Competition, Kinship or Reciprocity?
Village Experiments in Alternative Modes of Exchange

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I. Introduction

Efforts to predict the consequences of agricultural policies in the context of developing countries have been extensively studied in the literature. What is worrying is that such policies sometimes change supply in the wrong direction. This phenomenon has puzzled economist for long, trying to explain the 'hidden' motives underlying household responses. Singh et al. (1986) describe the effect of agricultural profits on the marketed surplus of staple foods; Finskelshtain and Chalfant (1991) and Fafchamps (1992) elaborate on the effects of multivariate price risk on production and consumption; and de Janvry et al. (1991) describe the influence of transaction costs on supply response. The search for an explanation led to agricultural household models, in which production and consumption decisions are linked, because the decision-making entity is both a producer and a consumer.

Household models resolve the apparent paradox of a positive own-price elasticity of demand for food in farm households, as well as the puzzle of sluggish market-surplus responses to food-price changes. Yet they fail to explain similar phenomena in non-food commodities, where markets are complete and separability assumption holds. In this paper, we examine this possibility using village experiments in commodity market. We show that existence of reciprocity among sellers, that characterize trader idiosyncrasy, has a powerful effect on equilibrium selection. This signifies that, even if price falls, sellers will trade in anticipation of the expected future reciprocity, making short run losses only to be compensated in the long run.

Our analysis is conducted in the context of a village market, where cotton is being traded. This market, with many farmers as sellers and different traders as buyers, can be characterized as near perfect. Although prices within the village vary between traders, the maximum bid is determined outside the village market. The commodity traded is homogeneous, and both buyers and sellers know with certainty its monetary value or in other words, there is no information asymmetry.

We present two main results. The first result demonstrates that sellers' reciprocal responses are strong enough to render large volumes in favor of a trader who does not offer the best price. This is an important violation of the most basic principle in the competitive paradigm, which we refer to as trader-idiosyncratic effect. Yet another violation is its corollary, the repeal of the law of one price. Both observations suggest that reciprocity motives may indeed be capable of driving a competitive market towards Pareto inefficient equilibrium. Our second result points to the importance of trader idiosyncrasy, a phenomenon which does not only have the power to distort markets but can also corner most incentives offered through price policy. As a consequence price policies will have very different behavioral and welfare implications for farm households. An upshot of the existence of these motives in trade reflects the limited role of price incentives.

Our work is closely related to two areas of literature that document deviations from the common behavioral assumptions. The idea that fairness motives can affect competitive market outcomes is reported in a number of studies (Okun, 1981; Akerlof, 1982; Akerlof and Yellen, 1990). These analyses contain the important insight that fair behavior is instrumental to the maximization of long-run profits. Most of this literature is

theoretical and confined to labor market studies, often lacking rigorous empirical evidence, although studies based on laboratory experiments exists (Fehr et al., 1998).

There is also an extensive literature on kinship which suggests that those who break caste customs may suffer economically with its own set of mutual assistance ethics and social sanctions to enforce (Akerlof, 1976; Hoff and Sen, 2005; Collier and Garg, 1999). These models add an important facet to kinship studies missing in previous models of discrimination, but they present mixed evidence when kinship is exposed to market.

The rest of the paper is organized as follows: section II presents the data and describes the setting, while results are presented in section III. In section IV, we discuss possible interpretations in the context of the broader literature.

II. Data and the Village Setting

The data for this study was collected based on a census, which we implemented in the village of Kanzara, located in the state of Maharashtra, India. This village has been the focus of research for several decades.[1] Comprehensive data collection was carried out in all 305 households of the village between March and August 2004. The questionnaire covered all household activities and transactions during the period from April 2003 to March 2004. The results that we report here are based on cotton traded over four months

[1] Several sample surveys have been carried out in Kanzara by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). See Walker and Ryan (1990) for a detailed discussion.

during the harvest and post-harvest period, when most of the cotton that is cultivated is sold.[2]

Most of the cotton cultivated is sold either to traders within the village or transported to the nearest market outside the village, where prices are generally expected to be higher.[3] In addition to the household interviews, we gathered data on transactions from records maintained by the traders. Most traders are operating in groups, so that they have to maintain written records, in order to calculate individual profit shares. We use these trader records on quantities and prices, as they are more accurate than the recall data obtained from the farm households.

