Written Exam for the M.Sc. in Economics 2009-II

Advanced Development Economics: Micro Aspects

Final Exam

SUGGESTED ANSWERS

2 June 2009

(4-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by "eksamen på dansk" in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students' self-service system.

Question 1:

Consider the following problem of a household that is jointly engaged in production and consumption. Household utility depends on consumption (*c*) and leisure (*l*). Let *p* be the price of output, *w* the wage of labor and *r* the price of one unit of land. The household can produce the good on its farm according to the concave production function $F(L, A)$, where *A* is the area cultivated by the household and *L* is the amount of labor used on the farm. Let E^L be the household endowment of time and E^A the household endowment of land

(1) $\max U(c,l)$

subject to

(2) $pc + wL^h + rA^h \leq pF(L,A) + wL^m + rA^m$

(3) $L = L^f + L^h$

(4) $A = A^f + A^h$

(5) $E^A = A^f + A^m$

(6) $E^L = L^f + L^m + l$

(7) $c, l, L^f, L^m, A^f, A^m \geq 0$

Maximization is with respect to consumption (c), leisure (l), hired labor (L^h) and land (A^h), labor (L^m) and land (A^m) supplied to the market, and labor (L^f) and land (A^f) used on the farm.

All sub-questions can be answered based on the calculations and figures outlined in Chapter 2 in Bardhan and Udry (1999).

(a) Assume complete markets. Show that the above maximization problem can be simplified and describe the so-called "separation property" of the agricultural household model (AHM).

Reduces to:

(1) $\max U(c,l)$

subject to

(7*) $pc + wl \leq \pi + wE^L + rE^A$

(8*) $\pi = pF(L,A) - wL - rA$

(9*) $c, l, L, A \geq 0$ (Only choice variables)

Maximization problem: max (1) s.t. (7*), (8*) and (9*). Notice that (1), (7*), (8*) and (9*) can be solved in two steps: First maximizing (8*) with respect to L and A, and then solve (1) subject to (7). This illustrates the separation property: Consumption decisions are separable from production decisions.

(b) Assume now that there is no land market. Describe graphically the household decision-making process.

Graph like figure 2.1 page 10 in Bardhan and Udry (1999). Only one market failure – separation property still holds.

(c) Assume now that there is no land market combined with a binding constraint on the time spent by the household working for a wage in the labor market (involuntary unemployment). Describe both mathematically and graphically what happens to the "separation property".

No land market: r=0 and E(A)=A. Binding constraint in labor market: L(m)=M and L(h)=0. The maximization becomes

(*) $\max U(c,l)$

Subject to

(**) $c = F(E^L - M - l, E^A) + wM$

The household production choices depends on its preferences and its own endowments, and the separation property does not hold. Illustrate as in Figure 2.2 page 12 in Bardhan and Udry (1999)

(d) Using the above model setting discuss the relationship between farm size and land productivity.

(*) and (**) leads to $\max U(c,l) = \max U(F(L, E^A) + wM, E^L - M - L)$

FOC: Necessary and sufficient

$$H = U_c^{'}(c,l)F_L^{'}(L,E^A) - U_l^{'}(c,l)$$

Use implicit function theorem $\frac{dL}{dE^A} = -\frac{H_{E^A}^{'}}{H_L^{'}}$, CRTS conditions and the imposed assumption $U_{cl}^{''} \geq 0$ to obtain equation (16) in Bardhan and Udry (1999) leading to the conclusion that $\frac{dL}{dE^A} = \left(\frac{L}{E^A}\right)\Omega < \left(\frac{L}{E^A}\right), where\ \Omega < 1$. Figure 2.2 can effectively be used to illustrate the mathematically derived result and the main point that as household's endowment of land increases, the intensity with which it cultivates declines.

Question 2:

This question can be answered based on the information in Bardhan and Udry (1999) Chapter 6: "The Rural Land Market".

