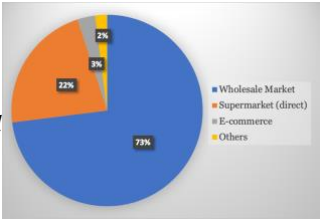


Testing the Theory of Relational Contracts in a Chinese Wholesale Vegetable Market

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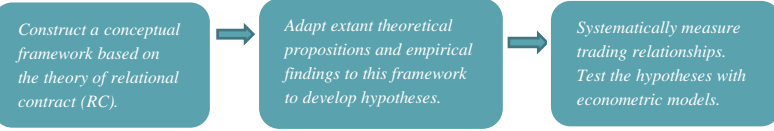
OVERVIEW

Wholesale markets play an essential role in the supply chain of **fresh produce** in many emerging economies. In China, they remain a dominant channel marketing produce products.



Marketing channels for produce products (China, 2017)

A **proprietary database** recording transactions in a **large wholesale vegetable market in China** reveals evidence of “**relational trading**” -- traders interact repeatedly with the same trading partner(s) over time. Why do they do so? What’s different about the transactions under relational trading and “idiosyncratic trading”? How do they sustain the relationships? To these questions I seek to answer using the strategy below:



THE MARKET

Seemingly highly competitive:

- homogeneous products
- large number of sellers and buyers
- adequate flow of information

However, data exhibit:

- **persistent price dispersion**
- **significant evidence of relationships (repeated transactions)**



HYPOTHESES

- An existing relationship significantly affects transaction price.
- Traders behave strategically under exogenous shocks to maintain their relationships (engage in specific relational practices).

DATA

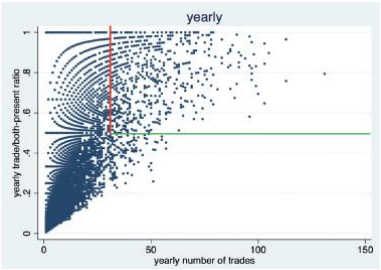
- Daily transactions with time, market-specific trader ID, weight and price
- Time window: January 2016 - December 2019
- Two commodities: Cauliflower: 253,022 transactions; Chinese Cabbage: 186,294 transactions

Time	Seller ID	Buyer ID	Commodity	Weight(kg)	Price(¥)
7/16/19 4:03	0023663	0001242	Chinese Cabbage	520	1.2
7/16/19 4:05	0153504	0085941	Chinese Cabbage	868	1.2
7/16/19 4:22	0023663	0001242	Chinese Cabbage	670	1.1
7/16/19 4:33	0141914	0000392	Chinese Cabbage	600	1.2
7/16/19 4:36	0152866	0007840	Chinese Cabbage	176	1.0
7/16/19 4:37	0023663	0131177	Chinese Cabbage	440	1.2
7/16/19 4:42	0153012	0131177	Chinese Cabbage	478	1.1
7/16/19 4:42	0023663	0111029	Chinese Cabbage	880	1.2

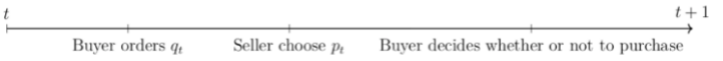
EMPIRICAL STRATEGY

- Defining Relationship:

- Trade ≥ 30 times in a year
- "trade/both-present" ratio (tp-ratio) ≥ 0.5



- Conceptual Foundation:



Self-enforcement (IC) constraints:

Buyer:

$$\frac{\delta}{1-\delta}(U_t - U_t^0) \geq \pi_t^B(p_t, F(p)_t, c_B)$$

Seller:

$$\frac{\delta}{1-\delta}(V_t - V_t^0) \geq \pi_t^S(p_t, F(p)_t)$$

- Econometric Model:

$$\begin{aligned} P_{i,j,t} = & \alpha_1 \text{relationship}_{i,j,t} + \alpha_2 \text{relationship}_{i,j,t} \times \text{positive supply shock}_t \\ & + \alpha_3 \text{relationship}_{i,j,t} \times \text{negative supply shock}_t + \Omega Z_{i,j,t} + \Gamma X_t \\ & + \sum \mu_h M_h + \sum \tau_l Y_l + \theta_i + \epsilon_{i,j,t} \end{aligned}$$

MAIN RESULTS

	(1) Price	(2) Price	(3) Price
Relationship	0.178*** (0.045)	0.174*** (0.021)	0.173*** (0.023)
Relationship \times Positive shock			0.079*** (0.021)
Positive supply shock	-0.131*** (0.034)	-0.113*** (0.029)	-0.125*** (0.031)
Relationship \times Negative shock			-0.071** (0.043)
Negative supply shock	0.057 (0.052)	0.100** (0.040)	0.113*** (0.043)
Seller fixed effect		Y	Y
R ²	0.581	0.572	0.573

Robust standard errors clustered at the seller level. Significance levels: *** = 1%, ** = 5%, * = 10%. Number of observations = 218,249.

CONCLUSION

- Relationships have a significant impact on transaction prices.** The surplus generated by the RC is allocated more to **the seller**. The reason could be that the buyer is getting reduced price risk, and greater assuredness of supply.
- Traders share part of the risk for their contractual partner benefit from their relationships when supply makes large swings.** Price decreases less in relational transactions when supply increases unexpectedly, and price increases less when supply drops dramatically. This can be a strategy to maintain the relationship.

CONTRIBUTION

- Directly test predictions from the relational contract (RC) literature.
- Systematically measure relational practices.
- Demonstrate that relational practices play an important role in the formation of transaction prices.
- More fundamentally, explains price dispersion in a seemingly competitive market.