Community Entrepreneurial Climate:
An Analysis of Small Business Owners' Perspectives
In 12 Small Towns in Missouri, USA

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Abstract

This article examines the determinants of community entrepreneurial climate from the perspectives of small business owners. Data were collected from a survey of 158 small business owners in 12 rural Missouri communities in 2003 and 2004. The results indicate that small business owners' perceptions of fair treatment within their community, the level of local patronage, and the availability of business networks and high-speed Internet have significant positive effects on their perceptions of community entrepreneurial climate. Community quality of life, proximity to metropolitan areas, local government support, and the availability of business services and financial resources showed no statistically significant effects. Furthermore, small business owners from smaller communities were more likely to perceive their communities as having a poor entrepreneurial climate.

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1.0 Introduction

Entrepreneurship has long been recognized as a major source of economic growth and development through its contribution to innovation, job creation, and enhanced competition. Recently, there has been a growing interest in promoting entrepreneurship as a method of stimulating local economic growth and development. One method of encouraging entrepreneurial activity within a community is to create a climate in which entrepreneurs and their businesses can flourish (Goetz and Freshwater, 2001). A number of factors are believed to influence the entrepreneurial climate of communities, such as local government

responsiveness to the needs of small businesses, public attitudes toward entrepreneurial ventures, community size, proximity to metropolitan areas, quality of physical infrastructure, access to high-speed Internet, good community quality of life, and the availability of building space, business networks, business services, small business training, and financial resources (Dabson, 2001; Flora and Flora, 1990; Henderson, 2002; Kuratko, Hornsby, and Naffziger, 1999; MacKenzie, 1992; Malecki, 1994). However, few studies have actually attempted to measure entrepreneurial climate, and "[T]here is no agreed-upon set of characteristics that define it" (Goetz and Freshwater, 2001, p. 61). The goal of this article is to measure the impacts of some of these factors on community entrepreneurial climate as perceived by entrepreneurs themselves. We use a unique data set of businesses in 12 rural Missouri communities to measure the relationship between business owners' perceptions of local entrepreneurship and entrepreneurial climate. The findings, while not fully generalizable, provide valuable information for other communities seeking to improve their level of entrepreneurial activity and for researchers considering alternative ways of measuring entrepreneurship and entrepreneurial climate.

2.0 Literature Review

The entrepreneurship literature includes both theoretical work, developing concepts and hypotheses on how entrepreneurship is related to individual, organizational, and contextual characteristics, and empirical studies, collecting data on success rates, characteristics, perceptions, beliefs, and strategies of entrepreneurs to inform or test theories of entrepreneurship. Much of this literature focuses on the nature of the entrepreneur and/or the entrepreneurial firm. In this section we briefly review that part of the entrepreneurship literature pertaining to entrepreneurial climate.

2.1 Theory

Neoclassical economics, our dominant theoretical perspective, and its production function approach to economic growth offer little to our understanding of entrepreneurship since the entrepreneur and the environment are largely missing from this theory. The theory's preoccupation with perfect information, statics, and equilibrium further limit neoclassical theory as a source of insight. Fortunately, there are alternatives to neoclassical economics that focus much more directly on the entrepreneur and place.

Lakshmanan and Chatterjee (2004, p. 7) describe two classes of entrepreneurial theory. The first class of theory, epitomized by the work of Schumpeter (1912/1934), focuses on the role of the entrepreneur as distinct from the firm, the manager, and the capitalist. Schumpeter was one of the earliest economists to write extensively on entrepreneurship. While his main focus was innovation and the process he referred to as *creative destruction*, Schumpeter stressed that it is the entrepreneur who plays the critical roles of innovation and introduction of new products and processes. From a growth and development perspective, as new products and processes are developed they replace or destroy old ones. Thus regions and firms that support older products, processes, and technologies are expected to have slower growth and development, while more innovative people and places reap the economic rent associated with entrepreneurship.

Leibenstein (1968) also stresses the importance of entrepreneurial innovation. However, Leibenstein calls attention to the ability of entrepreneurs to identify and address imperfect information and incomplete markets. Traditional managerial functions are distinguished from new entrepreneurial activities, what Leibenstein calls N-entrepreneurship. The key role played by entrepreneurs is filling information gaps and compensating for incomplete, imperfect, and missing markets.

