Asymmetric Information and Middleman Margins: An Experiment with Indian Potato Farmers

A Theory Appendix

Notation and Technical Assumptions: (i) u is strictly concave, satisfying Inada conditions, and the property that $\frac{q'^*(p)}{q^*(p)}$ is non-increasing in p, where $q^*(p)$ denotes the farmer's supply function, i.e., the solution to q in maximizing $pq - u(\bar{q} - q)$. This insures that the monopsonist's marginal cost $p(q) + qp'(q)$ of procuring quantity q is increasing in q, where $p(q)$ is the inverse of $q^*(p)$. (ii) F's information about ν is represented by a c.d.f. G(ν) with full support over $[\underline{v}, \infty)$.

The Separating Equilibrium: Working backwards from Stage 5, suppose F had taken q_2 to the mandi and received a price offer of m from MT. How much would he want to sell at this price? This corresponds to selecting $q \leq q_2$ to maximize $mq - t(q_2 - q) + u(\bar{q} - q)$. The 'effective' price received by F is now $m + t$, since anything not sold here will have to be transported back at an additional cost of t. The solution to this is $q(q_2, m) = q^*(m + t)$ if $q_2 \geq q^*(m + t)$, and q_2 otherwise. Note that the farmer's beliefs regarding ν do not matter at Stage 5, since the only option he has at this stage is to either sell to MT at the offered price m or consume the rest.

Now move to Stage 4, where MT is approached by F with stock q_2. Let $n(q_2)$ be defined by the solution to m in $q^*(m + t) = q_2$. Any price m bigger than $n(q_2)$ is dominated by the price $n(q_2)$ since it would result in the same traded volume q_2 but at a higher price. Any price m lower than $n(q_2)$ will result in traded volume of $q^*(m + t)$ at price m. Hence MT selects a price $m(\nu; q_2, t) \leq n(q_2)$ to maximize $(\nu - m)q^*(m + t)$. Given the assumption that $\frac{q^*}{q^{*\prime}}$ is nondecreasing, this is a concave maximization problem. Hence MT will offer a price $m(\nu; q_2, t) \equiv \min\{n(q_2), m(\nu)\}$.

Next move back to Stage 3, and suppose that F has decided to reject VT's offer. What decision should he make regarding q_2? Here his beliefs regarding ν matter, since they affect what he expects MT to offer at Stage 4. Suppose that F believes that the realization of ν is $\tilde{\nu}$ with probability one. A choice of $q_2 \leq q^*(m(\tilde{\nu}) + t)$ will result in a sale of q_2 to MT at a price of $n(q_2)$, and a payoff of

$$\mathcal{P}(q_2, \tilde{\nu}) \equiv n(q_2)q_2 + u(\bar{q} - q_2) - tq_2. \tag{2}$$

Given the definition of the function $n(\cdot)$, it follows that $\mathcal{P}(q_2, \tilde{\nu})$ is (locally) strictly increasing in q_2. Hence any $q_2 < q^*(m(\tilde{\nu}) + t)$ is strictly dominated by $q_2 = q^*(m(\tilde{\nu}) + t)$.

Now consider any $q_2 > q^*(m(\tilde{\nu}) + t)$. This will lead to a sale of $q^*(m(\tilde{\nu}) + t)$ to MT at a price of $m(\tilde{\nu})$, with the excess transported back to the village. Hence it is optimal for F to select $q_2 = q^*(m(\tilde{\nu}) + t)$ if he rejects VT's offer. In this event his payoff from the resulting continuation game will be

$$[m(\tilde{\nu}) - t]q^*(m(\tilde{\nu}) + t) + u(\bar{q} - q^*(m(\tilde{\nu}) + t)) \tag{3}$$

At Stage 2, then, if VT offers a price $p(\tilde{\nu})$ where $\tilde{\nu} \geq \underline{v}$, the farmer believes the realization of ν is $\tilde{\nu}$ with probability one and expects a payoff equal to (3) if he rejects the offer. The farmer is indifferent between accepting and rejecting the offer, by construction of the function $p(\tilde{\nu})$. Hence it is optimal for the farmer to randomize between accepting and rejecting the offer; in the event of accepting F will sell $q^*(p(\tilde{\nu}))$ to TV. And offering any price less than $p(\underline{v})$ leads the farmer to believe that $\tilde{\nu} = \underline{v}$ with probability one, so such an offer will surely be rejected.