(a) Describe (preferably using mathematics) whether there is a rationale for sharecropping in a full information setting under constant returns to scale?

The standard rationale for sharecropping used to be purely in terms of risk sharing. BUT with constant returns to scale (CRS) sharecropping yields no extra risk-sharing benefits over a suitable mix of fixed-rent tenancy and wage labor contracts. To see this, let $F(A,e,\theta)$ be the production function. θ is random, A is leased land and e is labor effort. Let α be the share of output going to the fixed-rent tenant; $1-\alpha$ goes to the landlord. Suppose that the landlord gives a fraction a of the land on fixed rent and cultivates the rest with wage labor. Moreover, suppose that the peasant allocates a fraction α of his effort e to fixed-rent tenancy and a fraction $1-\alpha$ to working on a wage contract. Finally, let W be the wage rate and R the land rental rate.

The peasant's income is: $Y = W(1-\alpha)e + F(\alpha A,\alpha e,\theta) - R\alpha A \gtreqless \alpha F(A,e,\theta)$ as $W(1-\alpha)e \gtreqless R\alpha A$

$\alpha F(A,e,\theta)$ = sharecropping income to peasant

The landlord's income is: $\pi = R\alpha A + F[(1-\alpha)A,(1-\alpha)e,\theta] - W(1-\alpha)e \gtreqless (1-\alpha)F(A,e,\theta)$ as $R\alpha A \gtreqless W(1-\alpha)e$

$(1-\alpha)F(A,e,\theta)$ = sharecropping income to the landlord

Note that CRS implies that $F(\lambda A,\lambda e,\theta) = \lambda F(A,e,\theta)$. Now if $W(1-\alpha)e > R\alpha A$ peasant will reject sharecropping; vice versa if $R\alpha A > W(1-\alpha)e$. Only if $W(1-\alpha)e = R\alpha A$ will sharecropping survive.

BUT $W(1-\alpha)e = R\alpha A$ implies that $Y = F(\alpha A,\alpha e,\theta) = \alpha F(A,e,\theta)$ and $\pi = F[(1-\alpha)A,(1-\alpha)e,\theta] = (1-\alpha)F(A,e,\theta)$

where $\alpha F(A,e,\theta)$ and $(1-\alpha)F(A,e,\theta)$ are the random incomes going to the peasant and the landlord, respectively, under sharecropping. Hence, there is no additional risk-sharing advantage under sharecropping in this case. In sum, sharecropping has nothing going for it under CRS and full information. Hence, we have to add other imperfections, i.e. information imperfections, in order to be able to rationalize sharecropping.

(b) Consider a risk-neutral landlord and risk-averse tenant (one-period principle-agent model), where the work effort of the tenant is not observable. Discuss how this may change the conclusion in (a).

Let the tenant have utility function $U(Y)-e$, where Y is income and $e\in[0,e]$ is work effort, which is NOT observed by the landlord. The tenant has outside option $\underline{U}>0$. Let output be given by $\theta F(e)$, where $E\theta = 1$, $F'>0$, $F''<0$, and assume that θ has distribution function G with support $[\underline{\theta},\bar{\theta}]$. The income accruing to the tenant is determined by the contract. For a pure fixed-rent contract we have $Y = \theta F(e) - R$, implying that the tenant buys a lottery with price R and expected payoff $\theta F(e)$. Note that this means that the tenant bears all the risk. For a pure share contract we have $Y = \alpha\theta F(e)$, implying that the tenant buys a share of a lottery with utility price -e and expected payoff

αθF(e). In the general case, with the two previous contracts as special cases, we obtain Y = αθF(e) + S, where the side payment $S \gtreqless 0$.

The landlord maximizes his expected profits (1-α)θF(e) – S subject to (i) the tenants participation constraint (PC) given by E(U(αθF(e) +S) - e) ≥ $\underline{U}$ and (ii) the tenants incentive compatibility constraint (ICC) given by E(U'(αθF(e) + S)αθF'(e)) – 1 = 0. The PC simply says that the tenant must earn more from taking the contract than from opting for his outside option. The ICC says that any contract that induces effort e must be incentive compatible, i.e. earn the tenant a higher income than any other effort e∈[0,e].

