

Contract Renewal Differentials of Female- and Male-owned Farms in Ethiopia¹

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March 2009

¹ Acknowledgements

The authors gratefully acknowledge comments from Peter Berck, Fredrik Carlsson, Gunnar Köhlin, John Pender, Jean-Philippe Plateau, Thomas Sterner, participants at the Seminar in Goteborg University, the 2005 Ronald Coase Institute Workshop for Institutional Analysis, Barcelona, Spain, participants at the 2006 Biennial Conference on African Economies, Oxford, UK, participants at the 26th Conference of the International Association of Agricultural Economists and financial support from Sida. The usual disclaimer applies.

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Abstract

This paper assesses the differentials in contract renewal behavior between plots rented out by male and female land owners. Data collected from farms in the Central Highlands of Ethiopia that include matched landlord-tenant observations are employed in the analysis. The findings show that female land owners exhibit significantly higher tendency to renew land contracts than their male counterparts. Subsequent analyses show that the source of contract renewal differential is owed to females' lower bargaining power, and tenure insecurity. The results point to important factors that need to be addressed in the development of land lease markets that serve male and female and male land owners equally.

JEL classification: D2, Q12, Q15, C21, C7.

Key words: Contract renewal; Female-headed households; Contract enforcement ability, Tenure insecurity

1. Introduction

Gender gaps in productivity are well documented both in non agricultural (e.g. Petersen and Snartland, 1997; Hellerstein,1999) and agricultural studies (e.g. Smith, 1943; Quisimung, 1996; Udry, 1996, Cook, 1999)¹. Agricultural studies have identified better exposure to agricultural technology and access to credit (Ross, 2001), independent land rights, and better participation in the land and other markets (Agarwal, 2001) as critical to enhancing the productivity of female land owners². An empirical study by Holden and Bezabih (2007) shows that the productivity differentials in rented plots are explained by differences in the landlord-tenant relationships between male and female landlords by One of their findings indicates that contract renewal behavior is an important determinant of the wedge in productivity. Accordingly, this paper focuses on contract renewal, an important aspect of land leasing behavior and differentials in contract renewal patterns between male and female landlords. Explaining differentials in contract renewal behavior could generate essential information that illuminate our understanding of low productivity of female headed households and their low welfare.

A number of studies on the determinants of contract duration³ generally contend that the decision on a shorter or longer contract duration is governed by search costs and investments in landlord-tenant relationships/ assets (Yoder et al., 2008). In particular, short term contracts reduce the cost of enforcing contract stipulations and costs of renegotiation or tenant dismissal in the face of market uncertainties, poor tenant performance, or disputes over poorly defined rights to assets (Cheung,1969). On the other hand, short term contracts provide weak incentives for durable input investment if post contract asset transfer is difficult (Reid, 1979; Allen and Lueck, 19992; Yoder et al., 2008). Long leases are chosen when the costs of transferring tenant assets attached

¹ For a review of empirical studies and methodologies in measuring gender based agricultural productivity differentials, see Quisumbing, 1995.

² It should be noted that these studies are all descriptive and not empirical.

³ Because of the peculiar nature of the land tenure system where all land is owned by the state and a history of frequent redistribution, land owners are inherently tenure insecure and contracts are normally entered for a production year. However, in much of the literature, the possibility of contract termination vs extension is approached in the context of contract duration. Since the behavioral incentives that govern the decision to renew contract/ to opt for longer duration are similar, here we summarize a discussion on determinants of contract duration that are relevant to our problem.

to the land are high, or if the depreciation of assets beyond the contract period are difficult to assess and therefore difficult to price for transfer to the land owner.

Much of this discussion rests on the implicit assumption that the principal (and in our case the landlord) possesses a full power of eviction and exercises it when needed. However, in the context of Ethiopia, and particularly regarding female headed households, possible differences in tenure (in)security between male and female landlords, and the power of female headed households to credibly exercise the threat of eviction and to enforce the terms of contract may come into play in the decision to (not)renew contract with the same tenant .

