tends to be centralized into the hands of the household head, be it a man or a woman, irrespective of ownership at or after marriage, and is associated with larger claims over these assets upon divorce.

Table 5 also presents characteristics of each spouse, disaggregated by the number of unions. Grooms seem to bring more land, livestock, and assets in subsequent marriages. This is associated with being older and having more work experience, although the direction of causality cannot be established as the number of unions and waiting time to marriage are also endogenous. For example, men from poor or low status households may have to wait longer to marry because they need to accumulate some wealth first.[6] In recent years, marriages have been delayed both due to poverty and as an indirect effect of state policies due to new rigidities in land allocation, labor mobility, and house construction.[7] The same upward trend is not observed for brides: while women who have been married twice bring more assets to marriage than those who have been married only once, brides who have been married thrice have even fewer assets than

[6] We thank an anonymous referee for pointing this out.

[7] Pankhurst (1992) notes that given chronic land shortages, a growing population, and increasing corruption, most young households had to wait before being allocated their own plot of land. The sale of labor within the community and seasonal labor migration were restricted, and after villagization, even building a new hut became problematic

those who were married only once. Work experience does not increase for brides in higher unions.

4. Assortative Matching

We now examine whether marriage in rural Ethiopia is characterized by assortative matching. To begin, we compute Spearman correlation coefficients for the major forms of physical and human capital brought to marriage. We also compute rank correlation for parents' characteristics such as land and schooling, in case the model presented at the end of Section 2 fits the data best. As argued in Section 2, rank correlation is a better concept to test assortative matching than regular correlation. For the approach to be appropriate, however, ranks must be computed within a given marriage pool, that is, individuals must be ranked relative to other individuals with whom they competed for a mate. It would indeed make little sense to rank someone who married yesterday at one end of the country relative to someone who married 30 years ago at the other end. All ranks are therefore computed within district and decade since marriage.[8] We also distinguish between first marriage and subsequent marriages. To the extent that parents play a more dominant role in the choice of a spouse at first marriage, we expect them to follow economic motives more closely than their impulsive offspring.[9] If this interpretation is correct, assortative matching should be more pronounced at first marriage.

Results, presented in Table 6, are highly suggestive of assortative matching. It is extremely unlikely (in fact, virtually impossible given the reported p-values) that the relative ranks of brides and grooms would be so closely correlated if marriage pairing was purely random. Brides and grooms appear to be sorted along all measured characteristics, whether physical or human capital. Matching in subsequent unions seems less dictated by assets and more by human capital. From this evidence, it is difficult to conclude that assortative matching is stronger at first marriage.

Closer inspection of the data reveals that parents are about as likely to be involved in the choice of a mate at first marriage as at subsequent marriages. To investigate this issue further, we compute rank

[8] The size of geographical unit and time lag was dictated by the need to preserve a sufficiently large cell size. By crossing district dummies with decade since marriage, we obtain cell sizes of roughly 20 brides and 20 grooms. Ranks are computed within each of these cells. Results are virtually identical if we only control for district, with cell size of 80.

[9] First marriages in Ethiopia tend to involve greater outlay and ceremony compared to subsequent ones, which are simpler affairs (Pankhurst 1992). This reflects the economic value put on virginity and the greater likelihood that the marriage involved a bond between households, rather than a personal arrangement between bride and groom.

correlation coefficients separately for brides who had a say on the choice of a spouse and those who did not. The results reported in Table 6 suggest that brides' involvement increases assortative matching, particularly at first marriage. If anything, brides' behavior is more consistent with cold rationality as portrayed in our marriage market model. Results also show that human capital becomes more important in sorting spouses at subsequent marriages and when brides have a say. This may indicate that parents pay more attention to wealth while children worry more about commonality of professional or personal interests.

Next we investigate whether brides and grooms are ranked according to a single composite attribute, such as income earning capacity. As discussed in the conceptual section, if a single composite index cannot be found, it suggests that a uniform ranking of spouses does not exist. Consider observations on wealth and education of the bride and groom, for instance. If education matters only through its effect on future income, then a single ranking of brides and grooms must exist that uses the return to education to translate years of schooling into a wealth equivalent. In contrast, if the utility from marriage depends on multiple attributes in a non-additive manner, there will exist several correlated indices of wealth and education that are orthogonal to each other. Each index captures one dimension or 'composite attribute' along which assortative matching takes place.

To test these ideas, we estimate canonical correlations between individual attributes of bride and grooms. Given two sets of variables X_m and X_f, canonical correlations construct several indices $z_m = \beta_m X_m$ and $z_f = \beta_f X_f$ (as many as the dimension of vectors X_m and X_f) such that the correlation between each z_m and z_f is maximized subject to the pair of indices being orthogonal to each other. In practice, canonical correlations are computed by taking the eigenvalues of a transformation of the cross-correlation matrix (Wicks 1962). If the two sets of variables are related to each other only through a single index/linear transformation, as is the case when utility from marriage follows equation 2.2, then one of the canonical correlations will capture most if not all the correlation between the two vectors. Other (orthogonal) indices will carry no additional information and correlation will be small and non-significant. If, in contrast, there exist multiple indices, more than one canonical correlation will be significant.

Results are summarized in Table 7. We limit our presentation to the most instructive results. One

robust result is that schooling and wealth are marriage market attributes that are virtually orthogonal to each other. The first of the two canonical indices constructed using wealth and schooling de facto depends only on education; the second depends only on wealth. This suggests that single ranking is not satisfied in our sample: better educated grooms rank educated brides relatively better than uneducated grooms. Virtually identical results are obtained if land or livestock wealth are used instead of total wealth at marriage. Table 7 also reports similar results for various forms of wealth or work experience: they seldom can be regarded as generating a single ranking of potential brides and grooms. Taken together, these results reject single ranking: brides and grooms are ranked according to multiple attributes over which preferences differ in a systematical fashion, probably because of externalities in production and of search for a commonality of professional interests.

In Table 8, we also report canonical correlations on the ranks of brides and grooms in various dimensions. We have no a priori expectation regarding these correlations since rank differences do not tell anything about the magnitude of the differences in variable level. At most we expect a slight correlation. Results nevertheless indicate that a single index exists that predict a person's marriage match extremely well: the coefficient of correlation between the bride's and groom's index is 0.87. This index is a weighted sum of the ranks of the bride and groom along the 5 characteristics reported in Table 7. A correlation of 0.84 is obtained using an unweighted sum of ranks instead. These puzzling results suggest that participants in the marriage market do not rank potential mates according to an 'objective', welfare-based criterion but rather seek someone who scores well on a number of dimensions. More research is needed on this topic.

5. Assets Brought to Marriage

We now turn to the predictions of the bequest-at-marriage model outlined in Section 2. We begin with a set of reduced form regressions in which the dependent variable is the total value of all assets brought to marriage. As before, all values are expressed in 1997 Ethiopian Birr. Assets include land, livestock, grain, clothes, linens, jewelry, household utensils, and cash. We also run regressions on land, livestock, and other

assets separately. The dependent variable is expressed in logarithms.[10] Because of censoring, tobit is the chosen estimator. The analysis is conducted for all marriages combined as well as for first unions and subsequent unions separately. Since more male than female respondents were previously married, the number of observations for subsequent unions is larger for men than women. This is but a reflection of the large age gap between men and women at marriage, combined with the fact that, in rural Ethiopia, previously married women are much less likely to remarry than men.

