Impact of Legal Reform on Sustainable Land Management in Tigray, Ethiopia

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DEDICATION

This work is dedicated to my family
Jude, Larry and Lisa Matovu

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ABSTRACT

This study provides insight into the implementation of the most recent land law reform in Tigray, Ethiopia. I use a two round panel of data from 2006 when the law was passed and 2010, four years after enactment, to explore the knowledge and perceptions of the new law, and to study the impact the legal knowledge (as a proxy for the value of the policy) on conservation investments. Results reveal mixed perceptions of the law and an increase in legal knowledge between 2006 and 2010 although this is more attributed to time rather than to direct dissemination by the land administration committees. Econometric regressions using Instrumental variable regression and control function methods to control for endogeneity of knowledge and unobserved heterogeneity provide evidence of significant positive effects of the law on conservation investments.

Key words: *Land law, legal knowledge, conservation investment, land administration committee*

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1.0 Introduction

In developing countries, majority of the population resides in rural areas and derives its livelihood from harnessing natural resources including land and water to produce agricultural output. According to the population reference bureau (PRB), 66% of residents in less developed countries resided in rural areas by 2008 (United Nations 2008). Although overwhelmingly dependent on farming, rural livelihoods as well as developing country economies are currently threatened by agricultural productivity decline arising from land degradation (Holden & Shiferaw 2000).

Despite the fact that technical disciplines such as soil science are vital for finding solutions, land degradation is not a purely technical affair. It is also an economic issue that requires economic answers. Specifically in the developing world, information and markets are imperfect, transaction costs are high and property rights insecure (Rodrick 1988). Compounded by high discount rates, these conditions perpetuate an externality condition where the private costs of degradation diverge from its social costs leading to suboptimal exploitation of land. In addition, high population pressure, poverty, land tenure insecurity, limited market development and insufficient market integration, limited institutional development, farmers' attitudes and institutional and policy failure further complicate the problem (Fitsum et al. 2002)

Against this background, the role of appropriate economic policy as a precursor for sustainable land management and ultimately sustainable economic development is not questionable. Rather, the dilemma faced by policy makers is the choice and effective implementation of appropriate policy. In fact misaligned policy might influence production decisions in such a way that suboptimal land management practices are encouraged which exacerbates rather than alleviate the degradation problem (Barbier 1997).

After the classical work of Coase (1960), Demsetz (1964) and Pigou (1920), a large body of economic literature has advocated for price/incentive-based policy over regulatory/command and control policy for internalizing externalities such as land degradation. The economic rationale for this is the cost-effectiveness of incentive-based policy.

However in practice, other than cost-effectiveness, policy makers may have several other criteria including overall effectiveness, political feasibility, monitoring and enforcement capability, information requirements, ease of implementation and clarity to the general public on which to judge appropriate policy (Hahn & Stavins 1992).

It is thus not surprising to find that governments in developing countries have disproportionately relied on regulatory rather than the incentive based approach to correct for externalities that lead to land degradation. In recent years, the governments have established legal and institutional structures to create a policy environment that enhances sustainable land management and productivity (Deininger 2003). However in most cases, success of the regulatory approach has been limited and implementation of the legal provisions proceeded very slowly as evidenced in Uganda and Tanzania (Deininger et al. 2004).

Like many other developing countries, land degradation in Ethiopia is dire. In 2003, farmers' unsustainable land management practices were estimated to cost the economy about 3% of GDP in form of direct costs from soil and nutrient loss (Berry 2003). In highlands such as Tigary, the problem is even more pronounced (Gebremedhin & Swinton 2003). Tigray's lack of sufficient rain and irrigation water in an environment that is largely semi-arid by nature worsens the situation (Fitsum et al. 2002)

Starting with decentralization of the responsibility of land policy to regional governments in 1997, the Ethiopian government has instituted several policy reforms and laws to curb land degradation and stimulate more sustainable agricultural and economic development.

Against this background, the regional state of Tigray revised its land law recently in 2006. This legislation dubbed the *Rural Land Administration and Utilization Proclamation No.97/2006* provides for the establishment of Land Administration Committees (LACs) at both Kushet[1] and Tabia[2] levels. These are accountable to the Environmental Protection, Land Administration and Utilization Authority (EPLAUA) at the Woreda[3] desk.

[1] Kushet is the lowest local administrative unit
[2] Tabia is the village level administrative unit
[3] Woreda is the highest local administrative unit in the region

However as highlighted earlier, the success of such regulatory approach has been limited in developing countries. Nevertheless, pervasive market failures would deem price-based approaches also highly precarious. Moreover, given the already binding resource constraints faced, effective implementation of regulatory approaches is even more questionable.

Thus, the dilemma faced by policy makers and analysts is the choice of appropriate policy and thereafter its effective implementation in a way that achieves the intended results on ground. As such, it is important to identify factors that are conducive to more effective implementation of legal changes. Experiences from countries that have recently made legal changes such as Ethiopia could produce valuable lessons to others with similar conditions.

In this paper I use experience from Tigray in Ethiopia to answer the following research questions. (i) What is the extent of knowledge of the law by households and LAC members? (ii) Has knowledge of the land law improved land management? and (iii) What are the perceptions of community on the land law?

The overall objective of this research is to explore the perceptions and knowledge of the new land law by the households and LAC members and investigate whether legal knowledge has had an effect on sustainable land management in the region.

1.2 Background

1.2.1 Evolution of Ethiopia's Land Policies

To provide a clearer understanding of the events surrounding the enactment of Tigray's most recent land law and its implication for sustainable land management, I highlight the evolution of land policy in Ethiopia and discuss the related challenges that have given rise to the different policy arrangements over the years.

In 1975, a radical land reform by the then new military government (1974-1991) known as the 'derg regime' became the major turning point for Ethiopia's land policy and is still its axis today. This reform transferred all rural land to the state for redistribution of use rights to the farmers for free.

Prior to this, the tenure system varied in the different regions with a customary system in the northern parts like Tigray and private ownership with widespread absentee landlordism in the south (Adal 2001).

This tenure system was characterized by high insecurity and underutilization of land in all regions but especially in the south which had mostly landlord–tenant arrangements. Insecurity was a result of threat of eviction, lengthy and costly disputes and absence of a fair legal process free form political interference. In addition, tenure security was undermined by the authorities' ability to redistribute land, which was sometimes used for political reasons (Ege 1997).

Although it achieved a more egalitarian land distribution than in most African countries, the reform restricted cultivators' rights to only use and bequeath rights while transferability either through mortgage, sale or lease was prohibited. In addition, use rights to land were contingent on proof of permanent physical residence, thereby preventing migration. Maximum farm size per family was also restricted to 10 hectares and all factor markets including the labor market outlawed (Rahmato 1984).

The derg regime was also characterized by collective agriculture in form of cooperative societies and expansion of collective farms. However unlike some countries like China, where collectivization of land was associated with high levels of investment in irrigation and other land-improving infrastructure (Dong 1996), in Ethiopia, most of the land remained rain fed and suffering from degradation and soil erosion (Kebede 2002).

The current government took power from the military government after a guerilla war in 1991 and has since then instituted several land policy reforms. First, land certification started in Tigray in 1998 and has been viewed to be low-cost, more market friendly, pro-poor and also causing increased tenure security (Holden et al. 2009). Secondly, the 1997 federal rural land administration proclamation (FDRE 1997) following article 52(2)(d) of the 1995 constitution delegated rural land and natural resources administration to regional governments.

It also empowered them to enact and promulgate laws governing land and resource utilization in their regions. Third, land rental markets were opened although duration of contracts and amount of land that can be rented/leased are still restricted.

However apart from these changes, most land policies are still seen to reflect those of the past governments (Deininger, K et al. 2006b). Land is still fully owned by the state and is not subject to sale or mortgage but only to short term renting.

Following the constitutional empowerment to regional governments, Tigray like the other regions of Oromiya, Amhara and SNNPR[4] has passed land laws. These laws led to the land certification process mentioned earlier and saw an end to administrative land redistribution in the region. The most recent of these is the "Tigray Rural Land Administration and Utilization Proclamation (TRLAUP) No.97/2006" and is the focus of this paper.

1.3 Overview of the TRLAUP No.97/2006

1.3.1 Land administration

The new legislation provides for the establishment of a land administration committee (LAC) at both Kushet and Tabia levels which reports to an environmental protection, land administration and utilization authority (EPLAUA) at the Woreda level. The law also provides for female and youth representation by allowing for at least two female representatives and one youth representative on each committee.

Apart from their responsibility to improve local rural implementation of the land law, the committees also enhance rural land administration and resource utilization for sustainable management. They are also involved in settling land disputes, conducting land registration, sensitizing people about administration and the use of rural land, effecting land redistributions, recording of land rental contracts, ensuring that land interests of vulnerable groups such as women and landless young adults are taken care of, and penalizing people in case of land mismanagement.

[4] SNNPR is an abbreviation for 'Southern Nations, Nationalities and Peoples' Region'

The new law restricts amount of land rented to 50% of own farm size and for not more than 2 years to partners using traditional technology and up to 20 years to those using modern agricultural technology. Rental contracts between farmers should be ratified and registered by the Tabia land administration committee. Contracts between farmers and investors should be ratified and registered by the Woreda desk.

To protect women's interests, the law insists that land that is commonly held by spouses can only be leased out after agreement by both.

1.3.2 Land utilization

The legislation outlaws a rural landholder from constructing a residential house in towns or other places except in the rural area at the place where he is allowed to establish. In addition, a rural land holder who leaves their Tabia for more than 2 years without sufficient ground would have their land redistributed to those who do not have land.

To encourage sustainable use of land, farmers are obliged to conserve soil and water and to plant seedlings on both private and public land holding. Protection of trees on farm lands is the responsibility of the owner of the land on which the trees are grown. Plants that reduce the fertility of the soil such as eucalyptus and erosive crops are prohibited. The law also prohibits farm management practices that lead to destruction of trees on farmland and borders between farms. It also restricts farming on river banks to at least 3 meters away from river. Farmers have unlimited use and bequeath rights on their land, although land cannot be inherited by a person that is engaged in other activities than agriculture, who has his own land holding or who is an urban resident.

The minimum farm holding is 0.25 hectares while the maximum is 2 hectares and land partition among heirs should not be made below the minimum farm holding.

1.3.3 Penalties

Conviction of violation of any of the provisions leading to damage of the land could lead to suspension of use rights or payment of a fine whose amount varies depending on the crime committed.

2.0 Literature review

The role of assignment of property rights for the efficient utilization of resources begun with the classical work of Pigou. He showed that optimal levels of resource use could be attained by assigning of property rights to the polluter (Pigou 1920). On the other hand, (Coase 1960) demonstrated that under competitive markets with zero transaction costs, rights could be assigned to either the polluter or the sufferer. The resulting transactions would eventually equalize the private and social cost of pollution leading to optimal resource use.

Empirical literature also shows that formalizing property rights is central to economic development (Maskus 2000). Against this background, policy makers in many developing countries have recently revised their land regulations and established institutions in a bid to provide more secure rights to land (Deininger 2003).

However empirical evidence of the impact of tenure security on efficient land management especially in Africa is mixed. On one hand, some studies in rural Ethiopia show that tenure security has significant positive effects on land-related investments in soil conservation (Deininger, K et al. 2006b; Gebremedhin & Swinton 2003). On the other hand, other studies in the same country do not find any significant effects of tenure security soil conservation (Hagos & Holden 2006). Similar studies in other parts of Africa also found little impact of such security on either credit access or investment (Migot-Adholla et al. 1994).

Although a large body of literature exists on the impacts of property rights on land investments (Barbier 1997; Deininger, K et al. 2006b; Deininger et al. 2008b; Gebremedhin & Swinton 2003; Hagos & Holden 2006), very few studies examine the impact of knowledge of the law on such investments. Tenure security and extent of legal implementation depends on people's awareness of their rights and their ability to enforce them. (Berkowitz et al. 2003) assert that legal reform strategy should choose legal rules whose meaning can be understood and whose purpose is appreciated by domestic law makers, law enforcers, and economic agents, who are the final consumers of these rules. They argue that this is a crucial condition for improving the overall effectiveness of legal institutions, which over time will foster economic development.

Despite the fact that implementation of the land legislations and policies has been ineffective in most in most developing countries (Deininger 2003), and that legal knowlegde is of relevance to successful implementation of legal change, little attention has been paid to it in economic literature. A few studies like Deininger (2006a) found that knowledge of the land law increased land related investments, productivity and land values in Uganda. In China, dissemination of the new land law-hence increased legal knowledge, led to rapid implementation of the law an achievement rarely found in other developing countries (Deininger, K et al. 2006).

Failure to account for the knowledge variable may cause biased results and could explain the variance of results on the impacts of tenure security on land investments found in literature. Therefore in this study I intend to add to the existing body of literature first by accounting for legal knowledge and secondly by exploring the perceptions (people's demand for the new land law) and knowledge (people's awareness on the new law).

2.1 Theoretical framework

The new law presents a set of rights and restrictions on the usage of rural land which I hypothesize to have an influence on the investment decisions taken by the households.

The theoretical framework builds on the canonical Agricultural Household model (Bardhan & Udry 1999) as the foundation together with the model developed by Gebremedhin and Swinton (2003) to explain the conditions for optimal soil conservation investment under perfect market conditions. By including knowledge of the law, I extend these models, to capture the various factors that influence soil conservation investment, and to explain the role played by the law on such investments. The theoretical framework is as follows:

Farmers aim to maximize their utility from land use which is increasing in the present value of the future income stream from the land, household characteristics and asset wealth. Maximizing their utility however is subject to the constraints they face.

First, households are faced with a budget constraint which is a function of the expected crop revenues (output) on the farm and the discounted value of the cost of investments including the investment in conservation.

The expected crop revenues are a product of the price of the product, the area planted, the yield and a binary expectation that the land will be kept in the next period which is in turn influenced by the provisions of the law. As such, restrictions or penalties like land expropriation in case of mismanagement (such as in the Tigray law) might create tenure insecurity by reducing the expectation of keeping land in the future which might reduce land investments. On the other hand, provisions that strengthen the rights of land holders will enhance tenure security.

The cost of investment is a function of household characteristics, asset wealth and also the provisions of the law. A policy that increases transaction costs in the land rental or sale market in terms of search, negotiations, monitoring and enforcement of contracts may have a negative effect on land investments by reducing allocative efficiency from less productive to more productive farmers. On the other hand a policy that reduces transaction costs will boost investment on land.

While maximizing utility, farmers are also constrained by the crop yield which is function of soil depth and other factors such as the resource constraints, soil fertility, weather, pests and diseases. Finally, the utility maximization problem is constrained by soil depth which decreases concavely with erosion. The erosion function is increasing in factors that govern the propensity to erode such as the slope, vegetation cover and other plot and soil characteristics while it is decreasing in both private and public soil conservation investments on land.

In the theoretical framework explained above, I assume imperfect factor market conditions because in Tigray region factor markets are likely to be thin, missing or imperfect as is the case in most developing countries. Under these imperfect markets, the separation property in the agricultural household model breaks down such that the production and investment decisions depend on the preferences and endowments of households (Bardhan & Udry 1999; De Janvry et al. 1991).

2.2 Hypotheses

The theoretical framework above, leads to the following hypotheses which will be tested empirically. Given that the effects of the law could have impacts in two different directions depending on the factors at play, the first two are opposing hypotheses.

H1: Higher knowledge of the law by households increases investment in soil conservation structures. *If the new law reduces tenure insecurity, then I expect that better legal awareness will boost investment in conservation.*

H2: Higher knowledge of the law by households decreases investment in soil conservation structures. *If the new law raises tenure insecurity or transaction costs, then I expect that better legal awareness reduce investment in conservation.*

H3: Resource rich households are more likely to invest in soil conservation investments than resource poor households. *Under imperfect market conditions, I expect households that are better endowed in labor and livestock assets to invest in conservation more than households that are less well endowed.*

2.3 Econometric model specification

Following empirical literature by Clay (1998), Deininger (2006a), Gebremedhin & Swinton (2003) and Hagos & Holden (2006) as well as the theoretical framework above, the model for estimating the land conservation investment structural model can be specified as:

$$I_{hpt} = \alpha_0 + \beta_3 K_{ht} + \beta_1 X_{ht} + \beta_2 P_{htp} + \beta_4 T_{htp} + \beta_5 V_t + \beta_6 W_{ht} + \beta_7 \lambda_t + \beta_8 S_{htp} + \beta_9 L_{ht} + \xi_{ht} + \varepsilon_{ht}$$

I_{hpt} denotes the conservation investment of household *h* on plot *p* in period t. Because most of the new conservation investments are made by public initiatives in Tigray, using these as an indicator for household conservation investment would be misleading. As such, I_{htp} is measured by investment in the maintenance of soil structures which is the sole responsibility of individual households.

