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Department of Agricultural Economics Working Paper No. AEWP 2009-03

August 2009

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Lessons from Community Entrepreneurship: The Concept of Spawning

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Abstract: *Capital-constrained cooperatives are being challenged by producer-members to provide vertical integration opportunities. We find evidence producer groups are utilizing an investment strategy described as spawning. Producer-investors familiar with a particular organizational form and who have developed joint investment networks were more apt to invest in newly spawned ventures.*

Key words: Spawning, Collective Entrepreneurship, Cooperative Development

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1. The Role of Existing Entities in the Creation of New Cooperative Ventures

Strategies of diversification, merger, acquisition, strategic alliances, and the establishment of capital-seeking entities are well-recognized as options for maintaining cooperative competitiveness and mitigating financial constraints (Merlo, 1998; Crooks, 2000; Richards and Manfredo, 2003; Chaddad and Cook, 2004). However, observation of the dynamic cooperative sector suggests an important aspect of cooperative trends has been under-documented. We observe a new approach to sustaining competitiveness without exacerbating financial constraints or creating additional control problems. Specifically, we note that existing cooperatives have played an important role in the creation of new, separate organizational structures that seek to enhance the value of members' products. The role that existing cooperatives and producer-controlled organizations play in the creation of new cooperative organizations is not explained nor captured by existing theory. We present the notion of spawning as a framework to improve our understanding of these current dynamics.

The notion that existing producer-owned entities may affect the emergence of new cooperative ventures is not a foreign concept. However, this link has escaped formal academic inquiry. We observe existing cooperatives encourage and invest in the development of similar organizations across their regions, but have few tools with which to incorporate these dynamics into our models of cooperative development. Consequently, the impact of organizational ties and "early models of cooperative success" are recognized in practitioners' accounts, but seldom in academic literature (University of Manitoba).

2. Spawning: New Organizational Arrangements to Attract Risk Capital

Literature from entrepreneurship and finance suggest entrepreneurial ties among cooperatives may best be described as spawning or swarming (Daval, 2002; Gompers, Lerner and Scharfstein, 2005). Spawning and swarming differ from previous corporate entrepreneurship models such as the spin-off. A spin-off often evolves from a business unit within an existing organization. Spawning or swarming frameworks, however, analyze ventures initially created as separate business entities. The link between the parent organization and the spawned entity are the members or employees of the parent organization involved in venture creation.

2.1 Spawning vs. Swarming

Spawning refers to a process where persons formerly affiliated with a 'parent' firm organize a separate entrepreneurial venture (Gompers, et al., 2005). Swarming describes a parent organization's role in fostering an emerging enterprise. Unlike swarming, the notion of spawning allows us to consider parents that may have been tacit or unwilling participants in the creation of the new firm. Gompers et al. (2005) develop a theoretical framework to explain spawning. This framework is utilized to determine why employees choose to develop an entrepreneurial opportunity outside an existing organization. The authors find two general motivations for spawning: reactionary and entrepreneurial.

2.2 Reactionary Spawning

Reactionary spawning occurs when an employee or group of employees leaves the firm to develop an idea the parent is unable or unwilling to pursue (Gompers, et al., 2005). The reactionary firm is epitomized as the offspring of a large organization that

does not seize the chance to develop an entrepreneurial opportunity. The parent organization may be reluctant to pursue an entrepreneurial endeavor because it wisely chooses to focus on its core competencies. Alternatively, the parent's hierarchical decision-making processes and rigid internal capital markets may render the organization slow to respond to market changes. These large, bureaucratic organizations may have difficulty processing "soft" information. Therefore, managers may experience difficulty evaluating entrepreneurial opportunities.

2.3 Entrepreneurial Spawning

The second type of spawned entity can be characterized as an entrepreneurial learner. Entrepreneurial learning entities are spawned from younger, smaller organizations that have been venture capital backed. The hypothesis is that employees in these organizations have relationships with suppliers and customers in the industry, business start-up experience, knowledge of the venture creation process, and network contacts that facilitate venture creation. In addition, individuals affiliated with start-up firms may have a higher tolerance for risk.

