

Social networks and intra-household resource allocation in rural Ethiopia.¹

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Abstract

In many models on intra-household resource allocation, the distribution of resources among individuals depends on their position within the household. Between spouses, this position is determined ex-ante (in the marriage market) or ex-post (as a result of bargaining). In the context of developing countries, the empirical testing of the determinants of this bargaining position has largely been restricted to levels of education, independent sources of income and (pre-marital) ownership of assets, notably land or cattle. Social ties have not been considered a determinant while various studies have documented the importance of social ties for livelihoods in the context of missing markets. In this paper we therefore explore the effect of social ties of spouses on their bargaining position within the household.

To address this question we use a unique data set collected in rural Ethiopia. All 357 households residing in one village and within them 670 individuals were interviewed on their social networks, bargaining position and livelihood strategies. In this paper we include all monogamously married couples (N=212) from this data set to test the effect of intra-village kinship ties on the bargaining process in the household, measured in terms of child welfare and adult anthropometrics. We find significant effects of social ties on welfare outcomes but these are not consistent across outcomes or sex of spouses. This suggests social ties should not be treated as assets that improve the bargaining position of spouses. Rather, social ties may be beneficial in mobilizing (implicit) moral support in intra-household bargaining processes, and this may be easier to achieve for one welfare outcome over the other.

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1. Introduction

For a long time, the household was modelled as a unit with a single decision maker and a joint welfare function in which all income is pooled (Becker, 1981). In the past decades, an increasing number of empirical studies have rejected this so-called unitary approach and have advanced alternative models to explain the allocation of resources within the household (see for example Haddad et al. (1997), Strauss et al. (2000), Quisumbing (2003) and Fafchamps et al. (2007). In these models, inequality within the household is thought to depend on a bargaining process between different members of the household. Bargaining positions of spouses are either determined ex-ante in the marriage market (Fafchamps and Quisumbing 2007); depending on what the respective spouses bring to the marriage, or ex-post, which is during the marriage. In this case bargaining positions are determined by a threat-point, divorce or non-cooperation within the marriage. This threat-point depends on the ability of spouses to take care of themselves (either within or outside marriage) and extra-household parameters such as the rules regarding distribution of assets upon divorce (McElroy 1990, Lundberg and Pollak 1993).

Although these collective models resolve some of the anomalies of the unitary model, no conclusive evidence has been found for the precise nature of the collective model (Haddad *et al.*, 1997) or the determinants of bargaining positions (Vermeulen, 2002). Given the important contribution of intra-household distribution of welfare to aggregate inequality (Haddad and Kanbur 1990 and Alderman et al. 1995), an increased understanding of the processes taking place within the households is highly relevant in the context of developing countries. Especially in the context of our study, Ethiopia, where poverty is widespread and the position of women is traditionally unequal to that of men (Massow, 2000).

Agarwal (1997) calls for improved insights in the complex determinants of bargaining power in the household, including the role of social norms and the embeddedness of households within a wider institutional environment. Several anthropological studies have documented the influence of social relations on the bargaining position of (notably) women within the household. Subramanian (1998) for example illustrates how women in rural Bangladesh are willing to give up their inherited land rights to ensure the emotional and material support from male kin. Friedemann Sanchez (2006) documents the interrelatedness of kin networks, property acquisition and the intra-household bargaining process for women working in the cut-flower industry in Colombia.

Although some economic studies have also suggested social assets may co-determine the bargaining position of individuals within the household (Agarwal, 1997, Malluccio and Quisumbing, 2000), the empirical testing of determinants of bargaining within the household has mostly been restricted to assets in the form of physical and human capital. Quisumbing and Malluccio (2000) for example consider the importance of pre-marital assets, notably cattle and land, for women's bargaining position in four countries across the globe. Fafchamps and Quisumbing (2003) document the importance of human capital, in the form of age, education and height in understanding the division of labour within the household in The Philippines, while in the context of Ethiopia, Fafchamps et al.

(2007) advance the importance of intellectual capacity rather than formal education. Some studies also demonstrated the relevance of actors other than the spouses. Fafchamps and Quisumbing (2003) for example found that characteristics of co-resident grandparents affected investment in children in Pakistan. Frankenberg and Thomas (2001) show that wealth differences between the spouses' families affect bargaining within the couple while Bloch and Rao (2002) provide evidence for a positive relation between the resources of the bride's parents and the incidence of domestic violence. The definition of actors outside the couple included in these studies is limited to parents, and in some cases only includes co-resident household members. This paper proposes a broader perspective and studies the effect of intra-village social ties on the intra-household bargaining process, particularly the influence of social ties embedded in kinship networks. Given the importance of social ties in livelihoods in economies with missing markets and the fact that social ties exist between individuals rather than between households, it is expected that social ties within and outside the household affect what is taking place within the household.

