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#### **Factors Influencing Contract Use and Contract Terms in Organic Markets**

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### Factors Influencing Contract Use and Contract Terms in Organic Markets

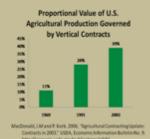
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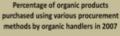
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Contracting and Organizations Research Institute

#### **Extent of Contracting in U.S. Agriculture**

- Increasing with consolidation & concentration
- · Greater for value-added products, like organics







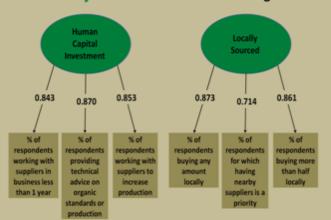
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## Data: ERS/USDA Survey Procurement & Contracting by Organic Handlers 2004 & 2007

http://www.ers.usda.gov/Data/OrganicHandlers/

- Data summarizing results of national surveys of organic manufacturers, processors, and distributors are published (% of respondents using written contracts, informal contracts, and spot transactions and % of contracts that are multi-year and that use various pricing mechanisms).
- Procurement data include information on 1,038 facilities in 2004 and 1,013 facilities in 2007, and contract data include information from 686 facilities in 2004 and 620 facilities in 2007 that use contracts.

#### Factor Analysis: Limits error in measuring variables



#### **Regression Analysis**

- Tobit appropriate if few zero-value observations
- •Truncated OLS appropriate if there are several

Truncated Ordinary Least Squares Regression Results

#### **Tobit & Truncated OLS Regression Results**

Two-Limit Tobit Regression Results

	Iwo-Limit Tobit Regression Results			Truncated Ordinary Least Squares Regression Results				
	Formal Contract	Informal Contract	Spot Market	Multi-Year Contract	Flat Price	Cost- Plus	Premium Price	Fixed Price Plus
Manufacturer	1.4011	2.4771	1.2403	-6.1159	9.4463**	-7.7614**	-5.2280	-1.3131
monunacionei	(2.6857)	(2.8157)	(2.6126)	(5.7651)	(4.1719)	(3.0839)	(3.8480)	(4.4381)
Yr-round availability	0.0550	-0.1791**	-0.1520*	0.5148***	-0.1697	-0.2283	-0.0133	-0.1328
11-10and availability	(0.0855)	(0.0897)	(0.0832)	(0.1741)	(0.1478)	(0.1488)	(0.1551)	(0.1332)
Human K Investment	6.1469***	-0.9355	6.6775***	-1.9506	3.2514	-0.6779	-0.8859	3.2083
Human K investment	(1.5850)	(1.6600)	(1.5421)	(5.2750)	(3.2521)	(3.8565)	(4.4619)	(3.3033)
Provides \$ for	-0.0918	0.0885	-0.1098	0.3115	-0.1576	-0.3297	-0.0390	0.5022
transition to organic	(0.1055)	(0.1107)	(0.1026)	(0.2606)	(0.1868)	(0.2250)	(0.1973)	(0.3377)
Locally sourced	-3.4707**	3.4848**	-0.8993	3.2871	-4.8881*	-0.0265	1.3477	4.1416
Eodally Sourced	(1.5728)	(1.6480)	(1.5286)	(3.4769)	(2.6818)	(1.9527)	(2.5659)	(2.9018)
Require Certificates	0.2209	0.4258	-0.5057*	0.5538	-0.8820*	0.6364	0.1605	0.9065***
Trequire Certificates	(0.2811)	(0.2947)	(0.2730)	(0.6179)	(0.4528)	(0.5328)	(0.3814)	(0.3539)
Package/Merch Specs	, ,	0.1218	-0.0453	0.4084**	0.1474	0.5812***	0.1124	-0.1236
- consignment open	(0.0755)	(0.0789)	(0.0734)	(0.1988)	(0.1414)	(0.2223)	(0.1712)	(0.1554)
Test to verify claims	0.1813**	0.1200	0.0005	-0.4506**	-0.0143	-0.8819***	-0.0054	-0.2195*
reacto rainy amino	(0.0860)	(0.0902)	(0.0837)	(0.1837)	(0.1412)	(0.1946)	(0.1540)	(0.1244)
3rd party certification	0.0060	0.0743	0.0637	-0.0995	0.0157	-0.5399**	0.2259	-0.1973
a party continuous	(0.1051)	(0.1102)	(0.1025)	(0.3064)	(0.1798)	(0.2478)	(0.1771)	(0.1208)
Uniform standards	0.0775	-0.2104*	0.0468	-0.5924**	-0.3796**	0.7988***	0.1091	0.1106
01110111101101	(0.1054)	(0.1103)	(0.1027)	(0.2705)	(0.1812)	(0.2060)	(0.1953)	(0.1302)
Length of relationship		0.1207	-0.2627***	0.2612	-0.1479	0.3726**	-0.4480**	-0.4098**
actigut or tenderions	(0.0976)	(0.1023)	(0.0948)	(0.2180)	(0.1748)	(0.1644)	(0.1859)	(0.1756)
Reputation for quality		0.0598	0.1594*	-0.0769	0.2507	-0.2250	-0.0643	0.2941
. repeased in the quality	(0.0980)	(0.1027)	(0.0951)	(0.2037)	(0.1624)	(0.2091)	(0.2214)	(0.2285)
Coffee & tea	28.7759***		44.1036***	-19.7479	-34.1227*	-7.7537	-33.1549*	15.4430
	(9.3428)	(9.7918)	(9.1125)	(22,7773)	(17.9961)	(13.1783)	(18.7907)	(12.6186)
Dairy	-2.9912	-0.3185	-2.4772	12.1932	-13.2163	-19.1110*	-53.6037***	40.7888***
,	(9.3861)	(9.8395)	(9.1086)	(21.4209)	(17.4017)	(10.3214)	(16.7634)	(11.9551)
Fruits & nuts	17.7832**	-2.9664	12.0809*	4.1911		-14.2669***		-0.0386
	(7.2871)	(7.6368)	(7.0761)	(19.2066)	(14.4346)	(8.7649)	(12.6005)	(8.5615)
Greenhouse &	7.7795	3.4491	13.0512*	-1.7824	-10.4733	-25.3789	-22.3434*	-6.9042
nursery	(7.7371)	(8.1088)	(7.5165)	(18.9975)	(14.8907)	(8.5346)	(12.8969)	(6.8193)
Oilseeds, grains,	12.7870*	0.4723	16.6704**	-9.9976	1.7917	9.1435	-32.5281***	-3.8643
legumes, & feed	(7.0642)	(7.4030)	(6.8594)	(19.0875)	(13.4396)	(9.2452)	(11,6106)	(6.5538)
Poultry & eggs	2.8768	-1.2321	13,4059*	48.4537**	-1.3708	4.1553	-15.7868	-
	(8.0974)	(8.4867)	(7.8697)	(19.0162)	(14.3986)		(10.9506)	
Vegetables	20.1012***	-7.5758	14.4022**	12.2243	-0.3999	-8.2665	-29.3615**	0.1830
	(7.4367)	(7.7948)	(7.2195)	(20.9422)	(14.4941)	(10.5680)	(13.5302)	(7.1811)
Year 2007	-14.9403***	0.6668	-1.8290	44.4465***	-0.5562	23.6517**	-10.3753	=
	(5.6530)	(5.9253)	(5.4933)	(13,0048)	(9.1989)	(10.7683)	(12.3792)	
Sigma	13.9023	14.5705	13.4891	12.6100***	, ,	5.3505***	6.3303***	5.7248***
_	(0.7734)	(0.8154)	(0.7617)	(1.5384)	(1.2193)	(0.7548)	(0.9124)	(0.7617)
Observations	164	163	161	66	115	33	35	37
Censored	1 at 0%, 1	1 at 0%, 2	3 at 0%, 2	60 at 0%, 1 at	12 at 0%	94 at 0%	92 at 0%	31 at 0%
	at 100%	at 100%	at 100%	100%				
R <sup>2</sup>	0.0424	0.0330	0.0521	-	-		-	thurster -
Note: Asterisk (*), double asterisk (**), and triple asterisk (***) denote significance at 10%, 5%, and 1%, respectively.								