X_{ht} is a vector of household characteristics and includes sex, age and level of education of the household head at time t.

P_{htp} is a vector of plot level characteristics for household h in time period t. These variables capture the physical incentives to invest and include factors such as plot slope, size, distance from homestead, degree of farm fragmentation, and annual rainfall. With higher rainfall and steeper slopes, plots are more susceptible to erosion and this may increase the incentive to invest in conservation. Smaller, distant and more fragmented plots may reduce investment incentives.

T_{htp} is a dummy variable for tenure security captured by whether a given plot is on the certificate or not. These tenure security factors are used as a proxy for riskiness of investment. I expect land users to invest more on plots that are on the certificate because they are less risky.

V_t is a vector of market access factors in each time period. Higher returns to agricultural and non-agricultural activities will lead to more land conservation investments. Market access factors therefore capture the financial incentives to invest in land and include variables such as distance to markets, distance from main road and access to credit.

W_{ht} denotes household wealth and includes asset endowments like farm size, labor endowments and livestock holdings, in each time period. I expect farmers with more cash sources, asset holding, and human capital to invest more in land because they have better financial capacity to do so.

S_t is a vector of socio-institutional factors affecting investment in each time period for household h on plot p. These include public conservation investments via food for work programs, collective investments on private land and public conservation investments via mandatory community labor. I expect such institutional arrangements to positively influence investment on land.

L_{ht} is an index of legal knowledge of the members of the LAC in the tabia (village). Higher legal knowledge by the LAC members is expected to positively impact on conservation investments because there will be better enforcement of the new law.

λ_t is a time trend variable which is included to allow for aggregate time effects.

ε_{ht} is the idiosyncratic error component for the structural model

ξ_{ht} is the household unobserved heterogeneity arising from unobserved factors that influence maintenance of soil conservation structures at household level such as the farmer's social connections or motivation / ability to conserve. The unobserved factors could also be at village level such as level of commitment of LAC to enforce sustainable land management in their tabia.

α_0 and $\beta_{i=1-9}$ are the parameters to be estimated

K is an endogenous knowledge variable and is to be predicted from the equation below:

$$K_{ht} = \theta + \delta_1 X_{ht} + \delta_2 V_t + \delta_3 W_{ht} + \delta_4 Z_{ht} + \delta_5 \lambda_t + \upsilon_{ht}$$

K_{ht} is measured by a knowledge index derived from the households' score on questions about the new land law. It is an endogenous corner response explanatory variable which is roughly continuous for strictly positive values i.e $K_{ht} \geq 0, P(K_{ht} = 0) > 0$

Z_{ht} are the instruments included in the reduced form model and excluded from the structural model to correct for the potential endogeneity caused by correlation between the endogenous knowledge variable and the error term in the structural model. The instruments used were age of the household head and whether or not members of the household attended meetings prior to the registration exercise.

υ_{ht} is the idiosyncratic error component for the reduced form model and it is uncorrelated with all explanatory variables and instruments included in the model. Correlation between the error terms υ_{ht} and ε_{ht} causes endogeneity of the knowledge variable.

θ and $\delta_{i=1-5}$ are parameters in the reduced form model

2.4 Estimation strategy

Using a two round panel data set, I combine panel data methods with instrumental variable regression (IV) to consistently estimate the parameters in the investment model. My methodology proceeded as follows:

If household knowledge of the new law is indeed endogenous in the investment model, then estimation using pooled OLS would produce biased estimates (Wooldridge 2002).

Given the simplified structural model:

$$I = \beta x' + \delta K + \alpha + \varepsilon \qquad (1)$$

where ***I*** denotes the conservation investment of household *h* on plot *p* in period t, x' represents a vector of exogenous regressors at household or plot level, K is the suspected endogenous knowledge variable, α is the unobserved heterogeneity and ε is the idiosyncratic error term. (Subscripts have been dropped for notational simplicity)

$$Cov(x', \varepsilon) = 0 \qquad (2)$$

$Cov(K, \varepsilon) \neq 0$ causes bias of the OLS estimates (3)

The Hausman-Wu test on the data confirmed the endogeneity of knowledge variable and so pooled OLS was abandoned warranting the use of alternative approaches such as IV or the control function approach to control for endogeneity.

Random effects estimation was used to control for unobserved heterogeneity[5]. Consequently, the Two Stage Generalized Least Squares (2SGLS)[6] estimator that combines IV and RE estimation was adopted and used to consistently estimate the parameters of interest.

The regular IV procedure would involve using the predicted values of the knowledge variable as a regressor in the second stage. While this regular 2SLS estimation is also consistent, in this case I used the predicted value from the first stage as an instrument (using the IV routine in stata) instead of using it as a regressor in the second stage as is done in the regular IV estimation.

[5] Fixed effects models were not feasible due to the incidental parameters problem and presence of time invariant regressors. Reasons are explained in more detail later in the text

[6] Pooled two stage least squares (P2SLS) models were also estimated to check the stability of results across several model assumptions. Results were similar to the 2SGLS model results and are reported in Appendix table.1

This alternative procedure is more efficient than the regular IV estimation and is fully robust to misspecification of the tobit model that was used in the first stage (Wooldridge 2007).

2.5 Robustness Checks

To check the robustness of the results, the control function approach was used with the residuals from a tobit model in the first stage used to control for endogeneity of knowledge in the structural model. Boot strapped standard errors were used to correct the standard errors from the first stage. For an endogenous corner response variable K, the control function approach proceeds as follows (Wooldridge 2007):

Recalling the simplified model in *(1)* above,

$$I = \beta x' + \delta K + \alpha + u \qquad (4)$$

$$K = \theta Z' + \upsilon \qquad (5)$$

$$K \geq 0 \qquad (6)$$

$$E(Z', \upsilon) = 0 \qquad (7)$$

$$E(K, u) \neq 0 \qquad (8)$$

where α represents the unobserved household factors influencing investment in conservation that may be fixed over time or time varying, u is an alternative error term that may arise from measurement error or omitted variables, Z' is a vector of instruments and all other exogenous variable and other letters are defined as in *(1)* above.

Endogeneity of K arises if u is correlated with υ.

If (u, υ) is independent of Z', $E(u \mid \upsilon) = \rho\upsilon$ and υ is normally distributed *(0, 1),* then

$$E(u \mid Z', K) = \rho\left[K\lambda(\theta Z') - (1-K)\lambda(-\theta Z')\right] \qquad (9)$$

where $\lambda(.) = \phi(.)/\Phi(.)$ is the inverse Mills ratio (IMR). This leads to the heckman two-step estimate for endogeneity.

This enables us to obtain the tobit estimator $\hat{\theta}$ and to add the "generalized residual" $\hat{gr} \equiv K_i\lambda(\hat{\theta} Z_i^{'}) - (1-K_i)\lambda(-\hat{\theta} Z_i^{'})$ as a regressor together with the endogenous corner response variable K and the rest of the exogenous variables.

Hence, the control function involved estimating

$$E(I \mid x^{'}, K) = \beta x^{'} + \theta K + E(u \mid Z^{'}, K) \qquad (10)$$

Consistency of the control function depends on the correct specification of the tobit model $D(K \mid Z^{'})$ and linearity of conditional expectation $E(u \mid \upsilon)$. This means in the case of a discrete endogenous variable such as the knowledge in this case, while the control function might be more efficient, it is less robust than standard IV approaches since imposes extra strict assumptions (Wooldridge 2007).

Since model misspecifications may cause inconsistency of estimates from the CF approach, I felt less confident to rely on this approach as the main model of analysis and rather relied on the estimates from the 2SGLS described earlier as the basis of analysis while the estimates from the CF approach fitted better as a robustness check. Results from CF estimation are reported in Appendix table 2.

Finally, note that the control function leaves an error due to the household heterogeneity (α).
To deal with this unobserved heterogeneity, either random effects (RE) or fixed (FE) effects models can be appropriate (Wooldridge 2009). However given the non- linearity of the investment model, the fixed effects model could not be used because its produces biased estimates (incidental parameter problem) when the time series dimension (t) is small compared to the cross-sectional dimension (n) as in this case.
Note: The conservation investment variable took an ordered nature i.e (0 = Not maintained, 1 = Partially maintained, 2 = Well maintained, 3 = Improved).

In addition, household fixed effects were also infeasible because some dependent variables including one of the instruments (whether the household members attended meetings prior to the land registration exercise) was time-invariant and as such was bound to be eliminated from FE estimation. On the other hand, the RE estimation seemed more attractive since it allowed for the time-variant instrument and does not suffer from the incidental parameters problem in non-linear models.

Nonetheless, it has the limitation of imposing an extra assumption that the unobserved effect in the outcome model is uncorrelated with all explanatory variables (Wooldridge 2009). Therefore pooled ordered probit models were estimated in the second stage. To test the stability of the results under different model assumptions, household random effects models were also estimated and the results were similar to those of the pooled estimation.

Another issue of concern in this model (estimation) was the non-linearity of both outcome and reduced form models due to the ordered nature of the investment variable and the corner response nature of the endogenous knowledge variable (censored at zero). In such instances, some econometric textbooks have argued that the use of linear estimation such as OLS and 2SLS are inappropriate and non-linear models such as tobit or probit should be used instead (Greene 2000; Verbeek 2004).

The challenge was that for the instrumental variable regression discussed earlier, there was no stata software (that I know of) that could estimate an IV ordered probit or logit model. Nevertheless, more recent research has shown that linear models are still appropriate even in the case of limited dependent variables (Angrist & Pischke 2009). For that reason, I used a linear 2SLS regression for the instrumental variable regression.

Finally, the instrument[7] (the predicted value of knowledge from the first stage) was tested for its relevance. An F-test showed that the instrument strongly explained the variation in knowledge.

[7]Regular IV procedure using the predicted values of the knowledge variable as a regressor in the second stage was also used to test the instruments (age and attendance of meetings prior to registration). The hausman test revealed that the knowledge variable was indeed endogenous, but the instruments were weak since the F-value was slightly below 10. The instruments also passed the Sargan's test of overidentification indicating that they were exogenous.

The validity test of overidentifying restrictions could not be tested because the model was exactly identified.

3.0 Data and descriptive evidence

Data in this survey were collected from June to August 2006 and between June and July 2010 from the five main zones of Tigray region in northern part of Ethiopia. The data is part of a five round panel first collected in 1998. To capture the differences in knowledge and perceptions of the new law introduced in 2006, only data from 2006-when the law had just been introduced, and 2010-four years later, are used in this analysis.

Stratified sampling was used to select 16 communities based on distance to market, geographic location, irrigation projects and population density. From these communities, 25 households were randomly sampled. In 2010, one of the communities declined the survey leaving 15 of the original 16 communities.

Data were collected for standard household characteristics as well as for plot level variables for each plot owned by the sample households. In addition questions on knowledge and perceptions of the new law were asked separately for male and female heads in the households as well as the members of the LAC.

3.1 Results from the descriptive analysis

Descriptive analysis is presented in tables 1, 2 and 3. Table 1 shows the perception of households on the level of activity of the LAC in their Kushet or Tabia. Table 2 shows the impact of the LAC on land management for only those households that reported to have been affected by the LAC in some way while Table 3 presents results for the LAC and households' knowledge of the new law. Results from all these three tables are discussed together to enable comparisons of results.

Continued from page 16
Test of endogeneity: F(1,1407) = 7.10686 (p = 0.0078)
Test for instrument relevance: F(2, 1407) = 8.30, Prob > F = 0.0003
Test of overidentifying restrictions: Chi2(1) = 0.404801 (p = 0.5246)

Table 1: Household perceptions on activity of the LAC in the Kushet and Tabia

Level of LAC activity	Number of observations	(%)
Active	480	81.7
Not active	480	13.3
Do not know	480	5.0
Households affected by LAC	393	46.4

Table 2: Effect of the LAC on land management for households that reported to have been affected by the LAC

Impact of LAC	Number of observations	(%)
Participation in information meetings	178	68.0
Improved knowledge about land management	177	83.6
Improved land management	177	80.8
Land loss to the LAC	177	7.90
Has become more tenure secure	178	83.2
Reduced land renting activity due to fear of loss of land	177	18.1
Reduced migration activity due to fear of loss of land	177	30.5
Improved conservation of land due to fear of losing the land	178	70.2
Has started to report land renting/sharecropping to the LAC/Tabia	179	52.0
Household received a warning or been penalized by the LAC	473	1.48
Satisfied with the LAC performance	474	69.4

*Responses were only from heads of households

Table 3: Knowledge of the land law by households and LAC members

Year	2010			2006	
Knowledge of the land law (% of respondents who answered correctly)	**Men**	**Women**	**LAC**	**Men**	**Women**
Familiarity with the new land proclamation and its content (% familiar)	53.8 (297)	38.3 (144)	54.3 (132)		
Does the new land proclamation affects how your household manages its land? (% Yes)	49.2 (248)	28.6 (133)	48.9 (132)		
What is the maximum number of years households can rent out land to others who use traditional technology?	22.4 (268)	11.3 (151)	30.9 (123)		
Do the same restrictions apply to sharecropped out land as to rented out land?	54.9 (304)	48.8 (153)	47.7 (123)		
What is the minimum farm size allowed?	11.8(304)	13.2 (152)	18.1 (127)		
What is the maximum farm size allowed?	2 (304)	1.3 (151)	0.81(124)		
What is the maximum farm holding to rent out?	47.3(298)	41.2 (153)	34.1(129)		
Can a spouse can deny another the right to rent out family land?	83.9 (304)	71 (155)	75 (128)		
Can an 18 year old son can deny parents to rent out family land if he wants to farm on the land?	65 (303)	53.6 (155)	50 (130)		
Is it possible to expropriate land if household has been away for three years?	33.2 (304)	21.9 (155)	63.5 (126)	4.5 (223)	4.6 (108)
What is the maximum number of years households can rent out land to others who use modern technology?	0 (267)	0 (151)	0.81 (123)	0 (221)	0 (106)
In case of divorce, how is the land shared between spouses?	89.7 (302)	82.2 (152)	87 (130)	91.5 (212)	91.1 (101)

Table 3 continued: Knowledge of the land law by households and LAC members

Year		2010			2006
Knowledge of the land law (% of respondents who answered correctly)	**Men**	**Women**	**LAC**	**Men**	**Women**
What is the minimum length for reporting land rental contracts?	18.2 (303)	9.03(155)	7.7 (130)	5.5 (218)	5.6 (108)
What happens to the use right if the head household has left the Tabia where the land is located for 10 years but the rest of the family stays on the land?	62.5(304)	50.3(155)	30.8(130)	85.1(222)	85.2(108)
Where should land disputes be settled?				13.8(225)	19.4(108)
Is it possible to increase the rent after a contract has been made?				41.7(224)	36.1(108)
Who has bequeath rights?				73.2(225)	58.9(107)
What is the widow's share of land at the death of spouse?				78.0(224)	69.4(108)
Is it legal to mortgage the right use of your land?	77.0 (304)	65.4 (155)	64.6 (132)	33.9 (224)	30.6 (108)
Knowledge index (for all questions)	26.6 (304)	18.4 (155)	40.3 (132)	25.8 (224)	11.6 (108)
Knowledge index (for questions asked in both years)	28.0 (304)	31.3 (155)	41.1 (132)	21.9(224)	10.4(108)

* Figures in brackets are the number of observations
*The sample is drawn from only those that reported to have some knowledge of the law.
*Legal knowledge data on LAC members was not available in 2006

Table 3 shows that about half (54%) of the members of the LAC report to have some familiarity with the new law. Results also show that more men (54%) compared to women (38%) are familiar with the new land law. In addition only 49% of the LAC members, 49% of men and 29% of women report that the new proclamation affects the way their household manages their land. Table 1 shows that of the 82% of respondents that are aware that the LAC is active in their Tabia, 46% had been actually affected by the LAC. This preliminary descriptive evidence shows that both dissemination and implementation of the law both by the households and LAC are still low and this could have far reaching implications for investment and other land use decisions.