There were in total eight individual traders operating in five groups within the village accounting for 50 percent of all cotton transactions and about 36 percent of total cotton volumes traded. Rests of the transactions were made between farmers and outside the village traders. We only focus on the transactions within the village and club the five trader groups together into two trading entities: Trader A, representing one group which accounts for 80 per cent of within village transactions, and Trader B, representing the other four groups.

Within village trade is characterized in Table 1. Two deviations from economic theory become apparent. The first is the negation of the most basic principles of economics: the law of one price. Since all village traders sell the cotton in the same outside-village market, the price offered to farmers should reflect the outside-village price minus transaction costs. Given a near homogeneous commodity, perfect

[2] Whether a transaction is in the harvest or post harvest period varies from seller to seller depending on the time of the realization of the transaction. If the transaction takes place immediately after harvest then we categorize this as harvest period transaction.
[3] There were 259 sellers in total selling cotton either within the village or outside.

information, and no significant differences in transaction costs, competition between traders should ensure a single price within the village, at least over the season as sellers learn from past mistakes. Table 1 report that this basic principle is violated in this market.

Second and the related issue is quantity sold. Assume that trade takes place and the market exists for several months, with each buyer setting his own price, though dependent on outside-village market price and market is cleared with multiple equilibrium prices over the period. With perfect information and lack of transaction costs within the village, the long run equilibrium will be characterized by a distribution of prices that is the highest each time because the highest short run equilibrium prices are always Pareto preferred by the sellers. This gives rise to long run equilibrium where the largest quantity offered for sale is to the trader with the highest average price over any given period. Table 1, however, shows that Trader A, who is dominant in terms of both percent transacted and quantity traded, did not offer the highest price.

Differences between traders in fractions traded and mean prices are statistically significant. The volumes traded are significantly higher for Trader A, while the prices offered are significantly lower. As mentioned above, we refer to this phenomenon as trader-idiosyncratic effect. Obviously, there are reasons that influence the flow of large volumes of the commodity in favor of the trader, who does not offer the highest price, thus defying some of the predictions of the competitive paradigm. We next examine what drove this market to exhibit multiple equilibria. We first discuss possible factors, which are then empirically tested in section III.

Alternative Explanations for the Existence of Multiple Equilibria

Reciprocity and Market

Incidentally, in the village market Trader A, the trader with the largest volume of cotton traded is also the village supplier of the government-subsidized public distribution system. Many of the government programs, such as the food-for-work program and housing scheme, as well as regular sales of subsidized goods are controlled by this trader. It is quite likely that sellers sold their cotton to Trader A to get favors in many other ways that compensates the loss that they may incur by selling at lower prices. It is widely known that village outlets are a major spot of distortion (corruption) in the government programs, and the beneficiaries strongly depend on the whims of the operator, right from quality to prices at which it is sold.[4] Therefore, farmers' behavior to sell their produce at lower prices is not mere generosity, but comes with the tag that current generosity is compensated through favors at a later date. [5]

The importance of such reciprocity was quite evident from household responses. But to examine this objectively is a difficult proposition because almost all the farm households that involved in cotton trade were dependent on Trader A in many ways. The better-endowed households purchase subsidized kerosene for a wide variety of purposes apart from purchases of rice. Households at the lower end of the income distribution purchase rice and wheat at subsidized rates. Here we do not quantify reciprocal exchange, which is difficult to capture, because returns might occur in many ways and over infinite periods. However, we examine reciprocal exchange by an indicator of dependence

[4] Depending on the size of each village, one outlet can serve more than one village which gives an idea of the quantity transacted and power the operator can exercise on households.

[5] These contracts are not binding, but interactions over infinite periods ensure that agents do not renege on a reciprocal exchange agreement (Kranton, 1996).

inferred from household expenditure profiles. We assume that value purchased at subsidized prices is an indicator of dependence. Yet we acknowledge that this indicator misses certain aspects which are harder to quantify. In the food-for-work program, for instance, beneficiaries are paid in kind (Deshingkar et al., 2005). There are also other transfer programs where households are paid in kind or in cash, partly without any quid pro quo. In the housing scheme, beneficiaries receive wheat and rice. Most of this is sold back in exchange for cash, and the price received again depends on Trader A. Such transfers are not captured in the household expenditure profiles.