The second class of theory identified by Lakshmanan and Chaterjee (2004) focuses on the role of context, environment, or place. They point out that these theories describe how entrepreneurs interact with their environment:

> Since innovations are in their nature uncertain, fragile, and (if successful) likely to be disturbing to the existing order, they are more likely to flourish under supportive social contexts or environments that provide flexibility, connectedness, and capacity for resource mobilization and coalition formation. Such contexts and environments, where present, offer a variety of structural features and social linkages and facilitators that promote innovative actors—while other contexts constrain entrepreneurs. As the innovative actors function and succeed, the decisions they make in social settings, which evolve over time, in turn modify the social 'opportunity structure'—the structure of economic opportunity and the structure of differential advantage to exploit the opportunities in that society. (p. 12)

Other theorists have connected individuals and place by recognizing the role of place-based knowledge, social capital, networks, culture, and other mechanisms through which context influences entrepreneurs and entrepreneurs shape their immediate economic environment (Wood and Valler, 2004). These theories are clearly distinguishable from neoclassical economics in four dimensions (Hébert and Link, 2006, p. 595). These distinctions are the neoclassical concepts of circular economic flow, equilibrium, statics, and management, versus those in entrepreneurship theory of progress, disequilibrium, dynamics, and risk taking. Beyond these broad conceptualizations there has been little progress toward the articulation of formal entrepreneurship models. Wennekers and Thurik (1999) conclude with a summary of several theories that serves as a starting point for a general theory of entrepreneurship. Adapting Wennekers and Thurik, we posit three levels at which entrepreneurship may be viewed—the individual (within which entrepreneurship resides), the firm (which serves to internally organize factors of production), and the region (which serves as the external organizer of factors of production and impacts the entrepreneurial climate). They also identify three dimensions of entrepreneurship—the attributes of entrepreneurial individuals, firms and regions; the economic impact or consequences of entrepreneurship; and the conditions which lead to entrepreneurship or the entrepreneurial climate, which is the focus of this article.

2.2 Empirical Literature

While most of the empirical entrepreneurship literature focuses on the micro level of entrepreneurship, some studies have considered entrepreneurial climate. One influential paper of this type is Flora and Flora (1990). Based on their work on approximately 60 mini case studies of rural communities, Flora and Flora (1990) observe characteristics of successful "entrepreneurial communities." These

characteristics include: a healthy acceptance of controversy; the ability to depersonalize politics; a long-term emphasis on academics; a degree of economic surplus to allow for risk-taking often generated from slightly larger than average family farms; willingness to invest that surplus in local private initiatives; willingness to tax themselves to invest in the maintenance of rural infrastructure; the ability to define community broadly, so that the process of consolidation allows larger boundaries for small communities; the ability to network vertically and horizontally to direct resources, particularly information, to the community; and a flexible, dispersed community leadership.

MacKenzie (1992) notes the importance of observations made by Flora and Flora (1990). The author also contends that rural economies must focus on moving from a natural resource–based economy to an information/knowledge-based economy. This implies that economic success will not only depend on access to resources and technology but also on relationships at the local level. This complicates possible business variables that may be present in a model to explain entrepreneurship climate. MacKenzie (1992) also observes that key assets of rural areas include a relaxed, informal lifestyle; mobile human resources; non-site-specific technology and capital; active information flows; low infrastructure costs; proximity to emerging growth areas; control of crucial resources; and/or the knowledge necessary to create new resources. These observations were among the first to recognize the importance of quality of life to entrepreneurship.

Deller, Tsai, Marcouiller, and English (2001) have pointed out the important role of amenities and quality of life in nonmetropolitan economic development. They relate natural amenities and developed recreational infrastructure to the rates of population, employment, and income growth. Their research suggests that people are attracted to places with a higher quality of life, and that employment tends to follow people. This has important implications for entrepreneurs who are able, more than employees, to make locational choices. Recent research has focused on individual issues of entrepreneurship. For example Merrett and Gruidl (2000) surveyed 4,200 business owners to test the hypothesis that gender and geographic location combine to hinder the entrepreneurial success of women. Further, Wilson, Fesenmaier, Fesenmaier, and van Es (2001) used focus groups to identify and examine factors that have helped rural communities successfully develop tourism and its entrepreneurship opportunities.

The approach here is to focus on the context, or entrepreneurial climate. While most entrepreneurship research focuses on the characteristics or attributes of firms and individual entrepreneurs, the issue of entrepreneurial climate, with some exceptions, has been overlooked. Yet theoretical and empirical research helps identify several key contextual and place-based elements of entrepreneurial climate. Several factors were identified that repeatedly come up in the literature on community and rural vitality: local government support for small businesses, attitudes toward entrepreneurs, community population density, proximity to metro areas, the quality of physical infrastructure, quality of life, business networks, business services, small business training, and financial resources.