This notwithstanding, for the households that have been affected by LAC, I find that most of these have been positively influenced. For example results from table 2 reveal that 84% of the households that had been affected by LAC had gained more knowledge about land management while 81% stated that it had improved their land management. In addition, 83% have become more tenure secure because of the LAC, 70% had improved conservation and 68% had participated in information meetings. Furthermore, over 69% of households are satisfied with the performance of the LAC. This indicates that if properly facilitated, the LAC has a high potential to positively contribute to better land management for a larger number of the households.

According to results from table 2, very few of all respondent households report to have lost land to the LAC or received any warning (2% and 8%) respectively due to poor land management. Data available do not allow me to distinguish whether this is due to poor implementation of the law by the LAC or if indeed all households are managing their land well and as such cannot be penalized as provided for in the law.

To explore the changes in knowledge between 2006 and 2010, I use some of the questions repeated in both surveys. Overall, I find that although the awareness levels are still low, there has been an increase in legal knowledge for both men and women. As reported in 3, a knowledge index computed based on the respondents' percentage of correct answers shows a general increase in knowledge from 10% to 31% for women and from 22% to 28% for men from 2006 to 2010. As expected, the LAC members have a higher knowledge index than both men and women of 41%.

This result may signal that LAC members have more exposure to the new legal provisions than the rest of the community members by virtue of their positions and the social capital that they possess.

Specifically, although only 31% of women and 34% of men were aware that it was illegal to mortgage the use right for their land in 2006, this figure more than doubled to 65% and 77% for women and men respectively in 2010 and was only 65% for the LAC members. Furthermore, although the level of awareness that all rental contracts should be reported is still very low there has been an increase from 6% to 18% for men and 6% to 9% for women between 2006 and 2010 and it was only 8% for the LAC members.

Another set of legal questions about whether households are aware that land for households that have migrated for more than two years could be confiscated and distributed to others indicated that very few households are aware of this both in 2006 and 2010. However even with this question, the proportion of those who were aware increased from 5% and 5% to 33% and 22% for men and women respectively and stands at 64% for the LAC members much higher than both men and women. These findings further justify the need to confirm whether this increase in knowledge actually led to improvement in investments by the households or not.

One of the provisions allows households to rent out to others that use modern technology for a maximum of 20 years but none of the households answered this correctly both in 2006 and 2010. Similarly only one member of the LAC was aware of it. The law does not clearly define what constitutes modern technology and this was not properly understood even by the LAC members and tabia leaders that we spoke to. It is therefore not surprising that this ambiguity is expressed by the fact that none of the households answered correctly on this and further illustrates that laws can only impact on the masses if they are properly understood.

The question about responsibility for sustainable management of land aimed to find out whether households know that according to the law tenants are responsible for sustainable management of rented land. An impressive 72% of the LAC, 71% of men and 65% of women were aware of this.

As the data reveal that almost half (46%) of households participated in the rental market, knowledge of this provision could have far reaching implications for sustainable land management. Knowledge by landlords and LAC members could enable them to enforce the provision causing tenants to act in accordance with the law to avoid penalty for poor management of rented land.

Table 4 shows the perceptions of the households and the LAC on the new law. Results reveal that households' perceptions are mixed with some provisions having very positive perception by a large number of households while others are negatively perceived. Majority of respondents (96% of the LAC, 78% of men and of 74% women) agree with the provision that all rental contracts should be written and reported to the tabia although as reported in table 2, only 52% of the households affected by the LAC had started doing so. Given the amount of support for this regulation, the low level of knowledge (6% on average) on this regulation may be one of the reasons why few households are reporting their contracts.

The other provisions that are highly supported by households include (i) equal sharing of land upon divorce (99 % of LAC members, 98% for men, and 93% for women), (ii) land sales being illegal (98% for men, 91% for women and 86% for the LAC members), (iii) and land mortgaging being illegal (85% of men and 76% of women and 76% of LAC members).

About 64% of men and 80% of women disagree that land should be confiscated from households after two years of migration. On the other hand only 22% of the LAC members disagree with this provision. Also, 57% of women and 46% of men while only 24 % of LAC members disagree that land should be taken from those who do not conserve their land well. 46% of men, 53% of women and 28% of LAC disagree with the provision that only half of land holding should be rented out.

Although these provisions are meant to discourage migration, avail land to households that most need it and enhance proper land conservation, these results show that the provisions may instead raise tenure insecurity. In an area that has had a long history of insecurity due to frequent land redistributions, this provision may ultimately have negative impacts on productivity and land management. These results further reveal that for these provisions, households have divergent views from the institution in charge of implementation-the LAC.

This situation may complicate implementation of the new law as it may cause the communities to resent the work of the committee even for all the other positive provisions.

A related provision seeks to find out the people's perception on the provision that prohibits households from sharecropping or renting out all their land. The rationale of this provision is to ensure food security by ensuring that households keep a minimum land holding on which they can grow food for their families. About 78% of women, 68% of men and 41% of the LAC members disagree with the provision. An even large number of households (95% of LAC members, 95% of women and 94 % of men) disagree that even households that lack the capacity to plough their land such as the poor, female headed and disabled should be forbidden from share cropping out all their land.

These results indicate that there is a perceived need in the communities for the necessity to transfer land to more productive users. Although there is an egalitarian distribution of the land resource, there is a more skewed distribution for other non-land factors of production mainly oxen and labor. This provision may therefore have a negative impact on the production efficiency in the area.

Table 4. Perceptions of the new land law (2010)

Legal provision	Respondents that agree with it (%)		
	Men	Women	LAC
All land rental contracts should be written and reported to the tabia	78.1 (247)	74.2 (147)	95.9 (125)
Only half of the farm holding should be allowed rented out	54.4 (252)	47.4 (133)	72.8 (125)
Legal support for land conflict resolution related to land renting should only be provided if contracts have been reported and registered at the tabia	58.2 (251)	47.0 (134)	66.4 (125)
Equal sharing of land upon divorce	97.6 (251)	93.3 (134)	99.2 (126)
Land sales should be illegal	97.6 (251)	91.0 (134)	86.4 (125)
Land mortgaging should be illegal	85.1 (249)	75.6 (131)	76.0 (121)
Land should be taken from households that have been away for more than 2 year even if they have no permanent job	35.3 (249)	20.3 (133)	78.4 (125)
Females should be allowed to plough the land	41.8 (249)	39.9 (133)	79.7 (123)
Land should be taken from households that do not conserve their land well	54.2 (249)	33.8 (133)	76.6 (124)
Households are not allowed to sharecrop out all their land	32.3 (297)	22.6 (147)	59.2 (124)
Female-headed households, orphan households and other poor households should not be allowed to sharecrop out all their land	6.1 (294)	5.4 (148)	5.4 (124)
Land should be taken from households that have been out of the village for more than 2 years	21.0 (295)	10.9 (147)	77.5 (111)
The landless should be given more of the land through redistribution	69.8 (285)	64.5 (138)	79.5 (127)
There will be no new land redistributions in the tabia within the next ten years	48.8 (297)	41.0 (143)	46.3 (124)

*Figures in brackets are the number of observations

*Data from 2006 was not available for comparison with 2010. These questions were not included in the 2006 survey

Key household and parcel characteristics are reported in tables 5 and 6 respectively. Plot level variables indicate that the number of plots that were not maintained at all decreased from 19% to 12% between 2006 and 2010. Also, the percentage of well maintained plots increased from 25% to 29% indicating an increase in soil conservation activity in the region between 2006 and 2010. Data also reveals that in the region, most farmers conserve their plots using soil terraces. Over 70% of all plots were conserved with stone terraces and about 20% with soil bunds in both 2006 and 2010. The rest had grass strips, live hedge, tree planting or gully control. Susceptibility of plots to erosion is low with about half of the plots having no erosion at all in both 2006 and 2010, and about 25% of the plots having low erosion.

Table 5. Household characteristics

Year	**2006**		**2010**		**Overall**	
	Mean	**s.d**	**Mean**	**s.d**	**Mean**	**s.d**
Age of household head	54.6	14.4	55.1	14.5	54.9	14.4
Distance to the market in minutes	86.6	61.2	85.1	57.1	85.7	58.7
Literate household head (%)	33.4		28.9		30.8	
Male headed households (%)	69.9		68.9		69.3	
Number of observations	353		504		855	

Table 6: Plot level characteristics

Variable	2006	2010	Overall
Average number of plots per household	3.2	2.82	3
Distance to plot in minutes	28.2	26	26.9
Plot size (tsimdi)	1.1	1.3	1.2
Presence of public investment on plot (%)	26.7	21.3	23.7
Mean male labour per tsimdi	6.1	7.2	6.8
Mean female labour per tsimdi	6.2	7.6	7
Maintenance status (%)			
Improved	40.5	22.4	30.6
Well maintained	24.8	28.8	27
Partially maintained	15.5	36.4	27
Not maintained	19.2	12.5	15.6
conservation type (%)			
stone terraces	75.2	71.3	73.1
soil bunds	18.3	27.3	23.1
Other (grass strips, live hedge, treeplanting, gully control)	6.6	1.5	3.8
Land quality (%)			
Poor	46.1	34.6	39.6
Medium	36.0	43.3	40.1
Good	18.0	22.1	20.3
Slope (%)			
Meda	37.1	80.2	61.2
Tedafat (foothill)	37.0	13.4	23.8
Daget (midhill)	26.0	6.5	15.1
Soiltype (%)			
Baekel	25.5	22.5	23.8
Walka	27.2	28.6	28
Hutsa	25.9	21.1	23.2
Mekeyih	21.4	27.8	25
Soil depth (%)			
Deep	16.4	27.8	22.8
medium	28.3	26.1	27.1
shallow	55.1	46.2	50.11
Susceptibility to erosion (%)			
High	16.8	6.9	11.3
Medium	11.4	11.9	11.7
Low	25.6	26.7	26.2
None	46.2	54.5	50.9
Number of observations	1421	1815	3236

*Tsimdi is a local area measurement. 1 tsimdi is equivalent to 0.25 ha

4.0 Econometric results

Table 7 presents the first stage regression results for the determinants of knowledge of the law. The results show that the level of legal awareness by the Tabia LAC has not had any effect on the level of knowledge by the households. Given that one of the major functions of the committees is to improve local rural implementation of the land law, this is a fundamental finding. In order to implement the law, households must first of all be aware of their rights and as such it is of fundamental importance for the LAC to educate the masses about the new law.

This finding is crucial because it seems to suggest that the committees have so far been largely unsuccessful in implementing this vital aspect of their duty since it is implausible that households can enforce their rights if they do not even know them in the first place. This revelation reinforces earlier results from the descriptive analysis which showed that the knowledge, dissemination and implementation of the law among the LAC is still very low. The fact that the LAC is not facilitated at all in the execution of their activities, may be one of the reasons why the LAC has not been able to transfer its knowledge to the households so far.

By contrast, the large and significant positive coefficient on the 2010 year dummy indicates a strong trend effect on the level of awareness of the legal provisions. Households' level of awareness of the law has increased significantly between 2006 and 2010 which shows that most of the knowledge acquired by the households has been as a result of this time variable rather than the direct impact of the dissemination of the law by the LAC.

Another result that the first stage regression reinforces from the descriptive analysis is the fact that female headed households are more likely to be aware of legal provisions than their male counterparts. The coefficient on the sex variable is large and significantly positive which could indicate that females may have been more tenure insecure and as such may have a higher motivation to learn the provisions of the new law. The results also show that wealthier households are more likely to have a higher knowledge of the law.

Table 7: Determinants of legal knowledge for household head: Pooled tobit estimates

Variable	Pooled Tobit coefficients	Standard error
Legal knowledge of the land administration committee	-0.008	(-0.040)
Labour per tsimidi (adult female)	0.018	(-0.030)
Labour per tsimidi (adult male)	-0.053	(-0.037)
Sex of household head (1= Female, 0 = Male)	2.810**	(-1.328)
Distance from home to the market in minutes	-0.008	(-0.009)
Tropical livestock units	0.717**	(-0.224)
Presence of public conservation investments on the plots	1.602	(-1.011)
Education of household head (1 = Literate, 0 = Illiterate)	-1.35	(-1.092)
Dummy for year 2010	10.408***	(-0.954)
Whether members of household attended meetings prior to registration exercise	4.910***	(-1.385)
Age of the household head	0.097**	(-0.036)
Constant	22.450***	(-3.394)
Sigma Constant	18.198***	(-0.355)
Chi2	152.336***	
Number of observations	1510	

Absolute value of z statistics ***significant at 1%, **significant at 5%, *significant at 10%

Table 8 shows results from the second stage of the two stage generalized least squares regression to identify the impacts of knowledge of the new land law on the maintenance of conservations structures.

The major research objective was to find out the impact of knowledge of the law on conservation investments. Results from the second stage regression point towards a significant positive effect providing empirical evidence for the hypothesis that higher legal knowledge will increase investments in conservation investments.

These results were stable even in the pooled 2SLS and control function approach although they disappear slightly after bootstrapping which may be due to the inconsistency caused by the control function in non linear models as discussed earlier in the methodology.

This finding provides evidence that ceteris paribus, better knowledge of the law has enhanced sustainable land management in Tigray. It lends support to a similar result in Uganda where it was found that better knowledge of legal provisions not only improved the propensity to make land investments but also increased farm productivity and land value (Deininger, K et al. 2006a).

The importance of legal knowledge for land conservation is resounded by the fact that the coefficient of the level of legal awareness by the LAC is positive and significant showing that legal knowledge by the LAC committee increases conservation. Although we saw earlier that the committees have been unable to increase legal knowledge of the households, this result suggests that they have used their knowledge to facilitate better land management probably by enforcing the law. Nevertheless, the magnitude of this coefficient is small indicating that the impact of legal awareness by the LAC on conservation structure maintenance is still small and as explained before, this impact would benefit from better facilitation of the LAC.

Neoclassical theory suggests that under imperfect market conditions, households' productivity decisions are dependent on their endowments. The results support the hypothesis that better resource endowed households will invest more than resource poor households. They also confirm the existence of a labor market imperfection expressed by the fact that households with more male labor per unit of land are also more likely to invest in conservation showing that labor endowments of households determine households' investment in conservation.

The finding that wealthier households are less likely to invest in the maintenance of their plots than less wealthy households is unexpected and counter-intuitive. This is because under imperfect credit market conditions such as in Tigray, I expect these imperfections to produce a significant positive coefficient for the wealth variable given that wealthier households are expected to have higher financial capacity to invest.

Nevertheless, the result may indicate that some provisions of the law may have caused tenure insecurity resulting in disincentive effects overtime for the more wealthy households.

Presence of public investments on the plot is found to have a significant negative effect on maintenance of conservation structures. Although earlier studies in the region found that public investments had stimulated private investments on land (Gebremedhin & Swinton 2003; Hagos & Holden 2006), the negative coefficient on public investments in this survey may indicate that widespread public conservation programs in Tigray might have led to a dependence tendency whereby households expect that soil conservation is the responsibility of public programs. This may therefore have created disincentive effects for improvement of soil conservation structures on plots that have public investments.

Similarly, the coefficient on 2010 year dummy is significant and negative indicating that households have reduced their investment in soil conservation over time. This finding may also be an indicator to the tenure insecurity caused by the law or the dependence tendency described earlier.

The amount of rainfall received, extent of land fragmentation and plot size all have negative impacts on investment in soil conservation. As such, plots located in higher rainfall areas (hence high erosion) as well as larger and more fragmented parcels reduce conservation investment incentives for the households. This disincentive effect may be as a result of the higher cost of investment in all these cases. Larger and more fragmented plots require more time and labor requirements for maintenance while more frequent maintenance is required in case of places with high rainfall due to high erosion. Finally, as expected households are more likely to conserve good quality than medium and poor quality soils and less likely to conserve plots with shallow than deep soils.