Kinship and Market

Another factor that could explain the market anomaly is kinship. Akerlof (1976) uses a variant of Arrow's model of statistical discrimination, where those who break caste customs suffer economically. Sanctions for those who shirk the obligations of the kin system entail economic consequences like loss of employment, stigma, and social ostracism. It is quite clear from the literature that in rural predominantly non-market economies the kin system is a valuable institution, providing critical community goods and insurance services in the absence of market or public provision of such goods and services (Hoff and Sen, 2005). Trader A in Kanzara village belongs to the dominant caste. Therefore, it is likely that those sellers who belong to the same caste sold large volumes of the commodity to Trader A irrespective of the offer price.

Neighborhood Effects and Market

There is also an extensive literature on the importance of geographical neighborhood effects in a wide range of social and economic outcome. Neighborhood effects, which appear to be related to individual behavior, may result from the tendency of families with

similar characteristics to live close to each other and to influence each other's economic decisions and outcomes. For instance, Banerjee and Besley (1990) and Akerlof (1997) examine the importance of peer effects on educational achievement, while Case and Katz (1997) analyze impacts on several outcome variables. Here we examine the importance of neighborhood effects in a competitive market setting, to find out whether the observed paradox can be explained along similar lines.

III. Results

Does Price Matter in Volumes Traded?

Although the price-responsiveness of cotton sellers was shown to be counterintuitive in a simple price-quantity framework, the incentive role of prices for volumes traded deserves further scrutiny. Table 2 shows important variables that could influence trade. Means and standard deviations for the full sample are presented in column 1, while columns 2 and 3 show a breakdown by traders. Each cotton transaction constitutes one observation. Since many farmers sold cotton more than once during the harvest and post-harvest period, the total number of observations is bigger than the number of cotton-selling farm households in the village. The variables education, age, and religion are in reference to the head of the seller households. Rice, wheat, and fuel purchased at subsidized rates are expressed in value terms per month. As discussed in the previous section, we use these subsidized purchases as indicators of reciprocity. Kinship and neighborhood dummies are defined with reference to Trader A. For instance, if a particular seller household belongs to the

same caste or lives in the same neighborhood as Trader A, then the dummy value is 1, while it is 0 otherwise.[6]

The effect of prices on volumes traded is presented in Table 3. We first report results for the full sample and then examine the segmented markets of Trader A and Trader B individually. As a first step, the sellers sort themselves into different segments determined by the trader idiosyncrasy, and then they wait for the right price or the reservation price to sell. Looking at the total sample, all regressions show a positive effect of price on volumes traded, indicating that greater quantities are sold at higher prices. Even after controlling for land owned, education, household size, age and trader characteristics, price is positive and highly significant. This shows that price matters in quantities traded, as suggested by economic theory.

The next important question is whether trader idiosyncrasy has an impact on quantities traded. Apart from prices and land owned, kinship, neighborhood effects and our indicators of reciprocity are also significant. The negative signs for the neighborhood dummy and the reciprocity variables can be interpreted as trade diversion, because these effects can divert trade away from markets which have a natural comparative advantage in terms of higher prices.

The regressions for the two segmented markets show similar results with regard to prices.[7] In the segmented market of Trader A, reciprocity and neighborhood effects are negative, but significant only in the case of reciprocity. In the market of Trader B, both

[6] See Walker and Ryan (1990) for details on caste composition in this village.

[7] The results in Table 3 should not be misinterpreted as the farmers' decision whether to sell to Trader A or Trader B. The regressions just analyze the effects of the independent variables on volumes traded within each segmented market. The interesting question of what determines the market segmentation will be explicitly modeled in the next sub-section, where we introduce the trade-off between the traders as the dependent variable.

neighborhood and reciprocity effects are negative and significant exhibiting trade diversion.