The landlord can drive the tenant down to her reservation utility level. FOC can be shown to be α = 1 - ((F+S_{α})/(F'e_{α})). S_{α} is negative and less than F in magnitude with risk aversion. If e_{α} is positive, then α is less than unity, thus ruling out the pure fixed rent case under risk aversion.

(c) Consider a one-period principal-agent model (where landlords and tenants are risk-neutral) with moral hazard, which emphasizes a limited liability constraint (the tenant is liable up to his wealth level). Discuss the static inefficiency associated with tenancy and illustrate what is meant by a "tenancy ladder".

Asymmetric information under limited liability. Note that asymmetric information has no bite under risk neutrality and no limited liability; first best is implementable. BUT a binding limited liability constraints (LLC) under risk neutrality gives rise to the "same" optimization problem as risk aversion and no limited liability; that is, we enter a world of second best. LLC will introduce allocative inefficiency in that effort will be below first-best effort. The intuition is that with limited liability the landlord would prefer a contract in which the tenant pays more when output is high than when it is low, but the tenant will earn less than her marginal product and this will reduce his/her incentive to produce high outputs, and thus his/her effort level will be below the first-best level. Figure 6.1 to 6.6 (especially figure 6.6 page 73) in Bardhan and Udry (1999) could be used to illustrate the tenancy ladder, showing the allocational inefficiency of tenancy and the wealth level of the tenant (more wealthty tenants preferred).

(d) Consider a multi-period principal-agent setting, where the landlord can use the threat of eviction when output is low. Discuss how eviction threats may affect tenant incentives to invest in land.

The multi-period setting adds interesting extra dimensions of the incentive effects under tenancy. Threat of eviction may be effective in this setting since the tenant earns some rent over and above her reservation income, which she would lose if evicted. Eviction threats reduce the bargaining power of the tenant, and investment may be discouraged because the tenant now expects to get a lower share of additional output generated by the investment.

However, Bardhan and Udry (1999) mention two ways in which eviction threats may have $\underline{\text{positive}}$ effects on the incentives to invest. First, investments today raises the chances of doing well tomorrow and hence of retaining the job the day after tomorrow. Second, if eviction threats raise current effort, then is raises the change of the tenant being around in the next period, and this effect too is good for investments. Answers could also refer to Banerjee-Gertler-Ghatak (2002).

Question 3:

The questions below refer to the analysis and results in Olken (2007) "Monitoring Corruption: Evidence from a Field Experiment in Indonesia" *Journal of Political Economy*, 115(2), page 200-249.

(a) Discuss the pros and cons of the two approaches (the top-down and grassroots approach, respectively) to fighting corruption outlined in Olken (2007).

Top down: Suggests that the right combination of monitoring and punishments can control corruption. However, the very individuals tasked with monitoring and enforcing punishments may themselves be corruptible. In that case, increasing the probability that a low-level official is monitored by a higher-level official could result only in a transfer between the officials, not in a reduction of corruption. Whether one can actually control corruption by increasing top-down monitoring in such an environment is an open empirical question.
Grassroots approach: Increasing grassroots participation by community members in local-level monitoring. Community participation is regarded as one key aspect to reduced corruption but also to improved public service delivery more generally. The idea behind the grassroots approach is that community members are the people who benefit from a successful program and so may have better incentives to monitor than disinterested central government bureaucrats. Of course, this approach has potential drawbacks as well; for example, monitoring public projects is a public good, so there may be a serious free-rider problem. Grassroots monitoring may also be prone to capture by local elites. Given these countervailing forces, whether grassroots monitoring can actually succeed in reducing corruption is also an empirical question.

(b) Table 1 displays the basic experimental design in Olken (2007). Describe the identification strategy used in the paper.