We find significant effects of social ties on welfare outcomes but these are not consistent between children's welfare and adult anthropometrics or for husband and wife. This suggests social ties cannot be treated as assets that improve the bargaining position of spouses. Social ties may however be beneficial in mobilizing (implicit) moral support in intra-household bargaining processes, and this may be easier to achieve for one welfare outcome over the other. We also find that social ties are intertwined with social norms and a change of residence at the time of marriage. To date our empirical results are inconclusive on the exact interpretation of the underlying relation.

The remainder of this paper is organized as follows. In section two we describe the data and the context of the village. Section three discusses issues in modelling intra-household processes and sets out the empirical strategy. In section four we present our empirical results and section five discusses the implications.

2. Data and context²

This paper draws on an unusual dataset collected by the author in 2005. First, unlike most surveys that take a random sample from a village population, we interviewed all households in the research village, Turufe Kecheme, to obtain in-depth insight in the operation of intra-village networks. Secondly, within each household we aimed at interviewing at least two adult members, while in many conventional surveys the questionnaires are addressed to one respondent only, and this respondent is often the head

² The Turufe Kecheme data set (TK data set) has been collected from May-August 2005. Questionnaire data was collected by Fitsum Wakoya, Luwam Yohannes, Sultan Abduraman and Tilahun Desta of the Department of Agricultural and Resource Economics, Debu University, Awassa, under supervision of the author. Indispensable research support was provided by Rediet Bayu, Adane Hirpo (Debu University), and WeD-Ethiopia researchers Alula Pankhurst, Bizuayehu Ayele, Yohannes Gezahegn (Department of Social Anthropology, Addis Ababa University) and Pip Bevan (Bath University). Finally, we would like to thank all respondents from Turufe Kecheme village who participated in the research and the support received from key persons in the community.

of the household. In most cases we interviewed both spouses. When one of these had passed away, was involved in labour migration, or the spouses were too old to make a living by themselves we also interviewed adult sons or daughters living with their parents. In case the children of a widowed respondent were too young or not living with the respondent, only one respondent per household was interviewed. The questionnaires were administered by a team of two enumerators. The household questionnaire was conducted as a joint interview while the individual questionnaires were administered with one respondent in private, often at the same time the spouse or other respondent from the household was interviewed. In principle women were interviewed by female enumerators while men were interviewed by male enumerators. In total, 357 households and 670 individuals were interviewed.

Turufe Kecheme is part of two long-term research projects collecting qualitative and quantitative information, the Ethiopian Rural Household Survey (ERHS) and the Ethiopian Village studies, in 2005 part of the Well-being in Development project (WeD-Ethiopia). Previous results from these studies were used to construct the one-off cross section questionnaire used in this in-depth study on individual social networks and wellbeing. The household questionnaire contained questions on household composition, household assets, land used/owned for cultivation, livestock possessions and household food stores. The individual questionnaire had questions on the marital status, pre-marital and current assets, participation in economic activities, participation in local organizations, credit transactions, social position and perceptions, food security, illnesses and coping strategies. The individual data modules were administered to all respondents, regardless of their marital status. In this paper we only use the information on monogamously married couples in which both spouses were interviewed. In total our data consist of 422 spouses from 211 households. For a subset of the respondents (200 spouses from 100 couples) we also collected anthropometric data.

Information on intra-village kinship ties was collected separately from the survey in small group exercises. In over 20 of such meetings, we drew family trees of the families who currently lived in the village, sometimes going back four to five generations. These groups were organised separately for different ethnic groups in the village, and in case of the Oromo, for different sub clans (*belebeles*). In this way we obtained genealogical data on most inhabitants of the village. As we observed a tendency for the participants to focus predominantly on the male lines of descent, the facilitators specifically probed for kinship ties concerning sisters and daughters. Additional information on female relatives was also collected in the survey. This information on marriages and genealogical descent is used to construct networks to determine connectedness in terms of kinship and marriage.