3. Application of the Spawning Framework to the Creation of Cooperative Enterprise

The most notable difference between the application of the traditional spawning framework and our present application is a shift in the unit of analysis. While traditional application of the spawning framework utilizes the employee as the primary unit of analysis, we analyze individual member producers. Gompers et al. (2005) analyze employees because it is their decision to create and invest in a new firm. Among agricultural cooperatives, the producer-owner is making this initial creation and investment decision.

Although researchers have uncovered significant empirical evidence of spawning among publicly-traded firms, we know of no previous literature that has sought to determine whether cooperatives spawn. Therefore, our analysis begins by identifying cases of spawning among cooperatives. If spawning occurs, we seek to determine 1) whether the analytical framework of the spawning theory can improve our understanding of the evolution of entrepreneurial producer groups in the cooperative sector, 2) the exact mechanisms by which spawning takes place, and 3) factors that increase the likelihood of spawning.

In addition to building a theory of spawning applicable to cooperatives, we are interested in expanding the theory of spawning to resolve questions unaddressed by the spawning framework. We are primarily interested in the financial motivations for spawning. Gompers et al. (2005) stress reactionary and entrepreneurial spawning as avenues for an individual to develop a new opportunity. However, they do not address the possibility that an entrepreneur may be motivated by residual claimant rights in the new venture.

In addition, we would like to delve deeper into the reasons behind entrepreneurial spawning. The reactionary story is quite clear. The business idea had to be developed outside the parent because the parent was unwilling or unable to pursue the idea. In the case of an entrepreneurial spawn, we note the theory does not explain an entrepreneur's motivation for choosing to pursue a business opportunity outside the parent organization.

4. Hypotheses Resulting from Initial Observations of Active Spawning

Cooperatives are continuously striving to link producers to markets. Producer-members may choose to develop business opportunities within the cooperative or as a separate business entity. Descriptive histories of several cooperatives reviewed mirror the generic descriptions presented in the spawning theory. To begin our inquiry, we present basic hypotheses from the spawning framework, tailored to cooperative enterprise. We hypothesize that reactionary ventures are likely to emerge from a parent who chooses to focus on core competencies, as a reaction against bureaucratic or inefficient organizations with rigid internal capital markets, or from a parent unable to process soft information to value uncertain opportunities. We hypothesize that entrepreneurial learning ventures are likely to emerge from individuals with established industry-specific contacts, knowledge of the venture creation process, experience utilizing venture networks, or with a higher risk tolerance.

5. Method and Procedures

We utilize a deviant case method embedded in a cross-case comparison to test the presence and nature of spawning against a set of theory-driven constructs. Research describes a construct-based inquiry as most effective for our purpose of theory building (Eisenhardt, 1989; Emigh, 1997). Table 1 identifies the constructs, their expected sign according to the stated hypotheses, the name of the variable representing the construct, and a synopsis of the survey item from which the data on each variable was gathered.

The data analyzed includes 150 interviews over a 13-year period compiled by 4 researchers, 207 written survey responses from individual producers and investors, and extensive correspondence with cooperative organizers. An initial review of descriptive histories indicated two cooperatives under initial investigation exhibited strong ties to a single county in Minnesota: ValAdCo and Golden Oval (GOE). This provided us with an excellent opportunity to investigate individual producer investment choices while holding institutional context constant. In addition, primary and secondary sources corroborated a more reactionary environment during the development of ValAdCo. Therefore, we were able to test for differences with respect to the reasons each entity was spawned.

ValAdCo was created as an organization to add value to members' corn. ValAdCo organizers developed an intensive sow multiplier unit utilizing corn as the main feed input for sows. GOE also focused on adding value to members' corn. Organizers looked to accomplish this through a significant investment in laying operations.