As any other transaction, land transactions could take place for shorter or longer durations.⁴ When tenants are identical in terms of their effort and behavior, search costs are costless, and the landlord is fully secure about his (her) landownership, a shorter duration contract is as good as the longer duration one (repeatedly renewed one) in terms of search cost. With positive search costs and full tenure security, however, a longer duration contract would be more attractive as it reduces search costs for both parties. Female landlords are believed to for hard working tenants as they are less well placed to get perfect information on good tenants. In addition, because of the nature of female land ownership (which is in overwhelming number of cases through inheritance) extended family members are likely to work on female lands as tenants. Hence female landlords are less likely to be able to exercise threats of eviction. On the other hand, if the landlord is less than fully tenure-secure, longer term contracting could induce the risk of losing land to the tenant. Hence, holding other factors constant, female landlords may be motivated by tenure insecurity concerns to be less likely to renew contracts. Studies in other African countries indicate that female headed households might be more tenure insecure than their male counter parts (Bellemare and Barrett, 2007).

In addition, female headed households may have weaker positions as in negotiation as they are less regarded as farmers (Bekele and Mutimba, 2002). Moreover, sociocultural settings are such that kinship-based land rental arrangements are very common in Ethiopia (Kassie and Holden, 2008; Holden and Ghebru, 2008). Following this pattern, female headed households might also rent out land to relatives. However,

⁴ In this context, short duration contracts refer to one-year (one production season) agreements, while longer duration contracts involve repeated and continuous renewals with the same tenant.

such arrangements might particularly weaken the bargaining position of female headed households as it would be difficult to exercise the threat of eviction.

Based on this, we hypothesize that tenure insecurity (and their respective gender differentials females' lower bargaining power, and tenure insecurity are important determinants of contract renewal. Hence, tenure security, search and eviction costs, and weaker socio-cultural position of female headed households are critical factors in determining contract renewal.

The paper is organized as follows: In the next section, we give background and context of analysis. The estimation methodology along with some considerations in the estimation procedure is provided in Section 3. Section 4 details the survey design and data employed in the empirical analysis. Section 5 presents the empirical findings and section 6 concludes the paper.

2. Background and Context of Analysis

In a predominantly agricultural economy like Ethiopia, land is a critical factor of production as it is a source of livelihood, investment, and wealth. Moreover, unlike other inputs in agricultural production, access to it depends on the national tenure system set up by the government. A distinct feature of the Ethiopian land tenure⁵ system is state-ownership of land that bestows land to peasant farmers on *usufruct* basis. An obvious implication of this form of private land access is its ban on sale, which limits land ownership⁶ to village-administered (re)distribution. An additional implication is that such an ownership structure induces tenure insecurity among the farmers who have experienced (expect to experience) land redistribution in a manner that affects their farm size. Moreover, population pressure and ever decreasing farm size constitute a limit to redistribution as a viable form of land access.

The limited access to ownership under the existing tenural arrangement provides a wide space for the development of vibrant land lease markets that transfer land to

⁵ Land tenure is defined as a system of rights and institutions governing access to and use of land and other resources (Bruce, 1998)

⁶ In the sense it is used throughout the thesis, private land ownership refers to access to land by a household that involves own-use of land for production, short and medium term rentals and inheritance to immediate members of family.

landless/land-poor households. Indeed, land leasing increasingly constitutes an important source of land access and transfer. Many studies indicate that, in a given village, 30% or more households are engaged in leasing in/out (Teklu, 2004). However, the development of land leasing comes against the background that past policies have also outlawed all forms of land transactions. This could have a cascading impact in the sense that experience with land leasing is at an early stage and hence the land lease market may not be fully developed yet. Moreover, the underlying tenure insecurity of the land owning households may set an additional barrier.

As a result of the level of development of the land lease market and tenure insecurity, land contracts in Ethiopia are generally entered for a production season. This implies that renewal of contract with the same tenant is an important feature of land leasing behavior which will have implications on the behavior of tenants and subsequently on productivity.

The land ownership patterns of female-headed households are different from those of male-headed households in three major ways. One is that formal titling of women to land ownership is a fairly recent phenomenon. Previously, women could inherit land from their parents or deceased husbands; they could not, however, claim ownership upon divorce or could not be included in village redistribution schemes if they do not already own land (Crummy, 2000). Even with recent legislations that ascertain their entitlement to redistributed land and right to claim land upon divorce, effective claim has been less than complete. Upon divorce, for instance, asking for part of the land, although legally rightful, may lead to alienation by the community members. It might also be impractical in situations where a woman is married to a man in a different village than her home village since dividing up the land might require the woman to live outside her home village, where asking for her share of the land is “inappropriate” in the first place. Similarly, upon the death of the spouse, although it is the woman who generally keeps the land, her in-laws might be inclined to interfering in the management and the lease of the land.