Turufe Kecheme³

Turufe Kecheme is one of three villages in Turufe Kecheme *kebele* in Shashemene *wereda* in Eastern Shewa Zone of Oromiya Region in Southern Ethiopia. It is located in an area with relatively fertile soils and sufficient rainfall for agriculture. The village was

³ For detailed socio-economic information on Turufe Kecheme, we refer to Dekker (2008) and especially Gezahegn et al (2006).

established during the villagisation programme in 1985, when people who lived scattered around the *kebele* territory were organized in compact villages to facilitate service provision. Although located in an area originally inhabited by Oromo people, the rural areas surrounding Shashemene town are known for their migration history. This is clearly reflected in the ethnic and religious composition of the village. Just over half of the respondents are Oromo, while Amhara, Tigray and Wolayita are relatively large minorities (slightly over 10 percent each). Kembata and Hadiya are considerably smaller in number and there are some Gamo, Gurage, Sidama and Silte people. Although there is not a one-to-one relationship between religious affiliation and ethnicity, the two are strongly related. The Orthodox Christian Church is predominantly attended by Amhara and Tigray, Wolayita and Kembata are mainly followers of Kalehiwot, while the Oromo are Muslim. Although ethnic and religious diversity is typical for Ethiopia at large, it is not common to find this diversity in one village.⁴ This makes Turufe Kecheme an interesting village for our work as it allows us to also study the effect of ethnic differences (social norms) in the position of women on processes of bargaining within the household. Previous work on data from the ERHS has demonstrated that the freedom of women reduces when going from north to south in the country (Dercon and Krishnan 2000). And recent analysis has documented that Turufe Kecheme stands out in terms of the position of women compared to other sites of the ERHS. Fafchamps et al (2007) report better nutritional status for women compared to men while at the same time, working hours are longer for women in this community. The history of migration to the village has also influenced marriage patterns, to the extent that less than half of the women have relocated when they married. Previous work on the dataset used in this paper documented the effect of relocation away from kinship networks on the lack of labour during periods of illness (Dekker, 2008). In this paper we will explore if such differences also affect the distribution of bargaining power within the household.

3. Modelling intra-household bargaining

3.1. Measuring the bargaining process

Non-unitary household models start from the assumption that preferences are not necessarily the same for different members of the household. The difficulty is that these preferences are not directly observable. To be able to study intra-household processes, the empirical literature has therefore assumed that preferences may become visible through welfare outcomes. The starting point in these studies is that in case preferences between spouses differ, welfare outcomes, both at household and individual levels, will depend on the power of individuals to exert their own preferences within their household (Frankenberg and Thomas, 2001).

In the context of developing countries a range of welfare indicators have been considered. Individual outcomes include nutrition and health indices for or differences in time

⁴ The ethnic and religious composition of the village is however not representative for the ethnic and religious composition of the Ethiopian population at large.

allocation between spouses (Fafchamps et al., 2007). Welfare outcomes on household level include child welfare and the distribution of expenditures across different categories of goods (Quisumbing and Mallucio, 2000) or involvement in decision making (Adato et al. 2000). Fafchamps et al (2007) report the strongest empirical results on intra-household effects have been documented in relation to child welfare. In such studies, it is assumed that women care more for the welfare of their children, and girls especially, compared to men. Duflo (2003) for example demonstrates how pensions allocated to grandmothers in South Africa improve nutrition of resident granddaughters.

In this paper we use child welfare (education) and adult anthropometrics as indicators of the outcome of the bargaining process. The assumption underlying these indicators is that if women have more power or a stronger bargaining position within the household, child welfare is expected to be higher, as is their own nutritional status.

3.2. Determinants of bargaining position

Existing empirical studies on intra-household inequality has tested the influence of the marriage markets (pre-marital wealth of spouses and their families and bride wealth transfers), human capital (education, age, and intellectual capacity), social norms and legal frameworks (ethnicity and rules and regulation regarding divorces) and current assets (independent economic activities). We will include these factors when explaining intra-household inequality (to the extent they are available in our dataset) and propose to extend the analysis with social network variables.

Social networks may improve an individual's bargaining position in two ways. First, like premarital assets, social ties may influence the threat-point, i.e. an individual with more ties will be able to exercise more influence within the household. Persons with large social networks will have a stronger fall-back position in case of divorce or non-cooperation within the marriage. Social ties may provide financial assistance or other help to make a living, similar to independent economic activities or ownership of assets. Secondly, the mobilisation of interpersonal networks may improve the bargaining position of individuals within the marriage. Consider the example of a couple with spouse A and spouse B. Network members of spouse A may put pressure on spouse B to pursue spouse A's preferences rather than exerting spouse B's own preferences. Note that network members of spouse A may be asked by spouse A to put pressure on spouse B (explicit mobilisation) or may do so implicitly mobilised. The pressure put on spouse B can also be either explicit or implicit.