Assets brought to marriage by the bride and the groom are regressed on parental wealth W (measured by parental land and a dummy that equals one if father went to school)[11] and total number of siblings. We include the ratio of sisters among siblings to control for the possibility of gender differentials in inheritance. We expect parental wealth to raise assets brought to marriage, and number of siblings to reduce it. Returns and cost of education, as well as other location-specific factors, are controlled for via village dummies. Ethnicity and religion are added as regressors to control for cultural differences in attitudes toward bequest. To control for the possibility of a time trend in marriage practices, the number of years since marriage is included as regressors as well.[12]

Results are summarized in Tables 9 and 10 for grooms and brides respectively. In both cases, we see that parental wealth – measured by father's land – has a strong positive effect on assets brought to marriage. The effect is particularly pronounced for women: a 10% increase in the land of the bride's father results in a 15% increase in the assets she brings to marriage. The effect is only significant at first marriage. These results are consistent with the bequest-at-marriage motive: wealthier parents pass on part of their wealth to their children at first marriage. No further bequest is made at subsequent marriages. Sibling competition is not evident for grooms, but exerts a negative effect on wife's assets at her first marriage. While time trends are not significant for grooms, they are significant for brides, indicating an increase in the (deflated) value of brides' assets over time. There are very strong village-level effects, a sign of sharp wealth differences across regions, but we find little evidence of ethnic or religion effects. Regional differences in assets brought to marriage thus seem more due to geographical

[10] To avoid losing observations, zero observations are replaced by 1 Ethiopian Birr, roughly the equivalent of 25 US cents.
[11] This is the best we can do, given the very low levels of schooling parents of respondents have.
[12] We do not include age at marriage and number of previous unions in the regression as waiting time to marriage and the number of marriages are endogenous

than cultural factors.

To further investigate the bequest interpretation, we estimate similar regressions using as dependent variable assets inherited after marriage. Because we cannot find a variable that influences assets at marriage but does not affect inheritance, we estimate reduced form inheritance regressions, presented in Table 11.[13] For men, three quarters of inherited wealth is land while the rest is livestock; the opposite is true for women. We run separate regressions for total inheritance and land inheritance. We find that the groom's number of brothers has a strong negative effect on both total and land inheritance, contrary to its insignificant effect on assets at marriage. This effect is very close to – and not significantly different from minus one. This is a clear indication of sibling competition in inheritance: since both inheritance and number of siblings are expressed in logs, we would indeed expect a coefficient of minus one if inheritance is equally divided among siblings. With sisters, competition is much less pronounced, an expected result since women inherit much less in general. This result is consistent with findings on sibling rivalry in Africa (e.g. Garg and Morduch 1998a, Garg and Morduch 1998b, Morduch 2000). Gender differences in inheritance can be understood in the context of old age support patterns in Ethiopia: sons are traditionally responsible for their parents' care in their old age, although recently daughters who are employed increasingly contribute to their parents' support as well. Brides typically do not inherit anything since daughters inherit only in the absence of an eligible male heir.[14] For brides, parental land is the only strong positive predictor of subsequent inheritance. This is similar to the results for assets at marriage. Consistent with anthropological evidence that women in Tigray have higher status, brides in other ethnic groups inherit less relative to Tigrinians, with Amhara brides inheriting significantly less.

Because land accounts for the major proportion of assets at marriage and inheritance, we examine land inheritance separately. Similar to the results for total inheritance, parental land exerts an important

[13] In a life-cycle framework, it is of course possible that parents first choose what to give the child at marriage, and conditional on transfers at marriage, decide on inheritance. For example, in India, women supposedly get their inheritance in the form of dowry at marriage, while men get it after their father's death. This argument is similar to sequential models of intergenerational transfers, in which investments in child education are made first, and then transfers are made later to equalize wealth among children (Behrman, Pollak and Taubman 1982). Estudillo, Quisumbing and Otsuka (2001) estimated a simultaneous-equations tobit model in which land transfers are made after education is (endogenously) determined; however, we do not have a credible instrument to identify the assets at marriage variable in this data set.

[14] The typical inheritance practice in rural Ethiopia is as follows: if a person had land and many sons and daughters, the land would have been divided equally among all the sons. However, the brothers would have let their sisters make use of their land in case the livelihood of their sisters was affected negatively. If the person had no sons, then the land would have been divided equally among all daughters. In urban areas, if a person had many properties, they would have been divided equally among the sons, or among the daughters if there were no sons

influence on land inheritance of grooms, although the effect is smaller than the effect on land at marriage (see Table 12). As will be evident when we examine the regressions on groom's assets, sibling rivalry continues to be an important factor in land inheritance, but not in land transferred at marriage. In the case of brides, parental wealth is the most important determinant of land inheritance. Note that since land at marriage is negligible for brides we cannot estimate a separate equation for land at marriage.

Results for individual assets brought to marriage are reported in Tables 12 to 14. We focus on the groom's assets only due to the small number of non-zero observations for individual assets brought by brides. By and large, the Tables confirm earlier findings. Parental land is shown to be a strong determinant of land at marriage. This finding suggests that the land redistribution role of the Peasants' Association (PA) is insufficient to ensure equal access to land for all young couples. In contrast to the findings on inheritance, sibling competition effects for land are only weakly significant. Possibly because sons do not marry at the same time, or allocations from the PA are made at the time of marriage, siblings do not compete for parents' land resources at the same time, unlike in the case of inheritance, when an estate is typically divided to all eligible heirs at the same time. Parental land also has a positive effect on livestock, possibly since it is complementary to land. Time trend effects are shown affect the composition of assets at marriage. Over time, the (deflated) value of land brought by grooms has increased dramatically.[15] Since a similar increase in not shown when area is used as dependent variable instead of land value, this suggests that the value of land has increased faster than inflation – probably because of increased population pressure. In contrast, the value of livestock has decreased over time, most probably because of a drop in the number of animals. Taken together, these results suggest that young couples in rural Ethiopia today start their life with fewer productive assets than their parents. In contrast, none of the parental wealth or sibling competition variables are significant in the regressions for other assets; holdings of other assets at marriage seem to be driven mostly by village-specific effects.

Next we investigate whether human capital characteristics of the bride and groom affect the assets they bring to marriage. If schooling or work experience are treated as a substitute for wealth, we would expect parents to give less educated children more wealth (Quisumbing 1994). A negative sign on human

[15] Brides bring very little land.

capital would thus signal parents' desire to compensate their less educated children. On the other hand, a bride or groom with more work experience may also have accumulated more assets or may have built more implicit claims on their parents' resources. We would thus observe a positive sign on human capital if assets brought to marriage partly reflect the individual work effort of the bride and groom.

We regress assets brought to marriage on the same regressors plus four measures of human capital: a schooling index and years of work experience at marriage in three activities: farming, wage work, and non-farm self-employment. Results are shown on Tables 15 and 16 for groom and bride, respectively. Results suggest that the groom's farming experience has a positive effect on assets brought to marriage. Years of wage work tend to reduce assets brought to marriage, a finding probably due to the correlation between menial wage work and a history of poverty and landlessness. Results for brides are in general inconclusive: their human capital seems to have little effect on the assets they bring to marriage. The only exception is for assets other than land and livestock: brides with more schooling bring fewer of them. This effect is consistent with the parental substitution effect discussed above, but it should be discounted given that no such effect is observed with other types of assets.

Before concluding, we test whether the parents of the bride and groom indeed act as one when they decide to endow their offspring. So far we have assumed that they participate in the competition for brides and grooms and we have shown that they use their own assets to leverage better marriage prospects for their children. In Section 2, however, we pointed out that alternative models of parental behavior are conceivable. In one of these, conditional on a match having taken place, parents pool their resources so that if the parents of groom cannot afford to give much, the parents of the bride pitch in more. Pooling test results are presented in Table 15 in which we regress total assets at marriage on the total land of the bride and groom's parents, and test whether the coefficients are the same. Results are different for first and subsequent marriages. At first marriage, the land of the groom's parents has a strong influence on total assets brought to marriage by the bride and the groom together; the land of the bride's parents does not. Pooling is rejected. Parental education has no effect on assets at marriage, probably because so few parents in the sample received any education. In contrast, parental land has a weakly significant effect on assets brought to subsequent marriages—the coefficient is half that on first marriages. In this case,

we reject pooling only at the 10% level of significance. These results further confirm that the marriage market model fits the data better than more benign cooperative models of household formation.