Finally consider VT's problem of deciding what price to offer at Stage 1. Any offer below $p(\underline{v})$ will surely be rejected, while any offer $p(\tilde{\nu}), \tilde{\nu} \geq \underline{v}$ will be accepted with probability $1 - \alpha(\tilde{\nu})$ and will result in a trade of $q^*(p(\tilde{\nu}))$ at price $p(\tilde{\nu})$. Hence VT's problem is similar to making a price report of $\tilde{\nu} \geq \underline{v}$ in a revelation mechanism which results in a trade of $q^*(p(\tilde{\nu}))$ at price $p(\tilde{\nu})$, resulting in a payoff of

$$\mathcal{W}(\tilde{\nu}|\nu) = [1 - \alpha(\tilde{\nu})][\nu - p(\tilde{\nu})]q^*(p(\tilde{\nu})) \tag{4}$$

It remains to check that it is optimal for VT to report truthfully in this revelation mechanism. Now $\mathcal{W}_\nu(\tilde{\nu}|\nu) = [1 - \alpha(\tilde{\nu})]q^*(\tilde{\nu})$, so if we define $X(\nu) = \mathcal{W}(\nu|\nu)$ we see that incentive compatibility requires that locally $X'(\nu) =$

$[1-\alpha(\nu)]q^*(p(\nu))$, i.e.,

$$X(\nu) = X(\underline{v}) + \int_{\underline{v}}^{\nu} [1-\alpha(\tilde{\nu})]q^*(p(\tilde{\nu}))d\tilde{\nu} \tag{5}$$

which implies that

$$[1-\alpha(\nu)][\nu - p(\nu)]q^*(p(\nu)) = [1-\alpha(\underline{v})][\nu - p(\underline{v})]q^*(p(\underline{v})) + \int_{\underline{v}}^{\nu} [1-\alpha(\tilde{\nu})]q^*(p(\tilde{\nu}))d\tilde{\nu} \tag{6}$$

Differentiating with respect to ν, this local incentive compatibility condition reduces to the differential equation

$$\frac{\alpha'(\nu)}{\alpha(\nu)} = [\frac{q^{*\prime}(p(\nu))}{q^*(p(\nu))} - \frac{1}{\nu - p(\nu)}]p'(\nu) \tag{7}$$

with endpoint condition $\alpha(\underline{v}) = \bar{\alpha}$ for arbitrary $\bar{\alpha} \in (0,1)$.

A sufficient condition for global incentive compatibility (see Mirrlees (1986)) is that $\mathcal{W}_\nu(\tilde{\nu}|\nu) = [1 - \alpha(\tilde{\nu})]q^*(p(\tilde{\nu}))$ is non-decreasing in $\tilde{\nu}$. This is equivalent to $-\alpha'(\nu)q^*(p(\nu)) + [1-\alpha(\nu)]q^{*\prime}(p(\nu))p'(\nu) \geq 0$ for all ν. Condition (7) implies $-\alpha'(\tilde{\nu})q^*(p(\tilde{\nu})) + [1-\alpha(\nu)]q^{*\prime}(p(\nu))p'(\nu) = \frac{[1-\alpha(\nu)]p'(\nu)q^*(p(\nu))}{\nu - p(\nu)} > 0$.

That $p(\nu) < m(\nu)$ is obvious from the definition of $p(\nu)$. The unconstrained monopsony price p for VT (which maximizes $(\nu - p)q^*(p)$) exceeds $m(\nu)$, since the former solves $p + \frac{q^*(p)}{q^{*\prime}(p)} = \nu$ while the latter solves $m + \frac{q^*(m+t)}{q^{*\prime}(m+t)} = \nu$, and $\frac{q^*}{q^{*\prime}}$ is non-decreasing. Hence the monopsony price exceeds $p(\nu)$, implying that $\frac{q^{*\prime}(p(\nu))}{q^*(p(\nu))} > \frac{1}{\nu - p(\nu)}$, so $\alpha(\nu)$ is strictly increasing.