To operationalise interpersonal networks, we asked a range of questions on social networks and social position to the individual respondents, ranging from memberships in local organisations to friendship and labour sharing network. Many of these variables may however not be suitable to measure the determinants of bargaining power. Irrespective of the type of factor to be included in the analysis of intra-household bargaining (economic, human or social assets), it is important to choose an indicator that

is external to the distribution of power within the household, i.e. an indicator that is not resulting from the bargaining process within the household itself.⁵

In this paper we therefore propose a variable on social networks that is largely determined at the time of marriage: having close kinship ties within the village. In many parts of Ethiopia, including the area around Turufe Kecheme, it is common for women to move to the family of her husband when they marry. This results from customary rules, particularly among Oromo, that prohibit marriages within one clan. As clans have a territorial origin, this usually means that women leave their village of birth and come to live in the village of her husband. This means, she moves away from her own kinship network, notably her parents and siblings who may provide emotional or material support when needed. Although, relocation does not necessarily mean she will not be able to receive such support, with increased transaction costs associated to distance it will at least be more difficult to obtain.

One could argue this relocation at the time of marriage is not exogenous either. Men might have a preference for women who are from a different village because their bargaining power will be lower. Alternatively, parents with “weaker” daughters may decide to choose a marriage partner from the village itself, in order to be able to support her in her marriage. Information on relocated women in our sample indicates this is not the case. Women who changed residence do not significantly differ from women who remained in their natal village after marriage on a number of variables that may indicate their “intrinsic” empowerment, such as holding an official position in a local organization, discussing development issues with the *kebele* leaders, memberships in local organizations and having chosen her spouse by herself.

Our proposition in this paper is that relocation at the time of marriage and the (related) connectedness in kinship networks affects the fall-back position and threat-point of the spouse but also the emotional support she may feel/need to pursue her own preferences over those of her spouse. Interestingly, with the history of migration in the village, not all women have changed their village of residence when they married. In fact more than half of the women interviewed originate from Turufe Kecheme itself.⁶ This provides an interesting starting point for the effect of embeddedness in networks for intra-household bargaining positions.

⁵ Several studies have however included variables that could be endogenous to the bargaining process, such as independent economic activities or participation in decision making.

⁶ Various reasons explain this diverging pattern. First and foremost, daughters from families who descent from the original settlers in the area may inherit land from their fathers, especially when they do not have brothers to whom land can be passed on. In such cases the daughter(s) will establish their home in their natal village and their husband will come to live with her (and her family), either from within the village or from another village. Secondly, daughters from families who descent from the original settlers may marry to (sons of) migrants who came to live in the village. Or thirdly, daughters from migrants may marry into families descending from original settlers in the area. This is for example reflected in the ethnic background of women who did not change residence when they got married. Hadiya, Kambata, Tigrinya and Wolayita women more often do not change residence when they marry, while the largest group of women relocating at marriage is Oromo women. Still, just over 40% of Oromo women did not relocate when married, indicating the first two reasons mentioned above are certainly important.

Descriptive statistics

Table one provides descriptive statistics for the variables we use in the analysis. We use two measures of child welfare. First, school attendance, a dummy variable that equals one when a child was attending school at the time of the survey. Second, we use a schooling level variable derived from the completed school grades of children. For each child, we calculate the z-score of their schooling level: the deviation in schooling level from the median schooling level of his/her age-cohort divided by the standard deviation. The analysis includes children aged older than five and younger than sixteen years of age living with monogamously married parents. The mean age of children is almost 10 years, there are slightly more girls than boys and some fourteen percent of children is a foster child (i.e. the spouses in our analysis are not the biological parents of the child). Despite the low level of school attendance and education recorded in other studies on Ethiopia (see for example Fafchamps et al, 2007) table 1 shows children in Turufe Kecheme often do attend school: 77 percent of children aged 5-15 years are in school and figures are slightly higher for boys than for girls.⁷ The high levels of school attendance do not necessarily result in uniform educational attainment. There is considerable variation in the attained schooling level, with reported deviations ranging to approximately five years below and above the cohort mean. The deviation is quite similar for boys and girls.

Nutritional status of the spouses is measured with the body mass index (BMI): weight in kilograms divided by the square of height in meters. In the context of developing countries, the body mass index (BMI) is often considered a good indicator of nutritional status. Similar to the findings of Fafchamps et al (2007) we find the BMI is around 20 and somewhat higher for women than for men. Women are some 10 cm shorter than men. As the BMI is known to depend on initial height and in the case of women by pregnancy and/or breastfeeding, we also include these control variables in our analysis; 4 percent of women were pregnant when weighted, while almost half of the interviewed women were breastfeeding. This anthropometric information is restricted to subset of the monogamous spouses in our analysis (for 100 couples).