Table 8: Impact of legal knowledge on soil conservation investments: Two Stage Generalized Least Squares estimates

Variable	coefficients	robust standard error
Household characteristics		
Legal knowledge of the household head	0.041**	(-0.018)
Labour per tsimidi (adult female)	-0.002	(-0.002)
Labour per tsimidi (adult male)	0.003	(-0.003)
Sex of household head (1= Female, 0 = Male)	-0.152	(-0.103)
Tropical livestock units	-0.086***	(-0.019)
Education of household head (0 = illiterate, 1 = literate)	0.109	(-0.08)
Number of plots operated by household	-0.035*	(-0.019)
Plot characteristics		
Medium soil depth	-0.163	(-0.108)
Shallow soil depth	-0.155*	(-0.091)
Soil type (Walka)	0.128	(-0.096)
Soil type (Hutsa)	-0.183**	(-0.091)
Soiltype (Mekeyih)	0.151*	(-0.09)
Slope Tedafat (foothill)	0.068	(-0.078)
Slope Daget (midhill)	0.055	(-0.095)
Medium soil quality	0.015	(-0.074)
Good soil quality	0.228**	(-0.096)
Medium susceptibility to erosion	0.148	(-0.124)
Low susceptibility to erosion	-0.172	(-0.117)
No susceptibility to erosion	0.077	(-0.111)
Plot size in tsimdi	-0.076**	(-0.035)
Distance from home to the plot in minutes	-0.001	(-0.001)
Market access factors		
Distance from home to the market in minutes	-0.001	(-0.001)
Socio-institutional factors		
Legal knowledge of the land administration committee	0.009**	(-0.003)
Presence of public conservation investments on the plot	-0.306***	(-0.072)
Tenure security factors		
Whether the plot is on the certificate (1 = Yes, 0 = No)	-0.066	(-0.079)
Dummy for year 2010	-0.875***	(-0.222)
Rainfall received in mm	-0.001***	(0.000)
Constant	1.283**	(-0.523)
chi2	120.839***	
Number of observations	1436	

Absolute value of z statistics: ***significant at 1%, **significant at 5%, *significant at 10%
Test of endogeneity: F(1,1407)= 5.730381 (p = 0.0168)
Test for instrument relevance: F(1, 1408) = 15.82, Prob > F = 0.0001
The model is exactly identified

5 .0 Conclusion

With the wave of land policy reforms that has swept several developing countries in recent years, lessons from countries that have had reforms could provide the much needed guidance for other countries with similar conditions to follow. At the core of this research, was the objective to document experience from Tigray region in Ethiopia on how its recent land policy was implemented and to show its impact on sustainable land management.

Households' perceptions (demand) of the new law indicate that certain provisions are highly supported and could bring about positive impacts on sustainable land management and hence rural livelihoods while others may impact negatively by creating tenure insecurity.

Like has been the case for the implementation of regulatory policy in most developing countries, even in Tigray the dissemination of the law has so far proceeded slowly and level of awareness is still low both among households and the land administration committees. The results also suggest that the land administration committees have largely been unable to teach their communities about the new law.

There is discrepancy between the demand and supply sides of the law as evidenced by the positive perceptions about certain provisions while households' knowledge on them was very low. This means that poor dissemination of the law has cost the region some of the potential benefits of sustainable land management that could have been reaped if more aggressive means of dissemination had been undertaken.

Despite the low level of households' awareness of their rights and limitations to rural land, the finding that higher legal knowledge (by both the households and the LACs) has improved investment in conservation provides resounding evidence that legal change if enforced has the potential to improve sustainable land management.

The broader policy implication of these findings is that there is need for low cost initiatives to increase knowledge of the new law among the rural poor in Tigray. Members of the land administration committees in the villages should be trained on the law and facilitated to pass on the knowledge acquired to the rest of the populace.

Appendix table 1: Impact of legal knowledge on soil conservation investments: Results from the Pooled Two Stage Least Squares estimation

Variable	Coefficients	robust standard error
Household characteristics		
Legal knowledge of the household head	0.041**	(-0.017)
Labour per tsimidi (adult female)	-0.002	(-0.002)
Labour per tsimidi (adult male)	0.003*	(-0.002)
Sex of household head (1= Female, 0 = Male)	-0.152	(-0.099)
Tropical livestock units	-0.086***	(-0.02)
Education of household head (1 = Literate, 0 = Illiterate)	0.109	(-0.078)
Number of plots operated by household	-0.035*	(-0.019)
Plot characteristics		
Medium soil depth	-0.163	(-0.109)
Shallow soil depth	-0.155	(-0.097)
Soil type (Walka)	0.128	(-0.097)
Soil type (Hutsa)	-0.183**	(-0.09)
Soiltype (Mekeyih)	0.151*	(-0.091)
Slope Tedafat (foothill)	0.068	(-0.08)
Slope Daget (midhill)	0.055	(-0.096)
Medium soil quality	0.015	(-0.072)
Good soil quality	0.228**	(-0.098)
Medium susceptibility to erosion	0.148	(-0.127)
Low susceptibility to erosion	-0.172	(-0.119)
No susceptibility to erosion	0.077	(-0.112)
Distance from home to the plot in minutes	-0.001	(-0.001)
Plot size in tsimdi	-0.076**	(-0.035)
Market access factors		
Distance from home to the market in minutes	-0.001	(-0.001)
Socio-institutional factors		
Presence of public conservation investments on the plot	-0.306***	(-0.073)
Legal knowledge of the land administration committee	0.009**	(-0.003)
Tenure security factors		
Whether the plot is on the certificate (1 = Yes, 0 = No)	-0.066	(-0.079)
Village level factors		
Rainfall received in mm	-0.001***	(0.000)
Dummy for year 2010	-0.875***	(-0.209)
Constant	1.283**	(-0.482)
chi2	139.468***	
Number of observations	1436	

Appendix table 2: Impact of legal knowledge on soil conservation investments: Control function estimation for testing robustness of results: Pooled ordered probit estimates

Variable	Coefficients	Standard error	Coefficients	bootstrapped standard error
Household characteristics				
Legal knowledge of household head	0.041**	(-0.014)	0.041	(-0.027)
Number of plots operated by household	-0.026	(-0.016)	-0.026	(-0.031)
Labour per tsimidi (adult female)	-0.002	(-0.002)	-0.002	(-0.004)
Labour per tsimidi (adult male)	0.004	(-0.002)	0.004	(-0.004)
Sex of household head (1= Female, 0 = Male)	-0.092	(-0.085)	-0.092	(-0.140)
Tropical livestock units	-0.097***	(-0.018)	-0.097**	(-0.039)
Education of household head (1 = Literate, 0 = Illiterate)	0.103	(-0.070)	0.103	(-0.136)
Plot characteristics				
Medium soil depth	-0.079	(-0.092)	-0.079	(-0.136)
Shallow soil depth	-0.135	(-0.083)	-0.135	(-0.151)
Soil type (Walka)	0.072	(-0.084)	0.072	(-0.112)
Soil type (Hutsa)	-0.225**	(-0.082)	-0.225**	(-0.103)
Soiltype (Mekeyih)	0.143*	(-0.082)	0.143	(-0.100)
Slope Tedafat (foothill)	0.097	(-0.071)	0.097	(-0.086)
Slope Daget (midhill)	0.081	(-0.087)	0.081	(-0.130)
Medium soil quality	-0.029	(-0.066)	-0.029	(-0.085)
Good soil quality	0.287**	(-0.088)	0.287**	(-0.133)
Medium susceptibility to erosion	0.153	(-0.113)	0.153	(-0.119)
Low susceptibility to erosion	-0.056	(-0.096)	-0.056	(-0.106)
No susceptibility to erosion	0.212**	(-0.093)	0.212*	(-0.110)
Distance from home to the plot in minutes	-0.001	(-0.001)	-0.001	(-0.001)
Plot size in tsimdi	-0.039	(-0.027)	-0.039	(-0.033)
Market access factors				
Distance from home to the market in minutes	-0.001	(-0.001)	-0.001	(-0.001)
Tenure security factors				
Whether the plot is on the certificate (1 = Yes, 0 = No)	-0.021	(-0.068)	-0.021	(-0.107)
Socio-institutional factors				
Presence of public investments on plot	-0.413***	(-0.068)	-0.413**	(-0.130)
Legal knowledge of the LAC	0.010***	(-0.003)	0.010*	(-0.005)
Dummy for year 2010	-0.875***	(-0.166)	-0.875**	(-0.318)
Rainfall received in mm	-0.000**	(0.000)	-0.000**	(0.000)
Residual	-0.039**	(-0.014)	-0.039	(-0.027)
cut off point 1	-0.403	(-0.517)	-0.403	(-0.924)
cut off point 2	0.53	(-0.517)	0.53	(-0.922)
cut off point 3	1.247**	(-0.517)	1.247	(-0.915)
chi2	170.664***		99.787***	
p-value	0.044		0.044	
Number of observations	1436		1436	

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Appendix 1: Questionnaires

Plot Level Questionnaire 2010 Tigray Survey

Household Name:	Interviewer:	**GPS Coordinates for home of household:**	**Altitude (masl)**
Household Id. No.:	Date of Interview:	1.	
Kushet:	Tabia:	2.	

Does the household have a land certificate? 1=Yes 0= No If yes, **Year (EC) of receiving the certificate:_____**

Land certificate information (copy information from land certificate), If no, **why no certificate**? 1=Did not collect it, 2=No land at that time, 3=Too small land, 4=Land was not registered, 5=Tabia did not give me, 6=Lost it, 7=Other, specify

Registration number on certificate:_____

Full name (owner):_____Sex of owner: _____

Is owner current head of household? Yes No If no, relationship between listed owner and hhhead: HHhead is……

Family size when land was allocated:_____ The time when the last land allocation was made: _____ The number of plots allocated: _____

Plot No.	The name of the place where the plot is located	Distance (minutes)	Soil depth of the plot (Deep=1, medium=2, or shallow=3)	Plot size in Tsimdi	Measured plot size in Tsimdi	The plot is Adjacent to…..	GPS Coordi-nates	Alti-tude (Elev a-tion)	Origi n of plots	Who decide on plots	Who work on plots
1						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					

Origin of plots: 1. Husband/Husband's family, 2. Wife's family, 3. Government., 4. Tabia, 5. Other, specify….

Who decide on plots (make production and investment decisions): **1**.Husband/male head, **2.**Wife, **3.**Joint husband/wife, **4.**Female head, **5**.Son, **6.**Other, specify:

Who work on plots: **1.**Husband/male head, **2.** Whole family, **3.**Joint husband/wife, **4.**Female head, **5.**Wife, **6.**Son, **7.**Other, specify:

Cross/check information with plot level data from our earlier survey rounds:

Continued....

Household Name:	Household Id. No.:	Interviewer:

Plot No.	The name of the place where the plot is located	Distance (minutes)	Soil depth of the plot (Deep=1, medium=2, or shallow=3)	Plot size in Tsimdi	Measured plot size in Tsimdi	The plot is Adjacent to…..	GPS Coordi-nates	Alti-tude (Elev a-tion)	Origi n of plots	Who decide on plots	Who work on plots
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					
						E: _____ N: _____ W: _____ S: _____					

Origin of plots: 1. Husband/Husband's family, 2. Wife's family, 3. Government., 4. Tabia, 5. Other, specify….
Who decide on plots (make production and investment decisions): **1**.Husband/male head, **2.**Wife, **3.**Joint husband/wife, **4.**Female head, **5**.Son, **6.**Other, specify:
Who work on plots: **1.**Husband/male head, **2.** Whole family, **3.**Joint husband/wife, **4.**Female head, **5.**Wife, **6.**Son, **7.**Other, specify:

Cross/check information with plot level data from our earlier survey rounds:

Household Name:	Household Id. No.:	Interviewer:

Does the household have plots that are not listed on the certificate? Yes = 1 No = 0
If yes, list the plots

Plot No.	The name of the place where the plot is located	Distance (minutes)	Soil depth of the plot (Deep=1, medium=2, or shallow=3)	Plot size in Tsimdi	Measuredplot size in Tsimdi	GPS Coordi-nates	Alti-tude (Eleva-tion)	Origin of plots	Who decide on plots	Who work on plots

Origin of plots: 1. Husband/Husband's family, 2. Wife's family, 3. Government., 4. Tabia, 5. Other, specify….
Who decide on plots (make production and investment decisions): **1**.Husband/male head, **2.**Wife, **3.**Joint husband/wife, **4.**Female head, **5**.Son, **6.**Other, specify:
Who work on plots: **1.**Husband/male head, **2.** Whole family, **3.**Joint husband/wife, **4.**Female head, **5.**Wife, **6.**Son, **7.**Other, specify:

Cross/check information with plot level data from our earlier survey rounds:

Household Name:	Household Id. No.:	Interviewer:

Land rental and partners in rental market

Have you rented in or out land during the last year? Yes=1 No=0 If no, skip this page.

NB! Keep plot number the same as in land certificate and the following list of plots

Plot No.	Plot Name	Tenure status	Rented-in plot		Rented-out plot		Reasons for renting out	If the plot is transacted, details about rental partners				
			2000 1=yes 0=no	2001 1=yes 0=no	2000 1=yes 0=no	2001 1=yes 0=no		Name	Relationship	Kushet	How long has the contract partnership lasted?	Where rental partner lives

Tenure status: 1.Own land with certificate, 2.Own land without certificate, 3.Rented in, 4.Transferred, 5.Inherited, 6.Other,specify:

Reasons for renting out: 1= lack of labour, 2= lack of oxen, 3= unable to rent oxen, 4=lack of cash, 5= credit obligation, 6=other, specify…,

Relationship: 1=husband's close relative, 2=wife's close relative, 3=distant relative, 4=ex-husband/ex-wife, , 5= non-relative, 6=Son/Daughter, 7=other, specify,

Where rental partner lives: 1= within the kushet, 2= within the tabia, 3= A closer tabia, 3= distant tabia, 4= other, specify.

How long: How many years has the contract partnership lasted

Household Name:	Household Id. No.:	Interviewer:

Land characteristics

! Keep plot number the same as in land certificate and the following list of plots

Plot No.	Plot Name	Irrigated? 1=yes, 0=no	Soil Type	Soil Depth	Slope	Land quality	Weed infestation	Susceptibility to erosion	Degree of soil erosion /degradation
1									

Codes: a) **Soil type**: 1. Baekel, 2. Walka, 3. Hutsa, 4. Mekeyih, **Soil depth**: 1.Shallow, 2. Medium, 3. Deep,

Slope: 1. Meda, 2. Tedafat (foothill), 3. Daget (midhill), 4. Gedel (steep hill)

Land quality: 1. Poor, 2. Medium, 3. Good, **Weed infestation:** 1. High, 2. Medium, 3. Low

Susceptability to erosion: 1. High, 2. Medium, 3. Low, 4. None

Degree of degradation: 1. Highly degraded, 2. Degraded, 3. Moderately degraded, 4. No degradation

Number of Visits to Plot (May 2001 – May 2002)

Plot No.	Plot Name	Land preparation		Planting		Manuring/ Fertilization		Weeding		Inspecting/ (scaring birds)		Harvesting		Threshing		If landlord, monitoring visit		Total No. of visits	No. of Sole visits
		No.	Who	No.	Who	No.	Who	No.	Who	No.	Who	No.	Who	No.	Who	No.	Who		

No: Number of Visits

Who: Persons visited the plot: 1= Husband, 2= Wife/female head, 3= Husband and wife, 4= Husband and Son, 5= Others, specify __

Land market participation

Fill in if household has participated in the land rental market (including sharecropping in or out) during the last year.

! Keep plot number the same as in land certificate and the following list of plots

Household No.:										Interviewer:									
HH name										Data of Interview:									
Kushet:										Woreda:									
Tabia:										Zone:						**Who decides**			
2006 plot no	Plot Name	Land rental markets								Byproducts, who get them?			Responsibilities			Contract type	Crop choice	Share rate/Rent
		Contract	Type	Duration	If duration >3 yrs, specify	Pay ment	Advance payment	Paid when	Cost-sharing arrange-ment	Crop residues	Manure	Grasing	New SWC	Maintain SWC	Pay land tax			

Contract: 1. Fixed rent (cash), 2. Fixed rent (Kind), 3. Sharecropping (output only), 4. Cost sharing, 5. Output sharing after deduction of (cash) input costs, 6.Other, specify: **Type: 1.** Oral without witness, 2. Oral with witness, 3. Written and unreported. 4. Written and reported to tabia.