6. Conclusion

We have examined the determinants of assets brought to marriage in rural Ethiopia. These determinants shape the distribution of assets and incomes in a society characterized by widespread poverty – and hence where it is difficult to accumulate. Assets at marriage also affect farm size distribution since newlyweds typically initiate their own, separate farming operations. Assets brought at marriage constitute the dominant form of start-up capital for new farms.

Results indicate that assets brought to marriage are distributed in a highly unequal manner. This is true for all assets. We find no difference in the magnitude of inequality at marriage between land and livestock, in spite of two decades of a stated 'land to the tiller' government policy and (virtually) no intervention to redistribute livestock. These findings suggest that the land reallocation mechanism as practiced by Peasant Associations tends to penalize young couples. Given the extent of land inequality at marriage, land inequality is likely to endure in rural Ethiopia for the foreseeable future, although other avenues for acquiring cultivable land – allocations from the Peasant Association or a growing land rental market – now exist (Pender and Fafchamps 2002). Nevertheless, couples do manage to accumulate assets over time, as the extent of current asset inequality is much less than the inequality of assets at marriage.

We show that, to a large extent, the formation of new couples in rural Ethiopia is characterized by assortative matching. Sorting operates at a variety of levels – wealth, schooling, and work experience – that cannot be summarized into a single additive index. We interpret this result as meaning that grooms do not all rank prospective brides in the same manner, e.g., more educated grooms rank educated brides higher than uneducated grooms. Combined with high inequality in assets brought to marriage, our results suggest that the pairing of prospective brides and grooms favors the reproduction of rural inequality over time. This result is consistent with studies of earnings inequality elsewhere: Hyslop (2001), for instance, shows that in the United States assortative matching contributes over one-quarter of the level of permanent inequality, and 23 percent of the increase in inequality between 1979 and 1985.

Using a simple non-cooperative model of bequest at marriage, we examine what factors determine assets brought to marriage. We find that parental background – mainly parental land – helps predict what individuals bring to their first marriage. While parental land positively influences both brides' and grooms' assets at marriage, brides receive much less than grooms. The inequality between men and women continues at the time of inheritance, and the great majority of women receive nothing at marriage or later from their parents. Sibling competition and education of parents are not important determinants of inequality at marriage, but competition among brothers reduces inheritance one for one.

Individual accumulation prior to marriage also plays a role. For the groom, a prior marriage is a strong determinant of land brought to marriage, an indication that peasant associations give land to already existing households and that husbands keep the land upon dissolution of the union. This is consistent with the description of divorce and inheritance practices as described by rural Ethiopian households themselves (Fafchamps and Quisumbing 2002b). Grooms also accumulate livestock over time. In contrast, women hardly ever own land and do not appear to accumulate livestock or retain it upon marriage dissolution. The only exception is assets other than land and livestock, which a small minority of women accumulate over time and across marriages.

Human capital at marriage, either in the form of schooling or work experience, does not seem to be considered as substitutes for wealth. This is probably due to the low level of schooling recorded in the data and to the fact that, in traditional agriculture such as that practiced in Ethiopia, schooling is of little value to farming. Returns to schooling are in general higher in non-farm activity (e.g. Yang 1997, **?**) but the surveyed rural areas report very little of it. We reject the hypothesis that parents of the bride and groom act as one after marriage partners have been identified.

Taken together, these results suggest that the marriage market model provides a reasonable approximation of what goes on in rural Ethiopia, provided it is amended to include bequest motives and multiple ranking. The rich marry the rich, the poor marry the poor, and social stratification is largely passed on from one generation to the next. What remains unclear from the analysis presented here is whether parents act strategically in transferring assets to their children at marriage and in choosing a suitable spouse for them. These issues are examined in detail by Fafchamps and Quisumbing (2002a). Although

we find a small number of richly endowed brides, the majority of women in the sample inherit nothing at marriage or afterwards from their parents. Unlike men, most do not appear to accumulate wealth over time and marriages. The marriage market appears to be a major conduit for household and gender inequality in the Ethiopian countryside.

To complete this picture, one would need to know how much social mobility there is after marriage, e.g., how fast households can accumulate assets and obtain land from the PA, and how easily they can switch to high income professions. While we would suspect that social mobility is low given the predominantly agrarian nature of the surveyed area and the relative lack of remunerative non-farm activities, the lower inequality in current assets suggests either that couples have been able to take advantage of other avenues for wealth accumulation during their married life, or that redistribution policies have had some impact. This issue deserves more investigation.

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Table 1. Composition of the sample by category of household

Unmarried individuals	**Number**	**Percent**	
Single man living alone	72	5.1%	
Single woman living alone	239	16.8%	
Monogamous couples			21.9%
Monogamous couple living together	877	61.8%	
Monogamous couple, husband away	69	4.9%	
Monogamous couple, wife away	55	3.9%	
Polygamous households			70.5%
Polygamous household living together	81	5.7%	
Male headed part of a polygamous couple residing separately	21	1.5%	
Female headed part of a polygamous couple residing separately	6	0.4%	
			7.6%
Total	1420		

Table 2. Assets at marriage, Inheritance, Human Capital, and Parental Characteristics

	Groom's assets			Bride's assets		
Assets brought to marriage:	Mean	SD	Median	Mean	SD	Median
Land value	2056	5955	377	90	833	0
Livestock value	1337	2833	287	300	1790	0
Jewelry, clothes, linens, utensils and grain	877	1587	448	40	232	0
Total value of assets prior to marriage	4270	7433	1981	430	2035	0
Gifts at marriage (1)	234	761	0	401	885	0
Inheritance after marriage:						
Inherited land	2320	8512	0	155	783	0
Inherited livestock	260	1038	0	80	346	0
Total assets at marriage plus inheritance	7081	12022	3750	1066	2497	353
Human capital						
Age at marriage	29.9	11.7	27.3	19.3	8.1	18.3
Literate (2)	33%		0%	13%		0%
At least some primary education	25%		0%	10%		0%
At least some secondary education	7%		0%	2%		0%
Years of farming experience	11.7	10.3	10.0	3.7	5.8	1.0
Years of wage work experience	0.7	2.5	0.0	0.1	0.7	0.0
Years of self-employment experience	0.8	2.9	0.0	0.3	1.5	0.0
Parental characteristics						
Father's land (in hectares)	6.5	74.0	0.6	1.9	9.9	0.4
Father went to school (yes=1)	7%		0%	7%		0%
No. of observations	1179					

All unions included. All values expressed in 1997 Ethiopian Birr.
(1) Gifts made to bride and groom only. A few gifts given to both jointly are divided equally for the purpose of this table.
(2) Either some formal education or some literacy or religious education.