The literature is similarly silent on measures of entrepreneurship. Most measures in the literature use self-employment (Evans and Jovanovic, 1989; Evans and Leighton, 1989; Low, 2004), proprietors (Henderson, 2002; Low, Henderson, and Weiler, 2005), or businesses starts (Acs and Armington, 2004; Camp, 2005). None of these measures comes close to capturing the concepts of entrepreneurship as

developed by Schumpeter, Leibenstein, and other theorists. In the analysis in this paper the subjective measure of entrepreneurship as perceived by business owners themselves is tested. The dependent variable in this analysis is designed to capture Leibenstein's N-entrepreneurship concept.

3.0 Data and Methods

3.1 The Survey

Data on community entrepreneurial climate were gathered in 2003 and 2004 from 158 entrepreneurs or small business owners in 12 rural Missouri communities. Entrepreneurship typically involves the creation and growth of an enterprise. However, for simplification, an entrepreneur in this analysis is defined as an individual who has created a small business. Growth of these small businesses was not measured. Thus, the terms *entrepreneur* and *small business owner* are used synonymously throughout this paper. Defining entrepreneurship more precisely within a more rigorous conceptual model is an important goal for future research.

Ninety (57%) of the 158 surveys were complete (all questions were answered), and this section refers to the 90 complete observations. The 12 Missouri communities were classified as small (population of 5,000 or less) or large (population between 5,000 and 15,000) and as adjacent or nonadjacent to a metropolitan area. Population counts were gathered from 2000 census data, and the classification was made based on a natural break point in the community populations. Adjacency was determined according to the U.S. Department of Agriculture Economic Research Service county typology classification system. A community is defined as adjacent if it is located within a metropolitan county, or if it is located within a county physically adjoining one or more metro counties and has at least 2% of its employed labor force commuting to central metro counties. Communities located within nonmetropolitan counties that do not meet these criteria are classified as nonadjacent.

The total number of businesses surveyed in each population is classified as either small or large and as located in an adjacent or nonadjacent county. Approximately 58% of small businesses included in this analysis were located in small communities, while 63% were located adjacent to a metro area. Furthermore, approximately 21% of the businesses were located in larger communities within counties nonadjacent to metro areas, while 21.1%, 42.2%, and 15.6% of small businesses were located in large adjacent, small adjacent, and small nonadjacent communities, respectively.

3.2 The Respondents

Local government officials from each community identified a sample of younger (mean business age of 4.9 years) small businesses because they had fairly recent experience starting their businesses and could more accurately report on the current entrepreneurial climate for business start-ups. The surveys were conducted by Community Policy Analysis Center staff in face-to-face interviews. Preliminary findings can be found in Rightmyre, Johnson, and Chatman (2004).

The characteristics of the businesses surveyed include type of business, years of operation, and number of employees. The vast majority of the small business owners surveyed operated in the retail and services sectors, and several businesses

operated in multiple sectors. Since several businesses operated in multiple sectors, the sum of all businesses in the various sectors is greater than the total. Furthermore, the U.S. Small Business Administration (2003) defines a small business as a business with fewer than 500 employees, and the small businesses included in this study were very small in size (median of 3 employees) and relatively young (mean of 4.9 years). Of 90 businesses surveyed, 45 and 31 ran retail and services businesses, respectively. The other types of businesses included 8 manufacturing, 9 hospitality, and 4 medical or veterinary businesses. The sample median of years in operation was 2.5 with a standard deviation of 7.3. Statistics on the number of employees on a full-time equivalence basis include a mean of 8.2, median of 3.0, and standard deviation of 14.7.

3.3 Variables

The survey instrument consisted of affirmative statements regarding business owners' perceptions of the determinants or components of community entrepreneurial climate (explanatory variables), and their perception of their community's level of entrepreneurship (dependent variable). The survey utilized a Likert scale (Likert, 1932) ranging from 1 (strongly disagree) to 7 (strongly agree), with 4 being neutral.

Business owners were asked about their perceptions of the determinants of community entrepreneurial climate in general, and their perception of their community's level of entrepreneurship in particular. It is important to note that most questions were not about the respondents' own business but about area businesses in general. Also, the questions purposely attempted to capture difficult or impossible-to-measure subtleties about the communities by asking for subjective perceptions held by the respondents. These perceptions, since they are held by members of the business community, may directly affect, through community networks, potential entrepreneurs' decisions to start, grow, or continue their businesses. Their perceptions can also resonate beyond the community through external networks and other communication channels, which may affect the decision of outside entrepreneurs whether to locate in the community in question. These perceptions are subjective but important, especially since there are few established objective measures of entrepreneurial climate. Explanatory variables include business networking, high-speed Internet access, local patronage, fair treatment by the community, government support, quality of life, and the availability of building space, small business training, business services, and financial resources. Moreover, the explanatory variables include dummy variables for population size and adjacency to a metro area.