Pooling Equilibria: Note first that nothing changes from the separating equilibrium above at Stages 4 and 5, since the farmer's beliefs do not matter at these stages.

At Stage 3, the farmer's beliefs do affect his decision on the stock q_2 to take to the mandi upon rejecting VT's offer. Suppose that the farmer's updated beliefs at Stage 3 are obtained by conditioning on the event that $\nu \in [\nu^*, \nu^* + x]$ where $\nu^* \geq \underline{v}$ and $x > 0$. F will then not be able to exactly forecast the price that MT will offer him at Stage 4. He knows that if he takes q_2, and the state happens to be ν, MT will offer him a price $M(\nu; q_2, t) = \min\{n(q_2), m(\nu)\}$, that he will then sell MT a quantity $Q_2(\nu; q_2, t) = \min\{q_2, q^*(M(\nu; q_2, t) + t)\}$, and carry the rest back to the village. Since $m(\nu)$ is increasing in ν, his ex post payoff will be increasing in ν for any given q_2. Moreover, given any ν^*, an increase in x will induce him to select a higher optimal q_2 and earn a strictly higher continuation payoff from rejecting VT's offer. Denote this payoff by $Y(\nu^*, x)$, which is thereby strictly increasing in x. It is evident that $Y(\nu^*, 0)$ is the expected payoff when he is certain the state is ν^*, as in the separating equilibrium in state ν^*. Hence $Y(\nu^*, 0) = \Pi(p(\nu^*))$, the payoff attained by F in the separating equilibrium in state ν^*.

Construct the endpoints $\{\nu_i\}$ of the partition and the prices $\{r_i\}$ iteratively as follows. Define the function $\tilde{p}(\nu^*, x)$ by the property that $\Pi(\tilde{p}(\nu^*, x)) = Y(\nu^*, x)$, the price which if offered by VT would make F indifferent between accepting and rejecting, conditional on knowing that $\nu \in [\nu^*, \nu^* + x]$. By definition, then, $\tilde{p}(\nu^*, 0) = p(\nu^*)$. Select $\nu_0 = \underline{v}$. Given ν_{i-1}, select $r_i \in (p(\nu_{i-1}), \tilde{p}(\nu_{i-1}, \infty))$. Select $\nu_i = \nu_{i-1} + x_i$ where x_i is defined by the property that $\tilde{p}(\nu_i, x_i) = r_i$. By construction, F is indifferent between accepting and rejecting a price offer of r_i from TV, conditional on the information that $\nu \in [\nu_{i-1}, \nu_i]$.

The rest of the argument is straightforward. VT in state ν_{i-1} is indifferent between offering prices r_{i-1} and r_i. This implies that in any state $\nu \in [\nu_{i-2}, \nu_{i-1})$, he prefers to offer r_{i-1} rather than r_i. Moreover, the single-crossing property of VT's payoffs with respect to the state ν implies that each type is selecting offers optimally in the set $\{r_i\}_{i=1,2,\ldots}$. Also offering a price between r_{i-1} and r_i is dominated by the price r_i, since it corresponds to the same probability of acceptance by F, and a lower profit for VT conditional on acceptance.

B Additional Tables

Table B1: Average Treatment Effects of Information Interventions on Alternative Variables