We survey potential investors from a common parent organization regarding their decision to invest resources in a spawned cooperative entity. Although three potential parent organizations were tested, we present here binary logistic regression results from the parent exhibiting the greatest statistical significance. A variety of constructs were included in the instrument as a means to inform the spawning framework as it may apply to cooperatives. The model for each organization, ValAdCo and GOE, is estimated separately. The models utilized test the log odds of a producer's decision to invest given a set of independent variables derived from the following spawning framework where variables $x_1...x_k$ correspond to the independent variables listed in Table 1:

$$\ln\left(\frac{p_{investment}}{1-p_{investment}}\right) = \beta_0 + \beta_1 x_{1,i} + \dots + \beta_k x_{k,i}$$

6. Relevant Empirical Findings

We find significant empirical support for spawning among agricultural cooperatives. Both ValAdCo and GOE exhibited strong organizational ties in the form of previous membership in a single “parent” organization. The strongest predictors of investment in a spawned entity can be described as joint investment networks. Producers previously engaged in some form of joint investment were more apt to invest during subsequent rounds of producer cooperation. Familiarity with the organizational structure utilized, particularly with regards to informal organizational rules, was also a strong predictor of investment. In the case of ValAdCo, producers with established business networks among partner-investors exhibited greater tendencies to invest. Regression results reflect greater entrepreneurial, rather than reactionary, reasons for spawning for both cooperatives studied. Table 2 presents reference models for those specifications that best informed a producer’s decision to invest.

6.1 Hypothesis 1: Reactionary spawning due to the parent’s focus on core competencies

The survey instrument utilized several constructs to investigate whether tension between a focus on core competencies and diversification may have lead to the creation of the spawned entity. None of these variables exhibited a statistically significant correlation.

6.2 Hypothesis 2: Reactionary spawning due to a bureaucratic parent

Survey respondents were asked whether bureaucracy within the parent organization impacted the decision to spawn. Constructs specifically investigated slow reactions to market changes, internal capital market disagreements and costly negotiation processes (Hansmann, 1996). Internal capital market and negotiation constructs did not show significance.

However, respondents indicating the parent organization was slow to reach an investment decision on previous projects were more likely to invest in the spawned entity. For each unit increase in the amount of organizational lethargy identified by respondents, the log odds of investment in ValAdCo and GOE generally increased by factors of 1.3 and 1.1, respectively³. Empirical results indicate inclusion of this criterion does not improve the model’s ability to predict investment in the case of ValAdCo. Therefore, this variable is excluded from the ValAdCo Reference Model in Table 2.

6.3 Hypothesis 3: Reactionary spawning due to disagreement over investment outcome

The strongest evidence we find to differentiate between spawning motivations experienced by ValAdCo and GOE pertains to the degree of disagreement perceived among investors at the level of the parent organization. In the case of GOE, the “Disagreement” variable did not improve the model’s ability to predict investment and generally showed a negative correlation with investment. In the case of ValAdCo, for each unit increase in the level of controversy potential investors recognized within the parent organization, the log odds of investment increased by a factor of 1.729. This is an especially strong finding because the sample as a whole perceived high levels of disagreement within the parent organization over whether to invest in a multiplier unit.

³ These results refer to the variable name “Before” referenced in Tables 1 and 2.

Investors, however, consistently indicated higher levels of controversy. ValAdCo investors appear to have been motivated to invest in the spawned organization due to a failure of the parent organization to pursue the venture.

Part of the disagreement over whether to invest stemmed from heterogeneous member investment preferences with respect to farm level assets. Potential investors often expressed concern that newly organized ventures would constitute a competitive threat to their on-farm production. Empirical results in the case of ValAdCo and GOE both indicate a negative correlation between the investors' assessment of the competitive threat, indicated by the variable "Compete," and investment. For each unit increase in the level of competition the respondent perceived the new venture to represent, the log odds of investment decreased by 0.669 (ValAdCo) and 0.804 (GOE).

We found two categories of respondents concerned that emerging ventures would constitute increased competitive pressure (1) respondents engaged in the hog or poultry sectors, (2) net grain buyers. Respondents involved more generally in animal agriculture often fell into both categories. These producers considered the parent organization's involvement in either venture would increase feed prices, thus increasing competitive pressure.

6.4 Hypothesis 4: Entrepreneurial Spawning supported by industry-specific contacts

Respondents were asked to indicate previous experience with hogs, poultry, and laying operations⁴. Previous industry experience showed no significance and a slight negative correlation. This result is contrary to an entrepreneurial learning hypothesis. However, further case analysis explains this result.