The survey statement used to calculate the dependent variable (community entrepreneurial climate) read as follows: "Unmet needs for products and services in the community are seized upon as opportunities for new business development." Agreement with this statement was taken to mean that the respondent perceived their community's entrepreneurial climate to be high.

4.0 Hypotheses

Based on theory and previous studies we expect that entrepreneurial climate will be higher in places where customers, government, and established businesses encourage and support new businesses. Various community characteristics have

been offered as components of entrepreneurial climate. Here we test the relevant strength of these components through the eyes of business owners. If these characteristics are important across the 12 communities then they will be significantly and positively related to our subjective indicator of entrepreneurial climate.

We hypothesize that entrepreneurial climate will be enhanced by higher levels of business networking, high-speed Internet access, local customer support, fair treatment by the community, local government support, adequate building space, small business training programs, good local quality of life, good local business services, and adequate financing. We include community size and remoteness to determine if these affect entrepreneurial climate, holding other characteristics constant.

5.0 Results and Discussion

Descriptive statistics of the variables are presented in section 5.1. Section 5.2 discusses the regression models, and section 5.3 presents the regression results.

5.1 Descriptive Statistics

Missing values for some of the questions posed a significant impediment to statistical analysis. The missing values resulted from business owners' responding that they lacked knowledge of the issue in question. Again it is important to note that the questions were focused on the community in general and not on the business owner himself or herself. The availability of financial resources and high-speed Internet received the most "do not know" responses (23.4% and 20.3%, respectively). The high number of "do not know" responses for the availability of financial resources could have been because these small business owners had not personally required any external sources of capital. Similarly, respondents may not have used high-speed Internet access themselves and were therefore unaware of its availability. The cumulative effect of these missing values was that 68 (43%) of the questionnaires were incomplete.

The means, standard deviations, and medians for each variable of the 158 observations are presented in Table 1 (the explanatory variables are ordered by their overall mean score). The availability of financial resources, small business training, and local government support received the lowest overall mean scores (2.9, 3.4, and 3.8, respectively, on a scale of 1 to 7), and the availability of business services, community quality of life, and fair treatment within the community received the highest overall mean scores (5.7, 5.4, and 4.7, respectively, on a scale of 1 to 7). The means for community entrepreneurial climate, the availability of building space, and local government support were significantly higher in larger communities. Furthermore, small business owners were more satisfied with the availability of small business training in nonadjacent communities compared to communities located adjacent to a metro area.

Table 1. Means and Standard Deviations for the 158 Respondents in Small and Large Communities

Variable	Small[a]	Large[b]	Adjacent[c]	Non-adjacent[d]	Overall[e]
		Dependent Variable			
Entrepreneurial climate					
N[f]	86	62	94	54	148
Mean	3.7	4.3[g]	3.9	4.0	4.0
(SD)	(1.4)	(1.7)	(1.7)	(1.3)	(1.6)
Median	4.0	4.0	4.0	4.0	4.0
		Explanatory Variables			
Availability of business services					
N	95	63	99	59	158
Mean	5.6	5.8	5.6	5.8	5.7
(SD)	(1.2)	(1.1)	(1.2)	(1.0)	(1.2)
Median	5.7	6.0	6.0	6.0	6.0
Community quality of life					
N	95	63	99	59	158
Mean	5.4	5.3	5.5	5.2	5.4
(SD)	(1.5)	(1.6)	(1.5)	(1.6)	(1.6)
Median	6.0	6.0	6.0	6.0	6.0
Fair treatment within the community					
N	94	61	97	58	155
Mean	4.7	4.7	4.8	4.5	4.7
(SD)	(1.8)	(1.7)	(1.7)	(1.7)	(1.7)
Median	5.0	5.0	5.0	5.0	5.0
High-speed Internet access					
N	76	50	78	48	126
Mean	4.9	4.4	4.8	4.5	4.7
(SD)	(2.2)	(2.2)	(2.2)	(2.1)	(2.2)
Median	6.0	5.0	6.0	5.0	5.5
Availability of building space					
N	93	63	97	59	156
Mean	4.4	4.9[h]	4.7	4.4	4.6
(SD)	(1.9)	(1.7)	(1.9)	(1.8)	(1.8)
Median	4.0	5.0	5.0	4.0	5.0
Level of local patronage					
N	94	62	97	59	156
Mean	4.1	4.5	4.2	4.3	4.3
(SD)	(1.6)	(1.6)	(1.6)	(1.6)	(1.6)
Median	4.0	5.0	4.0	4.0	4.0
Availability of business networks					
N	93	58	94	57	151
Mean	4.1	4.4	4.3	4.1	4.2
(SD)	(1.7)	(1.6)	(1.6)	(1.8)	(1.7)
Median	4.0	4.5	4.5	4.0	4.0
Local government support					
N	87	60	95	52	147
Mean	3.4	4.3[i]	3.7	3.9	3.8
(SD)	(1.9)	(1.9)	(2.1)	(1.8)	(2.0)