Table 3. Gini distribution of parental land, assets at marriage, and current assets

(All assets measured in 1997 Ethiopian Birr.)	**Groom**	**Bride**	**Both**
Parents' land	0.910	0.867	0.870
Assets at marriage			
Land	0.785	0.982	0.781
Livestock	0.764	0.913	0.753
Other assets	0.644	0.967	0.634
Total	0.631	0.890	0.621
Current assets	n.a.	n.a.	0.419

Table 4. Correlation of assets at marriage with parental land and current assets

	Parents' land	Current assets
Groom's land at marriage (value)	0.256	0.111
Groom's land at marriage (hectares)	0.424	0.153
Groom's assets at marriage (value)	0.205	0.129
Bride's land at marriage (value)	-0.002	0.059
Bride's land at marriage (hectares)	-0.014	0.037
Bride's assets at marriage (value)	0.006	0.065
Total land at marriage (value)	0.258	0.114
Total land at marriage (hectares)	0.419	0.153
Total value of assets at marriage	0.201	0.136

Table 5. Characteristics at marriage by number of marriages

A. Groom	**First marriage**		**Second marriage**		**Third marriage**		**Fourth and above**	
Number of observations	674		273		126		106	
Percentage of all married males	57%		23%		11%		9%	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Assets brought to marriage:								
Land value	1935	153	1945	559	2080	689	3084	806
Livestock value	1128	0	1511	418	1860	869	1596	453
Jewelry, clothes, linens, utensils and grain	853	408	881	479	1109	534	738	469
Total value of assets prior to marriage	3916	1612	4337	2137	5056	3098	5418	3120
Gifts at marriage (1)	281	0	172	0	228	0	108	0
Inheritance after marriage:								
Inherited land	2587	0	2084	0	1706	0	1960	0
Inherited livestock	263	0	267	0	304	0	174	0
Total assets at marriage plus inheritance	7047	3424	6859	3694	7255	4313	7659	4564
Human capital								
Age at marriage	25.5	24.3	33.2	30.3	35.9	34.1	43.8	42.3
Literate (2)	40%	0%	30%	0%	12%	0%	22%	0%
At least some primary education	32%	0%	20%	0%	9%	0%	12%	0%
At least some secondary education	9%	0%	6%	0%	2%	0%	1%	0%
Years of farming experience	9.4	8.0	11.6	10.0	16.1	14.0	21.8	23.0
Years of wage work experience	0.6	0.0	0.7	0.0	1.0	0.0	0.8	0.0
Years of self-employment experience	0.8	0.0	0.7	0.0	1.0	0.0	0.9	0.0
Parental characteristics								
Father's land (in hectares)	7.7	0.6	3.8	0.7	6.4	0.6	6.0	0.8
Father went to school (yes=1)	7%	0%	7%	0%	11%	0%	6%	0%

B. Bride	**First marriage**		**Second marriage**		**Third marriage**		**Fourth and above**	
Number of observations	795		267		79		39	
Percentage of all married females	67%		23%		7%		3%	
Assets brought to marriage:								
Land value	34	0	270	0	83	0	18	0
Livestock value	254	0	447	0	304	0	215	0
Jewelry, clothes, linens, utensils and grain	28	0	70	0	58	0	38	0
Total value of assets prior to marriage	317	0	786	0	444	0	271	0
Gifts at marriage (1)	488	74	246	0	169	0	165	0
Inheritance after marriage:								
Inherited land	129	0	187	0	327	0	128	0
Inherited livestock	72	0	93	0	143	0	23	0
Total assets at marriage plus inheritance	1006	367	1312	300	1084	310	586	102
Human capital								
Age at marriage	17.4	17.3	22.8	22.4	22.9	20.5	28.0	27.9
Literate (2)	14%	0%	10%	0%	16%	0%	6%	0%
At least some primary education	11%	0%	5%	0%	13%	0%	3%	0%
At least some secondary education	2%	0%	1%	0%	3%	0%	0%	0%
Years of farming experience	3.0	0.0	4.5	2.0	4.6	2.0	9.8	4.0
Years of wage work experience	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Years of self-employment experience	0.3	0.0	0.4	0.0	0.4	0.0	0.1	0.0
Parental characteristics								
Father's land (in hectares)	1.7	0.4	2.9	0.5	1.5	0.0	1.5	0.2
Father went to school (yes=1)	7%	0%	8%	0%	4%	0%	8%	0%

Only currently married people included. All values expressed in 1997 Ethiopian Birr.
(1) Gifts made to bride and groom only. A few gifts given to both jointly are divided equally for the purpose of this table.
(2) Either some formal education or some literacy or religious education.

Table 6. Rank correlation and assortative matching

	First marriage			Subsequent marriages			First marriage bride has:			Subsequent marriages bride has:		
Assets		coef.	p-value		coef.	p-value	no say		a say	no say		a say
Land value	577	0.57	0.00	531	0.53	0.00	0.61	<	0.70	0.64	>	0.60
Livestock value	577	0.65	0.00	532	0.56	0.00	0.60	<	0.77	0.70	>	0.59
Other assets	577	0.57	0.00	532	0.38	0.00	0.61	<	0.70	0.47	>	0.42
Total assets	577	0.53	0.00	531	0.44	0.00	0.53	<	0.67	0.54	>	0.46
Human capital												
Schooling level	549	0.63	0.00	394	0.70	0.00	0.66	<	0.77	0.70	<	0.83
Farming experience	572	0.65	0.00	431	0.60	0.00	0.64	<	0.77	0.62	=	0.62
Wage work experience	572	0.75	0.00	432	0.79	0.00	0.80	<	0.81	0.81	<	0.85
Self-employment experience	577	0.74	0.00	434	0.81	0.00	0.72	<	0.89	0.82	<	0.89
Parents' characteristics												
Father's land	577	0.53	0.00	436	0.49	0.00	0.61	=	0.61	0.58	>	0.47
Father's schooling (yes/no)	562	0.74	0.00	416	0.77	0.00	0.83	>	0.81	0.81	<	0.85

All ranks are computed by district and decades since marriage.

Table 7. Canonical Correlations on Assets and Human Capital at Marriage

A. Wealth and Schooling	**Wealth**		**Schooling**	
First canonical correlation:	coef.	t-value	coef.	t-value
groom index	0.000	0.589	0.531	**10.958**
bride index	0.000	1.077	0.817	**10.962**
coefficient of correlation	0.338			
Second canonical correlation:				
groom index	0.000	**6.429**	-0.043	-0.515
bride index	0.001	**6.407**	-0.062	-0.483
coefficient of correlation	0.206			
Number of observations	942			

B. Asset types	**Value of land**		**Value of livestock**		**Other assets**	
First canonical correlation:	coef.	t-value	coef.	t-value	coef.	t-value
groom index	0.000	**3.041**	-0.000	**-3.136**	0.001	**9.900**
bride index	0.001	**10.326**	0.000	**2.151**	-0.001	**-2.291**
coefficient of correlation	0.310					
Second canonical correlation:						
groom index	-0.000	-0.114	0.000	**6.525**	0.000	0.514
bride index	-0.000	-0.125	0.001	**4.264**	0.004	**4.948**
coefficient of correlation	0.201					
Number of observations	1108					

C. Work experience	**Farming**		**Wage work**		**Self-employment**	
First canonical correlation:	coef.	t-value	coef.	t-value	coef.	t-value
groom index	0.109	**15.825**	0.044	1.740	-0.021	-0.955
bride index	0.192	**15.624**	0.138	1.497	0.077	1.705
coefficient of correlation	0.450					
Second canonical correlation:						
groom index	-0.000	-0.024	0.139	**2.712**	0.327	**7.200**
bride index	-0.035	-1.385	0.854	**4.553**	0.561	**6.127**
coefficient of correlation	0.241					
Number of observations	999					

All variables expressed in deviation from the average for the district/decade of marriage.

Table 8. Canonical Regression on Ranks

			Years of		Experience in:					
First canonical correlation:	**Value of assets**		**Schooling**		**Farming**		**Wage work**		**Self-employment**	
groom index	0.021	**7.693**	0.038	**10.797**	0.031	**10.949**	0.063	**13.338**	0.070	**15.576**
bride index	0.018	**5.053**	0.036	**6.729**	0.017	**5.057**	0.115	**12.076**	0.056	**7.789**
coefficient of correlation	0.870									
Number of observations	928									

All ranks are computed by district and decades since marriage.