Several respondents indicated the ValAdCo venture posed a competitive threat to their on-farm operation. Therefore, the majority of respondents with experience in the hog industry were in the subset of non-investors. With respect to GOE investments, 83% of respondents indicated they had no experience with broiler or laying hen operations. Another 5% indicated 10 years of involvement or less in the industry. The concept of a venture involving eggs or poultry was attractive to investors specifically because very few area farmers were involved in a sizable poultry operation. GOE investors indicated fewer area farmers would perceive this venture to be competing with their on-farm operation. For this reason, investors expected the venture to attract less controversy from neighboring farms.

6.5 Hypothesis 5: Entrepreneurial spawning through prior knowledge of venturing

Although the majority of respondents were single or single-family proprietors of their farming operations, few indicated experience starting a new business. Therefore, the data showed little correlation between previous venture experience and the propensity to invest in the spawned entity.

ValAdCo and GOE both utilized a unique organizational structure. Therefore, we include an additional variable important to our analysis: familiarity with the structure and functioning of the New Generation Cooperative (NGC). The variable "Pay2Play" assessed whether previous experience with the NGC organizational

⁴ General experience in small animal agriculture does not necessarily translate into the specific skills needed to manage a large sow multiplying operation or laying barns. However, even this minimum experience was rare among respondents. Less than 5 respondents indicated any significant investment in hogs; none indicated any form of specialization at the time of the ValAdCo venture. Regarding broiler or layer operations, only one respondent indicated any significant investment.

structure impacted investment. The results indicate for each unit increase in the respondent's familiarity with the organizational structure the log odds of investment increase by a factor of 2.2 (ValAdCo) and 1.3 (GOE). Individual respondent's investment patterns corroborate this result: approximately 60% of investors in both organizations had previously invested in a NGC.

6.6 Hypothesis 6: Entrepreneurial spawning due to experience utilizing venture networks

Our analysis of venture creation networks looked at three categories of ties among investors in these collective ventures: 1) social networks within both the parent and the spawned entities, 2) business networks within the parent and the spawned entities, and 3) comfort gained through repeated use of joint investment networks. By including separate social and business network variables for each organization we are able to investigate which type of ties have the strongest impact on venture development. The spawning framework leads us to predict that higher levels of networking with individuals investing in ValAdCO or GOE would result in a higher probability of investing in each of those organizations, respectively. In addition, we would expect strong network ties to the parent organization to lend support to the notion of a parent-spawn relationship.

6.6.1 Social Capital

Measures of social capital were generally negative and insignificant for both organizations across model specifications. This holds true for social capital in each venture and the parent organization.

6.6.2 Business Network

Empirical results indicate previous business relationships among fellow investors are a more reliable predictor of investment than social capital. For each unit increase in the respondent's rating of the strength of business relationships with fellow investors, the log odds of investment increased by 2.07 in the case of ValAdCo. For, GOE, the business network variable was generally positive, but not significant. GOE was a larger organization with more investors. For a larger organization, it is less likely that a large number of members will all be considered part of a respondent's business network.

The analysis of business networks among investors in the parent organization provided results contrary to a strict interpretation of the spawning hypothesis. In the case of both ValAdCo and GOE, potential investors who perceived strong business networks within the parent organization were less likely to invest in an emerging venture. However, GOE model specifications including the construct did not improve the model's ability to predict investment and are not included here.

In the case of ValAdCo, for each unit increase in the strength of business connections a respondent reported to exist within the parent organization, the log odds of investment decreased by a factor of 0.5. This finding might explain, from a socioeconomic standpoint, why ValAdCo investors proceeded to invest even though a majority of parent organization members rejected the multiplier unit idea. ValAdCo investors were less likely to have strong business connections to fellow parent cooperative members. Therefore, they were less likely to suffer negative consequences or jeopardize existing business relationships due to an investment in ValAdCo. The case of ValAdCo provides an example of how the absence or rejection of certain networks may also lead to the emergence of entrepreneurship.