	Net price received		Ln(Quantity sold)		Ln(Gross Revenue)		Ln(Net Revenue)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Private Information	-0.073	0.023	0.075	0.031	0.056	0.043	0.040	0.033
	(0.130)	(0.115)	(0.147)	(0.119)	(0.159)	(0.138)	(0.162)	(0.140)
Phone	0.100	0.087	-0.012	-0.031	0.047	0.021	0.028	0.003
	(0.094)	(0.088)	(0.089)	(0.091)	(0.099)	(0.102)	(0.107)	(0.111)
Public Information	-0.091	-0.038	-0.031	-0.083	-0.034	-0.066	-0.080	-0.097
	(0.122)	(0.110)	(0.147)	(0.095)	(0.141)	(0.109)	(0.149)	(0.109)
Land	-0.095***	-0.075***	0.438***	0.404***	0.400***	0.378***	0.382***	0.361***
	(0.018)	(0.015)	(0.028)	(0.023)	(0.028)	(0.024)	(0.028)	(0.025)
Constant	2.223***	2.376***	7.670***	7.562***	8.420***	8.406***	8.386***	8.372***
	(0.120)	(0.090)	(0.133)	(0.084)	(0.142)	(0.101)	(0.146)	(0.101)
Observations	*2,318*	*2,318*	*2,318*	*2,318*	*2,314*	*2,314*	*2,303*	*2,303*
R-squared	*0.359*	*0.427*	*0.592*	*0.664*	*0.662*	*0.708*	*0.648*	*0.696*
Mandi *fixed effects*	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*
Mean DV	2.060	2.060	7.322	7.322	7.994	7.994	7.957	7.957
SE DV	0.0329	0.0329	0.0561	0.0561	0.0635	0.0635	0.0632	0.0632

Notes: The sample used is the same as in Table 4. In columns 1, 3, 5 and 8 we include dummy variables for variety, quality and district of farmer's residence. In columns 2, 4, 6 and 8 we include dummies for the quality as well as the *mandi* whose catchment area the farmer resides in. A *mandi* is defined as a market location - variety combination. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B2: Heterogeneous Treatment Effects of Information Interventions on Net Price Received

	Farmer specific average	*Mandi* weighted average	District weighted average	*Mandi* × year "shock"	Deviation from expected price	Farmers who sold to long-term buyers
	(1)	(2)	(3)	(4)	(5)	(6)
Price regressor	0.181**			0.088**		0.268***
	(0.069)			(0.034)		(0.068)
Private information	-0.554*	-0.663*	-0.659*	0.120	-0.483	-0.406
	(0.301)	(0.353)	(0.373)	(0.158)	(0.325)	(0.289)
Private information × Price regressor	0.131*	0.161*	0.163*	0.024	0.111	0.060
	(0.070)	(0.085)	(0.092)	(0.031)	(0.072)	(0.071)
Phone	0.023	0.104	0.101	0.091	0.019	0.122
	(0.309)	(0.237)	(0.250)	(0.113)	(0.209)	(0.405)
Phone × Price regressor	0.011	-0.005	-0.005	-0.001	0.014	-0.014
	(0.075)	(0.063)	(0.067)	(0.027)	(0.056)	(0.086)
Public information	0.106	-0.170	-0.138	0.073	0.044	-0.027
	(0.269)	(0.323)	(0.346)	(0.161)	(0.354)	(0.290)
Public information × Price regressor	-0.027	0.031	0.024	0.017	-0.017	-0.006
	(0.066)	(0.078)	(0.085)	(0.030)	(0.079)	(0.073)
Land	-0.076***	-0.076***	-0.076***	-0.057***	-0.075***	0.001
	(0.014)	(0.015)	(0.015)	(0.015)	(0.013)	(0.014)
Constant	1.573***	2.377***	2.376***	2.737***	2.376***	1.314***
	(0.298)	(0.086)	(0.086)	(0.178)	(0.121)	(0.276)
Observations	*2,300*	*2,317*	*2,317*	*2,283*	*2,318*	*1,370*
R-squared	*0.453*	*0.433*	*0.432*	*0.462*	*0.433*	*0.498*
Mean DV	2.054	2.058	2.058	2.054	2.054	2.121
SE DV	0.0329	0.0329	0.0329	0.0329	0.0329	0.0338

Notes: Notes below Table 9 apply. Dependent variable is the average net price received, calculated as the net revenue earned divided by the quantity sold. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B3: Heterogeneous Impacts of Information Interventions on Gross Farmer Revenue