Table 9. Assets Brought to Marriage by the Groom
(dependent variable is the log of the value of all assets brought to marriage, expressed in current value)

	all marriages		first marriage		subsequent marriages	
Number of observations	1143		656		487	
Pseudo R-squared	0.027					
	Coef	t	Coef	t	Coef	t
Wealth of parents						
Land of father (log +1)	0.372	**4.120**	0.539	**4.010**	0.168	1.580
Whether father went to school	0.018	0.060	-0.240	-0.530	0.089	0.250
Competition among siblings						
Number of siblings + self (log)	-0.033	-0.240	-0.062	-0.310	0.068	0.400
Share of sisters in siblings	0.139	0.360	-0.037	-0.070	0.062	0.130
Time and space (Harresaw omitted)						
Number of years since marriage	-0.005	-0.960	-0.003	-0.320	-0.005	-0.760
Geblen village dummy	-0.994	**-1.730**	-0.660	-0.910	-1.949	**-2.160**
DInki village dummy	1.145	1.570	2.029	**1.920**	-1.461	-1.560
Yetmen village dummy	0.751	0.960	1.481	1.110	-1.765	**-1.860**
Shumshaha village dummy	0.011	0.010	0.803	0.740	-2.535	**-2.710**
Sirbana Godeti village dummy	1.059	1.500	2.473	**2.620**	-2.102	**-2.210**
Adele Keke village dummy	-0.755	-1.060	-1.200	-1.210	-2.062	**-2.280**
Korodegaga village dummy	0.300	0.420	0.995	1.010	-2.354	**-2.540**
Tirufe Kechema village dummy	-0.285	-0.460	1.110	1.350	-3.551	**-4.160**
Imdibir village dummy	-0.054	-0.060	-0.064	-0.050	-1.315	-1.160
Aze Deboa village dummy	-0.475	-0.560	0.424	0.380	-3.774	**-2.980**
Adado village dummy	-1.916	**-2.300**	-1.671	-1.500	-3.273	**-2.900**
Gara Godo village dummy	-0.170	-0.210	0.831	0.750	-2.776	**-2.530**
Doma village dummy	-0.223	-0.260	0.298	0.260	-2.198	**-1.980**
Debre Birhan village dummy	0.936	1.290	1.885	**1.900**	-1.339	-1.380
Ethnicity dummies (Tigray excluded)						
Amhara	0.402	0.680	-0.732	-0.870	3.178	**4.180**
Oromo	0.722	1.250	-0.587	-0.760	4.037	**5.160**
South-Central	0.935	1.300	-0.129	-0.130	3.614	**3.790**
Other/mixed	-0.047	-0.070	-1.475	**-1.690**	3.019	**3.440**
Religion dummies (Orthodox excluded)						
Muslim	0.216	0.540	-0.017	-0.030	0.277	0.570
Other Christian	0.242	0.800	0.579	1.360	-0.014	-0.040
Other	-0.232	-0.470	-0.082	-0.120	-0.528	-0.810
Intercept	6.168	**14.880**	6.136	**10.590**	6.103	**11.460**
Selection-term	2.527		2.728			
Number of censored observations	96		73		23	
Number of uncensored observations	1047		583		464	
Joint tests:	F-stat	p-value				
Ethnicity	1.04	0.3872				
Religion	0.55	0.6449				

Table 10. Assets Brought to Marriage by the Bride
(dependent variable is the log of the value of all assets brought to marriage, expressed in current value)

	all marriages		first marriage		subsequent marriages	
Number of observations	1106		769		337	
Pseudo R-squared	0.119		0.164		0.082	
	Coeff	t- stat.	Coeff	t- stat.	Coeff	t- stat.
Wealth of parents						
Land of father (log +1)	0.837	**2.300**	1.166	**2.540**	0.268	0.490
Whether father went to school	0.785	0.800	-0.030	-0.020	1.938	1.270
Competition among siblings						
Number of siblings + self (log)	0.012	0.020	-0.346	-0.500	0.684	0.780
Share of sisters in siblings	-0.550	-1.030	-1.484	**-1.870**	0.201	0.280
Time and space (Harresaw omitted)						
Number of years since marriage	-0.056	**-2.790**	-0.059	**-2.320**	-0.027	-0.810
Geblen village dummy	-6.908	**-3.360**	-8.854	**-3.530**	1.203	0.300
DInki village dummy	-5.956	**-2.250**	-4.976	-1.530	-7.111	-1.520
Yetmen village dummy	-8.665	**-3.020**	-9.901	**-2.200**	-8.696	**-1.780**
Shumshaha village dummy	0.071	0.030	0.115	0.040	-0.395	-0.080
Sirbana Godeti village dummy	-9.660	**-3.630**	-9.908	**-3.150**	-7.231	-1.520
Adele Keke village dummy	-9.251	**-3.610**	-10.923	**-3.390**	-8.955	**-2.050**
Korodegaga village dummy	-4.855	**-2.060**	-6.419	**-2.270**	-1.595	-0.390
Tirufe Kechema village dummy	-6.553	**-2.970**	-6.855	**-2.660**	-5.397	-1.310
Imdibir village dummy	-5.385	**-1.800**	-1.508	-0.400	-8.446	-1.620
Aze Deboa village dummy	-7.858	**-2.560**	-5.215	-1.380	-5.236	-0.910
Adado village dummy	-11.490	**-3.740**	-7.891	**-2.060**	-11.619	**-2.210**
Gara Godo village dummy	-6.619	**-2.350**	-3.858	-1.080	-5.423	-1.110
Doma village dummy	-7.173	**-2.400**	-7.845	**-2.010**	-3.248	-0.640
Debre Birhan village dummy	1.511	0.590	2.520	0.830	-0.406	-0.090
Ethnicity dummies (Tigray excluded)						
Amhara	2.424	1.050	2.235	0.790	2.744	0.670
Oromo	3.390	1.550	3.516	1.320	3.084	0.820
South-Central	0.023	0.010	-3.476	-1.060	3.313	0.820
Other/mixed	-1.620	-0.640	-1.521	-0.480	-2.119	-0.480
Religion dummies (Orthodox excluded)						
Muslim	-0.928	-0.680	-1.147	-0.640	0.940	0.450
Other Christian	-0.164	-0.140	-0.161	-0.110	-1.254	-0.650
Other	-1.682	-0.650	-28.715	.	-2.368	-0.670
Intercept	1.541	1.040	2.401	1.330	0.314	0.120
Selection-term	6.462		6.198		6.058	
Number of censored observations	796		591		205	
Number of uncensored observations	310		178		132	
Joint tests:						
Ethnicity	**2.54**	0.0383				
Religion	0.29	0.8354				

Table 11. Inheritance of the Groom and Bride, All Marriages
(dependent variable is the log of the value of all assets brought to marriage, expressed in current value)