As for the characteristics of the spouses in our analysis, we see that women are approximately 8 years younger than men. For both spouses, the level of education, measured as the number of years in school is low, but especially for women (2.8 years). This difference is not visible with respect to adult literacy courses that have been slightly more often attended by women. The ethnic diversity in the village is also reflected in the ethnicity of monogamously married spouses. Slightly over half of the male respondents are Oromo. Amhara, Tigray and Wolayta each represent between ten to fifteen percent, while there are few Kembata and Hadiya husbands. For women the picture is a little more diverse as less than half of the female spouses is Oromo. Amhara, Tigrinya, Wolayta, Hadiya and Kembeta women each represent between eight and fourteen percent, while some three percent have a different ethnic background. This diversity will be used to test the effect of ethnic differences in social norms, by including the ethnicity of women in our analysis.

⁷ In earlier data collection rounds of the ERHS, Turufe Kecheme also stood out for its high level of school attendance compared to other villages surveyed in this study.

Considering pre-marital assets, men were clearly better off compared to women, both in terms of cattle and land. Women on the other hand more often brought jewellery or clothing to the marriage (as part of dowry), although this also was not uncommon for men. Almost one fifth of both men and women received cattle from their family when they got married and the average number of beasts received is slightly higher for women compared to men. At the same time it was more common for the family of the men to transfer cattle to the family of the bride at the time of marriage compared to the other way around. Men, more often than women, reported the wealth position of their family to be higher than that of the bride. Almost 60 percent of the women earn an independent source of income from non-farming activities, which is slightly lower compared to men.

Less than half of the women lived outside the village before they married their current spouse, while only 4 percent of the men relocated when they married. As expected, there are distinct differences in connectedness in terms of kinship relations, partly related to this residence history. The information on connectedness is aggregated to variables counting the number of blood and marriage relations an individual has to other individuals outside his/her household but within the village. Men on average have twice as many blood ties to other individuals outside their household (but within the village) compared to women. The difference between men and women are much smaller when we also include marriages ties in their networks.⁸ Men on average participate in 2.26 local membership organisations (such as an iddir, equb, mahber etc.) and women in two.

Regarding household characteristics, the average household size of the monogamously married couples is 5.9 persons. They use just over two timad of land for crop production and on average have three head of livestock (including goats and sheep) that is equivalent to 885 Ethiopian birr (based on 1995/6 purchase values). Another indicator on wealth that we include in the analysis a factor score on an asset-based wealth index. The index is based on housing characteristics (toilet facilities and iron roofing sheets) and ownership of assets (plough, sickle, spade, lamp, spray, cart, radio, bicycle, sewing machine, watch, clock, modern bed, blanket, mattress, sofa, table, wardrobe, leather mat and another house outside the village).

4. Estimation results

Child welfare

In our analysis of children's welfare reported in table two, we include characteristics of the children, characteristics of the household (including the sum of the value on bargaining variables for the respective spouses), social norms and women's score on bargaining variables, to single out their bargaining position within the household. In the

⁸ Note that the average number of blood ties for men is rather low at less than two. This is the result of selecting only monogamously married couples in our analysis. Members of the original lineages of the village (i.e. those with many close blood relationships in the village) are often engaged in polygamous marriages and therefore excluded.

first model our dependent variable is school attendance. Because the values of this variable are constrained to be between 0 and 1 we use Tobit regression analysis. We find that older children are more likely to attend school (up to a certain age) as are children from wealthier households, measured in terms of assets. Interestingly, children in households with more livestock are less likely to be in school. This is related to labour needs for herding. Herding space is extremely limited in Turufe Kecheme and children, especially boys, are often appointed to herd animals during the day. Social norms (in this case measured as the ethnicity of the mother) do not affect school attendance, nor does the level of education or age of the parents.

With respect to bargaining variables, we find total cattle gifts at the time of marriage keep children at home (or herding) while children with mothers who received cattle from their family when they married are more likely to be in school. Similarly, larger networks of both parents do not enhance school attendance of their children (significant negative coefficient), while mother's blood relations in the village have a positive effect, albeit not significant.⁹ Children with mothers who brought more jewellery or clothing to the marriage are more likely to attend school.

The results found on these bargaining variables are very similar when considering schooling level rather than school attendance. Children with mothers who received cattle when they married have a higher z-score, as do children whose mother has more blood ties in the village.¹⁰ Despite this, children with mothers who changed residence when they married (and thus have fewer blood ties in this village) are also likely to have a higher z-score. We find negative effects of mother's education, herd size and total number of cattle transferred to spouse's family upon marriage. Finally, children in wealthier households are more likely to have a higher z-score.