6.6.3 Joint Investment Networks

The network variables most accurate in predicting investment were those assessing previous interaction in the form of joint investment networks. The variable “Comfort” assessed whether respondents had worked with fellow investors before and whether they were comfortable investing with them. For each unit increase in a respondent’s level of comfort with fellow investors, log odds of investment increased by a factor of 2.3 (ValAdCo) and 1.8 (GOE). The empirical results regarding “Comfort” suggest previous joint investment experience may facilitate the emergence of collective entrepreneurship. These investment networks are significant in both spawned entities and present even when respondents do not consider they maintain more direct business network ties.

6.7 Hypothesis 7: Entrepreneurial spawning to capture or control distribution of residual claims

The final set of variables for the entrepreneurial learning spawn hypothesis dealt with the question “why spawn”? In the Gompers et al. (2005) spawning framework, reactionary spawning arises due to an inability to pursue the venture within the parent organization. However, there is no theoretical reason given as to why entrepreneurial offspring establish a separate business entity. If we find entrepreneurial learners gained networks and experience from an organization and can argue that organization is costly, we are left to question why entrepreneurs would break away from the existing organization to form a new organization. When a new organization is founded there are certain costs involved in terms of set up including legal fees, permitting, and incorporation. The organization must also establish a new set of rules and governing procedures. Certain of these costs could be mitigated or avoided all together if the entity were developed within the organization. What, then, is the benefit to entrepreneurial spawning?

After initial interviews to explore potential hypotheses as to why an organization might break away, a set of survey items was developed to explore this question. The ValAdCo venture was rejected by a membership vote within the parent, therefore, these variables do not apply to ValAdCo. Additional constructs included for GOE demonstrate respondents valued establishing a separate entity in order to preserve (1) investment choice and (2) residual control rights.

6.7.1 Investment Choice

Investors and non-investors alike welcomed the establishment of a separate organizational entity so that they could make an individual decision whether to invest or not. Because this ability to choose was cited as an important reason for spawning by investors (84.5%) and non-investors (62.4%) alike, it does not exhibit significance within the binary regression format. Descriptive statistics underscore the importance of investment choice, not in the decision to invest, but rather in the decision to spawn.

6.7.1 Residual Control Rights

With respect to “Control” we examined whether investors were interested in spawning as a means to maintain control of venture management. If GOE were to remain a part of the parent organization, Co-op Country, individuals who did not invest directly in GOE through share purchase may have had an impact on GOE decision-making. Co-op Country maintains a one-member, one-vote structure. Establishing GOE

as a separate organization would enable investors to retain greater control of the organization.

Contrary to a control hypothesis, the ability to exercise control over venture management demonstrated a significant, negative correlation among investors. For each unit increase in the level of control a respondent indicated was gained by developing GOE as a separate organization, the log odds of investment decreased by a factor of 0.775. This finding indicates investors were not highly focused on control and monitoring of the organization. Previous analysis of GOE indicated that this organization was an agent-driven organization, primarily interested in residual claims (as opposed to residual control) (Chambers, 2007). Respondents perceived little previous experience in the laying industry and had what they described to be more of an investment club mentality when investing in GOE. The separate organizational structure primarily facilitated the capture of residuals by the shareholders and allowed for individual investment choice.

6.8 Hypothesis 8: Entrepreneurial spawning among individuals with higher risk tolerance

Individuals with higher risk tolerance would be more likely to be involved in new venture creation according to the spawning framework. To test this hypothesis, we asked respondents to indicate the level of risk they perceived when investing in the spawned entity. Those with a higher risk tolerance would perceive relatively lower levels of risk. We expect a negative correlation between a respondents' perception of the level of investment risk and their willingness to invest.

Perception of investment risk was a significant predictor of investment. For each unit increase in the level of risk perceived by investors, the log odds of investment decreased by a factor of 0.588 (ValAdCo) and 0.562 (GOE). Thus, we conclude individuals perceiving less risk or more comfortable with the assumption of this risk were more likely to be engaged in spawning new ventures.