Duration: 1. 1 year, 2- 2 years, 3. 3 years, 4. >3 years, specify……., 5. Open ended.

Payment: Fixed rent: cash amount, Sharecropping: Share of output to the landlord (Code: 1. 50%, 2. 33%, 3. 25%, other, specify:……

Advance payment: Cash amount in sharecropping contracts.

Paid when: 1. Before cultivation, 2. After harvest, 3. Other, specify:……..

Costsharing arrangement: 1. Landlord pays fertilizer and seed, 2. Landlord and tenant share cash input costs, 3. Other, specify:……

Byproducts, who gets them/Responsibilities/Who decides: 1.Landlord, 2.Tenant, 3.Shared, 4. Open

Crop choice: 1. Landlord, 2. Tenant, 3. Follow follwing crop rotation system (specify): ……..

Household Name:	Household Id. No.:	Interviewer:

Land conservation and investment

! Keep plot number the same as in land certificate and the following list of plots

Plot no	Plot name	Rank for Security	Conserved: 1. Yes, 0. No	If yes, When (year)	Type	By whom	Size		Type of trees	Maintenance of structure	Reasons for non-maintenace or removal of structure	Time use for investment, mandays	Time use for maintenance, mandays last year	Have you considered planting trees on this plot? Why/Why not?
							Length	Width						

Ranking of insecurity: 0. Very insecure, 1. Moderately insecure, 2. Moderately secure, 3. Very secure.

***Conserved**: (Mark with a "1" if occurred, "0" if not).

[d] **Types of conservation structures:** 1= stone terraces, 2= soil bunds, 3= bench terraces, 4= grass strips, 5= gully control, 6= life hedge, 8= irrigation canal, 9= pond, 10= shallow well, 11= tree panting, 12=other, specify.

[a] **Size of investment**: Measurement should be appropriate for type of investment; e.g., length of stone terraces or bunds, number of trees planted, digging of wells or ponds

[c] **By whom**: respondent household=1, landlord household=2, tenant household=3, mass mobilization =4, food for work=5, Cash for work=6, other, specify=7.

[d]**Type of trees:** 1= eucalyptus, 2= Other planted trees, 3. Natural trees

Maintenance of structure: 1. Improved, 2. Well maintained, 3. Partially maintained, 4. Not maintained, 5. Partly removed, 6. Totally removed.

Reasons for change in structure: 1. Pest problem, 2. Problem with ploughing, 3. High cost of maintenance, 4. Increase cultivated area, 5. Access fertile soil in structure, 6. Other, specify…..**Considered tree planting?** 1. No, prefer to grow food crops, 2. Illegal to plant trees on food crop land, 3. Plot is too far from home, 4. Land unsuitable for trees, 5. Other, specify…….

Household Name:	Household Id. No.:	Interviewer:

Tree planting and harvesting

2006 Plot no	Stock of main trees on plot by age and number						How many trees have you planted on the plot in the last….				Number of trees harvested in the last				How has the number of tress changed in the last 5 years
	Eucalyptus			Other trees			Eucalyptus		Other trees		Eucalyptus		Other trees		
	0-3 years	3-8 years	>8 years	0-10 years	10-20 years	>20 years	Last year	2-5 years ago	Last year	2-5 years ago	Last year	2-5 years ago	Last year	2-5 years ago	1 =increased 2=constant 3=decreased

Mekelle University

In collaboration with

Norwegian University of Life Sciences (UMB)

NOMA DNRE Field Work

Impact of Land Law Reforms in Tigray, Ethiopia,

2010

Land Administration Committee Member Questionnaire:

Sample : To all LAC members in the Tabias and Kushets covered by the survey

Zone _____ Code _____

Woreda _____ Code _____

Tabia _____ Code _____

Kushet_____ Code_____

Got_____ Code_____

Name of LAC member_____

Member of type of LAC: 1= Tabia LAC 2= Kushet LAC

Sex of LAC member: 1= Female 0= Male

Is the LAC member Head of the household? 1=Yes 0=No

Registration book number/Land certificate number_____

Date of interview_____

Enumerator _____ Code ____ Signature _____

Checked by:_____ Code____ Signature_____

Accepted for data entry, date:_____

Date of data entry _____

Data entry operator _____ Code ____ Signature _____

Household Characteristics for household of LAC Member:

1. Ask these to all LAC members

S.no	Questions	Unit	Answer
1	Year when became a member of the Land Administration Committee	Year, EC	
2	Involved in land redistributions in the community? 1=Yes, 0=No	Code	
3	If yes, how many times?	Number	
4	If yes, when were these distributions taking place?	Year(s)	
5	Age of mediator:	Years	
6	Household size	Number	
7	Number of male labor force in adult equivalents	Number	
8	Number of female labor force in adult equivalents	Number	
9	Ethnic group: 1=Tigray	Code	
10	Religion: 1=Orthodox, 2=Islam, 3=Protestant, 4=	Code	
11	Education of household head: Number of years of school completed	Years	
12	Skills: 1=Carpenter, 2=Driver, 3=Farmer, 4=Manson,5=Drawer, 6=Merchant, 7=Broker, 8=Engineer of rural land,10=Soldier,11=Weaver,12=Builder	Code	
13	Position in community (other than LAC-member): 1=Ex-Chairman of the tabia, 2=Ex-Secretary, 3=Priest/Religious leader, 4=Party member, 5=Ex-Social court judge, 6=Conflict mediator, 7=Women's group leader, 8=Other, specify:	Code	
14	Off-farm employment: 0=No, 1=Seasonal agricultural labor, 2=Unskilled non-agricultural labor, 3=Skilled employment, 4=Government job, 5=Businessman, 6=Self-employed, 7=Other, specify:	Code	
15	Marital status: 1=Married, 2=Polygamous, 3=Divorced, 4=Widow, 5=Separated, 6=Single	Code	
16	Number of children	Number	
17	Age of children	Ages	
18	Years of schooling of children	Years	
19	Health status of household: 1=Very good, 2=Good, 3=Poor, 4=Very poor	Code	
20	Sickness in family last year? 1=Very severe sickness, 2=Severe sickness, 3=Less severe sickness, 4=No sickness	Code	
21	Death of family members last year? 1=Yes, 0=No	Code	
22	Asset holding of households: Number of houses	Number	
23	House with corrugated iron roof: 1=Yes, 0=No	Code	
24	Bicycle(s): 1=Yes, 0=No	Code	
25	Other transportation equipment: 1=Yes, 0=No, if yes, specify:	Code	
26	Ox plough: 1=Yes, 0=No	Code	
27	Radio: 1=Yes, 0=No	Code	
	Mobile phone(s): 1=Yes, 0=No		
28	Number of oxen:	Number	
29	Number of cows:	Number	
30	Number of young cattle:	Number	
31	Number of sheep	Number	
32	Number of goats	Number	
33	Number of donkeys/mules/horses (equines)	Number	
34	Number of camels	Number	
35	Other assets, specify: 1=		
36	Do you have a land certificate? 1=Yes, 0=No	Code	
37	Number of own plots of land?	Plots	
38	Total Farm size (own land)	Tsimdi	
39	Have there been changes in the amount of land this household controls during the period 2000-2010 (last 10 years)? 1=Yes, 0=No	Code	
40	If yes; Has the household lost or gained land? 1=Lost, 2=Gained	Code	
41	If yes; What was the reason? 1=Redistribution, 2=Land dispute, 3=Inherited from husband's family, 4=Inheritance from wife's family, 5=Other reason	Code	
42	If yes; When was this?	Year (EC)	
43	Number of plots on certificate	Number	
44	Do you own any plots that are not on your certificate? 1=Yes, 0=No	Code	
45	If yes, number of own plots not on certificate	Number	
46	If yes, why not on certificate? 1=Too small, 2=House plot, 3=Were rented out, 4=Were missed during registration, 5=Other, specify:	Code	
47	Number of rented in (including sharecropped) plots	Number	
48	Number of rented out (including sharecropped) plots:	Number	

49	Rent-in plots: Plot size in tsimdi, total	Tsimdi	
50	Rent-out plots: Plot size in tsimdi, total	Tsimdi	
51	Did you have access to credit for purchase of farm inputs (fertilizer, seed) last year? 1=Yes, 0=No, 2=Don't know	Code	
52	Did you have access to credit for purchase of animals last year (long-term credit)? 1=Yes, 0=No, 2=Don't know	Code	
53	Do you participate in an edir group? 1=Yes, 0=No	Code	
54	Do you participate in an ekub group? 1=Yes, 0=No	Code	
55	Did you demand credit for farm inputs last year? 1=Yes, 0=No	Code	
	Investment in perennials		
56	Fruit trees, type:1=Guava, 2=	Number	
57	Eucalyptus trees >10 years old	Number	
58	Eucalyptus trees 6-10 years old	Number	
59	Eucalyptus trees 3-6 years old	Number	
60	Eucalyptus trees less than 3 years old	Number	
61	Other timber trees, type:1=	Number	
62	Other perennials, by number, type: 1=	Number	
63	Other perennials, by area, type: 1= Cactus, 2=	M2	

2. Knowledge about the new land law (Proclamation) and regulation: Ask these to all LAC members

S.No.		Unit	Answer (s)
1	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use modern technology? -=Don't know	# years	
2	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use traditional technology? -=Don't know	# years	
3	Do the same restrictions apply to sharecropped out land as to rented out land (fixed cash rent)? 1=Yes, 2=No restriction on length of contract for sharecropping, 3=Other, specify:	Code	
4	In case of divorce, what happens to the land? : 1=Has to be negotiated between those involved; 2=Shared equally between husband and wife; 3=Other; 4=Don't know.	Number	
5	What is the minimum farm size allowed? Size in tsimdi or 0=No limit, -=Don't know	Tsimdi	
6	What is the maximum far size allowed? Size in tsimdi or 0=No limit, -=Don't know	---	
7	How long-term must land rental contracts minimum be to have to be reported to the tabia and approved? 1=Three months, 2=One year, 3=Three years, 4=Ten years, 5=Do not have to report, 6=All have to be reported, 7=Don't know,	Years	
8	How large share of the farm holding can be rented out maximum? 1=One quarter, 2=Half, 3=Three quarter, 4=Depends on family needs for food, 5=All,	Code	
9	Who is responsible for sustainable management of rented land? 1=The certificate holder(landlord), 2=The tenant, 3=Joint responsibility, 4=Free to decide	Code	
10	Is it legal for a household to mortgage the use right for its land? 1=Yes, 0=No, 2=Don't know	Code	
11	The head of the household has left the tabia where the land is located for 10 years (but the rest of the family stays on the land). Does it affect the use right of the family? 1=Yes, 0=No, 2=Don't know	Code	
12	Can you deny your husband to rent out your family land? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
13	Does your 18 year old son have the right to deny you to rent out your land if he wants to farm on the land and is still living in your household? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
14	A household has rented out all its land and has been away for 3 years but has no permanent job, can the land be expropriated and distributed to other households in the community? 1=Yes, 0=No, 2=Don't know	Code	

3. Activities of the LAC: Ask these only to the chairperson of the LAC

S.No.		Unit	Answer (s)
1	How many training workshops have you been to as a LAC member since 2007	#	
	Total number of days spent on training	Days	
	How many visits have you had to the Woreda desk of EPLAUA since 2007?	#	
	How many times have staff from the Woreda desk of EPLAUA visited your tabia/Kushet since 2007	#	
	Do you have a copy of the most recent land proclamation and regulation for Tigray? 1=Yes, 0=No, 2=The committee has a copy but not me	Code	
	Received other documents/training material from Woreda EPLAUA? 1=Yes, 0=No	Code	
	If yes, specify types of documents/material:		
	How many meetings have you arranged in the tabia/kushet since 2007?	#	
	What were the issues discussed in the meetings?		
	How many individuals participated on average?	Number	
	How many women participated on average?	Number	
	How many women spoke up on average?	Number	
	How much land has been allocated to landless households during the last 3 years?	Hectares	
	How many young landless households have received land during the last 3 years in your tabia or kushet?	#	
	How many landless households still remain in your tabia / kushet?	#	
	How many households have been evicted from their land during the three last years due to migration?	#	
	How much land has been confiscated due to migration?	Hectares	
	How many cases have been taken to the woreda court due to this?	#	
	Has Land rental contract registration been implemented in the tabia/kushet? 1=Yes, 0=No, 2=Partially.	Code	
	If yes, who is responsible for the Contract Registry? 1=LAC at tabia level, 2=LAC in each kushet, 3=Tabia leader, 4=Other, specify:	Code	
	Are there many households that do not care about reporting their rental and sharecropping contracts? 1=Yes, 0=No, 2=Few only	Code	
	What happens if someone is caught not reporting a contract? 1=They are given a warning and are asked to report it	Code	
	Have all households with land in the village received land certificates? 1=Yes, 0=No	Code	
	If no, how many households still lack land certificates?	#	
	Has registration and demarcation of communal lands started in the tabia?		
	Has the LAC made a village Land Use Plan? 1=Yes, 0=No, 2=Partially, in the process	Code	
	Has the LAC taken steps to enhance Sustainable Land Management? 1=Yes, 0=No, 2=Some steps, specify:	Code (+)	

4. Perceptions and opinions on the land law (proclamation): Ask these to all LAC members

S.no	Question	Unit	Answer
1	Are you familiar with the new land proclamation and regulation for your region and its content? 1=Yes, 2=Some of it, 0=No	Code	
	Do you agree with the following rules?		
2	Reporting of all land renting and sharecropping to tabia? 1=Yes, 0=No	Code	
3	Only half of the farm holding should be allowed rented out? 1=Yes, 0=No	Code	
4	Legal support for land conflict resolution related to land renting should only be provided if contracts have been reported and registered at the tabia level? 1=Yes, 0=No	Code	
5	Equal sharing of land upon divorce? 1=Yes, 0=No	Code	
6	Land sales should be illegal? 1=Yes, 0=No	Code	

7	Land mortgaging should be illegal? 1=Yes, 0=No	Code	
8	Land should be taken from households that have been away for more than 2 year even if they have no permanent job, 1=Yes, 0=No	Code	
9	Females should be allowed to plough the land? 1=Yes, 0=No	Code	
10	Land should be taken from households that do not conserve their land well? 1=Yes, 0=No		
11	Does the new land proclamation affect how your household manages its land? 1=Yes, 0=No, 2=Don't know	Code	
12	If yes, explain how: 1=Take better care of it, 2=Ask tenants to take better care of it, 3=Invest more on it, 4=Can take more responsibility for it, 5=Other, specify	Code	
13	If no, why? 1=Follow traditional rules, 2=Managed the land well before also, 3=Do not know what is in the proclamation, 4=Other, specify:	Code	
14	How do you perceive a new regulation which states that the wife also should have her name and picture on the certificate? 1=Indifferent (acceptable), 2=Good, 3=Bad	Code	
15	Would the wife's name on the certificate, affect her power over the land? 1=Has no effect, 2=She has a stronger position in case of divorce or husband's death, 3=She involves more in land-related decisions within marriage (e.g. crop choice and input use), 4=She controls more of the income from production on the land, 5=She is involved in land-renting decisions, 6=She does more work on the land, 7=Other, specify:	Code Multiple responses possible	
16	Do you agree that all land rental contracts should be written and reported to the tabia? 1=Yes, 0=No, 2=Only contracts longer than 3 years	Code	
17	If yes, why? 1=Good to have registration of such transactions, 2=Will make the land rental market work better, 3=Help avoid exploitative contracts, 4=Ensures that food needs of household is considered, 5=Strengthens bargaining power of landlords, 6=Reduces land disputes, 7=Other, specify:	Code Multiple responses possible	
18	If no, why? 1=Unnecessary and costly, 2=No benefit, 3=Inconvenient, 4=Increase tenure insecurity of poor people who fail to farm the land themselves, 5=Peole will not report anyway, contracts will go underground, 6=Other, specify:	Code	
19	Do you perceive sharecropping as land renting and to be subject to the same regulations as land renting? 1=Yes, 0=No, sharecropping is not land renting	Code	
20	Do you consider it legal for a household to sharecrop out all its land? 1=Yes, 0=No, 2=Don't know	Code	
21	Do you think that households should be allowed to sharecrop out all their land? 1=Yes, 0=No	Code	
22	Do you think that female-headed households, orphan households and other poor households should be allowed to sharecrop out all their land when they lack resources to cultivate it themselves? 1=Yes, 0=No	Code	
23	If yes, why? 1=It secures their livelihood, 2=They cannot use the land efficienctly themselves, 3=The land can be made available for more productive farmers, 4=Other, specify	Code	
24	If no, why? 1=They should farm it themselves, 2=They should follow the law, 3=They should give away the land to others if they fail to farm it, 4=Other, specify:	Code	
25	Do you agree that farm holdings should not be further subdivided but be farmed jointly by family members? 1=Yes, 0=No	Code	
26	If yes, why? 1=Further fragmentation is bad for land use, 2=Cooperation is good for the families, 3=Other, specify:	Code	
27	If no, why? 1=Difficult to farm together, 2=Some are forced to leave, 3=It increases landlessness, 4=It is possible to subsist on smaller plots of land, 5=Other, specify:	Code	
28	Do you think there will be any new land redistributions in your tabia within the next ten years? 1=Yes, 0=No	Code	
29	Do you think that the landless in the community should be given more of the land through redistribution? 1=Yes, 0=No	Code	
30	Do you agree that land should be taken from households that have been out of the village for more than 2 years but do not have a permanent job? 1=Yes, 0=No, 2=Don't know	Code	