This is also reinforced by the fact that there is a taboo against women undertaking major farming activities (Gebresilassie, 2005), which effectively bars them from managing their own land, and hence their heavy reliance on leasing out land for production. By emphasizing the socio-cultural constraints that typify female land

ownership in Ethiopia, this paper identifies key land-leasing features that distinguish contract renewal behavior of female land owners from their male counterparts. Differentials in tenure insecurity, enforcement ability, and other transaction costs related to search and screening in the land lease market are identified as the most critical factors.

3. Empirical Methodology and Estimation Considerations

The aim of this section is to set up a framework for analyzing determinants of contract renewal and the gender gap in the same. First, we specify the relationships between contract renewal, gender, tenure security, enforcement ability, and previous year productivity. To deal with possible endogeneity in production, we define the econometric relationships between productivity and its determinants. We then estimate a predicted productivity equation that includes a gender interaction term. The predicted productivity and interaction terms will be used as determinants in the contract renewal equation.

The contract renewal equation is estimated as a maximum likelihood probit model where where the standard errors are bootstrapped.

3.1. Contract Renewal

Analysis of the contract renewal decision is done using a probit model. Equation (1) presents the contract renewal equation where the dependent variable is contract renewal.

$$h_{ip} = \begin{cases} 1 & \text{if } \phi + \psi L_{ip} + \pi T_{ip} + \eta g_{ip} + \mu Cl_{ip} + \gamma Cl_{ip} * g_{ip} + \lambda S_{ip} + \varepsilon E_{ip} + \zeta Y_{ip}^* + w_{ip} > 0 \\ 0 & \text{otherwise} \end{cases}$$

(1)

where L_{ip} represents socioeconomic characteristics; Cl_{ip} is the number of years the tenant has managed plot p of household i ; T_{ip} is a set of variables measuring the tenant characteristics; S_{ip} represents the underlying tenure security variables; $Cl * g_{ip}$ is the interaction between gender and contract renewal; h_{ip} is a dichotomous variable indicating whether a contract will be renewed or not for the next production year;

E_{ip} represents the enforcement variables, Y_{ip}^* represents the predicted productivity and w_{ip} is the error term.

3.2. Predicted productivity equation as a determinant in the contract renewal equation

As per the standard productivity analysis, plot-level productivity is determined by plot characteristics and household level characteristics. In addition, because some plots are leased, lease status is included as an additional determinant of productivity. Accordingly, the econometric relationship is specified as:

$$y_{ip} = \alpha + \varpi L_{ip} + \gamma g_{ip} + \mu X_{ip} + \vartheta R_{ip} + u_{ip} \quad (2)$$

where for household i and plot p ; y_{ip} is the value of output per ha; L_{ip} represents socioeconomic characteristics including gender; X_{ip} is physical farm characteristics of the plot; R_{ip} stands for the plot's lease status; α , ω , π and ζ are the respective coefficients to be estimated; and u_{ip} is an error term.

The need for a predicted contract renewal equation arises from the fact that contract renewal is possibly endogenous in productivity.

4. The data

We gathered the data employed in the empirical analysis from households in two districts of the Amhara National Regional State, a region that encompasses part of the Northern and Central Highlands of Ethiopia. One of the Zones (Districts), East Gojjam is a fertile plateau receiving good average rainfall while the South Wollo zone is characterized by degraded hill side plots receiving lower and highly erratic rainfall.

Our sampling is based on a larger complementary a survey that involved approximately 2000 households. Among the 2000 households, information on about 230 landlord households (130 male-headed and 100 female headed) and matching tenants are included in this study. Table 1 and Table 2 present the summary statistics and definition of the variables used in the regressions.

The survey consists of details of socioeconomic and physical farm characteristics of the landlord households. In addition, socioeconomic characteristics of tenant households are also included. The level of transaction costs faced in the land

lease market and the degree of contract enforcement are represented by kinship between the tenant and the landlord, the extent to which the landlord is satisfied with the performance of the tenant and the landlord's inability to monitor the performance of the tenant. Tenure insecurity is measured in terms of past experience of changes in land holdings, expectations about changes in holdings and experience of conflict.