	Farmer specific average	*Mandi* weighted average	District weighted average	*Mandi* × year "shock"	Deviation from expected price	Farmers who sold to long-term buyers
	(1)	(2)	(3)	(4)	(5)	(6)
Price regressor	694.9				-800.9**	-407.9
	(530.3)				(308.3)	(1,089.3)
Private information	-8,716.1**	-9,263.9**	-9,897.2**	-9,324.2**	5,141.4***	-10,641.0
	(3,546.0)	(4,228.6)	(4,542.2)	(4,430.1)	(1,722.4)	(6,706.7)
Private information x Price regressor	2,043.4**	2,225.1**	2,413.0**	2,062.9**	1,418.1***	2,523.7
	(796.4)	(968.5)	(1,054.7)	(981.3)	(390.9)	(1,679.9)
Phone	4,505.0	1,413.0	1,489.4	922.6	2,401.4	8,929.4
	(3,698.1)	(3,549.1)	(3,547.7)	(2,657.7)	(1,932.0)	(7,128.6)
Phone x Price regressor	-938.6	-203.5	-224.2	-79.8	346.3	-1,978.9
	(863.3)	(855.8)	(873.8)	(571.9)	(340.6)	(1,786.7)
Public information	-7,317.9**	-7,519.1*	-8,087.0*	-6,629.3	2,693.4	-10,085.2*
	(3,306.7)	(4,285.5)	(4,577.5)	(4,990.5)	(1,694.7)	(5,949.7)
Public information x Price regressor	1,482.3**	1,506.6	1,662.4	1,189.5	1,068.2***	2,516.5*
	(706.1)	(935.4)	(1,013.4)	(985.4)	(352.4)	(1,445.5)
Land	4,387.5***	4,420.2***	4,418.3***	4,423.7***	4,303.0***	5,035.4***
	(411.4)	(402.1)	(402.1)	(502.0)	(386.7)	(858.2)
Constant	4,220.1	7,198.8***	7,198.1***	7,234.2***	4,189.4***	8,723.1*
	(2,653.1)	(1,024.7)	(1,023.1)	(892.0)	(1,423.4)	(4,704.8)
Observations	*2,300*	*2,317*	*2,317*	*2,318*	*2,283*	*443*
R-squared	*0.350*	*0.345*	*0.345*	*0.345*	*0.351*	*0.460*
Mean DV	8350	8327	8327	8350	8350	8762
SE DV	432.3	429.6	429.6	432.3	432.3	1026

Notes: Notes below Table 9 apply. Dependent variable is the gross revenue earned by the farmer. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B4: Heterogeneous Treatment Effects of Information Interventions on Logarithmic Quantity Sold

	Farmer specific average	*Mandi* weighted average	District weighted average	*Mandi* × year "shock"	Deviation from expected price	Farmers who sold to long-term buyers
	(1)	(2)	(3)	(4)	(5)	(6)
Price regressor	-0.084			-0.112***		-0.083
	(0.057)			(0.024)		(0.054)
Private information	-0.607*	-0.545	-0.589	0.498***	-0.566	-0.454
	(0.307)	(0.423)	(0.433)	(0.141)	(0.400)	(0.332)
Private information × Price regressor	0.145**	0.134	0.147	0.136***	0.128	0.115
	(0.069)	(0.102)	(0.105)	(0.028)	(0.078)	(0.075)
Phone	0.234	-0.022	-0.022	-0.074	0.013	0.081
	(0.367)	(0.371)	(0.375)	(0.151)	(0.343)	(0.570)
Phone × Price regressor	-0.064	-0.003	-0.003	-0.013	-0.011	-0.002
	(0.075)	(0.078)	(0.080)	(0.025)	(0.068)	(0.126)
Public information	-0.690**	-0.476	-0.551	0.276**	-0.524	-0.471
	(0.293)	(0.382)	(0.394)	(0.110)	(0.571)	(0.422)
Public information × Price regressor	0.135**	0.089	0.108	0.109***	0.091	0.095
	(0.062)	(0.084)	(0.088)	(0.024)	(0.102)	(0.094)
Land	0.396***	0.401***	0.401***	0.384***	0.401***	0.329***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.028)
Constant	7.960***	7.570***	7.571***	7.140***	7.574***	7.882***
	(0.269)	(0.081)	(0.081)	(0.108)	(0.154)	(0.269)
Observations	*2,300*	*2,317*	*2,317*	*2,283*	*2,318*	*1,370*
R-squared	*0.668*	*0.665*	*0.665*	*0.676*	*0.666*	*0.630*
Mean DV	7.960***	7.570***	7.571***	7.140***	7.574***	8.028***
SE DV	(0.269)	(0.081)	(0.081)	(0.108)	(0.154)	(0.338)