Olken (2007) designed and conducted a randomized, controlled field experiment in 608 Indonesian villages. At the beginning of the data collection each village was about to start building a village road as part of a nationwide village-level infrastructure project. To examine the impact of external monitoring (top down), some villages were randomly selected to be told (after funds had been awarded but before construction began), that their project would subsequently be **audited** by the central government audit agency (increasing the probability of an external government audit in those villages from a baseline of about 4 percent to essentially 100 percent). Government audits carry with them the possibility of criminal action. Moreover, the results of the audits were **read publicly** to an open village meeting by the auditors and so could result in substantial social sanctions. The audits were subsequently conducted as promised.

To investigate the impact of increasing community participation (grassroots approach) in the monitoring process, two different experiments were carried out. Specifically, the experiments sought to enhance participation at "accountability meetings", the village-level meetings in which project officials account for how they spent project funds. In one experiment (invitations), hundreds of invitations to these meetings were distributed throughout the village, to encourage direct participation in the monitoring process and to reduce elite dominance of the process. In the second experiment (invitations plus comment forms), an anonymous comment form was distributed along with the invitations, providing villagers an opportunity to relay information about the project without fear of retaliation. This comment form was then collected in sealed drop boxes before the accountability meetings, and the results were summarized at the meetings. Both of these experimental interventions were successful in raising grassroots participation levels: the

invitations increased the number of people participating in the accountability meetings by about 40 percent, and the comment forms generated hundreds of comments about the project, both good and bad, in each village. Table 1 displays the basic experimental design. Randomization into the invitations and comment form treatments was independent of randomization into the audit treatment. In both cases, the treatments were announced to villages after the project design and allocations to each village had been finalized, but before construction or procurement of materials began. Thus the choice of what type of project to build, as well as the project's design and planned budget, should all be viewed as exogenous with respect to the experiments.

TABLE 1
NUMBER OF VILLAGES IN EACH TREATMENT CATEGORY

	Control	Invitations	Invitations Plus Comment Forms	Total
Control	114	105	106	325
Audit	93	94	96	283
Total	207	199	202	608

NOTE.—Tabulations are taken from results of the randomization. Each subdistrict faced a 48 percent chance of being randomized into the audit treatment. Each village faced a 33 percent chance of being randomized into the invitations treatment and a 33 percent chance of being randomized into the invitations plus comment forms treatment. The randomization into audits was independent of the randomization into invitations or invitations plus comment forms.

(c) Table 4 and Table 11 present some of the main results reported in Olken (2007). What are the main conclusions to be drawn from these tables? Discuss.

Given the randomized nature of the experiments estimating their effects is straightforward. Olken (2007) estimate an equation of the following form via OLS:

$$\text{PercentMissing}_{ijk} = \alpha_1 + \alpha_2 \text{Audit}_{jk} + \alpha_3 \text{Invitations}_{ijk} + \alpha_4 \text{InvitationsandComments}_{ijk} + \epsilon_{ijk}, \quad (1)$$

The effects of audits (alfa2) are found in column 3. Audits had a substantial reductions in missing expenditures associated with the audit experiment. Audit treatment associated with reductions in missing expenditures of about 8 percentage points. These reductions came from reductions in both (i) unaccounted-for materials procured for the project and (ii) unaccounted-for labor expenditures. Table 11 examines the overall impact of the two participation treatments on the percent missing in the projects. Panel A shows the effect of the invitations treatment; panel B shows the effect of the invitations plus comment forms treatment. The results suggest that both the invitations and invitations plus comment forms treatments had a small, and statistically insignificant, impact on the overall percent missing from the project. Depending on the specification and the measure of corruption, the point estimates suggest that these treatments reduced the percent missing by between 1.5 and three percentage points, though these estimates are never statistically distinguishable from zero. It could also be noted that invitations treatment substantially reduced missing labor expenditures but had no effect on missing materials expenditures. Results in Olken (2007) suggests that while grassroots monitoring has the potential to reduce corruption, care must be taken to minimize free-rider problems and prevent elite capture.