<< Table 1 here >>

<< Table 2 here >>

Land owning farm households may or may not engage in the land lease market. Accordingly, they are categorized as ‘autarkic’, ‘landlords’ or ‘tenants’. For those who engage in the land lease market, they might do so partially or fully i.e. by renting out all/part of the plots. Table 3 presents the nature and extent of participation in the land lease market by gender category.

<< Table 3 here >>

5. Results

Table 5 presents the results from the survival analysis, where the determinants of contract renewal are added in successive stages. Each column represents a measure of the relationship between contract renewal and a set of determinants. We start the analysis with plot and farm characteristics of households as exogenous determinants of contract renewal.

As the results in the first column of Table 5 show, plots distant to the homestead are likely to be renewed. This is understandably due to the transaction costs of monitoring distant plots and the tendency to entrust such plots to existing tenants. However, except for farm size, all other physical farm characteristics such as slope and fertility of plots as well as soil type are not significant determinants of contract renewal. Our tenure insecurity measure, the landlord’s experience of land gain or loss is a significant and negative determinant of contract renewal. This shows that landlord’s tenure insecurity reduces the likelihood of the tenant getting his contract renewed.

Household characteristics such as level of education of households are not significant determinants of contract renewal. Older households are likely to renew contracts which might be because of their inability to search for a new tenant. However, the gender dummy is positive and significant. The finding that gender is significant implies that, given that controlling for household and farm characteristics, female landlords are likely to renew contracts.

In column 2, we introduce the possibility that households may be different in productivity and assess the impact of such additional differences on contract renewal

behavior. The household, farm level and tenure security variables follow similar patterns of sign and significance as in the results in column 1.

Of the measures of enforcement, landlord's satisfaction with the performance of the tenant increases the likelihood of contract renewal. This shows that the costs of contract enforcement and search have positive impact on the likelihood of contract renewal. In addition, female-headed households that are unable to monitor are less likely to renew contracts. Among the kinship variables, male tenants are less likely to renew contracts with blood relatives, while other kinship variables are found to be insignificant for both male and female household heads.

Of the tenant characteristics included, the number of oxen the tenant has is not a significant determinant of contract renewal. Older tenants are less likely to get their contracts renewed.

Contrary to our hypothesis, the blood relationships between landlords and tenants, has no significant bearing on the likelihood of contract renewal.

6. Conclusions

This paper assesses the socio-cultural and economic factors that determine contract renewal behavior and distinguish women land owners from their male counterparts with respect to such behavior.

We started out by hypothesizing that search and eviction costs as well as tenure insecurity (and their respective gender differentials are important determinants of contract renewal. Female landowners' higher tenure insecurity might discourage contract renewal. In addition, because the main agricultural activities are undertaken by men, there are tendencies in such settings to disregard the role of women as farmers. This might undermine their landownership and weaken their bargaining position in the land lease market. This might imply that female landlords may lack the power to evict tenants they deem unproductive.

Analysis of the determinants of contract renewal shows that tenure insecurity reduces the likelihood of contract renewal; and landlord's enforcement ability while contract renewal is not less likely for plots leased out by female landlords.

In sum, given the long history of women's lack of property rights over their land, an important policy progress has been made by formally entitling them to land rights. One important implication of our result is that a full stride towards empowering rural women and in land rights requires their proper recognition as farmers. This would enable them to feel more tenure secure and enable them have

better bargaining power in the land lease market. At a more general level, this indicates that ensuring that informal grounds are leveled is important in order to obtain the expected results

from more formal policy change actions.

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Table 1: Description of variables used in the regressions

Variables	Description
Landlord socioeconomic	and farm Characteristics
Education	Head's formal education (1=read and write; 2= read only; 3=none)
Age	Age of household head
Female	Gender of the household head
Male adult	The number of male working-age family member of the landlord per ha
Female adult	The number of female working-age family member of the landlord per ha
Livestock	The number of livestock per ha
Oxen	The number of oxen per ha
Zone	Zone the household belongs in (1=Gojjam; 0=Wello)
Flat slope plot	Flat slope of the plot (1=flat; 0=not flat)
Moderate slope plot	Medium slope of the plot (1=medium; 0=not medium)
Fertile soil	Fertile plot (1=fertile; 0=not fertile)
Medium fertile soil	Medium fertile plot (1=medium fertile; 0=not medium fertile)
Black soil	Plot with black soil color (1=black; 0=not black)
Red soil	Plot with red soil color (1=red; 0=not red)
Plot area	Total farm size (ha)
Farm area	Plot size (ha)
Plot distance	Distance of the plot from homestead (minutes)