Notes: Notes below Table 9 apply. Dependent variable is the natural logarithm of the quantity sold. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B5: Heterogeneous Treatment Effects of Information Interventions on Logarithmic Gross Farmer Revenue

	Farmer specific average	*Mandi* weighted average	District weighted average	*Mandi* x year "shock"	Deviation from expected price	Farmers who sold to long-term buyers
	(1)	(2)	(3)	(4)	(5)	(6)
Price regressor	-0.084			-0.112***		-0.083
	(0.057)			(0.024)		(0.054)
Private information	-0.607*	-0.545	-0.589	0.498***	-0.566	-0.454
	(0.307)	(0.423)	(0.433)	(0.141)	(0.400)	(0.332)
Private information × Price regressor	0.145**	0.134	0.147	0.136***	0.128	0.115
	(0.069)	(0.102)	(0.105)	(0.028)	(0.078)	(0.075)
Phone	0.234	-0.022	-0.022	-0.074	0.013	0.081
	(0.367)	(0.371)	(0.375)	(0.151)	(0.343)	(0.570)
Phone × Price regressor	-0.064	-0.003	-0.003	-0.013	-0.011	-0.002
	(0.075)	(0.078)	(0.080)	(0.025)	(0.068)	(0.126)
Public information	-0.690**	-0.476	-0.551	0.276**	-0.524	-0.471
	(0.293)	(0.382)	(0.394)	(0.110)	(0.571)	(0.422)
Public information × Price regressor	0.135**	0.089	0.108	0.109***	0.091	0.095
	(0.062)	(0.084)	(0.088)	(0.024)	(0.102)	(0.094)
Land	0.396***	0.401***	0.401***	0.384***	0.401***	0.329***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.028)
Constant	7.960***	7.570***	7.571***	7.140***	7.574***	7.882***
	(0.269)	(0.081)	(0.081)	(0.108)	(0.154)	(0.269)
Observations	*2,300*	*2,317*	*2,317*	*2,283*	*2,318*	*1,370*
R-squared	*0.668*	*0.665*	*0.665*	*0.676*	*0.666*	*0.630*
Mean DV	7.993	7.994	7.994	7.993	7.993	8.001
SE DV	0.0639	0.0636	0.0636	0.0639	0.0639	0.0719

Notes: Notes below Table 9 apply. Dependent variable is the natural logarithm of the gross revenue earned. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B6: Heterogeneous Treatment Effects of Information Interventions on Logarithmic Net Farmer Revenue

	Farmer specific average	*Mandi* weighted average	District weighted average	*Mandi* × year "shock"	Deviation from expected price	Farmers who sold to long-term buyers
	(1)	(2)	(3)	(4)	(5)	(6)
Price regressor	-0.024			-0.072**		0.017
	(0.065)			(0.028)		(0.069)
Private information	-0.982**	-1.091**	-1.136**	0.606***	-0.971**	-0.793**
	(0.371)	(0.485)	(0.509)	(0.159)	(0.476)	(0.395)
Private information × Price regressor	0.231***	0.262**	0.277**	0.165***	0.215**	0.173**
	(0.077)	(0.111)	(0.118)	(0.031)	(0.092)	(0.084)
Phone	0.387	0.193	0.202	0.030	0.153	0.150
	(0.415)	(0.429)	(0.437)	(0.205)	(0.325)	(0.600)
Phone × Price regressor	-0.092	-0.047	-0.050	-0.001	-0.035	-0.009
	(0.090)	(0.096)	(0.100)	(0.040)	(0.069)	(0.135)
Public information	-0.763**	-0.796*	-0.851*	0.421***	-0.684	-0.554
	(0.348)	(0.441)	(0.464)	(0.145)	(0.529)	(0.486)
Public information × Price regressor	0.151**	0.159*	0.174*	0.145***	0.121	0.109
	(0.070)	(0.093)	(0.100)	(0.030)	(0.094)	(0.109)
Land	0.351***	0.357***	0.356***	0.348***	0.357***	0.329***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.029)
Constant	8.503***	8.385***	8.384***	8.123***	8.388***	8.326***
	(0.326)	(0.095)	(0.095)	(0.149)	(0.143)	(0.353)
Observations	*2,286*	*2,302*	*2,302*	*2,269*	*2,303*	*1,369*
R-squared	*0.701*	*0.699*	*0.699*	*0.710*	*0.699*	*0.682*
Mean DV	7.956	7.956	7.956	7.956	7.956	7.990
SE DV	0.0636	0.0633	0.0633	0.0636	0.0636	0.0724