TABLE 4
AUDITS: MAIN THEFT RESULTS

Percent Missing[a]	Control Mean (1)	Treatment Mean: Audits (2)	No Fixed Effects		Engineer Fixed Effects		Stratum Fixed Effects	
			Audit Effect (3)	*p*-Value (4)	Audit Effect (5)	*p*-Value (6)	Audit Effect (7)	*p*-Value (8)
Major items in roads ($N = 477$)	.277	.192	−.085*	.058	−.076**	.039	−.048	.123
	(.033)	(.029)	(.044)		(.036)		(.031)	
Major items in roads and ancillary projects	.291	.199	−.091**	.034	−.086**	.022	−.090***	.008
($N = 538$)	(.030)	(.030)	(.043)		(.037)		(.034)	
Breakdown of roads:								
Materials	.240	.162	−.078	.143	−.063	.136	−.034	.372
	(.038)	(.036)	(.053)		(.042)		(.037)	
Unskilled labor	.312	.231	−.077	.477	−.090	.304	−.041	.567
	(.080)	(.072)	(.108)		(.087)		(.072)	

NOTE.—Audit effect, standard errors, and *p*-values are computed by estimating eq. (1), a regression of the dependent variable on a dummy for audit treatment, invitations treatment, and invitations plus comment forms treatments. Robust standard errors are in parentheses, allowing for clustering by subdistrict (to account for clustering of treatment by subdistrict). Each audit effect, standard error, and accompanying *p*-value is taken from a separate regression. Each row shows a different dependent variable, shown at left. All dependent variables are the log of the value reported by the village less the log of the estimated actual value, which is approximately equal to the percent missing. Villages are included in each row only if there was positive reported expenditures for the dependent variable listed in that row.

[a] Percent missing equals log reported value − log actual value.

* Significant at 10 percent.

** Significant at 5 percent.

*** Significant at 1 percent.

TABLE 11
PARTICIPATION: MAIN THEFT RESULTS

			No Fixed Effects		Engineer Fixed Effects		Stratum Fixed Effects	
Percent Missing[a]	Control Mean (1)	Treatment Mean (2)	Treatment Effect (3)	*p*-Value (4)	Treatment Effect (5)	*p*-Value (6)	Treatment Effect (7)	*p*-Value (8)
			A. Invitations					
Major items in roads ($N = 477$)	.252	.230	−.021	.556	−.030	.385	−.026	.448
	(.033)	(.033)	(.035)		(.034)		(.034)	
Major items in roads and ancillary projects ($N = 538$)	.268	.236	−.030	.360	−.032	.319	−.029	.356
	(.031)	(.031)	(.032)		(.032)		(.032)	
Breakdown of roads:								
Materials ($N = 477$)	.209	.221	.014	.725	.008	.839	.005	.882
	(.041)	(.041)	(.038)		(.037)		(.037)	
Unskilled labor ($N = 426$)	.369	.180	−.187*	.058	−.215**	.024	−.143*	.098
	(.077)	(.077)	(.098)		(.094)		(.086)	
			B. Invitations Plus Comments					
Major items in roads ($N = 477$)	.252	.228	−.022	.455	−.024	.411	−.015	.601
	(.033)	(.026)	(.030)		(.029)		(.030)	
Major items in roads and ancillary projects ($N = 538$)	.268	.238	−.026	.409	−.025	.406	−.027	.385
	(.031)	(.026)	(.032)		(.030)		(.031)	
Breakdown of roads:								
Materials ($N = 477$)	.209	.180	−.028	.414	−.022	.496	−.010	.754
	(.041)	(.032)	(.034)		(.032)		(.033)	
Unskilled labor ($N = 426$)	.369	.267	−.099	.255	−.132	.131	−.090	.323
	(.077)	(.073)	(.087)		(.087)		(.091)	

Question 4:

The questions takes point of departure in McMillan and Woodruff (1999), "Interfirm Relationships and Informal Credit in Vietnam", Quarterly Journal of Economics, 114(4), 1285-1320.