Addis mender	Dummy for Kebele 1 (1=addismender;0=other)
Addis gudguadit	Dummy for Kebele 2(1=Gudguadit;0=other)
Ambamariam	Dummy for Kebele 3 (1=Ambamariam;0=other)
Chorisa	Dummy for Kebele 4 (1=chorisar;0=other)
Kebi	Dummy for Kebele 5 (1=kebi;0=other)
Kete	Dummy for Kebele 6 (1=kete;0=other)
Sekela debir	Dummy for Kebele 7 (1=sekeladebir;0=other)
Telima	Dummy for Kebele 8 (1=telima;0=other)
Weleke	Dummy for Kebele 9 (1=welekie;0=other)
Yamed	Dummy for Kebele 10 (1=yamed;0=other)
Amanuel	Dummy for Kebele 11 (1=amanuel;0=other)
Inputs	
Fertilizer	Amount of fertilizer applied (kg)
Manure	Amount of manure applied (kg)
Tenant	Characteristics
Tenant's age	Tenant's age
Tenant's oxen	The number of oxen owned by the tenant
Enforcement	Variables
Blood relation	A dummy variable indicating whether the tenant is a blood relation or not (1=blood relation, 0=no)
Spouse relation	A dummy variable indicating whether the tenant is an in-law or not
Blood relation*female	A dummy variable indicating whether the tenant is a blood relative given that the landlord is a female
Spouse relation*female	A dummy variable indicating whether the tenant is an in-law given that the landlord is a female

Satisfaction	A dummy variable indicating whether the landlord is satisfied with the performance of the tenant (1=satisfied, 0=otherwise)
Satisfaction*female	A dummy variable indicating whether the landlord is satisfied with the performance of the tenant given that the landlord is a female
Inability to monitor	A dummy variable indicating whether the landlord is unable to monitor the activities of the tenant (1=unable to monitor, 0=otherwise)
Inability to monitor*female	A dummy variable indicating whether the landlord is unable to monitor the activities of the tenant given that the landlord is a female
Contract renewal	A dummy variable indicating whether the current tenant will get contract renewal or not in the following production year
Contract renewal*female	A dummy variable indicating whether the current tenant will get contract renewal or not in the following production year given that the landlord is a female
Tenure security	Variables
Security	Whether the landlord expects increase, no change or decrease in the land size in the coming five years (1=decrease 2=no change 3=increase)
Changeland	Whether the landlord has experienced change in the landownership in the last five years (1=change, 0=no change)
Conflict	Whether the landlord has experienced any conflict regarding the land
Dependent	Variables
Contract renewal	Whether the contract will be renewed or not in the next production year (1=renewal; 0=non-renewal)

Table 2: Summary statistics of variables used in the regressions

	Mean	St.Dev.	Minimum	Maximum
Education	1.581	0.871	1	3
Female	0.348	0.477	0	1
Age	55.902	18.191	13	95
Adult male	0.534	1.055	0	9
Adult female	0.414	0.900	0	9
Livestock	4.009	13.572	0	394
Oxen	1.095	1.904	0	13
Fertile plot	0.344	0.475	0	1
Medium fertile plot	0.421	0.494	0	1
Black soil	0.344	0.475	0	1
Red soil	0.520	0.500	0	1
Flat slope plot	0.633	0.482	0	1
Moderate slope plot	0.239	0.427	0	1
Plot distance	20.6	41.3	0	900
Plot size	0.255	0.169	0	1
Farm size	1.330	0.808	0	4
Addisgudguadit	0.093	0.290	0	1
Chorisa	0.022	0.145	0	1
Addismeder	0.040	0.196	0	1
Yamed	0.079	0.270	0	1
Ambamariam	0.078	0.269	0	1
Kete	0.092	0.289	0	1
Sekeladebir	0.093	0.290	0	1
Telima	0.087	0.282	0	1
Wolekie	0.084	0.278	0	1
Kebi	0.117	0.322	0	1
Manure	166.3	583.0	0	7600
Fertilizer	49.8	127.1	0	2381
Tenant's age	2.315	0.803	1	3
Tenant's oxen	1.977	1.074	0	8
Blood relation	0.427	0.495	0	1
Spouse relation	0.129	0.335	0	1
Spouse relation*female	0.053	0.224	0	1
Blood relation*female	0.160	0.367	0	1
Inability to monitor	0.083	0.276	0	1
Inability to monitor*female	0.033	0.179	0	1
Satisfaction	0.638	0.481	0	1
Satisfaction*female	0.239	0.426	0	1