Mekelle University

In collaboration with
Norwegian University of Life Sciences

Impact of Land Law Reforms inTigray, Ethiopia
2010
Perception Questionnaire
Main Sample Households

Zone _____ Code _____

Woreda _____ Code _____

Tabia _____ Code _____

Kushet_____ Code_____

Got_____ Code_____

Name of head of household_____

Household Number_____

Registration book number_____

Date of interview_____

Enumerator _____ Code ____ Signature _____

Checked by:_____ Code____ Signature_____

Accepted for data entry, date:_____

Date of data entry _____

Data entry operator _____ Code ____ Signature _____

Household Land Issues: Land reform, knowledge, perceptions, preferences and women

Questions to head of household:

1. Changes in landholdings

S.no	Questions	Unit	Answer
1	How long has the household head been head of the household? Since..	Year(EC)	
2	Have there been changes in the amount of land this household controls during the period 2006-2010 (EC1998-2002)? 1=Yes, 0=No, 2=Don't know, 3=Landless household	Code	
3	**If yes**; Has the household lost or gained land? 1=Lost, 2=Gained	"	
4	**If yes**; What was the reason? 1=Redistribution, 2=Land dispute, 3=Inherited from husband's family, 4=Inheritance from wife's family, 5=Land taken due to migration, 6=Land taken for public purpose, 7=Land taken due to poor management, 8=Other, explain	"	
5	**If yes**; When was this?	Year (EC)	
6	**If yes**; how much land was lost/received?	Tsimdi	

2. Land Administration

S.No.	Questions	Unit	Answer
1	**1. Involvement in land certification program**		
2	Are you or a member of your family a member of the land committee (LAC)? 1=Yes, 0=No	Code	
3	If yes, who is member? 1=Husband/household head, 2=Wife, 3=Female head of household, 4=Son, 5=Daughter, 6=Other		
4	Does your household have a land certificate? 1=Yes, 0=No	Code	
5	Has there been a change in the status of your land certificate in the period 2006-2010 (EC1998-2002)? 1=Yes, 0=No	Code	
6	If yes, when was this?	Year (EC)	
7	If yes; what is the change? 1=Lost the certificate, 2=Received a new certificate, 3=Renewed the certificate and changed the name of owner, 4=The certificate was taken with the land, 5=Other, explain	Code	
8	Whose name is on the certificate? 1=Current household head, 2=Father of current household head, 3=Husband of current household head, 4=Grandfather of current household head, 5=Mother of current household head, 6=Grandmother of current household head, 7=Other, specify	Code	
9	If you lose your certificate, how much would you be willing to pay for a replacement? Maximum willingness to pay	Birr	
10	If you don't have a certificate, would you want to get a certificate? 1=Yes, 0=No	Code	
11	**If yes**, how much would you maximum be willing to pay for it?	Birr	
12	Does having a certificate protect you against encroachment on your land by your neighbors? 1=Less risk of encroachment, 0=No difference	Code	
13	Is there a need for a new land demarcation to make borders clearer? 1=Yes, 0=No	Code	
14	Do you have sufficient witnesses that can confirm the borders of your plots in case somebody contest them? 1=Yes, 0=No	Code	
15	Would you prefer to receive a new land certificate with a map of each of your plots, with clear identification of the location and size and shape of the plot? 1=Yes, 0=No	Code	
16	If yes, how much is your maximum willingness to pay for such a certificate?	Birr	
17	If yes, how many mandays are you maximum willing to work outside the busiest agricultural season for the tabia to obtain such a certificate?	Mandays	
18	Would you prefer to receive a new certificate with names and pictures of husband and wife (joint certificate)? 1=Yes, 0=No, 2=I have no spouse	Code	
19	If yes, how much would you maximum be willing to pay for such a certificate?	Birr	
20	If no, why not? 1=The certificate I have is good enough, 2=The new certificate will not give more protection, 3=Other, specify:	Code	
21	Do you think a joint certificate will give women more influence in decision-making related to land? 1=Yes, 0=No, 2=Don't know	Code	

22	Has the land registration and certification had any effect on the amount of inheritance disputes in your community? 1=More inheritance disputes, 2=No change, 3=Less inheritance disputes	Code	
23	If change in inheritance disputes, has this affected your household? 1=Yes, 0=No.	Code	
24	Do you feel that having a certificate will increase the possibility of obtaining compensation in case the land is taken? 1=Yes, 0=No, 2=Not sure	Code	
25	Do you believe that having a land certificate improves the tenure security of women? 1=Yes, 0=No, 2=Not sure	Code	
26	How do you believe that having land certificate will affect the number of conflicts related to inheriting land to children? 1=Less disputes, 2=No difference, 3=More disputes, 4=Not sure	Code	
27	If your land were suddenly demanded for public purposes by the tabia, how much compensation, minimum, would you consider to be a fair compensation for loosing your land?	Birr/ all land on farm	
28	If it became legal to sell land, would you consider to sell the land if you got a good price? 1=Yes, 0=No, 2=Only if I came in a desperate situation,	Code	
29	If you were allowed to sell your land and are willing to sell it, how much would be the minimum acceptable price for you to sell it now? Price without value of your house and other buildings on your land.	Birr/ all land on farm	
30	Do you think land sales should be accepted in some cases? 1=Never, 2=Only in urban areas, 3=Only in urban and peri-urban areas, 4=Other, specify:	Code	
33	Are you interested in planting trees on any of your plots? 1=Yes, 0=No	Code	
34	If yes, why? 1=Profitable to plant trees, 2=Trees provide firewood and building materials, 3=Trees are like a savings account (buffer stock), 4=Other, specify:	Code More than one ok	
35	If no, why not? 1= Not profitable to plant trees, 2=Takes too long before they can be harvested, 3=They compete with crops, 4=Illegal to plant trees on cropland, 5=Uncertain whether she/he will get the benefits from the trees, 6=Other, specify:	Code	
36	Does having the land certificate increase your incentive to plant trees? 1=Yes, 0=No	Code	
37	Are there restrictions on tree planting in your community? 1=Yes, 0=No	Code	
38	If yes, what type of restrictions? 1=Not allowed to plant trees on land suitable for food crop production, 2=Not allowed to plant eucalyptus trees, 3=Eucalyptus trees are only allowed to be planted on homestead plots, 4=Other, specify:	Code More than one possible	
39	Would you have planted more eucalyptus trees if there were no restrictions on where they could be planted? 1=Yes, 0=No, 2=Don't know	Code	
40	If yes, where would you plant more eucalyptus trees? 1=On homestead plot, 2=On poor quality cropland, 3=On good quality cropland, 4=On communal land if it were divided to individuals, 5=Other, specify:	Code More than one possible	
41	If yes, why? 1=Eucalyptus is profitable, good market, 2=Need it for construction purposes, 3=Need it for fuelwood, 4=Other, specify:	Code	
42	Are there programs that encourage tree planting in the community? 1=Yes, 0=No	Code	
43	If yes, what trees do they encourage planting of? 1=Eucalyptus, 2=Agroforestry trees, 3=Indigenous trees, 4=Other, specify:	Code More than one possible	
44	If yes, on what types of land is tree planting encouraged? 1=Steep slopes, 2=Degraded lands, 3=Homestead plots, 4=Other, explain:	Code More than one possible	
45	Is the Land Administration Committee (LAC) active in your kushet and tabia?	Code	

	1=Yes, 0=No		
46	If yes, has the work of the committee affected your household and land management in any way? 1=Yes, 0=No	Code	
47	If yes, how has your household been affected? Indicate for the possible effects below:		
48	Participated in information meetings, 1=Yes, 0=No	Code	
49	Improved knowledge about land management, 1=Yes, 0=No	Code	
50	Has improved land management, 1=Yes, 0=No	Code	
51	Has lost land due to land taking by the LAC, 1=Yes, 0=No	Code	
52	Has become more tenure secure, 1=Yes, 0=No	Code	
53	Have reduced land renting activity due to fear of loss of land, 1=Yes, 0=No	Code	
54	Has reduced migration activity due to fear of loss of land, 1=Yes, 0=No	Code	
55	Has improved conservation of the land due to fear of losing the land otherwise, 1=Yes, 0=No	Code	
56	Has started to report land renting/sharecropping to the LAC/Tabia, 1=Yes, 0=No	Code	
57	Other effects, specify:	Code	
58	Are you satisfied with the way the LAC does its job? 1=Satisfied, 0=Not satisfied, 2=Don't know	Code	
59	If not satisfied, explain why: 1= Does not do the job it should do, 2=Treat some people in an unfair way, 3=Are incompetent, 4=Do not know or follow the law, 5=Other, explain:	Code	
60	If satisfied, explain why: 1=They are active and contribute to improved land management in the tabia, 2=They do not interfere in how people manage their land and that is good, 3=They help in sorting out land disputes, 4=Other, explain:	Code	
61	Has the household received a warning or been penalized by the LAC for some reason? 1=Yes, 0=No	Code	
62	If yes, what was the reason for the warning/penalty/fine? 1=Poor land management, 2=Illegal land renting, 3=Migration and neglect of land, 4=Other, specify:	Code	

Questions strictly for male respondents

1. Disposition of land upon household break

S.no	Question	Unit	Answer
1	Who will inherit the land registered on this household? 1=Oldest son/daughter, 2=Oldest son, 3=Oldest daughter, 4=Youngest unmarried son/daughter, 5=Unmarried son, 6=Unmarried daughter, 7=Favorite son, 8=Favorite daughter, 9=Other family members, 10=The village, 11=Joint management by children, 12=Other, specify:	Code	
2	Have you been married before? 1=Yes, 0=No	Code	
3	If yes; What was the reason for the break? 1=Divorce, 2=Death of wife, 3=Single due to migration of spouse	Code	
4	If yes; Was the break during the last four years, 2006-2010 (EC1998-2002)? 1=Yes, 0=No	Code	
6	If divorce; How much land did you get/keep after divorce? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Land is jointly managed after divorce (Land was too small to be divided), 7=Other, specify:	Code	
7	Does it matter how much land you brought into marriage, for how much you get in case of divorce? 1=It does not matter, equal share always, 2=Only land obtained during marriage is shared equally, 3=Inherited land is kept by the individual, other land is shared equally, 4=Other, specify	Code	
8	Do you have a wife today? 1=Yes, 0=No	Code	
	Questions asked if he has a wife today:		
9	In case of divorce today, how much of the land registered on this household would you get? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Don't know, 7=Other, specify:	Code	
10	In case of divorce, who of the children are expected to stay with you? 1=All, 2=None of them 3=Some of them, 4=Do not have children, 5=Don't know	Code	
11	In case of death of wife, how much land would you keep? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Don't know, 7=Other, specify:	Code	
12	In case of death of wife, how much land would be given to children? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Don't know, 7=Other, specify:	Code	

Knowledge about the land law (strictly male respondents)

S.No.		Unit	Answer
1	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use modern technology? -=Don't know	# years	
2	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use traditional technology? -=Don't know	# years	
3	Do the same restrictions apply to sharecropped out land as to rented out land (fixed cash rent)? 1=Yes, 2=No restriction on length of contract for sharecropping, 3=Other, specify:	Code	
4	In case of divorce, what happens to the land? : 1=Has to be negotiated between those involved; 2=Shared equally between husband and wife; 3=Other; 4=Don't know.	Number	
5	What is the minimum farm size allowed? Size in tsimdi or 0=No limit, 99=Don't know	Tsimdi	
6	What is the maximum farm size allowed? Size in tsimdi or 0=No limit, 99=Don't know	---	
7	How long-term must land rental contracts minimum be to have to be reported to the tabia and approved? 1=Three months, 2=One year, 3=Three years, 4=Ten years, 5=Do not have to report, 6=All have to be reported, 7=Don't know,	Years	
8	How large share of the farm holding can be rented out maximum? 1=One quarter, 2=Half, 3=Three quarter, 4=Depends on family needs for food, 5=All,	Code	
9	Who is responsible for sustainable management of rented land? 1=The	Code	

	certificate holder(landlord), 2=The tenant, 3=Joint responsibility, 4=Free to decide		
10	Is it legal for a household to mortgage the use right for its land? 1=Yes, 0=No, 2=Don't know	Code	
11	The head of the household has left the tabia where the land is located for 10 years (but the rest of the family stays on the land). Does it affect the use right of the family? 1=Yes, 0=No, 2=Don't know	Code	
12	Can your wife deny you to rent out your family land? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
13	Does your 18 year old son have the right to deny you to rent out your land if he wants to farm on the land and is still living in your household? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
14	A household has rented out all its land and has been away for 3 years but has no permanent job, can the land be expropriated and distributed to other households in the community? 1=Yes, 0=No, 2=Don't know	Code	

Questions to men only

Perceptions and opinions on the land proclamation

S.no	Question	Unit	Answer
1	Are you familiar with the new land proclamation for your region and its content? 1=Yes, 2=Some of it, 0=No	Code	
	Do you agree with the following rules?		
3	Only half of the farm holding should be allowed rented out? 1=Yes, 0=No, 2=Don't know	Code	
4	Legal support for land conflict resolution related to land renting should only be provided if contracts have been reported and registered at the tabia level? 1=Yes, 0=No, 2=Don't know	Code	
5	Equal sharing of land upon divorce? 1=Yes, 0=No, 2=Don't know	Code	
6	Land sales should be illegal? 1=Yes, 0=No, 2=Don't know	Code	
7	Land mortgaging should be illegal? 1=Yes, 0=No, 2=Don't know	Code	
8	Land should be taken from households that have been away for more than 2 year even if they have no permanent job, 1=Yes, 0=No, 2=Don't know	Code	
9	Females should be allowed to plough the land? 1=Yes, 0=No, 2=Don't know	Code	
10	Land should be taken from households that do not conserve their land well? 1=Yes, 0=No, 2=Don't know		
11	Does the new land proclamation affect how your household manages its land? 1=Yes, 0=No, 2=Don't know	Code	
12	If yes, explain how: 1=Take better care of it, 2=Ask tenants to take better care of it, 3=Invest more on it, 4=Other, specify	Code	
13	If no, why? 1=Follow traditional rules, 2=Managed the land well before also, 3=Do not know what is in the proclamation, 4=Other, specify:	Code	
14	How would you perceive a change in the land law such that the wife also should have her name and picture on the certificate? 1=Indifferent (acceptable), 2=Good, 3=Bad	Code	
15	Would including the wife's name on the certificate, affect her power over the land? 1=Has no effect, 2=She has a stronger position in case of divorce or husband's death, 3=She involves more in land-related decisions within marriage (e.g. crop choice and input use), 4=She controls more of the income from production on the land, 5=She is involved in land-renting decisions, 6=She does more work on the land, 7=Other, specify:	Code Multiple codes allowed	
16	Do you agree that all land rental contracts should be written and reported to the tabia? 1=Yes, 0=No, 2=Only contracts longer than 3 years	Code	
17	If yes, why? 1=Good to have registration of such transactions, 2=Will make the land rental market work better, 3=Help avoid exploitative contracts, 4=Ensures that food needs of household is considered, 5=Strengthens bargaining power of landlords, 6=Reduces land disputes, 7=Other, specify:	Code Multiple responses possible	
18	If no, why? 1=Unnecessary and costly, 2=No benefit, 3=Inconvenient, 4=Increase tenure insecurity of poor people who fail to farm the land themselves, 5=People will not report anyway, contracts will go underground, 6=Other, specify:	Code	
19	Do you perceive sharecropping as land renting and to be subject to the same regulations as land renting? 1=Yes, 0=No, sharecropping is not land renting	Code	