McMillan and Woodruff (1999) test three hypotheses about relational contracting:

1. Customers lacking alternative suppliers will receive more trade credit.

2. There will be more trade credit when the supplier inspects their customers directly and in relationships of longer duration.

3. A supplier belonging to a network will grant more trade credit.

(a) Describe the reasoning behind these three hypotheses?

Ad 1: Customer's ability to buy from alternative suppliers might affect the level of trust. The customer could be locked into the relationship (high costs of search or large transport costs). If the customer is locked in, the supplier can threaten to cut off further trade if the debt is not repaid. Firms that find it difficult to locate alternative trading partners will invest in maintaining their existing relationships. Lock-in helps make relational contracts workable.

Ad 2: Adverse selection – learning about different types. The supplier's direct dealings with the customer yield information about its creditworthiness. Supplier visits might provide information about the customer's work habits, business flair, investments (large sunk investments could serve as a signal of the customer's reliability). Cooperation build up gradually, as the supplier learns through trading about the customer's reliability. The supplier will steadily increase the amount of trade credit it offers as the relationship get stronger. The frequency with which a supplier visits the customer during the trading relationship may indicate the intensity of information gathering.

Ad 3: Two reasons – First, a network provides information. Firms learn about the reliability of a customers both through direct interaction but also by asking other manufacturers or family members before the trading relationship begins. Second, networks provide extra ability to sanction customers who renege. The threat of no further trade if debts are not paid gains extra force if it also comes from the creditors network (community sanctions). Social networks provide the possibility of enact community sanctions, which is the basis for trade credit.

(b) Explain the two additional sets of explanations described in McMillan and Woodruff (1999) of why firms offer credit to their customers rather than leaving financing to specialists like banks.

Industrial organization explanation: Imperfect banking sector - use TC to avoid paying monopoly rents to banks. Perfect banking sector competition - TC needed if banking sector too competitive to allow ongoing relationships in which the banks lose money early in a relationship and earn profits later. Market power - Firms offer TC to price discriminate secretly, to evade legal sanctions, or to hide price cuts from other customers . Warranty - TC may serve as a for product quality, since the delay in payment gives customers time to inspect the merchandise.

Superior information explanation (firms have an advantage over banks in selecting, monitoring, and enforcing credit contracts): Day-to-day trading allow firms to see which customers are better credit risks. A customer may have no access to bank loans, because of the adverse-selection problem, and the seller might have to grant credit in order to make the sale. If loan not repaid, firms (creditor) often better equipped to resell repossessed merchandise.

(c) Table IV outlines the main results in McMillan and Woodruff (1999). Based on the table describe and discuss the main conclusions obtained in the article.

Especially column (1) to (4) should be described. Columns (1) and (2) focus on the three above mentioned hypotheses, and columns (3) and (4) include alternative explanation controls (described in question b). Customer lock-in variables negative and significant supporting the hypothesis in (a) ad 1. Manufacturer information: Duration of supplier/customer relationship positively associated with having trade credit supporting the (a) ad 2 hypothesis. “Visits” are generally not well-determined. Finally, network relationships matter, but only significantly positive if information obtained within the business network. The relational-contracting variables are generally robust to the inclusion of additional controls. Fewer similar firms nearby, longer relationship durations, and information from business networks are all consistently associated with higher levels of trade credit.