Adult anthropometrics

Table 3 shows the results of our regression analysis of adult nutritional status, measured as the spouse's BMI. To test which factors affect differences in adult anthropometrics, we include individual and household characteristics, the influence of social norms (women's ethnicity) and kinship networks. To specifically address the bargaining position of women, we include interaction terms for women's individual characteristics separately (results reported in the third column). In the first model we test the relevance of bargaining variables, irrespective of the sex of the spouse. We start with two findings commonly reported in the literature on adult anthropometrics: pregnancy increases the BMI, while height reduces the index. Living in a larger family increases the nutritional status, as does the involvement in independent economic activities. Change of residence

⁹ When including broader kinship networks (blood and marriage) rather than blood ties only, similar but less significant results were obtained. Excluding independent economic activities (potentially endogenous) did not affect the results. Another specification included memberships in village organizations. Results show a positive effect of the total memberships in the couple..

¹⁰ In the z-score analysis, similar results are obtained when including broader kinship networks (blood and marriage) rather than blood ties only. Memberships in local organizations does not affect schooling level and the estimation results in table 2 are not sensitive to the exclusion of the variable on independent economic activities.

at marriage, pre-marital assets, bride wealth transfers and ethnicity/social norms or the size of the kinship networks do not significantly affect the BMI.¹¹ Alternative specifications including membership in local organisations or kinship networks restricted to blood ties give similar results.

Adding the interaction terms to single out the effect of women's bargaining position provide some interesting differences. Older men have a lower nutritional status, while women have a positive score (interaction term). A change of residence to marry is positive for men, but negative for women, women who relocated upon marriage have a lower BMI. With respect to pre-marital and bride wealth variables, we now find a positive effect of bringing jewellery or clothing to the marriage for either of the spouses, while women are worse off when they possessed more cattle before their marriage. Women actually do better when they have attended adult literacy classes. The effect of ethnicity or social norms varies; we find positive coefficients for southern women and negative coefficients for northern women. These effects are however not significant, with the exception of Tigrinya women who have a lower nutritional status compared to Oromo women (the reference category).

Inclusion of interaction terms also gives interesting results on the kinship variables. It is positive for spouses to live amongst kin, having more blood and marriage ties increases the BMI, but only for men and not for women (the sign changes from positive to negative).¹² Given the significance of the change of residence dummy for women, this also suggests the negative effect of a change of residence is not explained by detachment from kinship networks. The initial effects on pregnancy, height and household size remain, while the positive effect of independent non farm activities is no longer significant.

5. Summary and Discussion

In the previous section we analyzed intra-household inequality by looking at the determinants of child welfare and adult nutritional status. The assumption underlying these indicators is that if women have more power or a stronger bargaining position within the household, child welfare is expected to be higher, as is their own nutritional status. We especially focussed on the potential effects of kinship networks and (possibly associated) social norms. In this section we summarize and discuss the most important results.

Although the results on bargaining variables are not consistent and systematic, the findings do confirm the importance of some conventional determinants of intra-household inequality relating to the marriage market or human and physical assets of the

¹¹ Note that ethnicity is not included for all respondents, but only for the women.

¹² Other variables representing social ties (i.e. membership in local organizations and blood kinship ties only) were also included in the analysis (separately and jointly), but are not significant.

spouses.¹³ Children from mothers who received cattle from her own family or who brought jewellery or clothing when she married are for example more likely to be in school and have a high level of education compared to others in their age cohort. Similarly, women who followed adult literacy courses on average have a higher BMI, indicative of a better nutritional status. We also found some evidence on the importance of the spouses' families for children's welfare. Children whose father's family was richer than their mother's family, an indicator of a stronger bargaining position of the father, at the time of marriage are likely to have a lower level of education compared to children in their age-cohort.

At the same time, we also found some counterintuitive results. Women who possessed more cattle before they married have a lower nutritional status and Tigrinya women, whose families originate from the more liberal north of the country, are also more likely to have a lower BMI. Moreover, the effect of relocation was inconsistent between the two welfare outcomes considered. Children from mothers who changed residence when they married have a higher level of education compared to other children in their age cohort, while at the same time, women who changed residence have a lower score on the BMI.

Such inconsistency also showed up in relation to the value of social networks for the bargaining position of spouses. In the child welfare regressions, blood ties entered negatively while in the adult anthropometrics analysis, wider kinship ties entered positively. Even more interesting is the change in signs that is observed when the value of blood or wider kinship ties is specified for women/mothers. This means social ties have a differential value for husband and wife and suggests it may not be possible to interpret social ties as social assets that improve the bargaining position of individuals within their households. In that respect it is important to observe that the influence of a change of residence at the time of marriage remains a strong determinant of welfare outcomes, even when controlling for the obvious differences in blood ties that is clearly related to this variable.