Median	3.0	4.0	4.0	4.0	4.0
Availability of small business training					
N	83	60	88	55	143
Mean	3.3	3.6	3.0	4.1[j]	3.4
(*SD*)	(1.6)	(1.9)	(1.7)	(1.6)	(1.7)
Median	3.0	3.0	3.0	4.0	3.0
Availability of financial resources					
N	73	48	82	39	121
Mean	2.9	2.8	2.9	2.9	2.9
(*SD*)	(1.7)	(1.6)	(1.7)	(1.6)	(1.6)
Median	3.0	2.5	2.5	3.0	2.5

[a]Survey results of small businesses located within communities with a population of 5,000 or less.
[b]Survey results of small businesses located within communities with a population between 5,000 and 15,000.
[c]Survey results of small businesses located adjacent to a metro area.
[d]Survey results of small businesses not located adjacent to a metro area.
[e]Overall survey results for each variable.
[f]Total number of responses to each variable within each category.
[g]Mean survey response between small and large communities is significantly different ($p < 0.05$).
[h]Mean survey response between small and large communities is significantly different ($p < 0.10$).
[i]Mean survey response between small and large communities is significantly different ($p < 0.05$).
[j]Mean survey responses between adjacent and nonadjacent communities is significantly different ($p < 0.01$).

Because of the missing data, only 90 (57%) of the 158 observations were complete and could be used in the regression analysis. The means and standard deviations for each variable of the 90 observations are presented in Table 2 (the explanatory variables are ordered by their overall mean score). The availability of financial resources, small business training, and local government support received the lowest overall mean scores (2.9, 3.4, and 3.5, respectively, on a scale of 1 to 7), and the availability of business services, community quality of life, and fair treatment within the community received the highest overall mean scores (5.5, 5.3, and 4.6, respectively, on a scale of 1 to 7). The means for the availability of business services and local government support were significantly higher in larger communities, and the difference between the means of small and large communities for entrepreneurial climate approached significance ($p = 0.14$). Furthermore, small business owners were more satisfied with the availability of small business training in nonadjacent communities compared to communities located adjacent to a metro area.

Table 2. *Means and Standard Deviations for 90 respondents in Small and Large Communities*

Variable	Small[a]	Large[b]	Adjacent[c]	Non-adjacent[d]	Overall[e]
			Dependent variable		
Entrepreneurial climate					
N[f]	52	38	57	33	90
Mean	3.7	4.2	4.0	3.7	3.9
(*SD*)	(1.6)	(1.6)	(1.8)	(1.2)	(1.6)
Median	4.0	4.0	4.0	4.0	4.0
			Explanatory variables		
Availability of business services					
N	52	38	57	33	90
Mean	5.3	5.8[g]	5.3	5.7	5.5
(*SD*)	(1.3)	(1.1)	(1.3)	(1.1)	(1.3)
Median	5.5	6.0	5.5	5.8	5.8
Community quality of life					
N	52	38	57	33	90
Mean	5.3	5.3	5.4	5.2	5.3
(*SD*)	(1.5)	(1.6)	(1.7)	(1.3)	(1.6)
Median	6.0	5.0	6.0	5.0	5.5
Fair treatment within the community					
N	52	38	57	33	90
Mean	4.7	4.5	4.8	4.4	4.6
(*SD*)	(1.8)	(1.7)	(1.8)	(1.6)	(1.7)
Median	5.0	5.0	5.0	5.0	5.0
Availability of building space					
N	52	38	57	33	90
Mean	4.3	4.8	4.5	4.4	4.5
(*SD*)	(1.9)	(1.7)	(1.9)	(1.7)	(1.8)
Median	4.9	5.0	5.0	5.0	5.0
High-speed Internet access					
N	52	38	57	33	90
Mean	4.5	4.1	4.4	4.1	4.3
(*SD*)	(2.2)	(2.2)	(2.3)	(2.1)	(2.2)
Median	5.0	4.0	5.0	4.0	5.0
Level of local patronage					
N	52	38	57	33	90
Mean	4.1	4.2	4.2	4.0	4.1
(*SD*)	(1.6)	(1.5)	(1.6)	(1.5)	(1.6)
Median	4.0	4.0	4.0	4.0	4.0
Availability of business networks					
N	52	38	57	33	90
Mean	4.0	4.3	4.2	4.0	4.1
(*SD*)	(1.6)	(1.5)	(1.6)	(1.6)	(1.6)
Median	4.0	4.0	4.0	4.0	4.0