Trader Idiosyncrasy

What happens to price if we explicitly model the farmers' decision in which market to sell? Or rather, what determines trade in favor of Trader A? To examine the effect of trader idiosyncrasy on the likelihood of trade, we run a probit of sales to Trader A versus Trader B on price, household size, age, religious dummy, land owned, and trader idiosyncrasy. We examine the trader-idiosyncratic effect in two ways: first in terms of the significance of the kinship, neighborhood, and reciprocity variables and second in terms of the effect of these variables on the price coefficient, since we argue that the inverse supply response is caused by trader idiosyncrasy.

The first column in Table 4, which does not control for trader idiosyncrasy, shows that the price effect is negative and significant. In other words, farmers sell their crop to Trader A in spite of the lower prices offered. To control for trader idiosyncrasy we introduce neighborhood effects, kinship, and reciprocity in columns 2, 3 and 4, respectively. If these effects can explain the negative supply response, the price coefficient should turn from negative to positive. As expected, the neighborhood effect is positive and significant, but this alone only has a small impact on the price coefficient. The kinship dummy in column 3 is not significant.

Results in column 4 show significant effects of reciprocity, and – albeit insignificant – the sign of the price coefficient switches. The positive effects of rice and wheat purchases are expected because more purchases will increase dependence on Trader A and hence trade irrespective of prices with higher expected future reciprocity.

The negative sign for fuel purchases is somewhat surprising. While rice and wheat are imperfect substitutes and rice can be purchased also in the open market, fuel can only be purchased officially from Trader A. A fixed quota for fuel sales is predetermined statutorily, but in practice the sale was individual specific, with different quantities sold at different prices. The substitution-in by richer and substitution-out by poorer households promotes extensive black markets making the impact intractable.

In columns 5 to 7, we introduce two interaction terms to capture an incidental feature of the data that both the traders (dominant in both groups) live in the same neighborhood and belong to the same caste, which provides a natural control for both neighborhood and kinship effects. The interaction between wheat purchased and the muslim dummy shows that reciprocity is also significant among sellers who do not belong to the same caste of Trader A, while the interaction between rice purchased and the neighborhood dummy shows that reciprocity is important irrespective of the neighborhood effect. Both interaction terms are jointly introduced in column 7. The results suggest that reciprocity is the most important motivation in the neighborhood to trade with Trader A.

Although these results clearly demonstrate the importance of reciprocity in village trade, a couple of shortcomings should be pointed out. The price effect turns positive but remains insignificant, which to some extent might be attributable to the inadequacy of the purchase variables to capture reciprocity. As mentioned, an important component missing in these variables are in-kind transfers. Another potential problem is the presence of measurement errors in these variables. And finally, the nature of price formation is not so clear in all cases: sellers do not only self-select themselves into different market segments

where prices are exogenous, but often there also exists some degree of bargaining. Hence, prices are not only endogenous but are also dependent on sellers' decision, and might be correlated with the error term. Our future work will focus on resolving these potential issues.

IV. Interpretation

Potential Confounds

We now come back to our underlying phenomenon of a negative supply response to price changes, where markets are complete and separability assumption holds. In this section, we proceed to explain this phenomenon in terms of trader idiosyncrasy. In Table 3, we reported significantly positive price elasticity for volumes traded. This positive price effect turned negative when we introduced the trade-off between the traders as the dependent variable in Table 4. This negative effect again turned positive when we isolated the effect of reciprocity on the likelihood of trade. This swap in the price effect in Table 4 highlights the importance of reciprocity in explaining the negative supply response: due to the existence of reciprocity between sellers and a certain trader, a trader-idiosyncratic effect occurs with the outcome that farm households will sell to this trader, even if the price is lowered. Under such circumstances, most of the price incentives will be cornered by the trader, and farm households are left with no incentive to increase production and marketed surplus.

The literature on household models has so far completely ignored the role of traders. Our results demonstrate that trader idiosyncrasy can determine trade to a large extent in situations where no organized trading networks exist. In fact, this should not

surprise in a traditional village society, where generations of households remain in relatively close contact with bilateral repeated interaction and full information about transacting parties. As a generalization, trader idiosyncrasy could not only mean reciprocity and kinship as in this paper, but also honesty in Dixit (2003), and building reputation and trust through fair behavior in Akerlof (1970).