	Total inheritance				Land inheritance			
	Groom		Bride		Groom		Bride	
Number of observations	1144		1106		1144		1106	
Pseudo R-squared	0.079		0.103		0.0827		0.1035	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Wealth of parents								
Land of father (log +1)	0.436	**1.680**	1.707	**2.320**	0.451	**1.800**	1.591	**2.320**
Whether father went to school	1.068	1.270	2.008	0.980	0.996	1.230	1.845	0.970
Competition among siblings								
Number of siblings + self (log)	-0.914	**-2.390**	-0.352	-0.290	-0.910	**-2.460**	-0.368	-0.330
Share of sisters in siblings	1.959	**1.840**	-1.525	-1.200	1.973	**1.920**	-1.447	-1.220
Time and space (Harresaw omitted)								
Number of years since marriage	0.025	1.610	0.063	1.540	0.024	1.600	0.058	1.520
Geblen village dummy	-0.433	-0.280	-1.024	-0.310	-0.390	-0.260	-0.981	-0.320
DInki village dummy	-3.824	**-1.750**	-5.954	-1.000	-3.646	-1.720	-5.668	-1.020
Yetmen village dummy	-2.592	-1.090	8.072	1.410	-2.575	-1.120	7.467	1.400
Shumshaha village dummy	-2.542	-1.120	8.896	1.610	-2.524	-1.150	8.131	1.580
Sirbana Godeti village dummy	-11.534	**-4.470**	-11.307	-1.790	-10.973	**-4.410**	-10.461	**-1.780**
Adele Keke village dummy	2.241	1.110	1.631	0.360	2.500	1.280	1.494	0.360
Korodegaga village dummy	-5.007	**-2.400**	-3.423	-0.760	-4.781	**-2.370**	-3.209	-0.770
Tirufe Kechema village dummy	-4.391	**-2.400**	-5.077	-1.260	-4.197	**-2.380**	-4.786	-1.280
Imdibir village dummy	5.626	**2.270**	-1.341	-0.210	5.662	**2.370**	-1.340	-0.230
Aze Deboa village dummy	6.218	**2.520**	-3.845	-0.590	6.218	**2.600**	-3.662	-0.610
Adado village dummy	7.598	**3.140**	-58.235	.	7.692	**3.290**	-54.228	.
Gara Godo village dummy	7.876	**3.310**	-2.964	-0.490	7.926	**3.450**	-2.762	-0.490
Doma village dummy	0.387	0.160	-56.617	.	0.480	0.200	-52.717	.
Debre Birhan village dummy	0.734	0.340	11.338	**2.150**	0.666	0.320	10.427	**2.130**
Ethnicity dummies (Tigray excluded)								
Amhara	-0.719	-0.380	-10.209	**-2.080**	-0.708	-0.390	-9.453	**-2.070**
Oromo	-0.253	-0.140	-2.965	-0.670	-0.406	-0.230	-2.764	-0.670
South-Central	-2.672	-1.240	-5.781	-1.060	-2.653	-1.270	-5.291	-1.040
Other/mixed	-1.597	-0.830	-5.381	-1.090	-1.567	-0.840	-4.921	-1.070
Religion dummies (Orthodox excluded)								
Muslim	2.345	**2.030**	-0.814	-0.230	2.330	**2.090**	-0.744	-0.230
Other Christian	0.091	0.110	0.743	0.250	0.072	0.090	0.668	0.240
Other	1.431	1.140	-45.570	.	1.364	1.120	-42.307	.
Intercept	0.631	0.560	-8.249	**-2.530**	0.571	0.520	-7.549	**-2.490**
Selection-term	6.149		10.602		5.941		9.856	
Number of censored observations	601		982		601		982	
Number of uncensored observations	543		124		543		124	
Joint tests:								
Ethnicity	0.57	0.6848	1.43	0.2205	0.56	0.6906	1.42	0.2242
Religion	1.93	0.1234	0.08	0.9215	2.02	0.11	0.08	0.9252

Table 12. Land Brought to Marriage by the Groom
(dependent variable is the log of the value of land brought to marriage, expressed in current value)

	all marriages		first marriage		subsequent marriages	
Number of observations	1143		656		487	
Pseudo R-squared	0.040		0.054		0.056	
	Coeff	t- stat.	Coeff	t- stat.	Coeff	t- stat.
Wealth of parents						
Land of father (log +1)	0.938	**4.700**	1.339	**4.500**	0.324	1.300
Whether father went to school	-0.140	-0.210	-0.387	-0.380	-0.469	-0.580
Competition among siblings						
Number of siblings + self (log)	-0.504	**-1.680**	-0.373	-0.830	-0.344	-0.890
Share of sisters in siblings	0.529	0.620	-1.655	-1.300	1.696	1.550
Time and space (Harresaw omitted)						
Number of years since marriage	-0.097	**-7.580**	-0.086	**-4.270**	-0.085	**-5.730**
Geblen village dummy	-1.321	-0.980	1.348	0.760	-5.474	**-2.570**
DInki village dummy	0.628	0.370	4.338	**1.730**	-6.528	**-2.820**
Yetmen village dummy	0.708	0.400	1.314	0.420	-5.573	**-2.380**
Shumshaha village dummy	-4.362	**-2.510**	-4.334	-1.570	-9.862	**-4.220**
Sirbana Godeti village dummy	1.949	1.230	4.965	**2.290**	-4.300	**-1.860**
Adele Keke village dummy	1.341	0.830	2.931	1.270	-4.736	**-2.080**
Korodegaga village dummy	1.354	0.840	5.423	**2.410**	-6.684	**-2.880**
Tirufe Kechema village dummy	-0.186	-0.130	3.951	**2.060**	-8.572	**-3.850**
Imdibir village dummy	4.370	**2.210**	5.680	**2.060**	-1.546	-0.560
Aze Deboa village dummy	6.646	**3.390**	10.831	**4.100**	-3.199	-1.050
Adado village dummy	2.638	1.370	5.416	**2.050**	-4.450	-1.610
Gara Godo village dummy	5.770	**3.060**	9.517	**3.660**	-1.891	-0.700
Doma village dummy	1.969	1.010	4.587	**1.690**	-4.033	-1.490
Debre Birhan village dummy	0.553	0.330	3.845	1.630	-5.072	**-2.130**
Ethnicity dummies (Tigray excluded)						
Amhara	1.208	0.880	-0.194	-0.100	5.087	**2.590**
Oromo	0.173	0.130	-0.413	-0.240	4.124	**2.050**
South-Central	-1.171	-0.700	-2.248	-0.990	2.882	1.200
Other/mixed	-1.105	-0.730	-3.018	-1.440	2.859	1.300
Religion dummies (Orthodox excluded)						
Muslim	1.710	1.930	0.242	0.190	3.014	**2.660**
Other Christian	0.099	0.150	-0.356	-0.380	1.734	**1.960**
Other	-1.027	-0.920	-2.453	-1.550	1.478	1.000
Intercept	2.786	**2.970**	0.325	0.230	5.832	**4.890**
Selection-term	5.276		5.655		4.326	
Number of censored observations	462		309		153	
Number of uncensored observations	681		347		334	
Joint tests:						
Ethnicity	1.40	0.2330				
Religion	1.82	0.1415				

Table 13. Livestock Brought to Marriage by the Groom
(dependent variable is the log of the value of livestock brought to marriage, expressed in current value)

	all marriages		**first marriage**		**subsequent marriages**	
Number of observations	1144		656		488	
Pseudo R-squared	0.069		0.097		0.053	
	Coeff	t- stat.	Coeff	t- stat.	Coeff	t- stat.
Wealth of parents						
Land of father (log +1)	0.462	**2.320**	0.795	**2.760**	0.242	0.890
Whether father went to school	-0.530	-0.760	-1.300	-1.240	-0.655	-0.720
Competition among siblings						
Number of siblings + self (log)	-0.334	-1.060	-0.560	-1.240	0.235	0.530
Share of sisters in siblings	1.034	1.180	0.124	0.100	0.513	0.410
Time and space (Harresaw omitted)						
Number of years since marriage	-0.009	-0.710	-0.020	-1.020	0.005	0.310
Geblen village dummy	-5.511	**-3.420**	-7.925	**-3.200**	-2.123	-0.880
DInki village dummy	3.826	**2.110**	4.358	**1.670**	1.447	0.550
Yetmen village dummy	1.868	0.990	1.573	0.490	-1.638	-0.610
Shumshaha village dummy	4.149	**2.290**	6.567	**2.540**	0.299	0.110
Sirbana Godeti village dummy	3.798	**2.270**	7.596	**3.490**	-2.014	-0.760
Adele Keke village dummy	-2.886	**-1.690**	-3.675	-1.570	-5.198	**-1.990**
Korodegaga village dummy	0.246	0.150	0.240	0.110	-3.087	-1.170
Tirufe Kechema village dummy	-0.604	-0.400	1.561	0.820	-4.907	**-1.970**
Imdibir village dummy	-1.052	-0.500	-1.925	-0.700	-1.125	-0.350
Aze Deboa village dummy	1.401	0.680	2.006	0.770	0.061	0.020
Adado village dummy	-6.813	**-3.270**	-6.644	**-2.470**	-8.168	**-2.470**
Gara Godo village dummy	0.944	0.470	2.276	0.880	-1.485	-0.470
Doma village dummy	0.260	0.130	-0.456	-0.170	0.016	0.010
Debre Birhan village dummy	5.744	**3.210**	8.493	**3.470**	2.076	0.770
Ethnicity dummies (Tigray excluded)						
Amhara	0.124	0.080	-1.923	-0.910	2.582	1.160
Oromo	1.428	1.030	-0.531	-0.300	4.544	**2.000**
South-Central	0.863	0.490	0.568	0.250	1.489	0.530
Other/mixed	-2.343	-1.360	-3.832	-1.540	-1.012	-0.400
Religion dummies (Orthodox excluded)						
Muslim	1.170	1.240	1.622	1.200	1.199	0.910
Other Christian	0.077	0.110	0.590	0.600	0.156	0.150
Other	1.048	0.780	1.229	0.690	1.754	0.870
Intercept	0.526	0.540	0.274	0.210	1.602	1.150
Selection-term	5.287		5.375		4.826	
Number of censored observations	523		340		183	
Number of uncensored observations	621		316		305	
Joint tests:						
Ethnicity	**2.52**	0.0398				
Religion	0.74	0.5272				