7. Implications

The notion of spawning is found to have significant descriptive power in explaining the relationship between existing agricultural cooperatives and newly emerging cooperatives. We chose to further investigate the exact ties or components of this relationship that spur the development of new cooperatives. By analyzing the individual producer's investment decision, we found existing cooperatives primarily encourage spawning by providing producers with repeated opportunities to develop joint investment networks as they collaborate to fund new ventures. Previous knowledge and experience with the specific organizational structure of investment also presents itself as a strong predictor of investment. Existing cooperatives transfer this knowledge through specific mechanisms such as membership requirements, contractual arrangements, investment opportunities, and board responsibilities.

Both spawned entities indicated controversy within the parent organization or the parent organization's inability to respond quickly to entrepreneurial opportunities motivated their decision to create a separate organization. While investors were not necessarily motivated to spawn by an interest in maintaining investor-control over the management of the organization, investors and non-investors alike put a premium on being given the choice to invest at an individual level and maintaining a transparent residual distribution mechanism.

In subsequent articles we plan to elaborate further on the costs and benefits of spawning to the individual producer and to the existing cooperative entity. Our current

research program continues to investigate several mechanisms that parents and spawned entities can utilize to attract risk capital, protect their existing organizations, create exit strategies, and foster successful alliances.

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Table 1. Independent Spawning Constructs Tested

Hypothesis	Expected Sign	Variable	Construct Description	Result
H1	+	Focus	· Parent should focus	Not significant
H1	+	Too Diverse	· Parent would become too diversified	Not significant
H2	+	Slow	· Parent slow to react to market	Not significant
H2	+	Preferences	· Diverse, competing member preferences	Not significant
H2	+	Before	· Parent exhibited slow decision-making process	Not significant, ValAdCo + GOE
H2	+	Funds	· Internal capital market disagreement	Not significant
H2	+	Residual	· Impact of internal capital market decisions on member wealth	Not significant
H3	+	Disagreement	· Disagreement over venture investment outcome	+ValAdCo Not significant, GOE
H3	+	Reluctant	· Parent reluctant to engage in uncertain venture	Not significant
H3	-	Compete	· Individual member considered venture posed competition or decreased returns to producer's on-farm investment	- ValAdCo - GOE
H4	+	Hog Exp	· Experience in the hog industry	Not significant
H4	+	Egg Exp	· Experience in the poultry or layer business	Not significant
H5	+	Bus Exp	· Prior venture start-up experience	Not significant
H5	+	Pay2Play	· Structure-Specific experience (i.e. familiarity with NGC structure)	+ ValAdCo + GOE
H6	+	Comfort	· Prior Use of joint investment networks	+ ValAdCo + GOE
H6	+	Social	· Investors perceived social ties to fellow investors in ValAdCo or GOE	Not significant
H6	+	Bus Network	· Investors perceived business ties to fellows investors in ValAdCo or GOE	+ValAdCo Not significant, GOE
H6	+	CC Social	· Investors perceived social ties to fellow members of parent organization	Not significant
H6	+	CC Business	· Investors perceived business ties to fellow members of parent organization	- ValAdCo Not Significant, GOE
H7	+	Control	· Investors perceived greater control over management of organization establish separately from parent	ValAdCo, not applicable +GOE
H8	-	Risky	· Investor's perception of risk level	- ValAdCo - GOE

Table 2. Binary Logistic Regression Results

$$\ln\left(\frac{P_{investment}}{1 - P_{investment}}\right) = \beta_0 + \beta_1 x_{1,i} + \dots + \beta_k x_{k,i}$$

	Reference Model: ValAdCo			Reference Model: GOE		
Variable	B	Exp(B)	Sig.	B	Exp(B)	Sig.
Constant	-7.045	.001	.001	.071	1.073	.958
Bus Network	.728	2.072	.002	---	---	---
Pay2Play	.798	2.220	.000	.326	1.385	.026
Comfort	.867	2.381	.000	.475	1.608	.001
Compete	-.403	.669	.015	-.218	.804	.125
Disagreement	.547	1.729	.021	---	---	---
CC Business	-.747	.474	.001	---	---	---
Risky	-.531	.588	.004	-.577	.562	.000
Control	---	---	---	-.255	.775	.102
Before	---	---	---	.170	1.185	.334
Model Chi-Sq		110.632	(sig) .000		72.732	(sig) .000
-2LL			78.159			140.523
% Correct			91.8%			80.5%