Local government support	52	38	57	33	90
N	3.0	4.1[h]	3.4	3.7	3.5
Mean	(1.8)	(1.9)	(2.1)	(1.7)	(1.9)
(*SD*)	3.0	4.0	3.0	4.0	3.0
Median					
Availability of small business training					
N	52	38	57	33	90
Mean	3.3	3.6	3.0	4.1[i]	3.4
(*SD*)	(1.6)	(1.8)	(1.7)	(1.6)	(1.7)
Median	3.0	3.5	3.0	4.0	3.0
Availability of financial resources					
N	52	38	57	33	90
Mean	3.0	2.8	2.9	2.9	2.9
(*SD*)	(1.6)	(1.6)	(1.7)	(1.6)	(1.6)
Median	3.0	2.5	2.5	3.0	2.8

[a]Survey results of small businesses located within communities with a population of 5,000 or less.
[b]Survey results of small businesses located within communities with a population between 5,000 and 15,000.
[c]Survey results of small businesses located adjacent to a metro area.
[d]Survey results of small businesses not located adjacent to a metro area.
[e]Overall survey results for each variable.
[f]Total number of responses to each variable within each category.
[g]Mean survey response between small and large communities is significantly different ($p < 0.10$).
[h]Mean survey response between small and large communities is significantly different ($p < 0.01$).
[i]Mean survey responses between adjacent and nonadjacent communities is significantly different ($p < 0.01$).

5.2 Regression Model

The survey responses were ordinal. Thus, an ordered probit model was the most appropriate technique for this analysis (Daykin and Moffatt, 2002). Let *i* be the respondent (the small business owner), *i* = 1 to 90, let y_i be individual *i*'s response to the survey statement regarding entrepreneurial climate, and J be the range of responses (1 to 7). Let y_i^* be the underlying unobservable or latent variable representing *i*'s attitude regarding entrepreneurial climate, and let x_i be a vector of explanatory variables explaining the attitude of the respondent. The ordered probit model is based on the assumption that y_i^* depends linearly on x_i according to the following:

$$y_i^* = x_i'\beta + \varepsilon_i, \text{ where } i = 1,\dots90; \tag{1}$$

$$\varepsilon_i : N(0,1).$$

Where β is a vector of parameters not containing an intercept, and ε is an error term. The dependent variable y* is unobserved, but the relationship between y* and the observed variable y (entrepreneurial climate) is as follows:

$$y = 1 \text{ if } -\infty < y^* < \kappa_1 \tag{2}$$

$$y = 2 \text{ if } \kappa_1 < y^* < \kappa_2$$

$$y = 7 \text{ if } \kappa_6 < y^* < \infty$$

Where κ_j (j = 1 to J-1) represents cut points that define the ranges of the responses for entrepreneurial climate. With the normal distribution the following probabilities result, where $P_i(y)$ is the probability that the *i*th respondent's response is y, and Φ is the normal cumulative function of a normal distribution:

$$P_i \text{ (y = 1 or low entrepreneurial climate)} = \Phi(\kappa_1 - x_i'\beta), \quad (3)$$
$$P_i \text{ (y = 2)} = \Phi(\kappa_2 - x_i'\beta) - \Phi(\kappa_1 - x_i'\beta),$$

$$P_i \text{ (y = 7 or good entrepreneurial climate)} = 1 - \Phi(\kappa_6 - x_i'\beta).$$

The estimation of the unknown parameters (κ's and β's) is then performed using a log-likelihood function.

Overall, three probit models (P1, P2, and P3) utilizing three different variations of the dependent variable were used. First, the values of all of the variables were reversed (i.e., 7 =1, 6=2, 5=3, etc.). This was done because the statistical software (SAS) modeled the probabilities of entrepreneurial climate being equal to 1 (good entrepreneurial climate). Thus, in the first ordinal probit model (P1), the survey responses used to calculate the dependent variable ranged from 1 (good entrepreneurial climate) to 7 (low entrepreneurial climate), with 4 being neutral. In the second ordinal probit model (P2), the survey responses used to calculate the dependent variable were collapsed into 3 categories: category 1 for responses ranging from 1 to 3 (good entrepreneurial climate); 2 for responses with scores of 4 (neutral); and 3 if the responses ranged from 5 to 7 (low entrepreneurial climate). Finally, in model P3 (binary probit), the survey responses used to calculate the dependent variable were transformed into a 1 if the response ranged from 1 to 3 (good entrepreneurial climate) and 0 otherwise. When the dependent variable is collapsed into two possible outcomes, the ordered probit becomes the simpler binary probit model in which there is a single cut point (constant) (Daykin and Moffatt, 2002). The transformations of the dependent variable were done in order to increase the power of the small sample size. However, this greater power comes at the cost of a loss of information about the strength of feeling about the variables. The distributions of the dependent variable in the three models are presented in Table 3.