20	Do you consider it legal for a household to sharecrop out all its land? 1=Yes, 0=No, 2=Don't know	Code	
21	Do you think that households should be allowed to sharecrop out all their land? 1=Yes, 0=No	Code	
22	Do you think that female-headed households, orphan households and other poor households should be allowed to sharecrop out all their land when they lack resources to cultivate it themselves? 1=Yes, 0=No	Code	
23	If yes, why? 1=It secures their livelihood, 2=They cannot use the land efficiently themselves, 3=The land can be made available for more productive farmers, 4=Other, specify	Code Multiple codes allowed	
24	If no, why? 1=They should farm it themselves, 2=They should follow the law, 3=They should give away the land to others if they fail to farm it, 4=Other, specify:	Code	
25	Do you agree that farm holdings should not be further subdivided but be farmed jointly by family members? 1=Yes, 0=No	Code	
26	If yes, why? 1=Further fragmentation is bad for land use, 2=Cooperation is good for the families, 3=Other, specify:	Code	
27	If no, why? 1=Difficult to farm together, 2=Some are forced to leave, 3=It increases landlessness, 4=It is possible to subsist on smaller plots of land, 5=Other, specify:	Code	
28	Do you think there will be any new land redistributions in your tabia within the next ten years? 1=Yes, 0=No, 2=Don't know	Code	
29	Do you think that the landless in the community should be given more of the land through redistribution? 1=Yes, 0=No, 2=Don't know	Code	
30	Do you agree that land should be taken from households that have been out of the village for more than 2 years but do not have a permanent job? 1=Yes, 0=No, 2=Don't know	Code	

Questions strictly for female respondents

NB! Preferably to be asked by a female enumerator without the husband present

1. Disposition of land upon household break

S.no	Question	Unit	Answer
1	Who will inherit the land registered on this household? 1=Oldest son/daughter, 2=Oldest son, 3=Oldest daughter, 4=Youngest unmarried son/daughter, 5=Unmarried son, 6=Unmarried daughter, 7=Favorite son, 8=Favorite daughter, 9=Other family members, 10=The village, 11=Joint management by children, 12=Other, specify:	Code	
2	Have you been married before? 1=Yes, 0=No	Code	
3	If yes; What was the reason for the break? 1=Divorce, 2=Widowed, 3=Separated due to migration of husband	Code	
4	If yes; Was the break during the last four years, 2006-2010 (EC1998-2002)? 1=Yes, 0=No	Code	
5	If yes, how many children did you have at the time of break?	Number	
6	If yes, how many of the children accompanied you after the break?	Code	
7	If yes; How much land did you get? 1=It does not matter, equal share always, 2=Only land obtained during marriage is shared equally, 3=Inherited land is kept by the individual, other land is shared equally, 4=Other, specify	Code	
8	Does it matter how much land you brought into marriage, for how much you get in case of divorce? 1=It does not matter, equal share always, 2=Only land obtained during marriage is shared equally, 3=Inherited land is kept by the individual, other land is shared equally, 4=Other, specify	Code	
9	Do you have a husband now? 1=Yes, 0=No	Code	
	Questions asked if she has a husband today:		
10	In case of divorce today, do you expect to keep any of the land of this household? 1=Yes, 0=No	Code	
11	**If yes**; How much of the land of this household would you get?1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=They cannot split the land but will continue to share it, 7=Other, specify:	Code	
12	**If yes**; What would you do with your land? 1=Sharecrop it, 2=Crop it herself (with help of sons), 3=Rent it out for money, 4=Other, specify	Code	
13	**If sharecrop**: Who would you sharecrop with? 1=Neighbor/other in the tabia, 2=Ex husband, 3=Own kin, 4=In-laws, 5=Others	Code	
14	In case of divorce, who of the children are expected to stay with you? 1=All, 2=None of them 3=Some of them, 4=Do not have children, 5=Depends on the childrens' choice, 6=Don't know	Code	
15	In case of divorce, would you stay in this village? 1=Yes, 0=No, 2=don't know	Code	
16	In case of divorce, what would happen to the house? 1=Wife will get the house, 2=Husband will get it, 3=Husband and wife will share it, 4=Don't know, 5=Other	Code	
17	In case of death of husband, how much land would you keep? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Don't know, 7=Other, specify:	Code	
18	In case of death of husband, how much land would be given to children? 1=All, 2=More than half, 3=Half, 4=Less than half, 5=Nothing, 6=Don't know, 7=Other, specify;	Code	

2. Knowledge about the land law (strictly female respondents)

S.No.		Unit	Answer (s)
1	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use modern technology? -=Don't know, 999=no limit	# years	
2	What is the maximum number of years for which households can lease/rent (or sharecrop) their land to others who will use traditional technology? -=Don't know, 999=no limit	# years	
3	Do the same restrictions apply to sharecropped out land as to rented out land (fixed cash rent)? 1=Yes, 2=No restriction on length of contract for sharecropping, 3=Other, specify:	Code	
4	In case of divorce, what happens to the land? : 1=Has to be negotiated between those involved; 2=Shared equally between husband and wife; 3=Other; 4=Don't know.	Number	
5	What is the minimum farm size allowed? Size in tsimdi or 0=No limit, 99=Don't know	Tsimdi	
6	What is the maximum farm size allowed? Size in tsimdi or 0=No limit, 99=Don't know	---	
7	How long-term must land rental contracts minimum be to have to be reported to the tabia and approved? 1=Three months, 2=One year, 3=Three years, 4=Ten years, 5=Do not have to report, 6=All have to be reported, 7=Don't know,	Years	
8	How large share of the farm holding can be rented out maximum? 1=One quarter, 2=Half, 3=Three quarter, 4=Depends on family needs for food, 5=All,	Code	
9	Who is responsible for sustainable management of rented land? 1=The certificate holder(landlord), 2=The tenant, 3=Joint responsibility, 4=Free to decide	Code	
10	Is it legal for a household to mortgage the use right for its land? 1=Yes, 0=No, 2=Don't know	Code	
11	The head of the household has left the tabia where the land is located for 10 years (but the rest of the family stays on the land). Does it affect the use right of the family? 1=Yes, 0=No, 2=Don't know	Code	
12	Can you deny your husband to rent out your family land? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
13	Does your 18 year old son have the right to deny you to rent out your land if he wants to farm on the land and is still living in your household? 1=Yes, 0=No, 2=Don't know, 3=Other, specify:	Code	
14	A household has rented out all its land and has been away for 3 years but has no permanent job, can the land be expropriated and distributed to other households in the community? 1=Yes, 0=No, 2=Don't know	Code	
15	Is there a Land Administration Committee in your tabia? 1.Yes, 0=No, 2=Don't know	Code	
16	If yes, did you participate in the election of the committee? 1=Yes, 0=No	Code	
17	If yes to Q#15, is there a reservation for female members in the land administration committee? 1=Yes, 0=No, 2=Don't know	Code	
18	If yes to Q#17, what is the minimum number of female members that has to be placed in the land administration committee?	Number	
19	If yes to Q#15, are there female members in the current land committee of the tabia? 1=Yes, 0=No, 2=Don't know	Code	
20	If yes to Q#19, are you a member of the land admin. committee? 1=Yes, 0=No	Code	

3. Women's decision-power (strictly female respondents)

S.No.		Unit	Answer
1	Are you involved in the land investment and production decisions of any of the plots? 1=Yes, 0=No	Code	
2	If yes, please copy the ID code of these plots. (Multiple codes possible)	Code	
3	If yes, who normally works on these plots? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband and other family members, 5=Other, specify;	Code	
4	If yes, who are involved in the decisions? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband and other family members, 5=Other, specify;	Code	
5	If yes, who mainly manages/controls the income from these plots? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband alone, 5=Other, specify;	Code	
6	Who mainly decides how the money you earned would be used? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband	Code	

	only, 5=Other, specify;		
7	Who mainly decides on the common resources of the household? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband only, 5=Other, specify;	Code	
8	Do you have any money or physical asset (e.g. livestock, trees) of your own that you alone can decide how to use? 1=Yes, 0=No	Code	
9	Have you yourself ever taken out or been given a loan either in cash or in kind to start or expand a business? 1=Yes, 0=No	Code	
10	Are you usually permitted to go to the market place on your own? 1=Yes: alone, 2=Yes: only if someone accompanies, 3=Not at all	Code	
11	Who in your household usually has the final say on whether or not you should work to earn money from non-farm business/employment? 1=Yourself only, 2=Jointly with husband/partner, 3=Jointly with other household member, 4=husband only, 5=Other, specify;	Code	

Questions to women only

4. Perceptions and opinions on the land law (proclamation)

S.no	Question	Unit	Answer
1	Are you familiar with the new land proclamation for your region and its content? 1=Yes, 2=Some of it, 0=No	Code	
	Do you agree with the following rules?		
2	Reporting of all land renting and sharecropping to tabia? 1=Yes, 0=No, 2=Don't know	Code	
3	Only half of the farm holding should be allowed rented out? 1=Yes, 0=No, 2=Don't know	Code	
4	Legal support for land conflict resolution related to land renting should only be provided if contracts have been reported and registered at the tabia level? 1=Yes, 0=No, 2=Don't know	Code	
5	Equal sharing of land upon divorce? 1=Yes, 0=No, 2=Don't know	Code	
6	Land sales should be illegal? 1=Yes, 0=No, 2=Don't know	Code	
7	Land mortgaging should be illegal? 1=Yes, 0=No, 2=Don't know	Code	
8	Land should be taken from households that have been away for more than 2 year even if they have no permanent job, 1=Yes, 0=No, 2=Don't know	Code	
9	Females should be allowed to plough the land? 1=Yes, 0=No, 2=Don't know	Code	
10	Land should be taken from households that do not conserve their land well? 1=Yes, 0=No, 2=Don't know		
11	Does the new land proclamation affect how your household manages its land? 1=Yes, 0=No, 2=Don't know	Code	
12	If yes, explain how: 1=Take better care of it, 2=Ask tenants to take better care of it, 3=Invest more on it, 4=Can take more responsibility for it, 5=Other, specify	Code	
13	If no, why? 1=Follow traditional rules, 2=Managed the land well before also, 3=Do not know what is in the proclamation, 4=Other, specify:	Code	
14	How do you perceive the regulation that the wife also should have her name and picture on the certificate? 1=Indifferent (acceptable), 2=Good, 3=Bad	Code	
15	Does the wife's name on the certificate, affect her power over the land? 1=Has no effect, 2=She has a stronger position in case of divorce or husband's death, 3=She involves more in land-related decisions within marriage (e.g. crop choice and input use), 4=She controls more of the income from production on the land, 5=She is involved in land-renting decisions, 6=She does more work on the land, 7=Other, specify:	Code	
16	Do you agree that all land rental contracts should be written and reported to the tabia? 1=Yes, 0=No, 2=Only contracts longer than 3 years	Code	
17	If yes, why? 1=Good to have registration of such transactions, 2=Will make the land rental market work better, 3=Help avoid exploitative contracts, 4=Ensures that food needs of household is considered, 5=Strengthens bargaining power of landlords, 6=Reduces land disputes, 7=Other, specify:	Code Multiple responses possible	
18	If no, why? 1=Unnecessary and costly, 2=No benefit, 3=Inconvenient, 4=Increase tenure insecurity of poor people who fail to farm the land themselves, 5=Peole will not report anyway, contracts will go underground, 6=Other, specify:	Code	
19	Do you perceive sharecropping as land renting and to be subject to the same regulations as land renting? 1=Yes, 0=No, sharecropping is not land renting	Code	
20	Do you consider it legal for a household to sharecrop out all its land? 1=Yes, 0=No, 2=Don't know	Code	

21	Do you think that households should be allowed to sharecrop out all their land? 1=Yes, 0=No, 2=Don't know	Code	
22	Do you think that female-headed households, orphan households and other poor households should be allowed to sharecrop out all their land when they lack resources to cultivate it themselves? 1=Yes, 0=No, 2=Don't know	Code	
23	If yes, why? 1=It secures their livelihood, 2=They cannot use the land efficienctly themselves, 3=The land can be made available for more productive farmers, 4=Other, specify	Code	
24	If no, why? 1=They should farm it themselves, 2=They should follow the law, 3=They should give away the land to others if they fail to farm it, 4=Other, specify:	Code	
25	Do you agree that farm holdings should not be further subdivided but be farmed jointly by family members? 1=Yes, 0=No, 2=Don't know	Code	
26	If yes, why? 1=Further fragmentation is bad for land use, 2=Cooperation is good for the families, 3=Other, specify:	Code	
27	If no, why? 1=Difficult to farm together, 2=Some are forced to leave, 3=It increases landlessness, 4=It is possible to subsist on smaller plots of land, 5=Other, specify:	Code	
28	Do you think there will be any new land redistributions in your tabia within the next ten years? 1=Yes, 0=No, 2=Don't know	Code	
29	Do you think that the landless in the community should be given more of the land through redistribution? 1=Yes, 0=No, 2=Don't know	Code	
30	Do you agree that land should be taken from households that have been out of the village for more than 2 years but do not have a permanent job? 1=Yes, 0=No, 2=Don't know	Code	

For all partners, landlords and tenants

1	Which type of contract do you prefer? 1=Oral contracts among partners only, 2=Oral with witnesses, 3=Written contract, not reported, 4=Written and reported to tabia leaders, 5=It depends on the type of partner, specify how: 6=It depends on the type of contract, specify how: 7=It depends on the duration of contract, specify how:	Code Multiple codes possible	
2	If more than one type is preferred, explain when and why. 1=Long-term contracts prefered to be written. 2=Fixed-rent contract preferred to be written, 3=Sharecropping contracts preferred to be oral, 4=Prefer oral contracts with relatives, 5=Prefer written contracts with strangers, 6=Other, specify	Code Multiple codes possible	
3	If registration of land rental contracts is needed to get legal support in case of dispute, will you report your rental contracts? 1=Yes, I will begin with that, 0=No, 2=Only if I do not trust my contract partner, 3=Other, specify:	Code	
4	Has land registration and certification had any impact on whether you participate in the land rental market (including sharecropping)? Yes=1, No=0	Code	
5	If yes, are you more or less willing to rent in or out your land after you received the certificate? 1=More willing/able, 2=No difference, 3=Less willing/able	Code	
6	If yes, why are you more or less willing? 1=Feel more tenure secure, 2=Easier to rent in land, 3=More difficult to rent in land, 4=Other, specify:	Code	
7	Has receiving a land certificate affected the type of land contract you prefer to use? 1=No, 2=Yes, prefer fixed-rent more, 3=Prefer longer-term contract after I received certificate, 4=Other, specify: 99=I have no certificate	Code	
8	Have you had any land disputes in relation to some of your land contracts? Yes=1, No=0	Code	
9	If yes, what was/were the dispute(s) about? 1=Work effort of tenant, 2=Input use, 3=Output sharing, 4=Contract length, 5=Other, specify:	Code	