Table 14. Other Assets Brought to Marriage by the Groom
(dependent variable is the log of the value of other assets brought to marriage, expressed in current value)

	all marriages		first marriage		subsequent marriages	
Number of observations	1144		656		488	
Pseudo R-squared	0.019		0.033		0.029	
	Coeff	t- stat.	Coeff	t- stat.	Coeff	t- stat.
Wealth of parents						
Land of father (log +1)	0.098	0.850	0.091	0.540	0.155	1.050
Whether father went to school	0.105	0.270	0.385	0.670	-0.081	-0.170
Competition among siblings						
Number of siblings + self (log)	0.089	0.510	-0.086	-0.330	0.385	1.640
Share of sisters in siblings	0.381	0.780	0.805	1.130	-0.405	-0.620
Time and space (Harresaw omitted)						
Number of years since marriage	-0.008	-1.040	-0.011	-0.990	-0.001	-0.080
Geblen village dummy	0.180	0.240	0.005	0.010	0.449	0.360
DInki village dummy	1.286	1.380	1.508	1.130	-0.245	-0.190
Yetmen village dummy	2.840	**2.850**	3.630	**2.170**	1.166	0.880
Shumshaha village dummy	1.043	1.100	1.044	0.760	-0.292	-0.220
Sirbana Godeti village dummy	2.052	**2.280**	2.730	**2.290**	0.205	0.150
Adele Keke village dummy	0.220	0.240	-0.874	-0.690	0.328	0.260
Korodegaga village dummy	1.126	1.240	1.174	0.950	-0.020	-0.020
Tirufe Kechema village dummy	1.240	1.570	2.150	**2.090**	-0.774	-0.650
Imdibir village dummy	-0.625	-0.560	0.229	0.150	-2.463	-1.540
Aze Deboa village dummy	-1.902	**-1.730**	-0.906	-0.640	-4.904	**-2.740**
Adado village dummy	-1.767	**-1.650**	-1.530	-1.080	-2.547	-1.610
Gara Godo village dummy	-1.465	-1.390	-0.532	-0.380	-3.636	**-2.360**
Doma village dummy	-0.311	-0.290	0.884	0.610	-2.837	**-1.820**
Debre Birhan village dummy	2.391	**2.570**	2.887	**2.300**	0.532	0.390
Ethnicity dummies (Tigray excluded)						
Amhara	-0.798	-1.050	-1.642	-1.550	1.840	**1.740**
Oromo	-0.161	-0.220	-1.420	-1.450	2.814	**2.570**
South-Central	0.674	0.730	-1.733	-1.390	4.998	**3.730**
Other/mixed	-0.011	-0.010	-1.611	-1.460	3.417	**2.800**
Religion dummies (Orthodox excluded)						
Muslim	0.084	0.160	0.112	0.150	-0.251	-0.370
Other Christian	0.556	1.410	1.633	**2.970**	-0.809	-1.510
Other	0.425	0.660	1.192	1.350	-1.014	-1.120
Intercept	4.077	**7.630**	4.721	**6.400**	2.787	**3.700**
Selection-term	3.205		3.415		2.701	
Number of censored observations	227		155			
Number of uncensored observations	917		501			
Joint tests:						
Ethnicity	0.97	0.4204				
Religion	0.70	0.5539				

Table 15. Assets at Marriage and Human Capital of the Groom
(dependent variable is the log of the value of all assets brought to marriage, expressed in current value)

	all assets		**land**		**livestock**		**other assets**	
Number of observations	1115		1115.00		1116		1116	
Pseudo R-squared	0.034		0.049		0.074		0.021	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Wealth of parents								
Land of father (log +1)	0.339	**3.830**	0.837	**4.300**	0.399	**2.020**	0.089	0.770
Whether father went to school	0.019	0.060	-0.136	-0.200	-0.502	-0.710	0.028	0.070
Competition among siblings								
Number of siblings + self (log)	0.031	0.230	-0.399	-1.320	-0.161	-0.500	0.078	0.430
Share of sisters in siblings	0.120	0.320	0.668	0.800	1.099	1.260	0.410	0.830
Human capital								
Schooling index	-0.028	-0.730	0.092	1.080	-0.161	**-1.740**	-0.031	-0.600
Years of farming experience	0.034	**4.400**	0.092	**5.580**	0.052	**2.990**	0.009	0.870
Years of wage work experience	-0.071	**-2.310**	-0.201	**-2.830**	-0.045	-0.630	-0.041	-1.020
Years of self-employment experience	0.022	0.830	-0.112	**-1.780**	-0.018	-0.270	0.074	**2.110**
Time and space (Harresaw omitted)								
Number of years since marriage	-0.010	**-1.770**	-0.096	**-7.410**	-0.020	-1.530	-0.013	**-1.700**
Geblen village dummy	-0.976	**-1.720**	-1.177	-0.890	-5.442	**-3.420**	0.153	0.210
DInki village dummy	1.204	**1.660**	0.995	0.600	4.266	**2.330**	1.264	1.340
Yetmen village dummy	1.118	1.410	1.842	1.030	2.810	1.440	2.994	**2.910**
Shumshaha village dummy	0.381	0.510	-3.328	**-1.930**	4.995	**2.710**	1.236	1.270
Sirbana Godeti village dummy	1.212	**1.740**	2.441	1.560	4.304	**2.570**	2.171	**2.390**
Adele Keke village dummy	-0.348	-0.490	2.274	1.440	-2.410	-1.410	0.413	0.450
Korodegaga village dummy	0.695	0.980	2.399	1.520	0.895	0.530	1.248	1.360
Tirufe Kechema village dummy	0.204	0.330	0.922	0.660	0.486	0.320	1.408	**1.750**
Imdibir village dummy	0.690	0.800	6.771	**3.430**	0.434	0.210	-0.536	-0.470
Aze Deboa village dummy	-0.016	-0.020	7.837	**4.080**	2.362	1.150	-1.726	-1.560
Adado village dummy	-1.532	**-1.860**	3.786	**2.010**	-5.785	**-2.780**	-1.704	-1.580
Gara Godo village dummy	-0.120	-0.150	6.156	**3.330**	1.388	0.700	-1.537	-1.450
Doma village dummy	0.026	0.030	2.663	1.400	0.852	0.420	-0.270	-0.250
Debre Birhan village dummy	1.212	**1.670**	1.327	0.800	6.504	**3.580**	2.514	**2.660**
Ethnicity dummies (Tigray excluded)								
Amhara	0.284	0.480	0.678	0.500	-0.529	-0.350	-0.892	-1.150
Oromo	0.558	0.980	-0.442	-0.350	1.044	0.750	-0.247	-0.330
South-Central	0.771	1.090	-1.798	-1.100	0.312	0.180	0.566	0.610
Other/mixed	-0.041	-0.060	-1.265	-0.850	-2.781	-1.600	-0.051	-0.060
Religion dummies (Orthodox excluded)								
Muslim	0.105	0.270	1.593	1.850	1.111	1.190	-0.033	-0.060
Other Christian	0.140	0.470	-0.125	-0.190	-0.028	-0.040	0.486	1.250
Other	-0.340	-0.690	-1.168	-1.070	0.819	0.620	0.386	0.600
Intercept	5.819	**12.940**	1.391	1.380	0.222	0.210	4.211	**7.140**
Selection-term	2.452		5.091		5.186		3.169	
Number of censored observations	90		443		506		218	
Number of uncensored observations	1025		672		610		898	
Joint tests:								
Ethnicity	0.69	0.6006	1.22	0.3018	**2.39**	0.0495	1.02	0.3934
Religion	0.44	0.7267	1.87	0.1333	0.68	0.5664	0.60	0.6166