#### **Summarizing Regression Results**

 Low explanatory power of regressions, as indicated by low R<sup>2</sup>, is not surprising given data are reported as the average % of respondents across commodities.
 (Note: no R<sup>2</sup> measure is available for truncated OLS)

#### Investment and Supplier Proximity Effects

- Investing in supplier human capital increases use of formal contracts 6%. Contracts are believed to be used to ensure a return on such investments. While such investments are also related to spot market use here, significant relationship and reputation effects appear to safeguard such investments.
- Financially assisting suppliers' transition to organic not significantly associated with any procurement method.
- Formal contract are used 3% less by those sourcing organic products locally, as tabs can be kept on nearby suppliers under more informal arrangements.
- Greater contract procurement of fruits, vegetables, and nuts relative to livestock may reflect temporal issues due to perishability and the substantial sunk costs of establishing groves and vinyards and delayed returns from waiting for plants to mature to harvestable stage.

#### Pricing Provisions in Organic Procurement Contracts

- Relative to other handlers, manufacturers use more flatprice and less cost-plus contracts with their suppliers.
- Relative to livestock, most commodity groups have a lower percentage of organic contracts with premiums over conventional commodity prices. Commodity group specific effects are significantly associated with other pricing mechanisms, as well.

#### Duration of Organic Procurement Contracts

- Only poultry and egg procurement utilizes multi-year contracts significantly more than livestock procurement.
- Multi-year contracts are used significantly more by buyers requiring year-around availability and those with packaging and merchandising specifications and are needed significantly less when uniform product standards are used and product claims are tested.

#### Changes with the Passage of Time (Learning Effects?)

 Use of formal contracts decreased, while multi-year and cost-plus contracts increased in 2007 relative to 2004.

This Project was supported by Missouri Value Added Center and Contracting and Organizations Research Institute at the University of Missouri. Contact Jason Franken at frankenj@missouri.edu with any questions.