10	If yes, how many disputes during the last four years?	Number	
11	If yes, how was/were the dispute(s) resolved? 1=Negotiation between parties, 2=By help from elders, 3=Social court, 4=Tabia administration, 5=Woreda court, 6=Other, specify:	Code	
12	Has the new land proclamation had any effect on whether you participate in the land rental market or not? 1=Yes, 0=No, 2=I don't know anything about the new proclamation: **go to question 19**	Code	
13	If yes, what is the difference? 1=Rent out more, 2=Rent out less, 3=Rent in more, 4=Rent in less	Code	
14	Has the land proclamation had any effect on what plots of land you rent in or out? 1=Yes, 0=No	Code	
15	If yes, how? 1=Rent in or out more poor quality land, 2=Rent in or out well-conserved land only, 3=Other, explain:	Code	
16	Has the land proclamation had any effect on who is responsible for conservation of the rented in or out land? 1=Yes, 0=No	Code	
17	If yes, explain: 1=Tenant has taken over full responsibility for land conservation, 2=Need to renegotiate responsibility for land conservation, 3=Other, specify:	Code	
18	If no, explain: 1=Tenant was already responsible for land conservation, 2=Landlord still has to take responsibility for land conservation, 3=Make agreement with the other party in each case about who is responsible for conservation, 4=Do not know what the proclamation says about this	Code	
19	Do you prefer to have written sharecropping and rental contracts that are registered at the tabia/Land Administration Committee? 1=Yes, 0=No, 2=Only for contract partners that I do not know well, 3=Other, explain:	Code	

Ask the following questions to TENANTS

1	What type of land do you prefer to **rent in** – given current prices, sharing contracts and the land proclamation? 1=Good land, 2=Medium land, 3=Poor land	Code	
2	Why do you rent in land? 1=Have surplus labor, 2=Have oxen, 3=Have small farm size myself, 4=Landless, 5=Other, specify	Code	
3	As a tenant do you have many landlords to choose between? 1=Yes, 0=No	Code	
4	If yes, do you have a choice between alternative contracts? 1=Yes, 0=No	Code	
5	Which land rental arrangement do you currently apply? 1=Sharecropping, 2=Sharecropping with advance payment, 3=Fixed-rental contact, 4=Input/cost-sharing contract: Landlord pays cash inputs, 5=Cost-sharing where landlord advance input costs, 6=Cost-sharing with equal sharing of cash inputs, 7=Cost-sharing where tenant advances input costs, 8=Other, specify:	Code	
6	Which land rental arrangement do you prefer? 1=Sharecropping, 2=Sharecropping with advance payment, 3=Fixed-rental contact, 4=Input/cost-sharing contract: Landlord pay cash inputs, 5=Cost-sharing where landlord advance input costs, 6=Cost-sharing with equal sharing of cash inputs, 7=Cost-sharing where tenant advances input costs, 8=Other, specify:	Code	
7	What is the advantage of the type of contract you are preferring? 1=It reduces risk (risk sharing), 2=It enables me to share input costs, 3=It gives me incentive to produce more, 4=It is the only available contract type, 5=It gives me more food after harvest, 6=I do not have to pay cash in advance, 7=I can ensure optimal input use and yield on the land, 8=I can pay after harvest,9=Other:	Code	
8	Do you have any renting/sharecropping contracts that are for more than one year? Yes = 1 No =0	Code	
9	Duration of contracts: 0=Less than a year, 1=1 year, 2=2 years, 3=3 years, 4=4 years.	Contract 1	

	5=5 years, 6.>5 years, specify: years, 99=Open-ended (continue till one party cancels the contract)	Contract 2 Contract 3	
10	Do you prefer contracts that last for more than one year? Yes = 1 No = 0	Code	
11	If yes, why do you prefer longer-term contracts? 1=I can invest more in the land, 2=I can apply more inputs, 3=I do not have to search for other partners so often, 4=Other, specify:	Code	
12	If no, why do you not prefer longer-term contracts? 1=Only need to rent for one year, 2=Do not know whether I want to rent another year, 3=Other, specify:	Code	
13	If yes, what do you do to obtain longer-term contracts? 1=Work hard on rented land to get contract renewal, 2=Negotiate long-term contracts from the beginning, 3=Select landlords that are willing to give long-term contracts, 4=Identify particularly poor landlords that have weak bargaining power, 5=Offer fixed up-front payment	Code	
14	Would you like (be able) to rent in some more land? Yes = 1 No = 0	Code	
15	If your answer is yes, How much more?	Tsimdi	
16	Have you attempted to rent in the additional land you wanted over the last 2 years? 1.Yes, 0.No	Code	
17	How many potential landlords have you contacted in an attempt to lease in some land over the last two years?	Number	

List them.

	Name	Relationship	Sex	Distance to his/her house	Partner lives	Success of the attempt	Year	How much (Tsimdi)?
1								
2								
3								
4								
5								

Sex: 1=Female, 0=Male, **Relationship:** 1=Blood-related, 2=In-law, 3=Neighbour, 4=Same ethnic group, 5=Same religious group, 6=Other, specify:
Distance: Minutes walk, **Partner lives:** 1=In same kushet, 2=In neighboring kushet in same tabia, 3=In different tabia. **Success of attempt:** 1=Yes, 0=No

17	Has it become easier or more difficult to rent in land after the land registration and land certification in your community? 1=Easier, 2=No change, 3=More difficult,	Code	
18	Has it become easier or more difficult to get long-term rental contracts after the land registration and certification? 1=Easier, 2=No change, 3=More difficult	Code	
19	If you wanted to rent in some additional plots of land, have you had any potential landlords to choose among? 1=Yes, 0=No	Code	
20	If your answer is yes, how many potential landlords have contacted you over the last two years?	Number	
21	How much time did you spend searching for partners during last year?	Hours	

List them.

	Name	Relationship	Sex	Distance to his/her house	Partner lives	Success of the attempt	Year	How much (Tsimdi)?
1								

2								
3								
4								
5								

Sex: 1=Female, 0=Male, **Relationship:** 1=Blood-related, 2=In-law, 3=Neighbour, 4=Same ethnic group, 5=Same religious group, 6=Other, specify:
Distance: Minutes walk, **Partner lives:** 1=In same kushet, 2=In neighboring kushet in same tabia, 3=In different tabia. **Success of attempt:** 1=Yes, 0=No

For Landlords

1	What type of land do you prefer to **rent out** – given current prices, sharing contracts and the new land proclamation? 1=Good land, 2=Medium land, 3=Poor land	Code	
2	Why do you rent out land? 1=Shortage of labour, 2=Shortage of oxen, 3=Personal problem (illness, aged, etc.), 4=Poor/no access to credit, 5=Seed/Fertilizer problem, 6=Off-farm job, 7=Other, Specify:	Code	
3	What type of land contract do you prefer? 1=Sharecropping, 2=Sharecropping with advance payment, 3=Fixed-rent contract, 4=Input/costsharing contract, 5=Advance input costs yourself, 6=Let tentant advance input costs, 7=Pay input costs yourself without refunding, 8=Other, specify:	Code	
4	Why do you prefer this type of contract? 1=Share risk with tenant, 2=It enables me to share input costs, 3=It provides me with cash, 4=The only type of contract that I am offered, 5=It provides food after harvest (food security), 6=Other, specify:	Code	
5	Do you think that the tenant shirks (deliberately avoid to work hard) in sharecropping? 0=No, 1=Yes, 2=Some tenants do, 3=If I do not monitor them, 4=If I do not use threat of eviction, 5=Other, specify:	Code	
6	If yes, what mechanisms are you using to motivate the tenant to work hard? 1=Eviction when performance is poor, 2=Increase the share to the tenant, 3=Increase intensity of monitoring and supervision, 4=Provide inputs for production, 5=Nothing, 6=Threat of eviction, 7=Other, specify	Code	
7	What criteria do you use to select your tenant? 1=Trustworthy, 2=Good reputation as farmer, 3=In-laws claim the tenancy, 4=Blood-related relatives, 5=Good neighbors, 6=The one that offers better contract, 7=The first who comes and asks to rent in, 8=Other, specify:	Tsimdi	
8	How much land have you rented/sharecropped out? 1=Last year 2=Two years ago	Tsimdi	
9	Has the household experienced any of these large changes in the situation over the last four years? 1=Change in non-land resources of household (e.g. oxen, labour), 2=Change in tenure security, 3=Land registration and certification, 4=Change in access to partners, 5=Other, specify:	Code	
10	Would you like (be able) to rent out some more land? 1=Yes, 0=No		
11	If your answer is yes, How much more? (check that it is not larger than the total operated farm size last year (own farm size – rented out land last year)	Tsimdi	

12	Which additional plot(s) would you rent out	Plot.no.	
13	What type of land do you prefer to rent out? 1=Far away land, 2=Poor quality land, 3=Good quality land to get better return, 4=Respond to demand from potential tenants what plots they want, 5=Other, specify:		
14	Have you attempted to rent out the additional land you wanted to lease/rent/sharecrop out? 1=Yes, 0=No	Code	
15	How many potential tenants have you contacted in an attempt to lease/rent/ sharecrop out your land this year and last year?	Number	

List them.

	Name	Relationship	Sex	Distance to his/her house	Partner lives	Success of the attempt	Year	How much (Tsimdi)?
1								
2								
3								
4								

Sex: 1=Female, 0=Male, **Relationship:** 1=Blood-related, 2=In-law, 3=Neighbour, 4=Same ethnic group, 5=Same religious group, 6=Other, specify:
Distance: Minutes walk, **Partner lives:** 1=In same kushet, 2=In neighboring kushet in same tabia, 3=In different tabia. **Success of attempt:** 1=Yes, 0=No

16	How much time did you spend last year to search for partners?	Hours	
17	If you did not want to rent out more land, have you had many potential tenants to choose among? 1=Yes, 0=No	Code	
18	If yes, how do you choose your tenants (criteria)? 1.Reputation, 2.Kinship, 3.Resource rich, 4.Social status, 5.Good farm skill, 6.Others, specify	Code	
19	If your answer is yes, how many potential tenants have contacted you during the last two years?	Number	

List them.

	Name	Relationship	Sex	Distance to his/her house	Partner lives	Success of the attempt	Year	How much (Tsimdi)?
1								
2								
3								
4								
5								

Sex: 1=Female, 0=Male, **Relationship:** 1=Blood-related, 2=In-law, 3=Neighbour, 4=Same ethnic group, 5=Same religious group, 6=Other, specify:
Distance: Minutes walk, **Partner lives:** 1=In same kushet, 2=In neighboring kushet in same tabia, 3=In different tabia. **Success of attempt:** 1=Yes, 0=No

20	If you have a land certificate, does having the certificate give you any advantages in relation to your contracts with your tenants? 1=Yes, 0=No	Code	
21	If yes, how? 1=Improved bargaining power, 2=Contract fullfillment, 3=More tenure security, 4=More long-term contracts, 5=Better performance by tenant, 6=Tenant takes more responsibility for land conservation, 7=Other, specify:	Code	
22	Does having a certificate make you more willing to rent out the land to strangers? 1=Yes, 0=No		
23	If you do not have a land certificate, what are the disadvantages, if any, in relation to land renting out that you perceive? 1=No disadvantages, 2=Fear land grabbing by tenant, 3=More land disputes with tenant, 4=Harder to enforce tenant to work hard, 5=Less bargaining power in relation to contract choice, 6=Other, specify	Code	
24	If you face such difficulties, how do you respond? 1=Rent out less land, 2=Use one-year contracts only (without contracts), 3=Use one-year renewable contracts only, 4=Rent out to relatives only, 5=Rent out only to tenants that you trust, 6=Other, specify:	Code	
25	Does the recent land proclamation affect whether you continue to rent out land or not? 1=Yes, 0=No, 2=Don't know the proclamation	Code	

Pure owner operator

1	Have you participated in the land rental market (including sharecropping) ever before? 1.Yes, 0.No	Code	
2	If yes, have you rented in (sharecropped in) any plots during the last.. ten years, five years,	Number of times	
3	Have you ever rented out (sharecropped out) any plot of land during the last. ten years, five years	Number of times	
4	If you participated before, why not any more? 1.Have enough land, 2.Lack oxen, 3.Lack labour, 4.Failed to find partner, 5.Fear losing the land, 6. Not profitable enough, 7.Other, specify:	Code	
5	Your actual own farm size is	Tsimdi	
6	Given the land and nonland resources you currently have, and the going rental contract conditions in your village, would you like to participate in the land rental market? 1.Yes, Rent in, 2.Yes, Rent out, 0.No	Code	
7	If yes, Rent in: How much would you like to rent in?	Tsimdi	
8	If yes, Rent out: How much would you like to rent out?	Tsimdi	
9	Have you ever attempted but failed to participate in the land rental market before (including sharecropping)? 1.Yes, but failed to rent in, 2.Yes, but failed to rent out, 0.No	Code	
10	If yes, when?	Year	
11	If yes, how many did you contact?	Number	

List them.

No.	Name	Sex	Relationship	Distance to his/her house
1				

2				
3				
4				
5				

Sex: 1=Female, 0=Male, **Relationship:** 1=Blood-related, 2=In-law, 3=Neighbour, 4=Same ethnic group, 5=Same religious group, 6=Other, specify:
Distance: Minutes walk, **Partner lives:** 1=In same kushet, 2=In neighboring kushet in same tabia, 3=In different tabia. **Success of attempt:** 1=Yes, 0=No

12	How much time did you spend searching for partners if you tried?	Hours/year	
13	If you have never rented-in or attempted to rent-out any of your plots, Why? 1. Have enough resource to cultivate it myself, 2. Fear of losing land to be redistributed, 3. Fear of shirking by partner, 4. Other, specify	Code	

MASTERS PROGRAM: 2010 NOMA FELLOWS
NORWEGIAN UNIVERSITY OF LIFE SCIENCES
IN COLLABORATION WITH MEKELLE UNIVERSITY
HOUSEHOLD QUESTIONNAIRE

Zone _____

Woreda _____

Tabia
Household ID _____
Name of household head _____

The information collected will be used for research purposes. It will be treated as confidential and will not be used by tax authorities or others to assess the need for food aid or other assistance.

Distance to woreda town (walking minutes)	
Distance to local market (walking minutes)	
Distance to primary school (walking minutes)	
Distance to secondary school (walking minutes)	
Distance to all weather road (walking minutes)	
Distance to transporatation service (walking minutes)	
Distance to health center (walking minutes)	
Distance to grain mill	
Distance to nursery site	
Distance to protected water source(walking minutes)	
Distance to tap water(walking minutes)	

Enumerators:	**Dates interviewed**
First interview:	
Second interview:	
Third interview:	

Data checked by	**When**	**Status**			**Comments**
		ok	**Correct**	**Return**	

Data punched	**When**	**Who**	**Comments**
Pages			
Pages			
Pages			
Pages			

Farm household survey: Household characteristics **Page 1**

Woreda:		Interviewer:		Household number:	
Tabia		Date of interview:			
Kushet		Household head name:			
Household composition in 2002 (E.C.)					

Household members Religion:

MNo:	Name	relationship	Sex	Age	Education	Skills	Occupation	Presence
1		Head						
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Codes: Relation to household head: 1=wife, 2=child, 3=grand child, 4=brother, 5=sister, 6=hired labour
7=other, specify:
Sex: 1=female, 2=male. Age: Years. Skills: specify
Education: 0=illeterate, 1=read and write, 2= elementary, 3= church education, 4= secondary, 5=other, specify.
Occupation: 0=dependent, 1= student (in school), 2=watch after animals, 3=housewife, 4= farming
5=hired labourer, 6=off-farm activity, 7=Tabia/kushet offi PA/village official:specify
Presence: Months staying in the household during last 12 months

Do any of the household members live outside the village this year (EC 1995)?	Yes	No

Name	Place	Purpose	Since when	Coming back when

HOUSEHOLD NAME:_____ HH id:_____

Farm household survey: Livestock Production Activities

Animal type	**Stock** 2 years ago	Stock 1 year ago	Stock Current	Born during EC 2001/02	Died during EC 2001/02	Slaughtered EC 2001/02	Bought EC 2001/02	Sold during EC 2001/02
Cattle								
Milking cow								
Other cows								
Oxen								
Heifer								
Bulls								
Calves								
Sheep								
Goats								
Horses								
Mules								
Donkeys								
Camel								
Chicken								
Bee hives								

Source of cash to buy the livestock

1	Sale of output		Other
2	Remittance		
3	Credit		
4	Sale of food from FFW		
5	Sale of other livestock		