5.3 Regression Results

The regression results are presented in Table 4. The coefficients for the level of local patronage and fair treatment within the community were positive and significant in all three regression models. The coefficients for the availability of business networks and high-speed Internet access were positive and significant, but each variable was only significant in one of the three models (P3 and P1, respectively). Furthermore, the coefficient for the availability of building space was negative and significant in two of the three models (P2 and P3), and the dummy variable for population size was negative and significant in model P3.

Table 3. *Distribution of Survey Responses to the Dependent Variable of the Three Probit Models*

Probit models	
Model P1	
Ordered value[a]	Total frequency
1 (High EC)[b]	6
2	10
3	14
4 (Neutral EC)[c]	23
5	18
6	13
7 (Low EC)[d]	6
Model P2	
Ordered value	Total frequency
1 (High EC)	30
2 (Neutral EC)	23
3 (Low EC)	37
Model P3	
Ordered value	Total frequency
1 (High EC)	30
2 (Low EC)	60

[a]Ordered values were reversed because the statistical software (SAS) modeled the probabilities of entrepreneurial climate having lower ordered values.
[b]High entrepreneurial climate.
[c]Neutral entrepreneurial climate.
[d]Low entrepreneurial climate.

The significance and positive sign of the coefficients for business networking, high-speed Internet access, local patronage, and fair treatment within the community is expected and consistent with previous research. However, the coefficient for the availability of building space was negative. In this case it is possible that the causality runs the other direction and thus the sign is reversed. That is, it is possible that communities with a poor entrepreneurial climate have more available building space because they have lower entrepreneurial activity.

Small business owners' perceptions of their community's quality of life, local government support, and the availability of business services and financial resources had no significant relationship with their perception that their community had a positive entrepreneurial climate. However, the coefficients for community quality of life and local government support approached significance ($p = 0.15$) in models P2 and P1, respectively.

Table 4. *Probit Equations for Entrepreneurial Climate*

Variable	P1[a]	P2[b]	P3[c]
Number of observations	90	90	90
Log-likelihood	-144.2	-75.06	-34.91
Business networking	0.0525	0.1002	0.2726**
(Std. error)	(0.0815)	(0.0961)	(0.1351)
High-speed Internet access	0.1047*	0.0698	0.1230
	(0.0561)	(0.0679)	(0.0989)
Level of local patronage	0.1846**	0.2478**	0.2410*
	(0.0818)	(0.1007)	(0.1331)
Fair treatment within the community	0.2489***	0.3309***	0.5860***
	(0.0866)	(0.1057)	(0.1797)
Local government support	0.1129	0.0606	-0.1470
	(0.0774)	(0.0910)	(0.1356)
Availability of building space	-0.0845	-0.1773**	-0.3287**
	(0.0639)	(0.0810)	(0.1383)
Availability of small business training	-0.0719	-0.0679	-0.2040
	(0.0771)	(0.0932)	(0.1401)
Community quality of life	-0.0954	-0.1487	-0.0665
	(0.0786)	(0.1011)	(0.1352)
Availability of business services	0.0476	0.1646	0.2105
	(0.1018)	(0.1270)	(0.1749)
Availability of financial resources	0.0242	-0.0018	0.1039
	(0.0789)	(0.0948)	(0.1193)
Small rural dummy (= 1 if located within	-0.4150	-0.3138	-1.0705**
a small community, and 0 otherwise)	(0.2556)	(0.3052)	(0.4661)
Adjacency dummy (= 1 if located within	0.0865	0.0894	0.4200
an adjacent county, and 0 otherwise)	(0.2585)	(0.3081)	(0.4524)
Intercept	-3.9097	-3.0331	-4.2680
(Std. error)	(0.7974)	(0.9543)	(1.4580)
Intercept 2	0.6678	0.9227	—
	(0.1954)	(0.1699)	
Intercept 3	1.3285	—	—
	(0.2359)		
Intercept 4	2.2101	—	—
	(0.2660)		
Intercept 5	2.9620	—	—
	(0.2930)		
Intercept 6	3.8834	—	—
	(0.3561)		

[a]Ordinal probit regression with dependent variable ranging from 1 to 7.
[b]Ordinal probit regression with dependent variable ranging from 1 to 3.
[c]Binary probit model.
*Significant at the 0.10 level.
**Significant at the 0.05 level.
***Significant at the 0.01 level.