TABLE IV

CUSTOMER CREDIT TOBITS

PERCENT OF BILL PAID BY CUSTOMER AFTER DELIVERY

	(1)	(2)	(3)	(4)	(5) Domestic	(6) Foreign	(7) Big	(8) Small
Customer lock-in:								
# similar manufacturers w/in 1 km	−0.007 (1.66)	−0.008 (1.86)	−0.011 (2.98)	−0.010 (2.54)	−0.006 (1.35)	−0.018 (2.30)	−0.026 (3.10)	−0.006 (1.38)
Most important competitor w/in 1 km	−0.13 (2.46)	−0.12 (2.18)	−0.11 (2.18)	−0.16 (2.92)	−0.14 (2.41)	−0.01 (0.12)	−0.04 (0.43)	−0.19 (3.12)
Manufacturer information:								
Duration of relationship (years)	0.08 (2.96)	0.07 (2.61)	0.07 (2.51)	0.07 (2.42)	0.04 (1.34)	0.13 (1.34)	0.14 (1.74)	0.06 (1.90)
Duration ^2	−0.005 (2.15)	−0.004 (1.95)	−0.004 (1.74)	−0.004 (1.78)	−0.003 (1.19)	−0.007 (0.55)	−0.020 (1.45)	−0.003 (1.43)
Visited customer before first sale		0.08 (1.63)	0.07 (1.71)	0.06 (1.33)	0.12 (2.32)	0.04 (0.36)	0.03 (0.41)	0.10 (1.87)
Currently visit cust at least weekly		−0.03 (0.46)	−0.06 (1.03)	−0.05 (0.84)	−0.09 (1.43)	0.07 (0.49)	0.06 (0.60)	−0.05 (0.76)
Network membership:								
First information from other manufacturers	0.20 (3.36)	0.16 (2.83)	0.10 (1.99)	0.17 (2.98)	0.06 (1.00)	0.22 (2.05)	0.11 (1.30)	0.00 (0.03)
Talk to other suppliers of customer at least monthly		0.19 (2.36)	0.19 (2.63)	0.18 (2.31)	0.27 (3.18)	0.04 (0.26)	−0.19 (1.31)	0.31 (3.20)
First information from family member	0.04 (0.60)	−0.01 (0.17)	−0.08 (1.34)	−0.13 (2.11)	−0.13 (1.91)	0.02 (0.17)	0.00 (0.01)	−0.15 (2.15)
Alternative explanations:								
Manufacturer sets prices by relationship w/customer			0.02 (0.53)	0.08 (1.69)	0.06 (1.13)	−0.05 (0.48)	0.14 (1.62)	0.00 (0.03)
Customer is retail store/wholesaler			0.07 (1.62)	0.03 (0.60)	0.11 (2.25)	0.02 (0.20)	0.20 (2.11)	0.03 (0.57)
Log firm age + 1 (years)			−0.09 (1.76)	−0.10 (1.57)	−0.11 (1.91)	−0.25 (1.62)	0.01 (0.04)	−0.06 (1.04)
Log employment			−0.02 (0.98)	−0.06 (2.28)	−0.04 (1.50)	0.05 (1.15)	−0.10 (0.95)	−0.07 (1.86)
Manufacturer receives credit from bank			−0.02 (0.36)	−0.03 (0.53)	−0.01 (0.10)	0.05 (0.55)	−0.04 (0.45)	0.15 (2.02)
% of bill paid to suppliers after delivery (0–2)			0.40 (6.27)	0.47 (6.23)	0.40 (5.45)	0.13 (1.08)	0.35 (2.74)	0.39 (5.25)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Manager controls	No	No	No	Yes	No	No	No	No
Number of observations	224	224	224	204	153	71	76	148
% obs not censored	31.70%	31.70%	31.70%	31.37%	35.95%	22.54%	34.21%	30.41%
χ^2	73.5	82.6	134.5	152.0	114.7	48.7	64.1	112.5
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001

Regression are two-tailed Tobits. Coefficients are marginal effects, t-values are in parentheses.

a. All regressions include industry dummies (8), and indicators of first customer and location in Hanoi.

b. Regression 4 also includes % sales represented by main product, manager speaks Chinese, % sales to SOEs, % supplies from SOEs, 100% family-owned, collective, manager formerly worked for SOE, age of manager, and manager attended university.