Notes: Notes below Table 9 apply. Dependent variable is the natural logarithm of the net revenue earned. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.

Table B7: Heterogeneous Treatment Effects of Interventions on Households That Were Not Asked About Price Tracking Behavior

	Quantity Sold (1)	Gross Revenue (2)	Net Revenue (3)	Net price (4)	Ln(Quantity Sold) (5)	Ln(Gross Revenue) (6)	Ln(Net Revenue) (7)
Price regressor	-1.300	698.032	648.179	0.212***	-0.096	-0.447	-0.008
	(322.392)	(694.420)	(668.788)	(0.072)	(0.071)	(0.403)	(0.077)
Private information	-2,944.751*	-6,775.892	-6,300.493	-0.428	-0.447	-0.045	-0.757
	(1,678.458)	(4,182.642)	(4,083.944)	(0.314)	(0.403)	(0.411)	(0.468)
Private information × Price regressor	544.476	1,363.492	1,304.489	0.121*	0.110	0.110	0.188*
	(381.945)	(871.382)	(847.594)	(0.071)	(0.096)	(0.096)	(0.101)
Phone	2,609.029	5,666.420	5,283.383	-0.096	-0.045	-0.908**	-0.009
	(2,029.408)	(5,800.428)	(5,684.935)	(0.446)	(0.411)	(0.363)	(0.496)
Phone × Price regressor	-479.944	-945.315	-877.630	0.027	0.012	0.012	0.012
	(445.917)	(1,243.741)	(1,242.497)	(0.102)	(0.089)	(0.089)	(0.107)
Public information	-3,972.866**	-9,139.327**	-8,170.157*	0.358	-0.908**	-0.096	-0.898**
	(1,676.522)	(4,381.424)	(4,225.838)	(0.328)	(0.363)	(0.071)	(0.434)
Public information × Price regressor	766.826**	1,820.385**	1,659.281*	-0.074	0.189**	0.189**	0.186**
	(376.894)	(911.722)	(875.342)	(0.077)	(0.077)	(0.077)	(0.085)
Land	2,002.404***	3,845.412***	3,375.979***	-0.076***	0.360***	0.360***	0.316***
	(201.154)	(393.910)	(352.715)	(0.018)	(0.029)	(0.029)	(0.029)
Constant	3,520.771**	4,938.699	4,750.218	1.396***	8.028***	8.028***	8.441***
	(1,408.693)	(3,357.480)	(3,254.382)	(0.319)	(0.338)	(0.338)	(0.388)
Observations	*1,139*	*1,139*	*1,139*	*1,139*	*1,139*	*1,139*	*1,135*
R-squared	*0.405*	*0.379*	*0.362*	*0.472*	*0.677*	*0.677*	*0.708*
Mean DV	4060	8543	7944	2.033	7.314	7.991	7.944
SE DV	348.5	666.3	621.1	0.0453	0.0818	0.0914	0.0902

Notes: Notes for Column 1 below Table 9 apply. Sample is restricted to households that were not asked questions about their price tracking behavior. *Mandi* dummies are included in all columns. Standard errors in parentheses are clustered at the *mandi* level. $^{***}: p < 0.01, ^{**}: p < 0.05, ^{*}: p < 0.1$.