Previous research suggests that small and remote communities may have a more difficult time creating a positive entrepreneurial climate (Dabson, 2001; Henderson, 2002; Malecki, 1994). The rural and adjacency dummy variables permit a test of the importance of community population size and degree of remoteness on entrepreneurial climate. The coefficient for the population dummy variable was negative and significant in model P3 and approached significance ($p = 0.10$) in model P1. The negative sign indicates that small business owners from smaller communities (population of 5,000 or less), ceteris paribus, were more likely to respond that their community had a low entrepreneurial climate. However, the effect of adjacency on small business owners' perceptions of community entrepreneurial climate was not significantly different from zero in this sample.

Thus, our strongest model, P3, which attempts to explain the differences between responses that the entrepreneurial climate was good versus those responses that it was not good, produces five significant explanatory variables: good business networking, strong local patronage of businesses, fair treatment within the community, availability of building space, and community size. It is important to stress that this does not imply that other variables are not important but that in this small sample, other variables did not have a discernible effect.

6.0 Summary and Implications

The growing interest in entrepreneurship as a method of promoting economic growth and development has led to an increased need to understand entrepreneurial climate. This study examines entrepreneurial climate from the perspective of business people in rural communities. Our research indicates that small business owners were most satisfied with the availability of business services and their community's quality of life and least satisfied with local government support and the availability of financial resources and small business training. These findings imply an enhanced role for developers in these communities. Community developers can communicate the needs of small businesses to decision makers in government and financial institutions while communicating opportunities to small businesses in such areas as financing and training.

The analysis suggests that within these communities and at the time of the survey, entrepreneurial climate can be associated with the strength of local business networks, existence of high-speed Internet access, patronage by local consumers, and fair treatment by members of the community. It is likely that with a larger sample, other characteristics in addition to these would have been significant as well. Given the number of observations, these results should be considered quite strong. The analysis also indicates that small business owners from smaller communities were more likely to perceive their communities as having a low entrepreneurial climate. This finding has implications for programs and policy makers focused on rural communities.

The study provides some guidance for local policy makers. Perceived fairness is at least partly the responsibility of local government. Tax abatements, tax increment financing, and other location incentives are frequently interpreted as unfair by local businesses. Zoning, taxes, and the provision of public services can also signal a community's fairness to small businesses.

The positive benefits of shopping locally are widely touted in the popular press. The results of this study suggest that buying local can be an important component

of a positive community entrepreneurial climate. Policies aimed at promoting local patronage such as festivals and events, parking facilities, and downtown revitalization can foster greater support for local businesses. Promotion of business networking is somewhat more difficult from a policy standpoint. Local governments can set an example in this area by reaching out to local businesses. Programs such as business retention and expansion, and public-private partnerships send a signal that networking is valued. Community information networks can also be sponsored by local governments as a way of facilitating networking among local businesses.

While high-speed Internet is becoming more widely available, there are still many smaller rural areas where Internet service is limited. Many local governments have considered, and some have decided in favor of, partnering with the private sector or even providing wireless broad-band themselves (Federal Trade Commission, 2006; Feld, Rose, and Cooper, 2005). Taking a proactive stance toward high-speed Internet, if done in a fair manner, not only may increase the competitiveness of small businesses but also could help improve the perceived level of government support.

This study should be considered exploratory. It was limited by the small data set, but it demonstrates the possibility of learning more about entrepreneurship from subjective evaluations of entrepreneurial climate. Despite the limitation of sample size, randomness, and generalizability, these data allow a rare look at entrepreneurial climate from the entrepreneur's perspective. This research demonstrates that, until an objective measure of entrepreneurship is developed and accurate objective data are produced, subjective measures of entrepreneurship and entrepreneurial climate may be the best way of providing policy makers with meaningful analysis. This research also suggests that entrepreneurial climate may vary across space even after other variables are accounted for.

There are a number of extensions that this research suggests. A larger sample would provide much stronger evidence for important and unimportant contextual variables. While variables such as the availability of commercial credit, venture capital, and public and private service can be captured with objective indicators, others such as quality of life, effective networks, perceived fairness, and risk aversion are perhaps best measured with subjective measures. Many of these variables can only be collected directly from individual entrepreneurs. Furthermore, the survey upon which this study was based was limited to current business owners. It would be good in future research to have companion surveys of former and failed business owners and of the general public, who could give their assessment of the broader community attitudes toward small business owners. To be effective and efficient, research of this nature must find less expensive, less intrusive, and more accurate and timely means of collecting data than in the past. Online surveys and monitoring approaches may offer part of the answer to this need.

Overall, this study contributes to the literature on rural entrepreneurship and entrepreneurial climate by considering a rather novel indicator of entrepreneurial climate, which is that entrepreneurship happens openly in the community and can be identified by local business people. It finds several attributes of the community that enhance entrepreneurship and thus contribute to an improved entrepreneurial climate. Finally, it points the way to needed research in this important area.

7.0 References

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