Security	1.829	0.866	1	3
Changeland	0.132	0.339	0	1
Conflict	0.196	0.397	0	1
Contract duration	4.696	3.763	1	20
Contract duration*female	2.267	3.861	0	20
Contract choice	3.991	0.991	1	5

Table 3: Socioeconomic and endowment characteristics by household head gender

Socioeconomic characteristics							
	Age	Education	Family size	Adult family members	Oxen	Livestock (flu)	
Female	52.71 (16.48)	1.21 (0.61)	4.05 (2.11)	2.64 (1.28)	0.34 (1.05)	1.13 (1.86)	
Male	55.67 (18.48)	1.85 (0.95)	6.00 (2.27)	3.88 (1.69)	0.80 (1.23)	2.71 (3.01)	
Tenure security indicators							
	Conflict		Certificate		Security		
Female	0.20 (0.41)		1.19 (0.57)		2.5 (0.88)		
Male	0.19 (3.97)		1.17 (0.56)		2.56 (0.94)		
Land market participation							
	Farm size	Plot size	Non leased plot	Shared in plot	Shared out plot	Rented in plot	Rented out plot
Female	1.04 (0.61)	0.25 (0.19)	0.32 (0.46)	0	0.62 (0.48)	0	0.07 (0.08)
Male	1.79 (1.03)	0.24 (0.08)	0.45 (0.49)	0.02 (0.14)	0.47 (0.49)	0.004 (0.64)	0.015 (0.12)

_b[clength2]				0.182 (0.071)**
_b[h]				-0.118 (0.109)
Table 4: Probit analysis of the determinants of contract renewal				0.839 (1.194)
_b[plotdist]	0.007	-0.003	-0.002	(0.005)
_b[finability]	(0.004)**	(0.003)	(0.004)	(4.683) (0.003)
_b[farmarea]	0.653	1.233	1.408	(2.276)** 2.054
_b[satisfied]	(0.144)***	(0.406)***	(0.467)***	3.672 (0.701)***
_b[sex_all]	-0.035	16.442	15.334	(0.886)*** 18.318
_b[fsatisfied]	(0.188)	(3.237)***	(4.143)***	2.162 (6.434)***
_b[age_all]	-0.005	-0.021	-0.024	(1.219)* -0.025
_b[btenant]	(0.006)	(0.011)*	(0.013)*	(1.013)* -0.013
_b[literacy_all]	-0.009	0.204	0.232	(0.840) 0.688
_b[fbtenant]	(0.123)	(0.229)	(0.235)	0.191 (0.376)*
_b[slope1]	-0.915	-1.825	-1.911	(1.012) -3.335
	(0.933)	(4.071)	(3.852)	(5.064)
_b[slope2]	-1.013	-0.896	-0.875	-2.338
	(0.931)	(4.126)	(3.883)	(5.099)
_b[black]	-1.664	-1.128	-1.360	-1.671
	(1.162)	(7.578)	(7.669)	(7.931)
_b[red]	-1.859	-1.481	-1.471	-2.676
	(1.176)	(7.570)	(7.609)	(7.837)
_b[changeland]	-0.629	-1.214	-1.201	-1.717
	(0.186)***	(0.337)***	(0.335)***	(0.654)***
_b[pryield]		1.477	1.122	2.022
		(0.509)***	(0.623)*	(0.964)**
_b[resid]		2.892	3.075	3.488
		(0.656)***	(0.675)***	(1.077)***
_b[fpryield]		-2.288	-2.112	-2.227
		(0.434)***	(0.547)***	(0.795)***
_b[fresid]		-1.700	-1.821	-2.034
		(0.427)***	(0.449)***	(0.663)***
_b[tage]			0.493	0.631
			(0.223)**	(0.420)
_b[toxcd]		21	-0.125	-0.214
			(0.246)	(0.372)

Note: Standard errors are bootstrapped.