Table 16. Assets at Marriage and Human Capital of the Bride
(dependent variable is the log of the value of all assets brought to marriage, expressed in current value)

	all assets		**livestock**		**other assets**	
Number of observations	1019		1019		1019	
Pseudo R-squared	0.130		0.207		0.084	
	Coeff	t- stat.	Coeff	t- stat.	Coeff	t- stat.
Wealth of parents						
Land of father (log +1)	0.792	**2.160**	0.030	0.070	1.512	**1.900**
Whether father went to school	0.943	0.910	1.427	1.240	3.760	**1.670**
Competition among siblings						
Number of siblings + self (log)	-0.035	-0.060	2.035	**2.910**	-2.558	**-2.140**
Share of sisters in siblings	-0.592	-1.080	0.054	0.090	-2.004	-1.570
Human capital						
Schooling index	-0.268	-1.250	-0.099	-0.420	-0.909	**-1.680**
Years of farming experience	-0.012	-0.230	-0.079	-1.310	-0.071	-0.500
Years of wage work experience	0.271	0.670	0.370	0.880	-0.302	-0.310
Years of self-employment experience	-0.034	-0.170	0.184	0.860	0.311	0.930
Time and space (Harresaw omitted)						
Number of years since marriage	-0.056	**-2.500**	-0.043	**-1.700**	-0.120	**-2.230**
Geblen village dummy	-7.081	**-3.450**	-2.903	-1.330	-58.604	.
DInki village dummy	-7.018	**-2.560**	-0.208	-0.060	-56.675	.
Yetmen village dummy	-8.616	**-2.930**	-5.640	-1.470	-10.856	-1.430
Shumshaha village dummy	0.768	0.290	7.096	**2.040**	-4.651	-0.740
Sirbana Godeti village dummy	-8.304	**-3.070**	-6.450	**-1.860**	-12.125	**-1.890**
Adele Keke village dummy	-8.919	**-3.430**	-6.866	**-2.090**	-7.166	-1.380
Korodegaga village dummy	-4.618	**-1.910**	-6.404	**-2.040**	1.523	0.320
Tirufe Kechema village dummy	-6.476	**-2.870**	-7.592	**-2.500**	-0.799	-0.180
Imdibir village dummy	-5.165	**-1.650**	0.498	0.100	-5.039	-0.830
Aze Deboa village dummy	-6.541	**-2.060**	0.059	0.010	-5.709	-0.930
Adado village dummy	-11.606	**-3.590**	-6.105	-1.220	-9.389	-1.570
Gara Godo village dummy	-6.290	**-2.160**	-4.341	-0.940	-4.833	-0.850
Doma village dummy	-6.295	**-2.030**	-32.745	.	-3.614	-0.620
Debre Birhan village dummy	1.791	0.690	7.570	**2.220**	-5.994	-1.010
Ethnicity dummies (Tigray excluded)						
Amhara	2.127	0.910	0.235	0.070	-1.256	-0.230
Oromo	2.507	1.130	2.600	0.880	3.284	0.690
South-Central	-0.749	-0.290	-6.169	-1.440	2.979	0.600
Other/mixed	-1.786	-0.710	-5.529	-1.540	5.846	1.000
Religion dummies (Orthodox excluded)						
Muslim	-0.315	-0.210	0.195	0.110	-1.855	-0.540
Other Christian	-0.371	-0.300	1.016	0.550	-1.673	-0.760
Other	-3.426	-1.060	-36.432	.	-5.187	-0.990
Intercept	2.233	1.390	-5.301	**-2.690**	-2.249	-0.660
Selection-term	6.402		6.226		9.542	
Number of censored observations	735		814		945	
Number of uncensored observations	284		205		74	
Joint tests:						
Ethnicity	**1.96**	0.0992	**3.67**	0.0056	0.75	0.5584
Religion	0.38	0.3800	0.15	0.8580	0.44	0.7220

Note: there are not enough uncensored observations to estimate a similar regression for land brought by brides.

Table 17. Testing Pooling of Parental Resources
(dependent variable is the log of the value of all assets brought to marriage by both spouses)

	first marriage		**subsequent marriages**	
Number of observations	592		511	
Pseudo R-squared	0.048		0.056	
	Coeff	t	Coeff	t
Wealth of parents				
Land of groom's father (log +1)	0.473	**3.350**	0.201	**2.130**
Land of bride's father (log +1)	-0.066	-0.350	0.035	0.300
Whether groom's father went to school	-0.414	-0.910	0.040	0.120
Whether bride's father went to school	0.614	1.390	0.203	0.590
Competition among sibblings				
Number of groom's siblings + self (log)	-0.108	-0.450	-0.101	-0.590
Share of sisters in groom's siblings	-0.290	-0.420	-0.012	-0.030
Number of bride's siblings + self (log)	0.117	0.390	0.333	**1.760**
Share of sisters in bride's siblings	0.069	0.180	0.161	0.830
Time and space (Harresaw ommitted)				
Number of years since marriage	0.001	0.150	-0.012	**-1.950**
Geblen village dummy	-1.185	**-1.650**	-1.609	**-1.980**
DInki village dummy	1.899	**1.740**	-1.179	-1.370
Yetmen village dummy	0.888	0.650	-1.448	-1.640
Shumshaha village dummy	0.719	0.650	-1.734	**-2.020**
Sirbana Godeti village dummy	2.127	**2.220**	-1.717	**-1.970**
Adele Keke village dummy	-1.904	**-1.910**	-1.215	-1.410
Korodegaga village dummy	0.475	0.480	-1.369	-1.590
Tirufe Kechema village dummy	0.424	0.520	-2.655	**-3.360**
Imdibir village dummy	-0.436	-0.370	-1.129	-1.120
Aze Deboa village dummy	0.130	0.110	-3.363	**-3.010**
Adado village dummy	-2.056	**-1.790**	-2.962	**-3.000**
Gara Godo village dummy	0.462	0.410	-2.240	**-2.320**
Doma village dummy	0.033	0.030	-2.108	**-2.160**
Debre Birhan village dummy	1.916	**1.900**	-0.909	-1.040
Ethnicity dummies (Tigray excluded)				
Amhara	-0.878	-1.030	2.551	**3.620**
Oromo	-0.622	-0.800	3.150	**4.340**
South-Central	-0.393	-0.390	3.232	**3.850**
Other/mixed	-1.799	**-2.020**	2.430	**3.130**
Religion dummies (Orthodox excluded)				
Muslim	0.023	0.040	0.099	0.230
Other Christian	0.546	1.270	-0.265	-0.770
Other	-0.057	-0.080	-0.909	-1.620
Intercept	6.647	**9.540**	6.185	**11.400**
Selection-term	2.634		1.808	
Number of censored observations	64		18	
Number of uncensored observations	528		493	
Joint tests:	F-stat	p-value	F-stat	p-value
Father's land	**5.66**	0.004	**2.34**	0.097
Father's schooling	1.21	0.298	0.20	0.821