The alternative interpretation that social ties may (implicitly) mobilize strength in the bargaining process is not necessarily dismissed by these inconsistent findings. A tentative interpretation is that women may find it easier to mobilize social ties when children's welfare is concerned, as compared to their own nutritional status. Our data remain inconclusive on this aspect.

This brings us to another, possibly related factor, the effect of ethnic differences in social norms. Given the ethnic diversity in the village and previous accounts of differences in female empowerment, we expected to find some evidence related to differences in social norms with respect to the position of women. We did not find any significant effects for the ethnicity of the wife/mother, with the exception of the negative coefficient for Tigrinya women referred to above. Additionally, the signs on the coefficients were the opposite of the north-south division mentioned in the literature. This suggests that social norms are not strictly related to ethnic descent, but may converge when people from

¹³ Note that Fafchamps et al. (2007) also report the lack of a systematic relationship between bargaining variables and welfare outcomes in rural Ethiopia.

different ethnic background come to live together. A so-called village social norm may emerge. Alternatively, it is not sufficient to measure the effect of social norms by considering the ethnicity of women only. When looking at intra-household processes, the social norms brought in by the husband are important as well, especially in a context where it is not uncommon for men or women to marry a spouse from another ethnic group. Twenty eight percent of the monogamous marriages in our analysis are indeed inter-ethnic. This issue will be taken up in future research.

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Table 1. Descriptive statistics

Child Characteristics		unit	all	sd	girls	boys
child at school	yes=1		76,7		75,1	78,2
education level	Years		2,8	2,32	2,79	2,85
z-score	index		0,11	0,91	0,13	0,1
girl	yes=1		52%			
age	years		9,93		9,91	9,95
fostered	yes=1		14%		16%	13%
Individual characteristics			women	sd	men	sd
BMI	index		20,7	2,80	19,50	2,25
height	meters		1,56	0,07	1,67	0,07
pregnant	yes=1		4%			
breastfeeding	yes=1		48%			
age	years		31,3	11,60	39,00	14,90
education	years		2,8	3,30	5,10	3,96
adult literacy	yes=1		16%		13%	
ethnicity						
oromo	yes=1		43%		53%	
amhara	yes=1		13%		10%	
tigray	yes=1		10%		12%	
kembata	yes=1		9%		5%	
hadiya	yes=1		8%		5%	
wolayta	yes=1		14%		15%	
other	yes=1		3%		0%	
bargaining variables						
pre-marital land	timad		0,04	0,40	0,40	1,01
pre-marital cattle	head		0,20	0,70	0,99	2,17
brought jewelry or clothing to marriage	yes=1		52%		33%	
received cattle from family at marriage	yes=1		20%		19%	
cattle received at marriage	head		0,55	1,56	0,31	0,95
family transferred cattle to spouses family	yes=1		3%		18%	
cattle transferred to spouses family	head		0,08	0,55	0,74	2,16
husband's family richer at marriage	yes=1		18%		28%	
independent economic activities	number		0,87	0,92	0,73	0,78
earns independent no farm income	yes=1		59%		55%	
changed residence at marriage	yes=1		44%		4%	
intra village blood ties	number		0,82	1,39	1,72	1,48
intra village kinship ties	number		18,30	15,40	21,10	17,80
intra village memberships	number		2,00	1,51	2,26	1,40
Household characteristics			mean	sd		
hhsiz	number		5,90	2,23		
land	timad		2,02	1,82		
livestock	head		3,04	3,60		
livestock value	birr		885,60	1020,20		