Concluding Remarks

In these concluding paragraphs, we will try to summarize the main results and put them in the context of the broader literature. We point to two anomalies observed in the village commodity market. First, the repeal of the law of one price, and second, the trader-idiosyncratic effect. This outcome is at odds with the conventional model of rational and purely selfish behavior, but can easily be explained, as in this paper, in terms of reciprocity. The sellers' reciprocal responses were strong enough to render large volumes in favor of the trader, who did not offer the best price showing, in the words of Fehr et al. (1998), a noncompetitive outcome persisting in a competitive trading institution.[8]

These results are in contrast to what Kranton (1996) suggests that whether or not reciprocity is enforceable depends on market size and agents' preferences; if a market is thick enough, it can be an attractive alternative, and reciprocity cannot be enforced. Most part of her argument depends on how large is the size of a large market where only market exchange survives, nevertheless the market under study cannot at least be considered small, given the number of buyers and sellers and the volumes traded.

Given that trader idiosyncrasy affects market outcome, price policy can have very different behavioral and welfare implication for farm households. An implication of

[8] Similar results have been reported by Fehr et al. (1998) using laboratory experiments in a very different context. They refer to this as a remarkable result.

trader idiosyncrasy is that policies that affect prices will result in different supply responses. Policies that reduce such market distortions are consequently important complements to price policies in affecting supply response.

References

Akerlof, George (1970) “The Market for Lemons: Quality Uncertainty and the Market Mechanism”, Quarterly Journal of Economics, Volume 84, Number 3, pp. 488-500.

Akerlof, George (1976) “The Economics of Caste and of the Rat Race and other Woeful Tales”, Quarterly Journal of Economics, Volume 90, Number 4, pp. 599-617.

Akerlof, George (1982) “Labor Contracts as Partial Gift Exchange”, Quarterly Journal of Economics, Volume 97, Number 4, pp. 543-569.

Akerlof, George (1997) “Social Distance and Social Decisions”, Econometrica, Volume 65, Number 5, 255-283.

Akerlof, George and Janet Yellen (1990) “The Fair Wage-Effort Hypothesis and Unemployment”, Quarterly Journal of Economics, Volume 105, Number 2, 255-283.

Banerjee, Abhijit and Timothy Besley (1990) Peer Group Externalities and Learning Incentives: A Theory of Herd Behavior, Technical Report 68, John M. Olin Program for the study of Economic Organization and Public Policy, Princeton University.

Case, Anna and Lawrence Katz (1997) The Company you keep: The Effects of Family and Neighborhood on Disadvantaged Youth, Discussion Paper 3705, National Bureau for Economic Research.

Collier, Paul and Ashish Garg (1999) “On Kin-Groups and Wages in the Ghanaian Labor Market”, Oxford Bulletin of Economics and Statistics, Volume 61, Number 2, pp. 133-157.

de Janvry, Alain, Marcel Fafchamps and Elisabeth Sadoulet (1991) “Peasant Household Behavior with Missing Market: Some Paradoxes Explained”, Economic Journal, Volume 101, Number 409, pp.1400-17.

Deshingkar, Priya, Craig Johnson and John Farrington (2005) "State Transfers to the Poor and Back: The Case of the Food-for-Work Program in India”, World Development, Vol. 33, Number 4, pp. 575-591.

Dixit, Avinash (2003) “Trade Expansion and Contract Enforcement”, Journal of Political Economy, Volume 111, Number 6, pp. 1293-1317.

Fafchamps, Marcel (1992) “Cash Crop Production, Food Price Volatility and Rural Market Integration in the Third-World”, American Journal of Agricultural Economics, Volume 74, Number 1, pp. 90-99.

Fehr, Ernst, Georg Kirchsteiger and Arno Riedl (1998) “Gift Exchange and Reciprocity in Competitive Experimental Markets”, European Economic Review, Volume 32, Number 1, pp. 1-34.

Finkelshtain, Israel and James Chalfant (1991) “Marketed Surplus under Risk: Do Peasants Agree with Sandmo”, American Journal of Agricultural Economics, Volume 73, Number 3, pp. 558-567.