Table 2. Childwelfare

	school attendance		z-score education level	
	coef	t	coef	t
child characteristics				
girl	0,089	(1,730)	-0,002	(-0,024)
age	0,525***	(6.83)	-0,186	(-1,287)
age-squared	-0.023***	(-6.18)	0,006	(0,889)
foster	-0,049	(-0.60)	-0,102	(-0,663)
characteristics parents				
father's age	0,004	(0.84)	0,013	(1,488)
mother's age	-0,007	(-1.30)	-0,004	(-0,368)
father's education level	-0,005	(-0.46)	0,021	(1,066)
mother's education level	-0,014	(-1.24)	-0,045**	(-2,158)
household characteristics				
land	0,009	(0.46)	0,002	(0,055)
household size	0,000	(0.03)	-0,010	(-0,326)
livestock	-0.018*	(-1.72)	-0,045**	(-2,315)
factorscore on wealthindex	0,097**	(2.57)	0,236***	(3,295)
total pre-marital cattle	0,038	(0.37)	-0,016	(-0,781)
total pre-marital land	-0,007	(-0.24)	-0,055	(-0,978)
total cattle received from own family	-0.055**	(-2.02)	-0,037	(-0,749)
total cattle transferred to spouses family	-0,011	(0.95)	-0,063***	(-2,857)
total jewellery or clothing	-0,052	(-0.83)	-0,020	(-0,169)
ethnicity/social norms				
mother amhara	-0,041	(-0.42)	-0,083	(-0,441)
mother hadiya	-0,084	(-0.73)	-0,248	(-1,139)
mother kembeta	-0,022	(-0.19)	0,228	(1,066)
mother tigray	0,065	(0.67)	0,090	(0,475)
mother wolayta	-0,114	(-1.15)	-0,064	(-0,342)
mother other ethnicity	-0,053	(-0.33)	0,391	(1,229)
bargaining variables mother				
pre-marital cattle mother	-0,041	(-0.95)	-0,046	(-0,555)
cattle received from family mother	0,089**	(2.41)	0,179***	(2,684)
cattle transferred to family father	0,026	(0.33)	0,101	(0,668)
pre-marital land mother	-0,010	(-0.15)	0,015	(0,121)
husbands family richer at time of marriage	-0,062	(-0.72)	-0,368**	(-2,311)
mother brought jewellery or clothing	0,153*	(1.67)	0,001	(0,005)
mother has independent source of income	-0,035	(-0.60)	-0,033	(-0,292)
mother changed residence when married	0,081	(1.29)	0,231*	(1,932)
social networks				
blood ties in the village	-0.061**	(-2.42)	-0,103**	(-2,127)
mother's blood ties in the village	0,061	(1.58)	0,141*	(1,902)
intercept	-1.804**	(-4.34)	1,248	(1,602)

note: .01 - ***; .05 - **; .1 - *;

table 3 BMI of husband and wife

individual characteristics	coef	t	coef	t
woman	0,787	(1,018)	-0,872	(-0,352)
breastfeeding	-0,480	(-0,779)	0,185	(0,290)
pregnant	3,752***	(2,857)	5,226***	(3,948)
height	-5,472**	(-2,094)	-4,896*	(-1,893)
age	-0,124	(-1,358)	-0,268**	(-2,415)
age-squared	0,001	(1,375)	0,003**	(2,324)
education level	0,088	(1,268)	0,002	(0,021)
adult literacy course	-0,543	(-0,583)	-0,486	(-0,425)
household characteristics				
land	-0,097	(-0,679)	-0,193	(-1,329)
Household size	0,266***	(2,667)	0,360***	(3,495)
Livestock	0,036	(0,545)	0,053	(0,816)
factorscore on wealthindex	0,310	(1,382)	0,334	(1,544)
individual bargaining variables				
pre-marital cattle	-0,036	(-0,381)	0,076	(0,809)
pre-marital land	0,307	(1,383)	0,174	(0,762)
cattle received from own family	0,117	(0,794)	0,076	(0,195)
cattle transferred to spouses family	-0,070	(-0,608)	-0,004	(-0,031)
husbands family richer at time of marriage	-0,023	(-0,100)	-0,067	(-0,229)
brought jewellery or clothing to marriage	0,334	(0,856)	0,894*	(1,741)
involved in independent non-farm activities	0,925**	(2,284)	0,842	(1,566)
Changed residence at time of marriage	-0,471	(-0,934)	2,687*	(1,942)
blood and marriage ties	0,021	(1,177)	0,046**	(2,051)
interaction female dummies with ethnicity				
Wolayta	0,725	(0,867)	0,781	(0,931)
Amhara	-0,402	(-0,452)	-0,831	(-0,925)
Tigray	-1,235	(-1,481)	-1,416*	(-1,711)
Kembata	0,868	(0,903)	0,430	(0,452)
hadiya	0,837	(0,820)	0,267	(0,264)
other ethnicity	0,967	(0,638)	1,035	(0,703)
interaction female dummies with bargaining variables				
pre-marital cattle			-0,838**	(-2,574)
pre-marital land			0,691	(1,020)
cattle received from own family			0,080	(0,190)
cattle transferred to spouses family			-0,236	(-0,353)
husbands family richer at time of marriage			-0,113	(-0,254)
brought jewellery or clothing to marriage			-1,082	(-1,458)
age			0,080**	(1,994)
education level			0,045	(0,344)
adult literacy course			1,787*	(1,732)
changed residence at time of marriage			-3,546**	(-2,375)
involved in independent non-farm activities			-0,306	(-0,406)
blood and marriage ties			-0,055*	(-1,663)
intercept	27,831***	(5,977)	29,974***	(5,830)

note: .01 - ***, .05 - **, .1 - *,