Hoff, Karla and Arijit Sen (2005) “The Kin System as a Poverty Trap?”, World Bank Policy Research Working Paper 3575, World Bank, Washington.

Kranton, Rachel (1996) “Reciprocal Exchange: A Self-Sustaining System”, American Economic Review, Volume 86, Number 4, pp. 830-851.

Okun, Arthur (1981) Prices and Quantities: A Macroeconomic Analysis, The Brookings Institution, Washington, D.C.

Singh, Inderjit, Lyn Squire and John Strauss (1986) Agricultural Household Models – Extension, Application and Policy, Baltimore: The Johns Hopkins University Press.

Walker, Thomas and James Ryan (1990) Village and Household Economies in India’s Semi-Arid Tropics, The John Hopkins University Press, Baltimore.

Table 1: Distribution of Within Village Trade

	Trader A	Trader B	Ho: Difference	Ho: p-value
	1	2	3	4
Percent Transacted	80.54	19.46	61.08	(0.0000)*
Mean Price (Indian Rupees/Quintal)	2433	2462	- 29.04	(0.0472)*
Percent Volume Traded	75.59	24.41	51.18	

Notes: The first row in column 4 reports the p-value of a test of proportion with the null hypothesis that the percent transacted is equal across traders. In the second row of column 4, we test the null hypothesis that there is no significant difference in prices between traders.
* Significant at 5-percent level.

Table 2: Characteristics of Selling Households in Cotton Transactions

Variable	All Transactions	Trader A	Trader B
	1	2	3
	Mean Values (Standard Deviations)		
Price (Indian Rupees/Quintal)	2438.93 (158.62)	2433.28 (165.08)	2462.32 (126.75)
Household Size	5.11 (1.89)	5.09 (1.79)	5.17 (2.26)
Education (Years of Schooling)	5.12 (3.42)	5.20 (3.50)	4.82 (3.04)
Age (Years)	46.90 (12.52)	46.25 (12.30)	49.60 (13.13)
Land Owned - Unirrigated (Acres)	6.20 (7.36)	6.31 (7.52)	5.73 (6.64)
Land Owned – Irrigated and Unirrigated (Acres)	5.66 (6.97)	5.74 (7.08)	5.30 (6.53)
Religion Dummy - Hindu (Hindu=1)	0.72 (0.44)	0.70 (0.45)	0.82 (0.38)
Religion Dummy - Muslim (Muslim=1)	0.20 (0.40)	0.22 (0.42)	0.08 (0.28)
Rice Purchased (Indian Rupees)	56.60 (49.97)	58.66 (53.99)	48.52 (28.18)
Wheat Purchased (Indian Rupees)	213.02 (124.25)	221.16 (128.65)	177.78 (97.19)
Fuel Purchased (Indian Rupees)	191.09 (151.50)	184.94 (143.11)	216.51 (181.00)
Trade Dummy (Trader A=1)	0.80 (0.39)	1.00 (0.00)	0.00 (0.00)
Kinship Dummy (Same Caste as Trader A=1)	0.35 (0.47)	0.34 (0.47)	0.37 (0.48)
Neighborhood Dummy (Same Neighborhood as Trader A=1)	0.40 (0.49)	0.45 (0.49)	0.17 (0.38)
Number of Observations	401	323	78

Table 3: Effect of Prices on Volumes Traded

Dependent Variable: Quantity	All Transactions			Trader A			Trader B		
	1	2	3	1	2	3	1	2	3
Log(Price)	5.8221*	5.8045*	5.7090*	6.2770*	6.2521*	6.2924*	1.7533	1.2189	-0.5583
	(0.8942)	(0.8965)	(0.9681)	(0.9269)	(0.9263)	(0.9982)	(3.1289)	(3.1866)	(3.458)
Household Size	-0.0802*	-0.0715*		-0.0617**	-0.0523		-0.1411**	-0.1415**	
	(0.0339)	(0.0341)		(0.0382)	(0.0386)		(0.0763)	(0.0769)	
Age	0.0057	0.0055	0.0027	0.0013	0.0012	-0.0001	0.0155	0.0141	0.0020
	(0.0057)	(0.0057)	(0.0063)	(0.0064)	(0.0064)	(0.0070)	(0.0133)	(0.0134)	(0.0159)
Log(Education)	0.2474**	0.2665*	0.2097	0.2718**	0.2921*	0.2373	0.1343	0.0361	0.0834
	(0.1323)	(0.1323)	(0.1416)	(0.1438)	(0.1430)	(0.1516)	(0.3487)	(0.3452)	(0.3885)
Land Owned – Unirrigated	0.0347*	0.0313*	0.0224**	0.0337*	0.0302*	0.0214**	0.0337	0.0409**	0.0189
	(0.0092)	(0.0092)	(0.0117)	(0.0100)	(0.0100)	(0.0132)	(0.0242)	(0.0239)	(0.0261)
Neighborhood Dummy	-0.2571**			-0.1551			-0.6591**		
	(0.1313)			(0.1427)			(0.3992)		
Kinship Dummy		0.2334**			0.2028			0.4482	
		(0.1353)			(0.1503)			(0.3229)	
Rice Purchased			-0.0024**			-0.0027*			-0.0040
			(0.0013)			(0.0014)			(0.0071)
Fuel Purchased			-0.0007**			-0.0004			-0.0017**
			(0.0004)			(0.0005)			(0.0010)
R-squared	0.1826	0.1805	0.1514	0.2141	0.2159	0.1958	0.1304	0.1194	0.0710
Sample size	401	401	401	323	323	323	78	78	78

Notes: Each column presents results of an OLS regression where the dependent variable is volumes traded per transaction. A constant term is included in all the regressions. Figures in parentheses are standard errors.
* Significantly different from zero at 5-percent level.
** Significantly different from zero at 10-percent level.

Table 4: Effect of Trader Idiosyncrasy on Likelihood of Trade

Dependent Variable: Trade Dummy (1 if traded with Trader A and 0 with Trader B)	Marginal effect on trade for Trader A						
	1	2	3	4	5	6	7
Log(Price)	-0.7060** (0.3816)	-0.6247** (0.3836)	-0.7102** (0.3832)	0.1171 (0.5273)	0.1053 (0.5453)	0.0500 (0.4194)	0.1181 (0.3776)
Household Size	0.0010 (0.0123)	0.0033 (0.0121)	0.0010 (0.0123)	-0.0003** (0.0002)	-0.0315 (0.0220)	-0.0318** (0.0192)	-0.0230 (0.0170)
Age in Years	-0.0029** (0.0016)	-0.0030** (0.0016)	-0.0029** (0.0016)				
Religion Dummy - Hindu	0.0951 (0.0914)	0.0329 (0.0835)	0.0903 (0.0941)				
Religion Dummy - Muslim	0.2074* (0.0416)	0.1413** (0.0618)	0.2074* (0.0415)	0.1033 (0.0766)		0.0406 (0.0730)	
Log(Land Owned – Irrigated and Unirrigated)	0.0318 (0.0288)	0.0159 (0.0286)	0.0317 (0.0288)	0.0912 (0.0584)	0.0944** (0.0554)	0.0424 (0.0525)	0.0266 (0.0438)
Neighborhood Dummy		0.1510* (0.0437)					
Kinship Dummy			0.0091 (0.0465)				
Rice Purchased				0.0022** (0.0011)			
Fuel Purchased				-0.0003** (0.0002)		-0.0002 (0.0001)	
Wheat Purchased				0.0006** (0.0003)		0.0005** (0.0003)	
Wheat Purchased –Muslim Interaction					0.0011* (0.0005)		0.0003 (0.0004)
Rice Purchased – Neighborhood Interaction						0.0029* (0.0008)	0.0031* (0.0008)
Sample size	401	401	401	401	401	401	401

Notes: Each column documents the results of a probit model where the dependent variable takes the value of 1 if a transaction is with Trader A, and 0 otherwise. Reported in the table are estimated marginal changes in probability at mean values for the continuous variables and estimated discrete changes for the dummy variables. Figures in parentheses are standard errors.
* Significantly different from zero at 5-percent level.
** Significantly different from zero at 10-percent level.